HUDSON TOWNWIDE TRAFFIC STUDY

Prepared by the

Nashua Regional Planning Commission

2022-2023

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Cover Image: Sunset over Benson Park

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1. INTRODUCTION

The Town of Hudson has requested that the Nashua Regional Planning Commission (NRPC) conduct a study of long-term impacts of planned and potential future development on the town's arterial highway network and potential spillover onto local streets. This study involves analysis of both existing and future conditions and includes the following tasks: data collection, traffic modeling, capacity analysis, reporting and mapping, conclusions, and recommendations. The study will offer a report on the current (2022) road capacity (level of service) on existing conditions and forecast two reports for future conditions – one for 2030 and another for 2045.

2. PROJECT SCOPE

The NRPC prepared a scope of services to the New Hampshire Department of Transportation (NHDOT) to conduct the study utilizing its Unified Planning Work Program (UPWP) funding under the Special Projects category. The following work scope provides the format for this study.

2.1 Existing Conditions Analysis

- **Study Background** – Previous studies will be reviewed, including the Litchfield-Hudson Transportation Study conducted by Vollmer Associates in 2003. This study included a forecast of traffic and operational conditions in 2025. More recent studies that will be reviewed and findings incorporated into the townwide study include the Hudson Master Plan update of 2020 and the traffic analysis conducted for the Hudson Logistics Center.

  The Hudson Boulevard project was not included in the scope of work for this study because the project was removed from the NRPC FY2019-2045 Metropolitan Transportation Plan (MTP) during Amendment 3 to the NRPC FY2021-2024 Transportation Improvement Program (TIP), which was adopted on December 15th, 2021. There is a discussion about the Hudson Boulevard project in the conclusions section later in this study.
- **Automatic Traffic Recorder Counts –** Automatic traffic recorder counts will be conducted on weekdays at the 18 State and local road segments that are detailed in **Table 1**.
- **Arterial Capacity Analysis** – Arterial volume-to-capacity ratios will be developed for study area arterials and several local roads.
- **Intersection Turning Movement Counts (TMCs) –** Turning movement counts will be conducted during the morning (7-9 AM) and afternoon (4-6PM) peak periods at the 21 locations that are detailed in **Table 1**.
- **Intersection Capacity Analysis** – Intersection analysis will be based on the Highway Capacity Manual (HCM) methodology. NRPC utilizes the SYNCHRO software to perform this analysis.
- **Existing Conditions Mapping** – Mapping of existing weekday counts, TMCs and congestion conditions.

2.2 Future Conditions Analysis

- **Model Run for 2030 & 2045 Projected Growth Scenario** – A TransCAD assignment run for 2030 & 2045 based on NRPC's current regional land use growth projection will be conducted and post-processed to convert arterial segment volumes to forecasts (applying model error from calibration run).

- **Develop Intersection 2030 & 2045 Volumes** – Arterial growth factors for 2020-2045 will be applied to each intersection approach to estimate 2030 & 2045 turning movement volumes for the baseline growth forecast.
- **Capacity Analysis** – Procedures used for baseline capacity analysis will be repeated for the 2030 & 2045 forecast year for the baseline and full development scenarios.
- **Future Conditions Mapping** – Mapping of weekday counts, TMCs and congestion conditions for the forecast year.
- **Conclusions & Recommendations** – NRPC will meet with town officials to review results, formulate conclusions regarding the impacts of future baseline and development growth, and develop recommendations for traffic improvements as needed. The impacts of improvements on arterials and intersection operations will be evaluated.

3. STUDY LOCATIONS

This study was focused on the following roadway segments and intersections:

Table 1: Road Segments and Intersections That Were Analyzed

State Route Road Segments:	**Intersections:**
1. NH 3A (Central Street) west of Library Street 2. NH 3A (Central Street) east of Library Street 3. NH 3A (Lowell Road) south of Central Street 4. NH 3A (Lowell Road) south of Pelham Road 5. NH 3A (Lowell Road) south of Wason Road 6. NH 3A (Lowell Road) south of Rena Avenue 7. NH 3A (River Road) at Massachusetts State Line 8. NH 102 at Litchfield Town Line 9. NH 102 north of Easy Street 10. NH 102/3A north of Ledge Road 11. NH 111 (Ferry Street) east of Library Street 12. NH 111 (Burnham Road) north of Central Street 13. NH 111 (Central Street) west of Kimball Hill Road **Local Street Segments** 14. Belknap Road south of Central Street 15. Bush Hill Road north of Wason Road 16. Dracut Road at Massachusetts State Line 17. Kimball Hill Road south of NH 111 18. Wason Road east of NH 3A	1. NH 111 Ferry Street/NH102 Derry Street/NH 3A Chase Street 2. NH 111 Ferry Street/Library Street 3. NH 3A&102 Derry Street/Library Street/Highland Street 4. NH 111 Burnham Road/Central Street 5. NH 111 Central Street/Kimball Hill Road/Greeley Street 6. NH 102 Derry Road/NH 3A Elm Street 7. NH 102/Page Road 8. NH 3A Central Street/Chase Street 9. NH 3A Central Street/Library Street 10. NH 3A Lowell Road/Central Street 11. NH 3A Lowell Road/Pelham Road 12. NH 3A Lowell Road/Executive Drive 13. NH 3A Lowell Road/Hampshire Drive/Oblate Drive 14. NH 3A Lowell Road/Flagstone Drive/Wason Road 15. NH 3A Lowell Road/Sagamore Bridge (Circumferential Highway) 16. NH 3A Lowell Road/Walmart Boulevard 17. NH 3A Lowell Road/Rena Avenue 18. NH 3A Lowell Road/Dracut Road/Steele Road 19. Dracut Road/Sherburne Road 20. Kimball Hill Road/Bush Hill Road 21. Central Street/Belknap Road 22. Lowell & Fox Hollow Drive 23. Lowell & Birch Street

4. ADDITIONAL CONSIDERATIONS

4.1 NRPC Traffic Study for the Hudson Master Plan Transportation Chapter – June 2020

NRPC conducted an in-house traffic study in mid-2020 as part of the effort in updating the Hudson Master Plan Transportation Chapter. The study consists of a Level of Service (LOS) analysis on road segments, comparing observed traffic volumes with the projected traffic volumes in 2045. Furthermore, the analysis also includes an alternative 2045 scenario in which Hudson Boulevard was constructed (more discussion in **Section 4.2** below).

The then-current traffic volumes (in Average Weekday Traffic Trips, or AWDT) collected between 2017 and 2019 are consistently higher than the traffic volumes observed presently (2022), as reflected in the AWDT comparison in **Table 3,** which can likely be attributed to the Covid pandemic (more discussion in **Section 6**). Consequently, the LOS in the 2020 study is generally worse (often by a letter grade) than the LOS identified in the present study. Furthermore, the traffic volumes for the two 2045 scenarios, and the corresponding LOS, are also based on projections from pre-pandemic traffic volumes.

Despite the differences in AWDT and LOS the congested segments identified in the 2020 study are consistent with those identified in the present study, which are discussed in **Section 8**.

4.2 Hudson Boulevard

The Hudson Boulevard has evolved as a scaled-down southern segment of what was formerly known as the Circumferential Highway. In contrast to the limited-access, high-speed expressway once envisioned, the boulevard is now seen as an approximate 40 mph, controlled access roadway along the southern Circumferential Highway right-of-way between NH 3A and NH111 with at-grade intersections, and a parallel, separated nonmotorized multi-use path. The estimated project cost is $54 million.

The Draft Hudson Master Plan Transportation Chapter includes a discussion about the Hudson Boulevard project. The roadway is projected to carry between 20,000-23,000 vehicles per day over most of its length in the year 2045. A 10% decrease in Taylor Falls Bridge traffic is forecasted, along with a 13% increase in Sagamore Bridge volume, due to a faster travel path to the turnpike and south Nashua via this route. Significant decreases in traffic on NH 3A and NH 111 are projected as the Boulevard diverts traffic away from the town center area. Wason Road and Bush Hill Road, which now provide a local road path near the right-of-way originally reserved for the southern segment of the Circumferential Highway, would experience significant traffic relief from constructing the Boulevard. See **Table 2** on the following page for more details.

The Hudson Boulevard project was not included in the scope of work for this study as explained earlier in this document. It was therefore not included in the future highway network scenarios that were developed for this study. As a result, the impacts this project would have on the road network have not been factored into the results of this study.

The Hudson Boulevard project has since been added back into the NHDOT FY 2023-2032 Ten-Year Plan and the NRPC FY2023-2026 TIP as a feasibility study only.

Table 2. Hudson Master Plan Transportation Chapter Table V-13: 2045 Forecasted Traffic with Hudson Boulevard

		2045 Base Vol.	2045 Build – Hud Blvd	Based to Build % Change
Hudson Blvd	NH 3A to Musquash Rd.		23,620	-
Hudson Blvd	Musquash Rd to Bush Hill Rd		21,740	-
Hudson Blvd	Bush Hill Rd to Kimball Hill Rd		20,380	-
Hudson Blvd	Kimball Hill Rd to NH 111		12,995	-
Taylor Falls Bridge	Hudson/Nashua CL	43,160	39,050	-10%
Sagamore Bridge	Hudson/Nashua CL	56,790	63,970	13%
NH 111 Central St.	E. of Kimball Hill Rd.	20,200	14,300	-29%
NH 111 Central St.	E. of Greeley St.	25,100	20,200	-20%
NH 111 Burnham Rd.	N. of Central St.	13,160	11,470	-13%
NH 111 Ferry St.	E. of Library St.	14,280	12,720	-11%
NH 3A/102 Derry St	N. of Ledge Rd.	28,280	27,320	-3%
NH 3A/102 Derry St	N. of Ferry St.	18,010	16,810	-7%
NH 3A Lowell Rd	S. of Central St.	23,390	21,220	-9%
NH 3A Lowell Rd	S. of Pelham Rd.	27,490	23,290	-15%
NH 3A Lowell Rd	S. of Wason Rd.	44,940	33,940	-24%
Library St.	N. of NH 3A Central St.	9,930	9,390	-5%
Speare Rd.	E. of Bush Hill Rd.	3,460	2,620	-24%
Greeley St.	N. of NH 111 Central St.	5,850	5,830	0%
Central St.	E. of Adelaide St.	6,290	3,950	-37%
Melendy Rd.	S. of Central St.	2,590	2,180	-16%
Belknap Rd.	S. of Central St.	6,220	5,620	-10%
County Rd.	E. of NH 3A	5,520	4,950	-10%
Kimball Hill Rd.	E. of Bush Hill Rd.	5,450	4,200	-23%
Kimball Hill Rd.	S. of NH 111 Central St.	9,280	8,490	-9%
Bush Hill Rd.	S. of Kimball Hill Rd.	6,330	2,550	-60%
Bush Hill Rd.	S. of Speare Rd.	8,330	3,340	-60%
Bush Hill Rd.	E. of Wason Rd.	2,990	1,670	-44%
Pelham Rd.	W. of Bush Hill Rd.	2,930	2,270	-23%
Burns Hill Rd.	N. of Wason Rd.	3,140	4,150	32%
Wason Rd.	E. of Musquash Rd.	13,870	6,570	-53%
Wason Rd.	E. of NH 3A	12,650	7,410	-41%

Source: NRPC traffic model estimate

4.3 NRPC Litchfield-Hudson Traffic Study – March 2003

Vollmer Associates LLP was retained by the Nashua Regional Planning Commission (NRPC), under a contract between the NRPC and the NH Department of Transportation, to aid in evaluating traffic conditions for the Towns of Litchfield and Hudson, New Hampshire. The project was conducted as a collaborative effort between the two towns, the NRPC and Vollmer Associates.

The study predicted future (2025) afternoon peak period intersection capacity (measured in Level of Service) for 20 intersections in Hudson. The study incorporated the following proposed roadway projects into the 2025 modeling scenario:

- Planned construction of the preferred alternative of the Nashua-Hudson Circumferential Highway,
- Planned construction of the Manchester Airport Access Road,
- NH 102 widening in Hudson,
- NH 102/West Rd. intersection improvements in Hudson,
- NH 3A widening from Rena St. to Dracut Rd. in Hudson, and,
- NH 3A widening from Wason Rd. to Executive Dr. in Hudson.

While most of these improvements have been completed the preferred alternative to the Nashua-Hudson Circumferential Highway has not. It is therefore difficult to compare the 2025 modeling scenario from the 2003 study to current conditions in the study area.

4.4 Hudson Logistics Center

The land use assumptions and proposed roadway improvements from the logistics center proposal have been incorporated into the future modeling scenarios of this study.

5. DATA COLLECTION

Traffic data was collected from the following sources:

- For intersections, turning movement counts captured by the Town's traffic signal cameras.
- For intersections not within the camera's coverage, NRPC conducted manual turning movement counts during AM and PM peak hours.
- For segments, NRPC maintained a series of automatic traffic recording locations, several as part of the annual traffic counting program and others specifically for this study.

These data were processed and summarized on an Excel spreadsheet as a record and as input for the next steps.

6. TRAFFIC TRENDS

Table 3 provides a snapshot of traffic trends during approximately the past decade on the eighteen road segments that were included in this study. Between approximately 2013 and 2022 traffic volume decreased on eleven segments and increased on seven segments. The decrease in traffic volume can likely be attributed to the Covid pandemic, as the most recent traffic counts were conducted in 2022, when the region was emerging from the pandemic. The pandemic has at least temporarily changed traffic patterns and it remains to be seen if these changes are permanent.

Additionally, a recent (2022) NRPC traffic study in the Town of Merrimack noted flat to moderate growth in traffic volume over the past twenty years (as compared to significant growth in the 1980s and 1990s). It is unknown if this two-decade trend of flat to moderate traffic growth will continue.

Table 3: Traffic Trends on Various Roadway Segments

Description	Year	AWDT*	Year	AWDT*	Year	AWDT*	% Change#
NH 3A (Central St) west of Library St	2013	9,090	2019	10,095	2022	9,894	9%
NH 3A (Central St) east of Library St	2014	20,273	2017	15,643	2022	19,912	-2%
Lowell Rd south of Central St	2014	23,562	2017	22,636	2022	21,915	-7%
Lowell Rd south of Pelham Rd	2014	24,773	2017	25,402	2022	24,233	-2%
Lowell Rd south of Wason Rd	2014	36,537	2017	21,549	2022	39,160	7%
Lowell Rd south of Rena Ave	2014	24,611	2017	n/a	2022	25,864	5%
River Rd at Mass State Line	2014	8,112	2017	7,710	2022	7,194	-11%
NH 102 at Litchfield Town Line	2013	16,783	2019	16,786	2022	15,118	-10%
NH 102 north of Easy St	2013	18,181	2019	16,595	2022	16,733	-8%
NH 102/3A north of Ledge Rd	2014	28,100	2017	26,311	2022	24,648	-12%
NH 111 (Ferry St) east of Library St	2013	13,975	2019	13,199	2022	13,534	-3%
NH 111 (Burnham Rd) north of Central St	2013	13,124	2019	12,547	2022	11,720	-11%
NH 111 (Central St) west of Kimball Hill Rd	2014	22,017	2017	23,406	2022	20,816	-5%
Belknap Rd south of Central Str	2013	5,467	2019	5,141	2022	4,879	-11%
Kimball Hill Rd south of NH 111	2013	7,262	2019	7,846	2022	7,299	1%
Dracut Rd at Mass State Line	2013	8,072	2019	9,685	2022	9,795	21%
Wason Rd east of NH 3A	2012	8,288	2018	9,331	2022	8,744	6%
Bush Hill Rd north of Wason Rd	2014	5,931	2017	6,760	2022	6,579	11%

* = AWDT = Average Weekday Traffic (Monday – Friday)

= % change (oldest vs. most recent count)

7. LEVEL OF SERVICE ANALYSIS – INTERSECTIONS

Level of service (LOS) is a qualitative measure used to relate the quality of motor vehicle traffic service. LOS is used to analyze roadways and intersections by categorizing traffic flow and assigning quality levels of traffic based on performance measures like vehicle speed, density, and congestion.

This study focuses on twenty-three intersections in Hudson. Turning movement counts were conducted for the morning (7-9 am) and afternoon (4-6 pm) peak periods. For the highest hour of traffic volume for each peak period, intersection capacity (measured in LOS) analysis was conducted utilizing the methods of the *Highway Capacity Manual 2003* as replicated by the *Synchro Traffic Signal Timing Software.* For **signalized intersections**, LOS is defined in terms of a weighted average control delay for the entire intersection. Control delay quantifies the increase in travel time that a vehicle experiences due to the traffic signal control as well as provides a surrogate measure for driver discomfort and fuel consumption. Signalized intersection LOS (**Table 4**) is stated in terms of average control delay per vehicle (in seconds) during a specified time-period (generally weekday AM or PM peak hours). Control delay is a complex measure based on many variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection capacity and resulting queues.

For **unsignalized intersections**, LOS criteria can be reduced to three intersection types: all-way stop, two-way stop, and roundabout control (**Table 5**). All-way stop and roundabout control intersection LOS

is expressed in terms of the weighted average control delay of the overall intersection or by approach. Two-way, stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns. This approach is because major street through vehicles are assumed to experience zero delays, a weighted average of all movements results in a very low overall average delay, and this calculated low delay could mask deficiencies of minor movements.

Table 4: Level of Service Criteria for Signalized Intersections

LOS	Intersection Delay (seconds)
A	≤10
B	10 to 20
C*	*20 to 35*
D	35 to 55
E	55 to 80
F	>80

Source: Highway Capacity Manual
* LOS C is the target LOS for intersections

Table 5: Level of Service Criteria for Unsignalized/Stop-Controlled Intersections

LOS	Intersection Delay (seconds)
A	≤10
B	10 to 15
C*	*15 to 25*
D	25 to 35
E	35 to 50
F	>50

Source: Highway Capacity Manual
* LOS C is the target LOS for intersections

NRPC uses the Synchro Studio 11 software (hereafter Synchro) by Cubic Transportation Systems to model and analyze the collected traffic data for intersections. The key feature of Synchro is a methodological approach in calculating road capacity (measured in LOS) based on traffic delays modeled with traffic counts and a myriad of variables such as the layout of intersections and lanes and traffic signal settings (detection, phasing, and timing). Within Synchro, NRPC built a partial roadway model of Hudson covering all study locations. NRPC gathered the necessary information from the Town Engineer, as well as made field visits as necessary. By entering the collected traffic data into the completed model, Synchro calculates the road capacity (LOS), which is exported into a report appended to this study.

Another feature of Synchro is a visual simulation of the modeled road network that shows how virtual traffic traverses the virtual network. The simulation helps visualize the modeled intersection layout,

traffic signal settings, and traffic flow. NRPC used this simulation feature at a meeting with the Town Engineer to verify the Synchro model against known conditions.

Table 6, **Map 1** and **Map 2** present information about existing (2022) and future (2030 & 2045) intersection delays and LOS for the twenty-three intersections that were analyzed in this study. **Appendix A** provides a more detailed summary of the LOS analysis, including intersection delay (seconds) and LOS for each intersection.

7.1 Existing (2022) Conditions – Intersections

During the morning (AM) Peak period, the following four intersections operate below LOS C:

- 111-102-3A (Ferry/Chase) – LOS F
- Burnham Rd & Central St – LOS D
- Central-Kimball-Greeley – LOS F
- Lowell Rd & Wason Rd – LOS D

During the afternoon (PM) Peak Period, the following nine intersections operate below LOS C:

- 111-102-3A (Ferry/Chase) – LOS F
- Library St & Highland St – LOS D
- Burnham Rd & Central St – LOS D
- Central-Kimball-Greeley – LOS F
- Lowell Rd & Pelham Rd – LOS D
- Lowell Rd & Wason Rd – LOS D
- Lowell Rd & Sagamore Br – LOS E
- Lowell Rd-Dracut Rd-Steele Rd – LOS F
- Dracut Rd & Sherburne Rd – LOS F

7.2 Future (2030, 2045) Conditions – Intersections

Future conditions analysis for intersections involves using the NRPC regional travel demand model to predict future traffic growth. The predicted future traffic volumes are then inserted into the Synchro traffic software to predict the future LOS for the twenty-three intersections that were studied. Projected growth scenarios for the years 2030 and 2045 were used for this study.

7.3 Regional Traffic Modelling

The Nashua Regional Planning Commission maintains a regional travel demand model for the general purposes of transportation planning and air quality analysis. NRPC uses the software package TransCAD, the leading traffic demand modeling and GIS software package in the U.S. which is produced by the Caliper Corporation in Needham, MA. There are two key components to the model: the supply side, and the demand side. The supply side is a coded highway network with attributes such as roadway length, travel direction, number of travel lanes in each direction, posted speed, roadway functional classification, and area type. NRPC's model network consists of all arterials, collectors, and some local roads (over 1,480 miles of roadway segments) and major routes outside of the region to account for external travel.

The demand side inputs are employment and household data and are summarized by Transportation Analysis Zone (TAZ). The 13 NRPC communities are divided into 2,371 TAZs. Also, the model includes 52 external TAZs. External TAZs are used to aid in calculating trips with one end of the trip outside of NRPC, or trips that pass through NRPC.

Each TAZ contains totals of households, residents, and employees. Employees are by industry classification and include retail, manufacturing, professional services, finance, real estate, and others. Households are defined by household size and the number of vehicles available to household members. The base year model was calibrated to traffic counts conducted by NRPC along all arterials and other facilities. The model utilizes U.S. Census data and employment data from the State of New Hampshire.

The model uses a traditional three-step modeling process: trip generation, trip distribution, and trip assignment. A fourth step, mode choice, is not used by the NRPC model since travel other than by automobile represents a small fraction of the total traffic on the regional road network.

In step one, trip generation, the model uses the Institute of Transportation Engineers, and National Cooperative Highway Research Program trip generation rates applied to TAZ-based data. The product of this step is a summary of the number of trips produced by or attracted to a zone.

In step two, trip distribution, the model takes the expected number of trips produced and attracted by each zone and matches them with destinations, subject to other considerations such as average trip length in travel time and distance. NRPC uses a "gravity model" to distribute the trips, meaning that the likely destination of a trip is based on the size and separation of the destination zone, compared to all other zones and their size and distance from the location of where the trip is produced, subject to additional considerations such as the existing average travel times and distance for travel in the NRPC region. The model uses Census journey to work time and distance survey data to determine the appropriate percentage of trips distributed within each time and distance category. For example, if survey and Census data show that 60% of all work trips take between 20 and 30 minutes, the model will match that ratio.

Once the model determines the origins and destinations of the trips, trip assignment is the final step. The model begins by sending every trip via the shortest path possible path (in terms of time). Then, because of capacity constraints, it uses an iterative process to reassign certain trips along alternate routes. The assignment process continues to iterate until no trip would change its travel route as all alternative routes have similar travel times.

The three-step process results in future traffic forecasts based on anticipated future land use patterns, population projections, projected housing units, employment, and school enrollment. The projected growth in land use was made in consultation with local planners from the Nashua Region, and through a review of present and proposed zoning, physical constraints, and assumptions made regarding future area-wide growth rates.

To better reflect future conditions the model is updated with future supply-side conditions and demand-side conditions. On the supply side, foreseeable roadway and intersection projects are used to update the highway network. On the demand side, foreseeable development in the region and, specifically, the Town is used to update the household and employment data.

Once completed, for each of the two future conditions (2030 and 2045), a series of projected turning movement counts were exported onto an Excel spreadsheet like the one summarizing the collected counts for the existing conditions analysis, and then entered into the Synchro Road network model. Within Synchro, roadway layout, intersection layout, and traffic signal settings were modified to include proposed future roadway and intersection improvement projects. The key improvements include:

- Signalization of two previously unsignalized intersections
    - NH102/Page Rd
    - Dracut Rd/Sherburne Rd

- A series of roadway and intersection improvements on Lowell Road from Dracut Road to Wason Road.
    - NH 3A Lowell Rd/Dracut Rd/Steele Rd
    - NH 3A Lowell Rd/Rena Ave
    - NH 3A Lowell Rd/Walmart Blvd
    - NH 3A Lowell Rd/Sagamore Br
    - Lowell Rd/Wason Rd

7.4 Future (2030) Conditions – Intersections

Table 6, Map 1 and **Map 2** present information about 2030 intersection delay and LOS for the twenty-three intersections that were analyzed in this study.

During the morning (AM) Peak period in 2030, eighteen intersections are predicted to operate at LOS C or better (nineteen intersections operated at LOS C or better in 2022). The following intersections experience a LOS below C:

- 111-102-3A (Ferry/Chase) – LOS F (LOS F in 2022)
- Library St & Highland St – LOS D (LOS C in 2022)
- Burnham Rd & Central St – LOS E (LOS D in 2022)
- Central-Kimball-Greeley – LOS F (LOS F in 2022)
- Lowell Rd & Wason Rd – LOS D (LOS D in 2022)

During the Afternoon (PM) Peak period in 2030, fifteen intersections are predicted to operate at LOS C or better (fourteen intersections operated at LOS C or better in 2022). The following intersections experience a LOS below C:

- 111-102-3A (Ferry/Chase) – LOS F (LOS F in 2022)
- Library St & Ferry St – LOS D (LOS C in 2022)
- Library St & Highland St – LOS D (LOS D in 2022)
- Burnham Rd & Central St – LOS D (LOS D in 2022)
- Central-Kimball-Greeley – LOS F (LOS F in 2022)
- Lowell Rd & Pelham Rd – LOS E (LOS D in 2022)
- Lowell Rd & Wason Rd – LOS D (LOS D in 2022)
- Lowell Rd & Sagamore Br – LOS D (LOS E in 2022)

7.5 Future (2045) Conditions – Intersections

Table 6, Map 1 and **Map 2** present information about 2045 intersection delays and LOS for the twenty-three intersections that were analyzed in this study. During the morning (AM) Peak period in 2045, seventeen intersections are predicted to operate at LOS C or better (nineteen intersections operated at LOS C or better in 2022). The following intersections experience a LOS below C:

- 111-102-3A (Ferry/Chase) – LOS F (LOS F in 2022 & 2030)
- Library St & Highland St – LOS D (LOS C in 2022, LOS D in 2030)
- Burnham Rd/Central St – LOS E (LOS D in 2022, LOS E in 2030)
- Central-Kimball-Greeley – LOS F (LOS F in 2022 & 2030)
- Lowell Rd & Executive Dr – LOS D (LOS C in 2022, LOS C in 2030)
- Lowell Rd & Wason Rd – LOS D (LOS D in 2022, LOS D in 2030)

During the Afternoon (PM) Peak period in 2045, fourteen intersections are predicted to operate at LOS C or better (fourteen intersections operated at LOS C or better in 2022).

- Library St & Ferry St – LOS C (improves from LOS D in 2030)

The following intersections experience a LOS below C:

- 111-102-3A (Ferry/Chase) – LOS F (LOS F in 2022 & 2030)
- Library St & Highland St – LOS D (LOS D in 2022 & 2030)
- Burnham Rd/Central St – LOS D (LOS D in 2022 & 2030)
- Central St/Kimball/Greeley – LOS F (LOS F in 2022 & 2030)
- Lowell Rd & Pelham Rd – LOS E (LOS D in 2022, LOS E in 2030)
- Lowell Rd & Wason Rd – LOS D (LOS D in 2022, LOS D in 2030)
- Lowell Rd & Sagamore Br – LOS E (LOS E in 2022, LOS D in 2030)
- Lowell Rd – Dracut Rd – Steele Rd – LOS F (LOS F in 2022, LOS C in 2030)
- Lowell Rd & Fox Hollow Dr – LOS D (LOS C in 2022 & 2030)

Table 6: Level of Service – Study Area Intersections

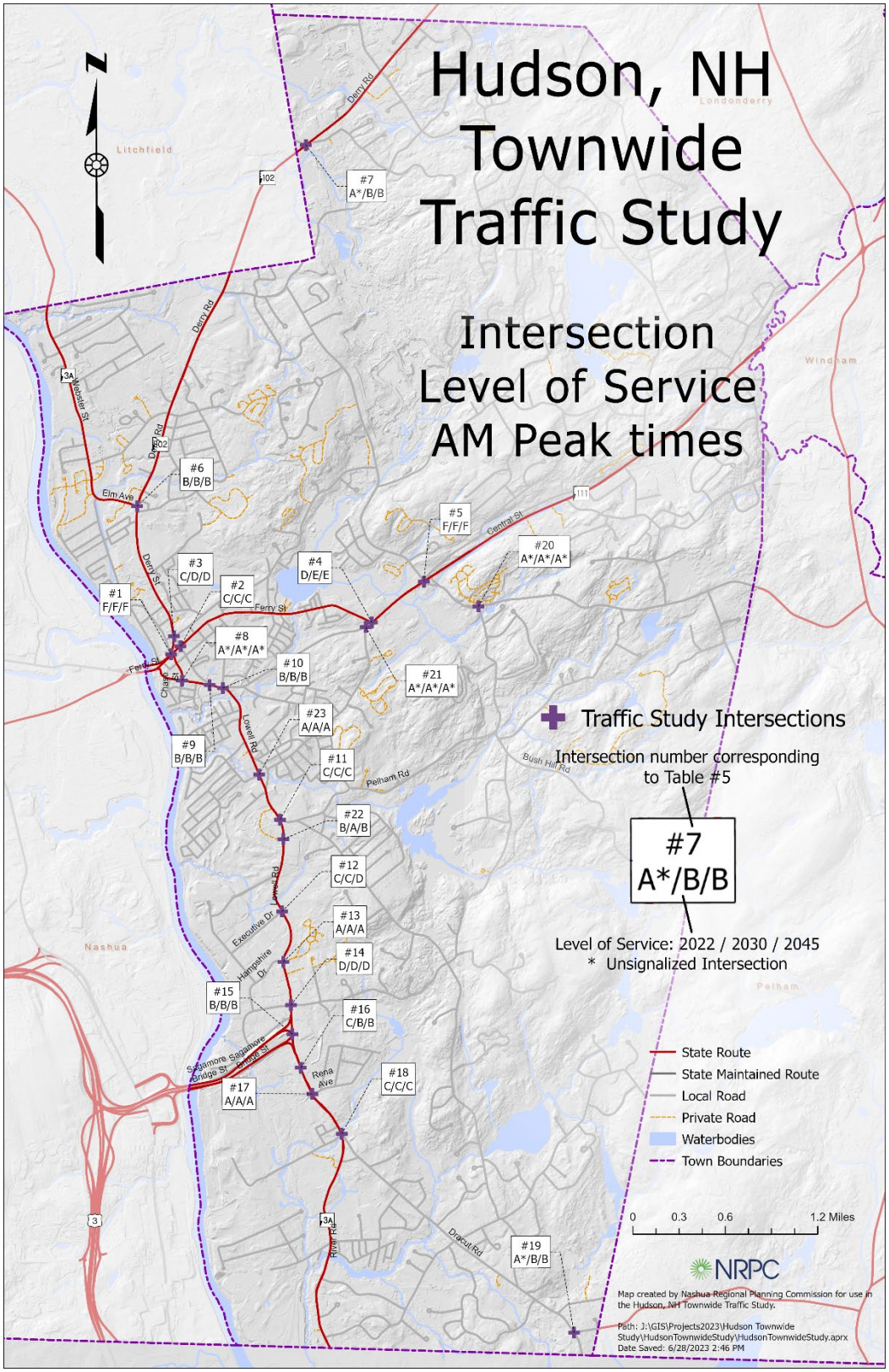
#	Intersection	AM Peak			PM Peak		
		2022 LOS	2030 LOS	2045 LOS	2022 LOS	2030 LOS	2045 LOS
1	111-102-3A (Ferry & Chase)	F	F	F	F	F	F
2	Library St & Ferry St	C	C	C	C	D	C
3	Library St & Highland St	C	D	D	D	D	D
4	Burnham Rd & Central St	D	E	E	D	D	D
5	Central-Kimball-Greeley (Rt.111 & Greeley)	F	F	F	F	F	F
6	NH102 & Elm Ave	B	B	B	B	B	B
7	NH 102 & Page Rd#	A*	B	B	A*	B	B
8	Central St & Chase St	A*	A*	A*	A*	A*	A*
9	Central St & Library St	B	B	B	C	B	B
10	Lowell Rd & Central Rd	B	B	B	C	C	C
11	Lowell Rd & Pelham Rd	C	C	C	D	E	E
12	Lowell Rd & Executive Dr	C	C	D	B	C	C
13	Lowell Rd-Hampshire Dr-Oblate Dr	A	A	A	A	A	A
14	Lowell Rd & Wason Rd#	D	D	D	D	D	D
15	Lowell Rd & Sagamore Br#	B	B	B	E	D	E
16	Lowell Rd & Walmart Blvd#	C	B	B	C	C	C
17	Lowell Rd & Rena Ave#	A	A	A	B	B	B
18	Lowell Rd/Dracut Rd/Steele Rd#	C	C	C	F	C	F
19	Dracut Rd & Sherburne Rd#	A*	B	B	F*	B	B
20	Kimball Hill Rd & Bush Hill Rd	A*	A*	A*	A*	A*	A*
21	Central St & Belknap Rd	A*	A*	A*	A*	A*	A*
22	Lowell Rd & Fox Hollow Dr	B	A	B	C	C	D
23	Lowell Rd & Birch St	A	A	A	B	B	B

* Unsignalized intersection in various configurations.

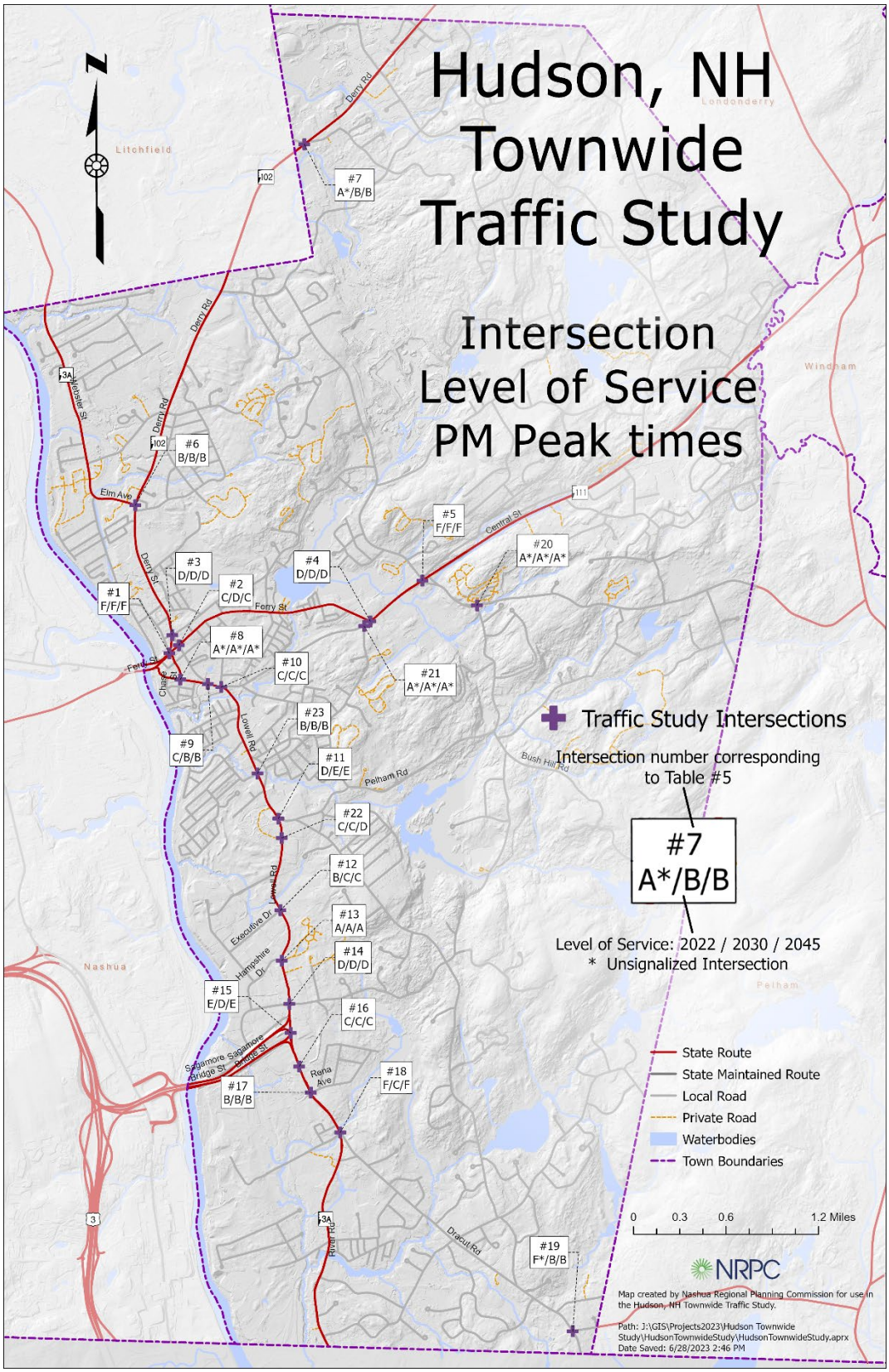
Improvement made to the intersection in 2030 and 2045

Blue LOS indicates an improvement In LOS and Red LOS indicates a decline in LOS

Map 1: Intersection Level of Service AM Peak Times



Map 2: Intersection Level of Service PM Peak Times



8. LEVEL OF SERVICE ANALYSIS – ROAD SEGMENTS

Existing conditions for road segments were modeled differently than intersections. Rather than using the Synchro analysis software, NRPC converted the collected traffic count data from average total weekday vehicle counts to peak hour counts (AM and PM) per direction and per lane via an Excel spreadsheet. The directional split was assumed to be 50/50. The converted counts were then classified by Volume to Capacity ratio and the resulting LOS according to the corresponding road segment class, as shown below:

Table 7: Freeways & Controlled Access

	Limited Access 60-70 MPH		Controlled Access 50-59 MPH	
LOS	V/C	VPL/Hr	V/C	VPL/Hr
A	0.40	920	0.40	800
B	0.50	1150	0.50	1000
C	0.70	1610	0.70	1400
D	0.85	1950	0.85	1700
E	1.00	2300	1.00	2000
F	>1	>2300	>1	>2000

Table 8: Single-Lane Arterials Uninterrupted Flow

	Ave Speed = 50		Ave Speed = 40		Ave Speed = 30	
LOS	V/C	VPL/Hr	V/C	VPL/Hr	V/C	VPL/Hr
A	0.30	480	0.30	420	0.30	360
B	0.40	640	0.40	560	0.40	480
C	0.60	960	0.60	840	0.60	720
D	0.80	1280	0.80	1120	0.80	960
E	1.00	1600	1.00	1400	1.00	1200
F	>1	>1600	>1	>1400	>1	>1200

Table 9: Signalized Arterials

	<2 signal int/mi.		2-4 signal int/mi.		>4 signal int/mi.	
LOS	V/C	VPL/Hr	V/C	VPL/Hr	V/C	VPL/Hr
A	..	..	..	..	..	..
B	0.40	420	0.40	360	..	..
C	0.60	630	0.60	540	0.60	450
D	0.80	840	0.80	720	0.80	600
E	1.00	1050	1.00	900	1.00	750
F	>1	>1050	>1	>900	>1	>750

Table 10, Map 3 and **Map 4** present information about existing (2022) and future (2030 & 2045) Volume to Capacity (V/C) and LOS for the eighteen road segments that were analyzed in this study.

During the morning (AM) Peak period in 2022, twelve road segments operate at LOS C or better. The following road segments experience a LOS below C:

- Lowell Road south of Central St – LOS E
- Lowell Road south of Pelham Rd – LOS D
- Lowell Road south of Wason Rd – LOS D
- NH 102/3A north of Ledge Rd – LOS D
- NH 111 (Burnham Road) north of Central Street – LOS D
- NH 111 (Central Street) west of Kimball Hill Road – LOS E

During the afternoon (PM) Peak period in 2022, seven road segments operate at LOS C or better. The following road segments experience a LOS below C:

- NH 3A (Central St) west of Library St – LOS D
- NH 3A (Central St) east of Library St – LOS D
- Lowell Road south of Central St – LOS F
- Lowell Road south of Pelham Rd – LOS D
- Lowell Road south of Wason Rd – LOS E
- Lowell Rd south of Rena Ave – LOS D
- NH102 N. of Easy St – LOS D
- NH 102/3A north of Ledge Rd – LOS E
- NH 111 (Burnham Road) north of Central Street – LOS D
- NH 111 (Central Street) west of Kimball Hill Road – LOS E
- Wason Rd east of NH3A – LOS E

8.1 Future Conditions Analysis – Road Segments

Future conditions analysis for road segments involved using the NRPC regional travel demand model to predict future traffic growth on those segments in 2030 and 2045. The change in traffic volume that was predicted for each segment was then added to the actual 2022 traffic volumes. The totals for each analysis year were then converted from total weekday counts to peak hour counts (AM and PM) per direction and per lane via an Excel spreadsheet. The directional split was assumed to be 50/50. The converted counts were then classified by Volume to Capacity ratio and the resulting LOS according to the corresponding road segment class, as described below.

8.2 Future (2030) Conditions – Road Segments

Table 10, Map 3 and **Map 4** present information about 2030 Volume to Capacity (V/C) and LOS for the eighteen road segments that were analyzed in this study.

During the morning (AM) Peak period in 2030, eleven road segments operate at LOS C or better.

- NH 111 (Burnham Road) north of Central Street – improved to LOS C (LOS D in 2022)

The following road segments experience a LOS below C:

- NH 3A (Central St) east of Library St – LOS D (LOS C in 2022)
- Lowell Road south of Central St – LOS E (LOS E in 2022)
- Lowell Road south of Pelham Rd – LOS D (LOS D in 2022)
- Lowell Road south of Wason Rd – LOS D (LOS D in 2022)

- NH 102/3A north of Ledge Rd – LOS D (LOS D in 2022)
- NH 111 (Central Street) west of Kimball Hill Road – LOS E (LOS E in 2022)

During the afternoon (PM) Peak period in 2030, seven road segments operate at LOS C or better. The following road segments experience a LOS below C:

- NH 3A (Central St) west of Library St – LOS D (LOS D in 2022)
- NH 3A (Central St) east of Library St – LOS D (LOS D in 2022)
- Lowell Road south of Central St – LOS F (LOS F in 2022)
- Lowell Road south of Pelham Rd – LOS D (LOS D on 2022)
- Lowell Road south of Wason Rd – LOS E (LOS E in 2022)
- Lowell Rd south of Rena Ave – LOS D (LOS D in 2022)
- NH102 N. of Easy St – LOS D (LOS D in 2022)
- NH 102/3A north of Ledge Rd – LOS E (LOS E in 2022)
- NH 111 (Burnham Road) north of Central Street – LOS D (LOS D in 2022)
- NH 111 (Central Street) west of Kimball Hill Road – LOS F (LOS E in 2022)
- Wason Rd east of NH3A/Lowell Rd – LOS E (LOS E in 2022)

8.3 Future (2045) Conditions – Road Segments

Table 10, Map 3 and **Map 4** present information about 2045 Volume to Capacity (V/C) and LOS for the eighteen road segments that were analyzed in this study.

During the morning (AM) Peak period in 2045, eleven road segments operate at LOS C or better.

- NH 111 (Burnham Road) north of Central Street – improved to LOS C (LOS D in 2022, LOS C in 2030)

The following road segments experience a LOS below C:

- NH 3A (Central St) east of Library St – LOS D (LOS C in 2022 & LOS D in 2030)
- Lowell Road south of Central St – LOS F (LOS E in 2022 & 2030)
- Lowell Road south of Pelham Rd – LOS D (LOS D in 2022 & 2030)
- Lowell Road south of Wason Rd – LOS D (LOS D in 2022 & 2030)
- NH 102/3A north of Ledge Rd – LOS D (LOS D in 2022, & 2030)
- NH 111 (Central Street) west of Kimball Hill Road – LOS E (LOS E in 2022 & 2030)

During the afternoon (PM) Peak period in 2045, eight road segments operate at LOS C or better.

- NH 111 (Burnham Road) north of Central Street – improved to LOS C (LOS D in 2022 & 2030)

The following road segments experience a LOS below C:

- NH 3A (Central St) west of Library St – LOS D (LOS D in 2022 & 2030)
- NH 3A (Central St) east of Library St – LOS E (LOS D in 2022 & 2030)
- Lowell Road south of Central St – LOS F (LOS F in 2022 & 2030)
- Lowell Road south of Pelham Rd – LOS E (LOS D in 2022 & 2030)
- Lowell Road south of Wason Rd – LOS F (LOS E in 2022 & 2030)
- Lowell Rd south of Rena Ave – LOS D (LOS D in 2022 & 2030)
- NH102 N. of Easy St – LOS D (LOS D in 2022 & 2030)
- NH 102/3A north of Ledge Rd – LOS E (LOS E in 2022 & 2030)
- NH 111 (Central Street) west of Kimball Hill Road – LOS F (LOS E in 2022 & LOS F in 2030)
- Wason Rd east of NH3A/Lowell Rd – LOS F (LOS E in 2022 & 2030)

Table 10: Segment Volume-to-Capacity Ratio and Level of Service (LOS)

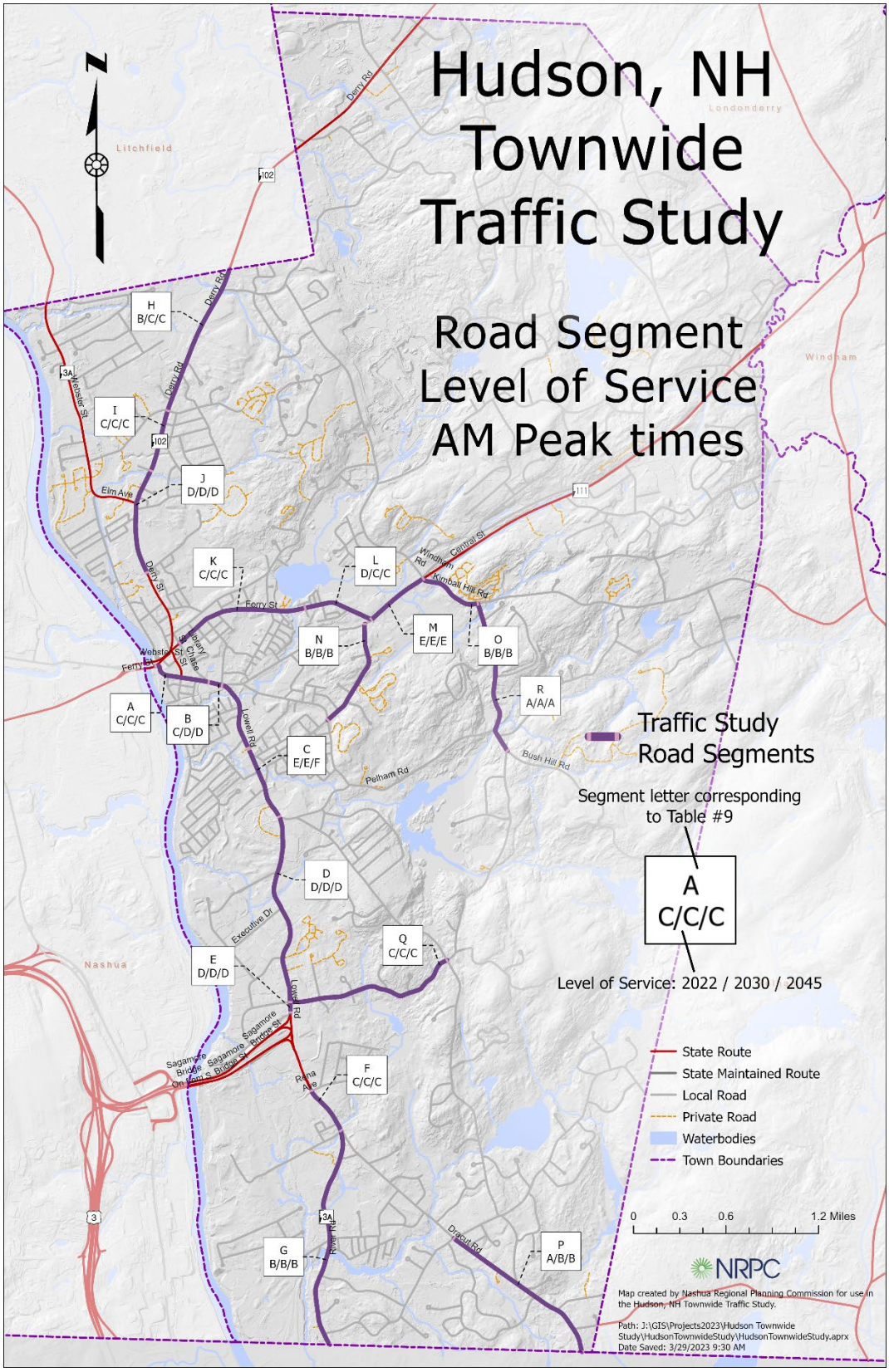
#	Segment	AM Peak						PM Peak					
		2022		2030		2045		2022		2030		2045	
		V/C	LOS	V/C	V/C	LOS	V/C	V/C	LOS	V/C	LOS	LOS	V/C
A	NH 3A (Central St) west of Library St	0.4	C	0.5	C	0.5	C	0.6	D	0.7	D	0.7	D
B	NH 3A (Central St) east of Library St	0.5	C	0.6	D	0.6	D	0.7	D	0.8	D	0.8	E
C	Lowell Rd south of Central St	0.9	E	1.0	E	1.0	F	1.1	F	1.2	F	1.3	F
D	Lowell Rd south of Pelham Rd	0.7	D	0.7	D	0.7	D	0.8	D	0.9	D	0.9	E
E	Lowell Rd south of Wason Rd#	0.6	D	0.7	D	0.8	D	0.8	E	1.0	E	1.0	F
F	Lowell Rd south of Rena Ave#	0.5	C	0.5	C	0.5	C	0.7	D	0.6	D	0.7	D
G	River Rd at Mass State Line	0.2	B	0.3	B	0.3	B	0.3	B	0.4	B	0.4	C
H	NH 102 at Litchfield Town Line#	0.3	B	0.5	C	0.5	C	0.4	B	0.6	C	0.6	C
I	NH 102 north of Easy St	0.5	C	0.5	C	0.6	C	0.7	D	0.7	D	0.7	D
J	NH 102/3A north of Ledge Rd	0.7	D	0.7	D	0.7	D	0.9	E	0.9	E	0.9	E
K	NH 111 (Ferry St) east of Library St	0.4	C	0.5	C	0.5	C	0.5	C	0.5	C	0.5	C
L	NH 111 (Burnham Rd) north of Central St	0.5	D	0.5	C	0.5	C	0.6	D	0.6	D	0.6	C
M	NH 111 (Central St) west of Kimball Hill Rd	0.8	E	0.9	E	0.9	E	0.9	E	1.0	F	1.0	F
N	Belknap Rd south of Central St	0.2	B	0.2	B	0.2	B	0.2	B	0.3	B	0.3	B
O	Kimball Hill Rd south of NH 111	0.3	B	0.4	B	0.4	B	0.4	B	0.4	C	0.4	C
P	Dracut Rd at Mass State Line#	0.2	A	0.2	B	0.2	B	0.3	B	0.4	C	0.4	C
Q	Wason Rd east of NH 3A	0.4	C	0.4	C	0.4	C	1.0	E	1.0	E	1.0	F
R	Bush Hill Rd north of Wason Rd	0.2	A	0.2	A	0.2	A	0.3	A	0.4	B	0.4	B

* Unsignalized intersection in various configurations.

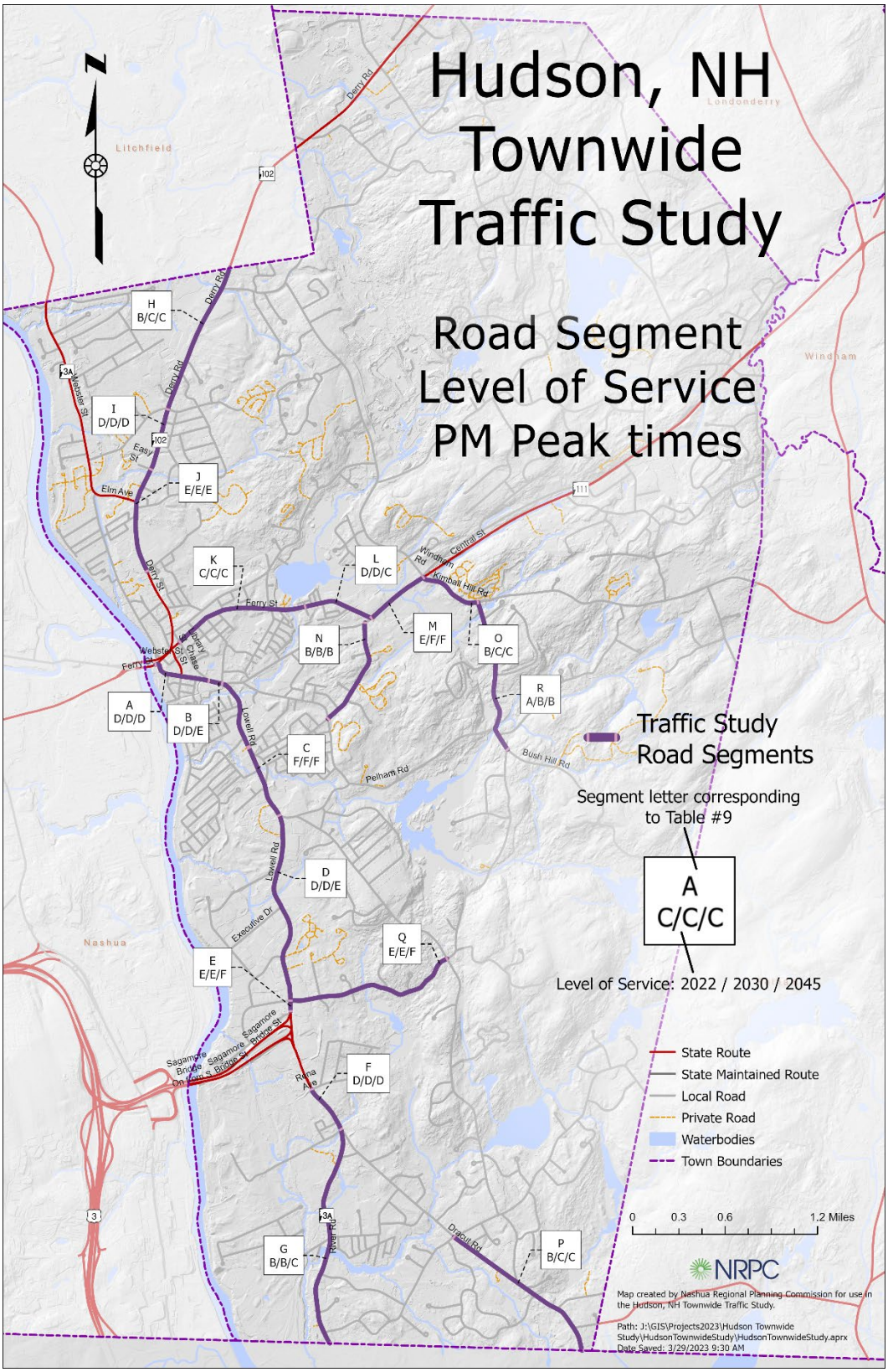
Improvement made to the intersection in 2030 and 2045

Blue LOS indicates an improvement In LOS and Red LOS indicates a decline in LOS

Map 3: Road Segment Level of Service AM Peak Times



Map 4: Road Segment Level of Service PM Peak Times



9. CONCLUSIONS

Level of service (LOS) is a qualitative measure used to relate the quality of motor vehicle traffic service. LOS is used to analyze roadways and intersections by categorizing traffic flow and assigning quality levels of traffic based on performance measures like vehicle speed, density, congestion, and other measures. Though not necessarily a universal view, LOS C is the target LOS for most intersections and roadways.

This study has shown that there are areas in Hudson where the intersection and road segment LOS is currently below LOS C or will be in the future. The following intersections are discussed because they each exhibit a LOS of D or worse either currently, or in future scenarios.

9.1 Intersections

Ferry St/Chase St (NH111/NH102/NH3A) – this multi-legged intersection exhibits LOS F for all three analysis years during both the morning and afternoon peak periods. Without roadway improvements, increasing traffic volume in the future will result in continued poor LOS and potentially longer delays in the afternoon peak period, particularly in 2045.

Mitigation Strategies to Consider:

- Further optimization of traffic signal timing to account for future traffic patterns.
- Coordinate with the City of Nashua to optimize traffic flow on Taylor Fall's Bridge between the City of Nashua and Hudson.
- Reconfigure the intersections to improve traffic flow.
- Update GridSmart cameras to accommodate intersections with more than 4 legs.

Central St (NH111)/Kimball Hill Rd/Greeley St – this multi-legged intersection exhibits LOS F for all three analysis years during both the morning and afternoon peak periods. There are several protected signal turn phases that, coupled with high traffic volume, result in long delays for other turning movements. This intersection also accommodates traffic that uses the shortcut through Wason Rd/Pelham Rd/Kimble Hill Rd/Bush Hill Rd.

Mitigation Strategies to Consider:

- Further optimization of traffic signal timing to account for future traffic patterns.
- Reconfigure the intersection to improve traffic flow.
- The Hudson Boulevard concept could potentially divert traffic away from this intersection.
- Update GridSmart cameras to accommodate intersections with more than 4 legs and include the channelized turns in both directions on NH111 and from Hamblett Avenue.

Library St/Highland St – the existing (2022) LOS at this signalized intersection is C during the morning peak period and D in the afternoon peak period. The LOS degrades to E (morning peak period) and D (afternoon peak period) in future scenarios.

Mitigation Strategies to Consider:

- Further optimization of traffic signal timing to account for future traffic patterns.

Burnham Rd/Central St – the existing (2022) LOS at this signalized intersection is D during the morning and afternoon peak periods. The LOS degrades to D in all future scenarios.

Mitigation Strategies to Consider:

- Further optimization of traffic signal timing to account for future traffic patterns.
- The Hudson Boulevard concept could potentially divert traffic away from this intersection.

Lowell Rd/Pelham Rd – the existing (2022) LOS at this signalized intersection is C during the morning and D during the afternoon peak period. The afternoon LOS degrades to E in future scenarios.

Mitigation Strategies to Consider:

- Further optimization of traffic signal timing to account for future traffic patterns.
- The Hudson Boulevard concept could potentially divert traffic away from this intersection.

Lowell Rd/Executive Dr, Lowell Rd/Hampshire Dr/Oblate Dr – the existing (2022) LOS at these intersections is acceptable at LOS C or better. Future LOS on Lowell Rd/Executive Dr, however, degrades to LOS D in 2045 due to gradual development and resultant traffic to and from the Sagamore Industrial Park.

Mitigation Strategies to Consider:

- Further optimization of traffic signal timing to account for future traffic patterns.
- Reconfigure the intersections to improve traffic flow.
- Collaborate with businesses on Transportation Demand Management (TDM) measures.

Lowell Rd/Wason Rd – this intersection exhibits LOS D in both morning and afternoon peak periods and in both existing (2022) and future scenarios. This will be true even with the planned additional southbound right turn lane from Lowell Road onto the Sagamore Bridge.

Mitigation Strategies to Consider:

- Further optimization of traffic signal timing to account for future traffic patterns.
- The Hudson Boulevard concept could potentially divert traffic away from this intersection.

Lowell Rd/Sagamore Bridge – this intersection exhibits an acceptable LOS during the morning peak period currently and in the future planning years. The current afternoon peak period LOS is E, improving to D in 2030 and then regressing to LOS E in 2045. This suggests that the intersection improvements associated with the Hudson Logistics Center are generally adequate in the near to mid-term, but the LOS E predicted in 2045 is cause for concern.

Mitigation Strategies to Consider:

- Further optimization of traffic signal timing to account for future traffic patterns.
- The Hudson Boulevard concept would impact this intersection.

Lowell Rd/Steele Rd/Dracut Rd/River Rd – this intersection exhibits an acceptable LOS during the morning peak period currently and in the future planning years. The current afternoon peak period LOS is F, improving to C in 2030 and then regressing to LOS F in 2045. This will be true even with the planned additional southbound left turn lane from Lowell Road onto Dracut Road.

Mitigation Strategies to Consider:

- Further optimization of traffic signal timing to account for future traffic patterns.
- Update GridSmart cameras to accommodate intersections with more than 4 legs.

Dracut Rd/Sherburne Rd – this intersection exhibits an acceptable LOS during the morning peak period currently and in the future planning years. The current afternoon peak period LOS is F, improving to B in both 2030 and 2045. The improvement is the result of the planned signalization of this intersection.

9.2 Road Segments

Central St/Kimble Hill Rd/ Bush Hill Rd/Pelham Rd/Wason Rd – these road segments carry traffic from across the Mass State Line (Dracut Rd & River Rd) or from the Sagamore Bridge to communities east of Hudson that is attempting to bypass the congestion on Lowell Rd between Wason Road and the

downtown area of Hudson. This two-lane route passes through residential areas and must navigate several heavily traveled intersections (Lowell Rd/Sagamore Br & NH111/Kimble Hill Rd). The LOS for this corridor generally degrades in future analysis years.

Mitigation Strategies to Consider:

- Explore potential alternative corridors such as the Hudson Boulevard concept.
- TDM measures that reduce traffic volume in general.

NH3A (Central St) west of Library Street – this segment exhibits LOS C during the current and future morning peak periods. The segment exhibits LOS D in the current and future year afternoon peak periods.

Mitigation Strategies to Consider:

- TDM measures that reduce traffic volume in general.

NH3A (Central St) east of Library Street – this segment exhibits LOS C during the current morning peak period and degrades to LOS D in future morning peak periods. The segment exhibits LOS D in the current 2030 afternoon peak periods and degrades to LOS E in 2045.

Mitigation Strategies to Consider:

- TDM measures that reduce traffic volume in general.

Lowell Road south of Central Street – this segment exhibits LOS E during the current morning peak period, and LOS E (2030) and LOS F (2045) in future morning peak periods. The segment exhibits LOS F in the current and future year afternoon peak periods.

Mitigation Strategies to Consider:

- TDM measures that reduce traffic volume in general.
- Explore potential alternative corridors such as the Hudson Boulevard concept.

Lowell Road south of Pelham Rd – this segment exhibits LOS D during the current and future morning peak periods. The segment exhibits LOS D in the current and 2030 afternoon peak periods and LOS E in 2045.

Mitigation Strategies to Consider:

- TDM measures that reduce traffic volume in general.
- Explore potential alternative corridors such as the Hudson Boulevard concept.

Lowell Road south of Wason Road (between Wason Road and the Sagamore Bridge) – this segment exhibits LOS D during the current and future morning peak periods. The segment exhibits LOS E in the current and 2030 afternoon peak periods, and LOS F in 2045.

Mitigation Strategies to Consider:

- Explore potential alternative corridors such as the Hudson Boulevard concept.
- TDM measures that reduce traffic volume in general.
- Capacity improvements.

Lowell Road between Sagamore Bridge and Rena Avenue – traffic to the future Hudson Logistics Center will travel on this road segment. It is therefore notable that this segment of roadway exhibits LOS C in the current and future morning peak periods, and LOS D in the current in future afternoon peak periods. This suggests that future roadway improvements associated with the logistics center will accommodate the impacts of this future development.

NH102 north of Easy Street – this segment exhibits LOS C during the current and future morning peak periods. The segment exhibits LOS D in the current and future afternoon peak periods.

Mitigation Strategies to Consider:

- TDM measures that reduce traffic volume in general.

NH102 north of Ledge Road – this segment exhibits LOS D during the current and future morning peak periods. The segment exhibits LOS E in the current and future afternoon peak periods. This segment of the road has numerous retail businesses, and it is a significant arterial roadway.

Mitigation Strategies to Consider:

- TDM measures that reduce traffic volume in general.
- Further optimization of traffic signal timing at the various nearby intersections.

NH111 (Burnham Rd) north of Central St – this segment exhibits LOS C during the current and future morning peak periods. The segment exhibits LOS D in the current and 2030 afternoon peak periods and improves to LOS C in the 2045 afternoon peak period.

Mitigation Strategies to Consider:

- Continue with current measures.

9.3 Transportation Demand Management (TDM)

Transportation demand management (TDM) is defined as a set of strategies aimed at maximizing traveler choices. Traditionally, TDM has been narrowly defined as commuter ridesharing and its planning application restricted to air quality mitigation (conformity analysis), development mitigation (reducing trip generation rates and parking needs), or efforts to increase multi-modalism in transportation plans. A more contemporary definition of TDM consists of maximizing travel choices, as stated in the definition provided in an FHWA report on TDM:

> *Managing demand is about providing travelers, regardless of whether they drive alone, with travel choices, such as work location, route, time of travel and mode. In the broadest sense, demand management is defined as providing travelers with effective choices to improve travel reliability.*

Measures can include, but are not limited to, public transportation (transit), alternative modes (walk & bike), carpool/vanpool, remote work, flexible work hours, staggered schedules, and other measures.

Transportation Demand Management is most effective when partnering with major employers, local businesses, institutions, transit agencies, nonprofits, and other stakeholders.

Resources:

- CommuteSmartNH
- Federal Highway Administration (FHWA) TDM Definition
- Mobility Lab

Appendix A – Synchro Reports

A.1 Base Model (2022) - AM Peak (49 pages)

A.2 Base Model (2022) - PM Peak (49 pages)

A.3 Future 2030 Model - AM Peak (51 pages)

A.4 Future 2030 Model - PM Peak (51 pages)

A.5 Future 2045 Model - AM Peak (51 pages)

A.6 Future 2045 Model - PM Peak (53 pages)

Reference Table – HUD# to # in SYNCRHO Reports

HUD#	# in SYNCHRO Reports	Intersection / Direction TOWARD
1	**40**	111-102-3A (Ferry & Chase)
2	**38**	Library & Ferry
3	**39**	Library and Highland
4	**55**	Burnham and Central
5	**58**	Central-Kimball-Greeley (Rt.111 & Greeley)
6	**76**	Derry and 102 (Route 102 & Elm Ave)
7	**82**	NH 102/Page Rd
8	**34**	NH 3A Central St/Chase St
9	**33**	Central and Library
10	**29**	Lowell and Central
11	**25**	Lowell and Pelham
12	**22**	Lowell and Executive
13	**10**	Lowell-Hampshire-Oblate
14	**1**	Lowell & Wason
16	**4**	NH 3A Lowell Rd/Walmart Blvd
17	**5**	NH 3A Lowell Rd/Rena Ave
18	**7**	NH 3A Lowell Rd/Dracut Rd/Steele Rd
19	**67**	Dracut Rd/Sherburne Rd
20	**70**	Kimball Hill Rd/Bush Hill Rd
21	**73**	Central St/Belknap Rd
22	**24**	Lowell & Fox Hollow Dr
23	**27**	Lowell & Birch St
15_com	**2**	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined
15M	-	NH 3A Lowell Rd/Sagamore Bridge Rd - Northern Section
15N	-	NH 3A Lowell Rd/Sagamore Bridge Rd - Middle Section
15S	-	NH 3A Lowell Rd/Sagamore Bridge Rd - Southern Section

A.1 Base Model (2022) - AM Peak (49 pages)

Reference Table – HUD# to # in SYNCRHO Reports

HUD#	# in SYNCHRO Reports	Intersection / Direction TOWARD
1	**40**	111-102-3A (Ferry & Chase)
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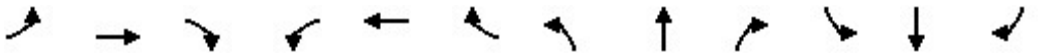
5	**58**	Central-Kimball-Greeley (Rt.111 & Greeley)
6	**76**	Derry and 102 (Route 102 & Elm Ave)
7	**82**	NH 102/Page Rd
8	**34**	NH 3A Central St/Chase St
9	**33**	Central and Library
10	**29**	Lowell and Central
11	**25**	Lowell and Pelham
12	**22**	Lowell and Executive
13	**10**	Lowell-Hampshire-Oblate
14	**1**	Lowell & Wason
16	**4**	NH 3A Lowell Rd/Walmart Blvd
17	**5**	NH 3A Lowell Rd/Rena Ave
18	**7**	NH 3A Lowell Rd/Dracut Rd/Steele Rd
19	**67**	Dracut Rd/Sherburne Rd
20	**70**	Kimball Hill Rd/Bush Hill Rd
21	**73**	Central St/Belknap Rd
22	**24**	Lowell & Fox Hollow Dr
23	**27**	Lowell & Birch St
15_com	**2**	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined
15M	-	NH 3A Lowell Rd/Sagamore Bridge Rd - Northern Section
15N	-	NH 3A Lowell Rd/Sagamore Bridge Rd - Middle Section
15S	-	NH 3A Lowell Rd/Sagamore Bridge Rd - Southern Section



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	24	208	432	59	45	171	716	178	22	848	28
Future Volume (vph)	36	24	208	432	59	45	171	716	178	22	848	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	14	12	12	12	12	12	12
Storage Length (ft)	0		0	0		100	650		350	200		0
Storage Lanes	0		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.995	
Flt Protected		0.971		0.950	0.963		0.950			0.950		
Satd. Flow (prot)	0	1419	1408	1633	1655	1641	1719	3438	1538	1570	3123	0
Flt Permitted		0.971		0.950	0.963		0.950			0.950		
Satd. Flow (perm)	0	1419	1408	1633	1655	1641	1719	3438	1538	1570	3123	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			66			89			193		2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		573			432			1014			1071	
Travel Time (s)		13.0			9.8			23.0			24.3	
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
Heavy Vehicles (%)	30%	30%	30%	5%	5%	5%	5%	5%	5%	15%	15%	15%
Adj. Flow (vph)	39	26	226	470	64	49	186	778	193	24	922	30
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	0	65	226	263	271	49	186	778	193	24	952	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	0.85	1.00	1.00	0.92	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	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	8	8	1	7	7	5	1	6	7	5	2	
Permitted Phases			8			7			6			
Detector Phase	8	8	1	7	7	5	1	6	7	5	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	10.0	
Minimum Split (s)	26.0	26.0	11.0	31.0	31.0	11.0	11.0	31.0	31.0	11.0	31.0	
Total Split (s)	26.0	26.0	31.0	56.0	56.0	21.0	31.0	71.0	56.0	21.0	71.0	
Total Split (%)	14.1%	14.1%	16.8%	30.4%	30.4%	11.4%	16.8%	38.6%	30.4%	11.4%	38.6%	
Maximum Green (s)	20.0	20.0	25.0	50.0	50.0	15.0	25.0	65.0	50.0	15.0	65.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.0	2.5	2.5	3.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min	
Walk Time (s)	7.0	7.0						7.0			7.0	
Flash Dont Walk (s)	11.0	11.0						11.0			11.0	
Pedestrian Calls (#/hr)	0	0						0			0	
Act Effct Green (s)		12.0	35.3	30.9	30.9	40.5	21.0	68.7	108.1	7.6	51.5	
Actuated g/C Ratio		0.09	0.26	0.23	0.23	0.30	0.15	0.50	0.79	0.06	0.38	
v/c Ratio		0.52	0.55	0.72	0.73	0.09	0.71	0.45	0.15	0.28	0.81	
Control Delay		84.4	37.9	64.3	64.9	0.3	76.1	26.8	1.0	82.2	47.5	
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		84.4	37.9	64.3	64.9	0.3	76.1	26.8	1.0	82.2	47.5	
LOS		F	D	E	E	A	E	C	A	F	D	
Approach Delay		48.3			59.2			30.5			48.3	
Approach LOS		D			E			C			D	
Queue Length 50th (ft)		60	125	244	252	0	166	254	0	22	426	
Queue Length 95th (ft)		130	255	405	415	1	#335	409	22	63	634	
Internal Link Dist (ft)		493			352			934			991	
Turn Bay Length (ft)						100	650		350	200		
Base Capacity (vph)		224	470	644	653	645	339	2067	1370	185	1604	
Starvation Cap Reductn		0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn		0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.29	0.48	0.41	0.42	0.08	0.55	0.38	0.14	0.13	0.59	

Intersection Summary

Area Type: Other
Cycle Length: 184
Actuated Cycle Length: 137.2
Natural Cycle: 110
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 43.6 Intersection LOS: D
Intersection Capacity Utilization 69.0% 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.

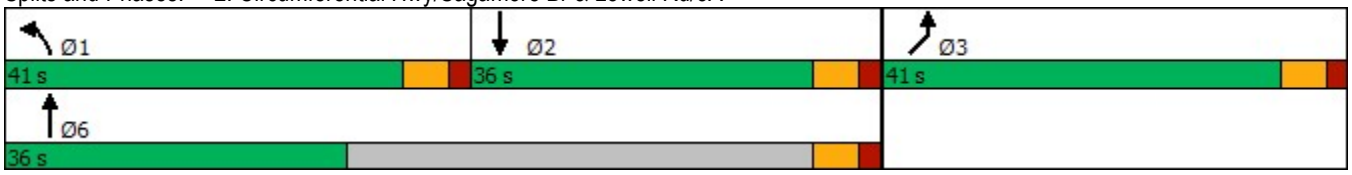
Splits and Phases: 1: Lowell Rd/3A & Flagstone Dr/Wason Rd

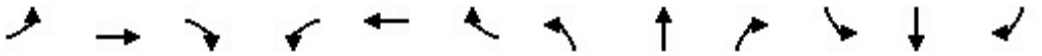
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	SBR2	NEL	NER
Lane Configurations									
Traffic Volume (vph)	0	0	689	189	285	0	1103	735	638
Future Volume (vph)	0	0	689	189	285	0	1103	735	638
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	14	12
Storage Length (ft)	0	0	550			300		0	0
Storage Lanes	0	0	2			1		2	1
Taper Length (ft)	25		25					25	
Lane Util. Factor	1.00	1.00	0.97	0.95	0.95	1.00	1.00	0.97	1.00
Frt							0.850		0.850
Flt Protected			0.950					0.950	
Satd. Flow (prot)	0	0	3335	3139	3438	0	1538	3557	1538
Flt Permitted			0.950					0.950	
Satd. Flow (perm)	0	0	3335	3139	3438	0	1538	3557	1538
Right Turn on Red							Yes		Yes
Satd. Flow (RTOR)							722		564
Link Speed (mph)	55			30	30			42	
Link Distance (ft)	1050			613	1014			972	
Travel Time (s)	13.0			13.9	23.0			15.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	5%	15%	5%	2%	5%	5%	5%
Adj. Flow (vph)	0	0	749	205	310	0	1199	799	693
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	0	749	205	310	0	1199	799	693
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right	Right	Left	Right
Median Width(ft)	0			24	24			28	
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	0.92	1.00
Turning Speed (mph)	15	9	15			9	9	15	9
Turn Type			Prot	NA	NA		Free	Prot	Free
Protected Phases			1	6	2			3	
Permitted Phases							Free		Free
Detector Phase			1	6	2			3	
Switch Phase									
Minimum Initial (s)			7.0	10.0	10.0			10.0	
Minimum Split (s)			13.0	16.0	16.0			16.0	
Total Split (s)			41.0	36.0	36.0			41.0	
Total Split (%)			34.7%	30.5%	30.5%			34.7%	
Maximum Green (s)			35.0	30.0	30.0			35.0	
Yellow Time (s)			4.0	4.0	4.0			4.0	
All-Red Time (s)			2.0	2.0	2.0			2.0	
Lost Time Adjust (s)			0.0	0.0	0.0			0.0	
Total Lost Time (s)			6.0	6.0	6.0			6.0	
Lead/Lag			Lead		Lag				
Lead-Lag Optimize?									
Vehicle Extension (s)			4.0	4.0	4.0			4.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	SBR2	NEL	NER
Recall Mode			None	Min	Min			None	
Act Effct Green (s)			27.2	48.4	15.0		88.2	27.4	88.2
Actuated g/C Ratio			0.31	0.55	0.17		1.00	0.31	1.00
v/c Ratio			0.73	0.12	0.53		0.78	0.72	0.45
Control Delay			32.8	10.2	38.7		4.0	32.2	1.0
Queue Delay			0.0	0.0	0.0		0.0	0.0	0.0
Total Delay			32.8	10.2	38.7		4.0	32.2	1.0
LOS			C	B	D		A	C	A
Approach Delay				28.0	11.1			17.7	
Approach LOS				C	B			B	
Queue Length 50th (ft)			191	27	84		0	201	0
Queue Length 95th (ft)			301	51	146		0	318	0
Internal Link Dist (ft)	970			533	934			892	
Turn Bay Length (ft)			550				300		
Base Capacity (vph)			1365	2561	1206		1538	1456	1538
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			0.55	0.08	0.26		0.78	0.55	0.45

Intersection Summary			
Area Type:	Other		
Cycle Length: 118			
Actuated Cycle Length: 88.2			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 17.7		Intersection LOS: B	
Intersection Capacity Utilization 64.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Circumferential Hwy/Sagamore Br & Lowell Rd/3A





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	11	44	21	9	91	59	766	23	94	697	84
Future Volume (vph)	90	11	44	21	9	91	59	766	23	94	697	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	400		250	400		0
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1863	1583	3335	1863	1538	3433	3438	1583	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	1863	1583	3335	1863	1538	3433	3438	1583	3335	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			157			157			157			157
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		304			245			982			569	
Travel Time (s)		6.9			5.6			22.3			12.9	
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
Heavy Vehicles (%)	5%	2%	2%	5%	2%	5%	2%	5%	2%	5%	5%	5%
Adj. Flow (vph)	98	12	48	23	10	99	64	833	25	102	758	91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	12	48	23	10	99	64	833	25	102	758	91
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
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	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	16.0	16.0	11.0	16.0	16.0
Total Split (s)	21.0	26.0	26.0	21.0	26.0	26.0	21.0	36.0	36.0	21.0	36.0	36.0
Total Split (%)	20.2%	25.0%	25.0%	20.2%	25.0%	25.0%	20.2%	34.6%	34.6%	20.2%	34.6%	34.6%
Maximum Green (s)	15.0	20.0	20.0	15.0	20.0	20.0	15.0	30.0	30.0	15.0	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	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	12.7	16.9	16.9	9.2	9.2	9.2	10.0	34.5	34.5	10.8	35.2	35.2
Actuated g/C Ratio	0.18	0.24	0.24	0.13	0.13	0.13	0.14	0.49	0.49	0.15	0.50	0.50
v/c Ratio	0.32	0.03	0.10	0.05	0.04	0.29	0.13	0.49	0.03	0.20	0.44	0.11
Control Delay	35.4	29.2	0.4	35.9	36.2	4.1	35.3	21.4	0.0	35.0	19.9	0.8
Queue Delay	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 Delay	35.4	29.2	0.4	35.9	36.2	4.1	35.3	21.4	0.0	35.0	19.9	0.8
LOS	D	C	A	D	D	A	D	C	A	C	B	A
Approach Delay		24.3			12.0			21.8			19.7	
Approach LOS		C			B			C			B	
Queue Length 50th (ft)	46	4	0	5	5	0	15	178	0	24	155	0
Queue Length 95th (ft)	95	20	0	18	20	14	36	276	0	50	240	5
Internal Link Dist (ft)		224			165			902			489	
Turn Bay Length (ft)							400		250	400		
Base Capacity (vph)	495	741	724	960	715	687	988	1690	858	960	1724	849
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.02	0.07	0.02	0.01	0.14	0.06	0.49	0.03	0.11	0.44	0.11

Intersection Summary			
Area Type:	Other		
Cycle Length: 104			
Actuated Cycle Length: 70.2			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 20.5		Intersection LOS: C	
Intersection Capacity Utilization 52.0%		ICU Level of Service A	
Analysis Period (min) 15			

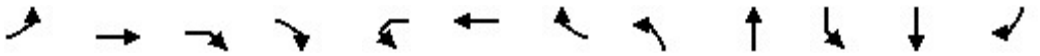
Splits and Phases: 4: Lowell Rd/3A & Walmart Blvd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	0	1	6	0	23	17	821	3	7	655	55
Future Volume (vph)	5	0	1	6	0	23	17	821	3	7	655	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	0		60	0		0	350		0	350		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	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
Frt			0.850		0.895			0.999			0.988	
Flt Protected		0.950			0.989		0.950			0.950		
Satd. Flow (prot)	0	1388	1583	0	1827	0	1770	3435	0	1570	3404	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	1462	1583	0	1847	0	1770	3435	0	1570	3404	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)			95								9	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		297			325			1749			982	
Travel Time (s)		6.8			7.4			39.8			22.3	
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
Heavy Vehicles (%)	30%	2%	2%	2%	2%	5%	2%	5%	2%	15%	5%	2%
Adj. Flow (vph)	5	0	1	7	0	25	18	892	3	8	712	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	5	1	0	32	0	18	895	0	8	772	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			24			24	
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	0.85	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	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		3			7		1	6		5	2	
Permitted Phases	3		3	7								
Detector Phase	3	3	3	7	7		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0		11.0	16.0		11.0	16.0	
Total Split (s)	31.0	31.0	31.0	31.0	31.0		31.0	41.0		31.0	41.0	
Total Split (%)	30.1%	30.1%	30.1%	30.1%	30.1%		30.1%	39.8%		30.1%	39.8%	
Maximum Green (s)	25.0	25.0	25.0	25.0	25.0		25.0	35.0		25.0	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)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None	None	None	None		None	None		None	None	
Act Effct Green (s)		8.6	8.6		9.1		8.7	28.8		8.5	28.8	
Actuated g/C Ratio		0.27	0.27		0.28		0.27	0.90		0.26	0.90	
v/c Ratio		0.01	0.00		0.06		0.04	0.29		0.02	0.25	
Control Delay		18.2	0.0		16.7		17.8	3.8		18.6	3.8	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		18.2	0.0		16.7		17.8	3.8		18.6	3.8	
LOS		B	A		B		B	A		B	A	
Approach Delay		15.2			16.7			4.1			3.9	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		1	0		3		2	0		1	0	
Queue Length 95th (ft)		11	0		35		24	177		15	150	
Internal Link Dist (ft)		217			245			1669			902	
Turn Bay Length (ft)			60				350			350		
Base Capacity (vph)		1232	1349		1557		1492	3096		1323	3069	
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		0.00	0.00		0.02		0.01	0.29		0.01	0.25	

Intersection Summary			
Area Type:	Other		
Cycle Length: 103			
Actuated Cycle Length: 32.1			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.29			
Intersection Signal Delay: 4.3		Intersection LOS: A	
Intersection Capacity Utilization 43.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 5: Lowell Rd/3A & Rena Ave



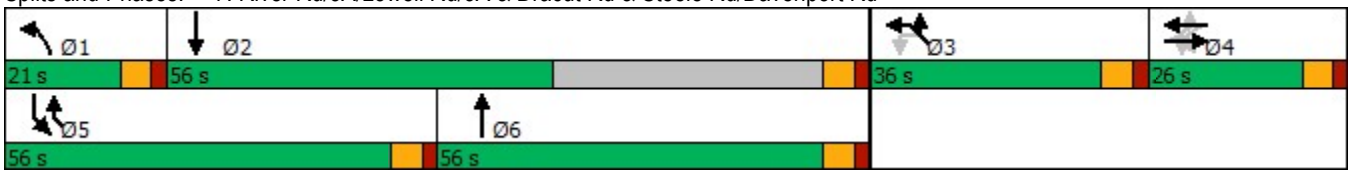
Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	2	2	1	0	1	0	222	346	352	24
Future Volume (vph)	7	0	2	2	1	0	1	0	222	346	352	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0				0	240		820		0
Storage Lanes	1		0				0	2		1		0
Taper Length (ft)	25							25		25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	0.95
Frt		0.850				0.932					0.990	
Flt Protected	0.950					0.976				0.950		
Satd. Flow (prot)	1770	1583	0	0	0	1694	0	1863	3438	1719	3410	0
Flt Permitted										0.950		
Satd. Flow (perm)	1863	1583	0	0	0	1736	0	1863	3438	1719	3410	0
Right Turn on Red				Yes			Yes					Yes
Satd. Flow (RTOR)		132				132					6	
Link Speed (mph)		30				30			30		30	
Link Distance (ft)		386				220			909		1749	
Travel Time (s)		8.8				5.0			20.7		39.8	
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	5%	5%	5%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	8	0	2	2	1	0	1	0	241	376	383	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	4	0	0	0	2	0	0	241	376	409	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Left	Right	Left	Left	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	9	15		9	15		15		9
Turn Type	Perm	NA			Perm	NA		Prot	NA	Prot	NA	
Protected Phases		4				4		1	6	5	2	
Permitted Phases	4				4							
Detector Phase	4	4			4	4		1	6	5	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0	5.0		5.0	8.0	5.0	8.0	
Minimum Split (s)	11.0	11.0			11.0	11.0		11.0	16.0	11.0	14.0	
Total Split (s)	26.0	26.0			26.0	26.0		21.0	56.0	56.0	56.0	
Total Split (%)	14.9%	14.9%			14.9%	14.9%		12.1%	32.2%	32.2%	32.2%	
Maximum Green (s)	20.0	20.0			20.0	20.0		15.0	50.0	50.0	50.0	
Yellow Time (s)	4.0	4.0			4.0	4.0		4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0			2.0	2.0		2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0				0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0				6.0		6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lag			Lag	Lag		Lead	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0	4.0	5.0	4.0	

Lane Group	NWL2	NWL	NWR
Lane Configurations			
Traffic Volume (vph)	8	0	572
Future Volume (vph)	8	0	572
Ideal Flow (vphpl)	1900	1900	1900
Storage Length (ft)		120	0
Storage Lanes		1	1
Taper Length (ft)		25	
Lane Util. Factor	1.00	1.00	1.00
Frt			0.850
Flt Protected		0.950	
Satd. Flow (prot)	0	1770	1552
Flt Permitted		0.950	
Satd. Flow (perm)	0	1770	1552
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)		30	
Link Distance (ft)		960	
Travel Time (s)		21.8	
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%
Bus Blockages (#/hr)	0	0	5
Adj. Flow (vph)	9	0	622
Shared Lane Traffic (%)			
Lane Group Flow (vph)	0	9	622
Enter Blocked Intersection	No	No	No
Lane Alignment	Left	Left	Right
Median Width(ft)		12	
Link Offset(ft)		0	
Crosswalk Width(ft)		16	
Two way Left Turn Lane			
Headway Factor	1.00	1.00	1.03
Turning Speed (mph)	15	15	9
Turn Type	Perm	Prot	pt+ov
Protected Phases		3	3 5
Permitted Phases	3		
Detector Phase	3	3	3 5
Switch Phase			
Minimum Initial (s)	5.0	5.0	
Minimum Split (s)	11.0	11.0	
Total Split (s)	36.0	36.0	
Total Split (%)	20.7%	20.7%	
Maximum Green (s)	30.0	30.0	
Yellow Time (s)	4.0	4.0	
All-Red Time (s)	2.0	2.0	
Lost Time Adjust (s)		0.0	
Total Lost Time (s)		6.0	
Lead/Lag	Lead	Lead	
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	3.0	

Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Recall Mode	None	None			None	None		None	None	None	None	
Act Effct Green (s)	6.5	6.5				6.5			14.2	35.8	56.4	
Actuated g/C Ratio	0.07	0.07				0.07			0.14	0.36	0.57	
v/c Ratio	0.07	0.02				0.01			0.49	0.61	0.21	
Control Delay	56.0	0.2				0.0			46.7	31.9	11.3	
Queue Delay	0.0	0.0				0.0			0.0	0.0	0.0	
Total Delay	56.0	0.2				0.0			46.7	31.9	11.3	
LOS	E	A				A			D	C	B	
Approach Delay		37.4							46.7		21.2	
Approach LOS		D							D		C	
Queue Length 50th (ft)	5	0				0			70	174	54	
Queue Length 95th (ft)	24	0				0			144	354	111	
Internal Link Dist (ft)		306				140			829		1669	
Turn Bay Length (ft)	50									820		
Base Capacity (vph)	400	444				477			1848	924	2896	
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	0.02	0.01				0.00			0.13	0.41	0.14	

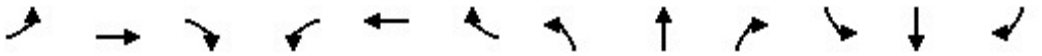
Intersection Summary			
Area Type:	Other		
Cycle Length: 174			
Actuated Cycle Length: 99.1			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 20.9		Intersection LOS: C	
Intersection Capacity Utilization 61.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: River Rd/3A/Lowell Rd/3A & Dracut Rd & Steele Rd/Davenport Rd



Lane Group	NWL2	NWL	NWR
Recall Mode	None	None	
Act Effct Green (s)		25.8	66.1
Actuated g/C Ratio		0.26	0.67
v/c Ratio		0.02	0.60
Control Delay		35.9	10.1
Queue Delay		0.0	0.0
Total Delay		35.9	10.1
LOS		D	B
Approach Delay		10.5	
Approach LOS		B	
Queue Length 50th (ft)		4	144
Queue Length 95th (ft)		21	252
Internal Link Dist (ft)		880	
Turn Bay Length (ft)		120	
Base Capacity (vph)		570	1266
Starvation Cap Reductn		0	0
Spillback Cap Reductn		0	0
Storage Cap Reductn		0	0
Reduced v/c Ratio		0.02	0.49

Intersection Summary



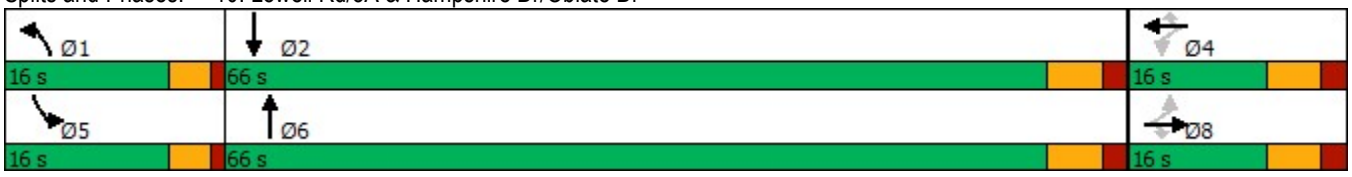
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	0	13	4	0	2	86	750	3	2	989	36
Future Volume (vph)	6	0	13	4	0	2	86	750	3	2	989	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	16	12	12	12	12	12	12
Storage Length (ft)	0		150	0		120	270		0	250		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	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
Frt			0.850			0.850		0.999			0.995	
Flt Protected		0.950			0.950		0.950			0.950		
Satd. Flow (prot)	0	1770	1794	0	1770	1794	1719	3435	0	1770	3522	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	1863	1794	0	1863	1794	1719	3435	0	1770	3522	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			78			78		1			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		412			436			437			1173	
Travel Time (s)		9.4			9.9			9.9			26.7	
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	2%	2%	2%	2%
Adj. Flow (vph)	7	0	14	4	0	2	93	815	3	2	1075	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	7	14	0	4	2	93	818	0	2	1114	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	0.85	1.00	1.00	0.85	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	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						
Detector Phase	8	8	8	4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	15.0		4.0	15.0	
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	16.0	8.0	28.0		8.0	28.0	
Total Split (s)	16.0	16.0	16.0	16.0	16.0	16.0	16.0	66.0		16.0	66.0	
Total Split (%)	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	67.3%		16.3%	67.3%	
Maximum Green (s)	10.0	10.0	10.0	10.0	10.0	10.0	12.0	60.0		12.0	60.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.0	6.0		4.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.0	3.0		2.0	3.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0			0	
Act Effct Green (s)		6.4	6.4		6.3	6.3	8.0	48.8		5.0	37.6	
Actuated g/C Ratio		0.11	0.11		0.11	0.11	0.14	0.88		0.09	0.68	
v/c Ratio		0.03	0.05		0.02	0.01	0.38	0.27		0.01	0.47	
Control Delay		30.2	0.4		30.5	0.0	30.4	2.9		32.5	8.1	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		30.2	0.4		30.5	0.0	30.4	2.9		32.5	8.1	
LOS		C	A		C	A	C	A		C	A	
Approach Delay		10.3			20.3			5.7			8.2	
Approach LOS		B			C			A			A	
Queue Length 50th (ft)		1	0		1	0	20	0		1	65	
Queue Length 95th (ft)		15	0		11	0	87	116		8	226	
Internal Link Dist (ft)		332			356			357			1093	
Turn Bay Length (ft)			150			120	270			250		
Base Capacity (vph)		365	414		365	414	404	3178		416	3259	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.02	0.03		0.01	0.00	0.23	0.26		0.00	0.34	

Intersection Summary

Area Type: Other
Cycle Length: 98
Actuated Cycle Length: 55.7
Natural Cycle: 55
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.47
Intersection Signal Delay: 7.1 Intersection LOS: A
Intersection Capacity Utilization 51.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 10: Lowell Rd/3A & Hampshire Dr/Oblate Dr

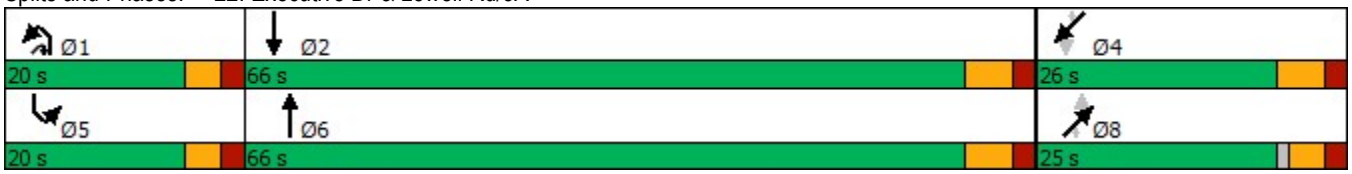


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	110	442	74	83	786	142	31	4	83	158	19	106
Future Volume (vph)	110	442	74	83	786	142	31	4	83	158	19	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	16	12	12	14
Storage Length (ft)	400		0	180		300	0		0	0		0
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.979			0.977				0.850			0.850
Flt Protected	0.950			0.950				0.957			0.957	
Satd. Flow (prot)	1719	3366	0	1770	3458	0	0	1732	1743	0	1783	1689
Flt Permitted	0.950			0.950				0.695			0.722	
Satd. Flow (perm)	1719	3366	0	1770	3458	0	0	1258	1743	0	1345	1689
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			28				90			115
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		669			399			262			149	
Travel Time (s)		15.2			9.1			6.0			3.4	
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
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	120	480	80	90	854	154	34	4	90	172	21	115
Shared Lane Traffic (%)												
Lane Group Flow (vph)	120	560	0	90	1008	0	0	38	90	0	193	115
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	0.85	1.00	1.00	0.92
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases	1	6		5	2			8	1		4	
Permitted Phases							8		8	4		4
Detector Phase	1	6		5	2		8	8	1	4	4	4
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	3.0	3.0	4.0	4.0	4.0
Minimum Split (s)	8.0	31.0		8.0	31.0		25.0	25.0	8.0	26.0	26.0	26.0
Total Split (s)	20.0	66.0		20.0	66.0		25.0	25.0	20.0	26.0	26.0	26.0
Total Split (%)	17.9%	58.9%		17.9%	58.9%		22.3%	22.3%	17.9%	23.2%	23.2%	23.2%
Maximum Green (s)	15.0	60.0		15.0	60.0		20.0	20.0	15.0	20.0	20.0	20.0
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	6.0		5.0	6.0			5.0	5.0		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	2.0	2.0	2.0	2.0	2.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	10.0	37.3		8.6	33.0			16.9	32.2		15.9	15.9
Actuated g/C Ratio	0.13	0.49		0.11	0.43			0.22	0.42		0.21	0.21
v/c Ratio	0.54	0.34		0.45	0.67			0.14	0.12		0.69	0.26
Control Delay	44.3	13.5		43.6	19.8			29.4	4.4		45.5	8.4
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	44.3	13.5		43.6	19.8			29.4	4.4		45.5	8.4
LOS	D	B		D	B			C	A		D	A
Approach Delay		19.0			21.7			11.8			31.7	
Approach LOS		B			C			B			C	
Queue Length 50th (ft)	55	84		41	191			14	0		85	0
Queue Length 95th (ft)	127	140		102	297			48	29		#215	45
Internal Link Dist (ft)		589			319			182			69	
Turn Bay Length (ft)	400			180								
Base Capacity (vph)	352	2676		362	2749			361	907		367	545
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	0.21		0.25	0.37			0.11	0.10		0.53	0.21

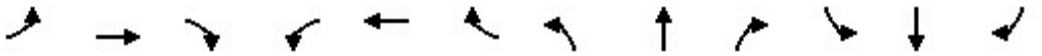
Intersection Summary			
Area Type:	Other		
Cycle Length: 112			
Actuated Cycle Length: 76.7			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 21.7		Intersection LOS: C	
Intersection Capacity Utilization 62.9%		ICU Level of Service B	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 22: Executive Dr & Lowell Rd/3A



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	579	692	0
Future Volume (vph)	0	0	0	579	692	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
F						
S						
F						
S						
L						
L						
T						
F						
A						
S						
L						
E						
L						
M						
L						
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.8%		ICU Level of Service A	
Analysis Period (min) 15			

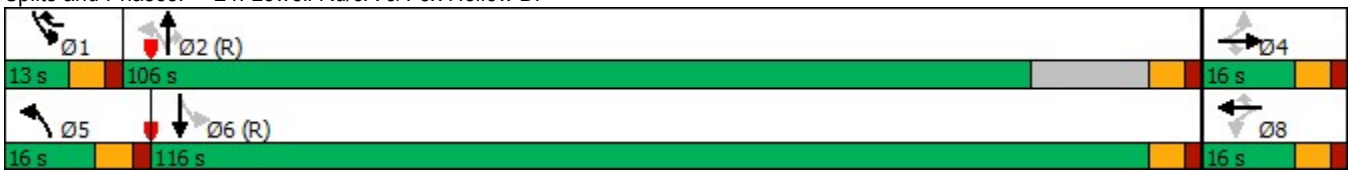


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	1	31	17	4	25	39	930	6	17	644	3
Future Volume (vph)	35	1	31	17	4	25	39	930	6	17	644	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	14	14	12	12	12	12	12	12
Storage Length (ft)	0		120	0		0	250		400	220		0
Storage Lanes	0		1	0		1	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	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.999	
Flt Protected		0.954			0.961		0.950			0.950		
Satd. Flow (prot)	0	1726	1538	0	1909	1689	1770	1863	1583	1570	1651	0
Flt Permitted		0.716			0.738		0.354			0.218		
Satd. Flow (perm)	0	1296	1538	0	1466	1689	659	1863	1583	360	1651	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			66			27			66			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		271			227			1282			634	
Travel Time (s)		6.2			5.2			29.1			14.4	
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
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	15%	15%	15%
Adj. Flow (vph)	38	1	34	18	4	27	42	1011	7	18	700	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	39	34	0	22	27	42	1011	7	18	703	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	0.92	0.92	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	NA	Perm	Perm	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8	1	5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	8	8	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	31.0	31.0	11.0	31.0	
Total Split (s)	16.0	16.0	16.0	16.0	16.0	13.0	16.0	106.0	106.0	13.0	116.0	
Total Split (%)	10.8%	10.8%	10.8%	10.8%	10.8%	8.8%	10.8%	71.6%	71.6%	8.8%	78.4%	
Maximum Green (s)	10.0	10.0	10.0	10.0	10.0	7.0	10.0	100.0	100.0	7.0	110.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	1.5	1.5	1.5	1.5	1.0	1.5	1.5	1.5	1.0	1.5	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	
Walk Time (s)								7.0	7.0		7.0	
Flash Dont Walk (s)								18.0	18.0		18.0	
Pedestrian Calls (#/hr)								0	0		0	
Act Effct Green (s)		8.6	8.6		8.6	17.4	124.8	122.0	122.0	124.8	122.0	
Actuated g/C Ratio		0.06	0.06		0.06	0.12	0.84	0.82	0.82	0.84	0.82	
v/c Ratio		0.52	0.23		0.26	0.12	0.07	0.66	0.01	0.05	0.52	
Control Delay		90.5	5.2		72.6	18.6	2.1	9.7	0.0	2.2	7.3	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	1.1	
Total Delay		90.5	5.2		72.6	18.6	2.1	9.7	0.0	2.2	8.4	
LOS		F	A		E	B	A	A	A	A	A	
Approach Delay		50.8			42.8			9.3			8.2	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)		37	0		21	0	4	391	0	2	216	
Queue Length 95th (ft)		78	6		50	29	12	612	0	6	345	
Internal Link Dist (ft)		191			147			1202			554	
Turn Bay Length (ft)			120				250		400	220		
Base Capacity (vph)		92	171		105	244	648	1537	1318	364	1360	
Starvation Cap Reductn		0	0		0	0	0	0	0	0	405	
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		0.42	0.20		0.21	0.11	0.06	0.66	0.01	0.05	0.74	

Intersection Summary			
Area Type:	Other		
Cycle Length: 148			
Actuated Cycle Length: 148			
Offset: 45 (30%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 11.4		Intersection LOS: B	
Intersection Capacity Utilization 72.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 24: Lowell Rd/3A & Fox Hollow Dr

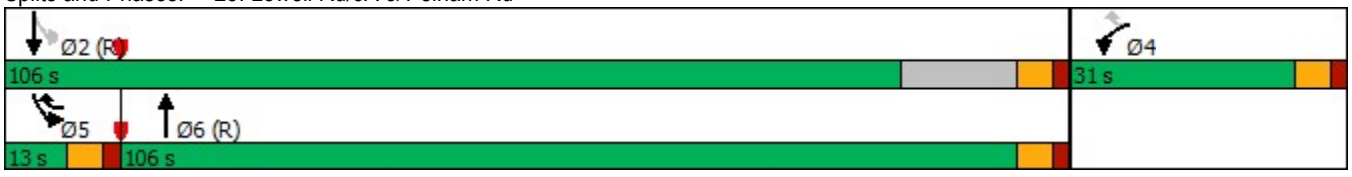


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	202	74	555	85	72	868
Future Volume (vph)	202	74	555	85	72	868
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12
Storage Length (ft)	0	100		0	160	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1719	1743	1777	0	1388	1462
Flt Permitted	0.950				0.290	
Satd. Flow (perm)	1719	1743	1777	0	424	1462
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		58	11			
Link Speed (mph)	30		30			30
Link Distance (ft)	345		634			526
Travel Time (s)	7.8		14.4			12.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	5%	5%	30%	30%
Adj. Flow (vph)	220	80	603	92	78	943
Shared Lane Traffic (%)						
Lane Group Flow (vph)	220	80	695	0	78	943
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA		pm+pt	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4			2	
Detector Phase	4	5	6		5	2
Switch Phase						
Minimum Initial (s)	5.0	3.0	10.0		3.0	10.0
Minimum Split (s)	11.0	9.0	31.0		9.0	16.0
Total Split (s)	31.0	13.0	106.0		13.0	106.0
Total Split (%)	20.7%	8.7%	70.7%		8.7%	70.7%
Maximum Green (s)	25.0	7.0	100.0		7.0	100.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	1.5	1.5		1.5	1.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Recall Mode	None	None	C-Min		None	C-Min
Walk Time (s)			7.0			
Flash Dont Walk (s)			18.0			
Pedestrian Calls (#/hr)			0			
Act Effct Green (s)	23.4	35.7	102.3		114.6	114.6
Actuated g/C Ratio	0.16	0.24	0.68		0.76	0.76
v/c Ratio	0.82	0.17	0.57		0.21	0.84
Control Delay	84.5	15.4	15.6		6.6	22.1
Queue Delay	0.0	0.0	2.0		0.0	0.0
Total Delay	84.5	15.4	17.6		6.6	22.1
LOS	F	B	B		A	C
Approach Delay	66.1		17.6			20.9
Approach LOS	E		B			C
Queue Length 50th (ft)	211	17	325		17	547
Queue Length 95th (ft)	293	57	529		38	#1112
Internal Link Dist (ft)	265		554			446
Turn Bay Length (ft)		100			160	
Base Capacity (vph)	303	470	1237		370	1131
Starvation Cap Reductn	0	0	376		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.73	0.17	0.81		0.21	0.83

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 26.5		Intersection LOS: C	
Intersection Capacity Utilization 66.9%		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: 25: Lowell Rd/3A & Pelham Rd

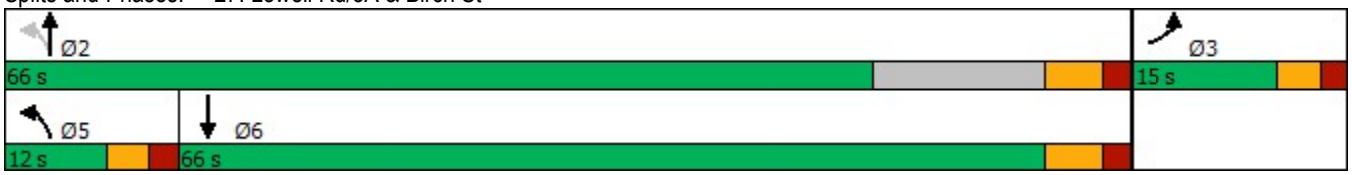


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	32	32	534	736	12
Future Volume (vph)	38	32	32	534	736	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	12	12	12	12
Storage Length (ft)	0	0	150			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.938				0.998	
Flt Protected	0.974		0.950			
Satd. Flow (prot)	1874	0	1719	1810	1806	0
Flt Permitted	0.974		0.216			
Satd. Flow (perm)	1874	0	391	1810	1806	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	35				2	
Link Speed (mph)	30			30	30	
Link Distance (ft)	442			1237	1199	
Travel Time (s)	10.0			28.1	27.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	41	35	35	580	800	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	76	0	35	580	813	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	16			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot		pm+pt	NA	NA	
Protected Phases	3		5	2	6	
Permitted Phases			2			
Detector Phase	3		5	2	6	
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	
Minimum Split (s)	15.0		10.0	11.0	11.0	
Total Split (s)	15.0		12.0	66.0	66.0	
Total Split (%)	16.1%		12.9%	71.0%	71.0%	
Maximum Green (s)	10.0		7.0	60.0	60.0	
Yellow Time (s)	3.0		3.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	5.0		5.0	6.0	6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.0	2.0	2.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Recall Mode	None		None	Min	Min	
Walk Time (s)	7.0					
Flash Dont Walk (s)	3.0					
Pedestrian Calls (#/hr)	0					
Act Effct Green (s)	6.8		44.4	45.5	41.9	
Actuated g/C Ratio	0.12		0.76	0.78	0.72	
v/c Ratio	0.31		0.08	0.41	0.63	
Control Delay	22.8		2.6	4.4	10.9	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	22.8		2.6	4.4	10.9	
LOS	C		A	A	B	
Approach Delay	22.8			4.3	10.9	
Approach LOS	C			A	B	
Queue Length 50th (ft)	14		2	65	112	
Queue Length 95th (ft)	61		9	131	418	
Internal Link Dist (ft)	362			1157	1119	
Turn Bay Length (ft)			150			
Base Capacity (vph)	387		474	1751	1657	
Starvation Cap Reductn	0		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.20		0.07	0.33	0.49	

Intersection Summary			
Area Type:	Other		
Cycle Length: 93			
Actuated Cycle Length: 58.6			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 8.8		Intersection LOS: A	
Intersection Capacity Utilization 52.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 27: Lowell Rd/3A & Birch St

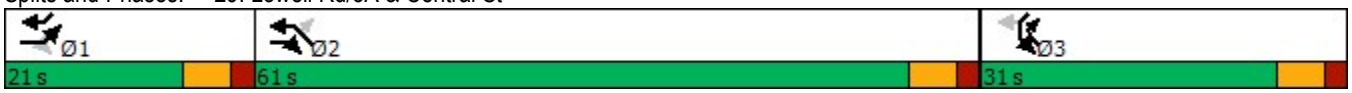


Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	128	607	463	109	199	125
Future Volume (vph)	128	607	463	109	199	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	11	11
Storage Length (ft)	300	0	0	80	0	120
Storage Lanes	1	1	1	1	1	1
Taper Length (ft)	25		25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		0.850
Flt Protected	0.950		0.950		0.950	
Satd. Flow (prot)	1770	1583	1719	1641	1711	1531
Flt Permitted	0.950		0.950		0.950	
Satd. Flow (perm)	1770	1583	1719	1641	1711	1531
Right Turn on Red		Yes		Yes		Yes
Satd. Flow (RTOR)		307		118		136
Link Speed (mph)	30		30		30	
Link Distance (ft)	636		905		654	
Travel Time (s)	14.5		20.6		14.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	5%	5%	2%	2%
Adj. Flow (vph)	139	660	503	118	216	136
Shared Lane Traffic (%)						
Lane Group Flow (vph)	139	660	503	118	216	136
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Right
Median Width(ft)	12		12		11	
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	0.92	1.04	1.04
Turning Speed (mph)	15	9	15	9	15	9
Turn Type	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov
Protected Phases	1	2	2	3	3	1
Permitted Phases		1		2		3
Detector Phase	1	2	2	3	3	1
Switch Phase						
Minimum Initial (s)	8.0	10.0	10.0	8.0	8.0	8.0
Minimum Split (s)	14.0	31.0	31.0	31.0	31.0	14.0
Total Split (s)	21.0	61.0	61.0	31.0	31.0	21.0
Total Split (%)	18.6%	54.0%	54.0%	27.4%	27.4%	18.6%
Maximum Green (s)	15.0	55.0	55.0	25.0	25.0	15.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	2.5	2.5	2.0	2.0	1.5

Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Recall Mode	None	Min	Min	None	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0	18.0	18.0	18.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	11.0	52.0	34.6	56.2	15.2	32.6
Actuated g/C Ratio	0.14	0.65	0.43	0.70	0.19	0.41
v/c Ratio	0.57	0.58	0.68	0.10	0.67	0.19
Control Delay	47.5	6.2	23.9	0.9	43.9	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.5	6.3	23.9	0.9	43.9	4.4
LOS	D	A	C	A	D	A
Approach Delay	13.4		19.5		28.6	
Approach LOS	B		B		C	
Queue Length 50th (ft)	63	66	184	0	97	0
Queue Length 95th (ft)	163	195	369	12	222	38
Internal Link Dist (ft)	556		825		574	
Turn Bay Length (ft)	300			80		120
Base Capacity (vph)	356	1427	1253	1408	573	792
Starvation Cap Reductn	0	57	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	0.39	0.48	0.40	0.08	0.38	0.17

Intersection Summary			
Area Type:	Other		
Cycle Length: 113			
Actuated Cycle Length: 80.1			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 18.6		Intersection LOS: B	
Intersection Capacity Utilization 58.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 29: Lowell Rd/3A & Central St

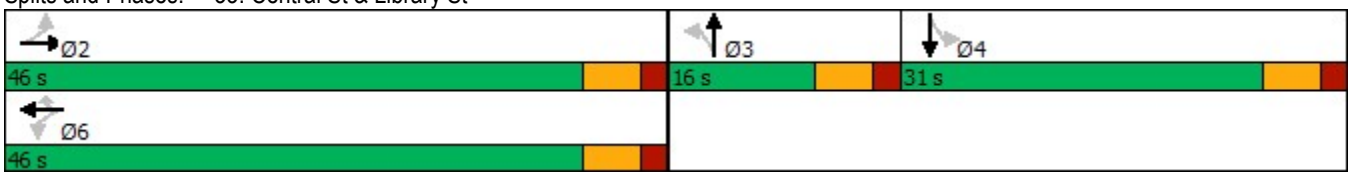


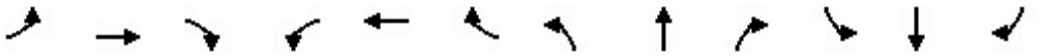
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	290	0	2	347	239	1	1	1	408	9	1
Future Volume (vph)	1	290	0	2	347	239	1	1	1	408	9	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	16	12
Storage Length (ft)	0		0	0		200	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850		0.955				
Flt Protected								0.984			0.953	
Satd. Flow (prot)	0	1863	0	0	1863	1583	0	1750	0	0	2012	0
Flt Permitted		0.999			0.998						0.730	
Satd. Flow (perm)	0	1861	0	0	1859	1583	0	1779	0	0	1541	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						260		1				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		888			636			108			794	
Travel Time (s)		20.2			14.5			2.5			18.0	
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)	1	315	0	2	377	260	1	1	1	443	10	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	316	0	0	379	260	0	3	0	0	454	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	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			3			4	
Permitted Phases	2			6		6	3			4		
Detector Phase	2	2		6	6	6	3	3		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	5.0		10.0	10.0	
Minimum Split (s)	31.0	31.0		16.0	16.0	16.0	16.0	16.0		31.0	31.0	
Total Split (s)	46.0	46.0		46.0	46.0	46.0	16.0	16.0		31.0	31.0	
Total Split (%)	49.5%	49.5%		49.5%	49.5%	49.5%	17.2%	17.2%		33.3%	33.3%	
Maximum Green (s)	40.0	40.0		40.0	40.0	40.0	10.0	10.0		25.0	25.0	
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)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0			6.0	
Lead/Lag							Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	

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	
Flash Dont Walk (s)	3.0	3.0					3.0	3.0		3.0	3.0	
Pedestrian Calls (#/hr)	0	0					0	0		0	0	
Act Effct Green (s)		18.3			18.3	18.3		5.2			25.7	
Actuated g/C Ratio		0.32			0.32	0.32		0.09			0.44	
v/c Ratio		0.54			0.65	0.38		0.02			0.66	
Control Delay		20.1			22.8	4.2		27.7			22.8	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		20.1			22.8	4.2		27.7			22.8	
LOS		C			C	A		C			C	
Approach Delay		20.1			15.2			27.7			22.8	
Approach LOS		C			B			C			C	
Queue Length 50th (ft)		82			103	0		1			105	
Queue Length 95th (ft)		181			221	44		9			#388	
Internal Link Dist (ft)		808			556			28			714	
Turn Bay Length (ft)						200						
Base Capacity (vph)		1320			1319	1198		316			683	
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		0.24			0.29	0.22		0.01			0.66	

Intersection Summary			
Area Type:	Other		
Cycle Length: 93			
Actuated Cycle Length: 58			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 18.8		Intersection LOS: B	
Intersection Capacity Utilization 59.5%		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: 33: Central St & Library St





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	259	1	3	8	227	0	2	3	62	2	4
Future Volume (vph)	18	259	1	3	8	227	0	2	3	62	2	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	16	12	16	12	12	16	12
Storage Length (ft)	0		0	0		250	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850		0.919			0.993	
Flt Protected		0.997			0.988						0.956	
Satd. Flow (prot)	0	2067	0	0	2086	1743	0	1666	0	0	1794	0
Flt Permitted		0.997			0.988						0.956	
Satd. Flow (perm)	0	2067	0	0	2086	1743	0	1666	0	0	1794	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		439			888			261			628	
Travel Time (s)		10.0			20.2			5.9			14.3	
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
Heavy Vehicles (%)	30%	2%	2%	2%	2%	5%	2%	2%	30%	15%	2%	2%
Adj. Flow (vph)	20	282	1	3	9	247	0	2	3	67	2	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	303	0	0	12	247	0	5	0	0	73	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	0.85	1.00	1.00	0.85	0.85	1.00	0.85	1.00	1.00	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	42.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	0	0	0	892	0	1420
Future Volume (vph)	0	0	0	892	0	1420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.88
Frt						0.850
Flt						
Sa						
Flt						
Sa						
Lir						
Lir						
Tr						
Pe						
Ac						
Sh						
La						
Er						
La						
Me						
Lir						
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
Turning Speed (mph)	15	9	15			9
Sign Control	Free			Free	Free	

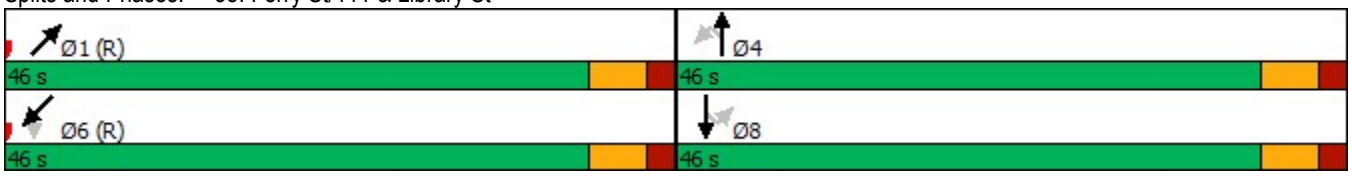
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.0%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	10	277	8	25	378	3	0	410	13	2	373	12
Future Volume (vph)	10	277	8	25	378	3	0	410	13	2	373	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	175		0	0		0	200		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.999			0.996			0.995	
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1770	1855	0	1770	1861	0	0	1855	0	1770	1853	0
Flt Permitted	0.257			0.409						0.430		
Satd. Flow (perm)	479	1855	0	762	1861	0	0	1855	0	801	1853	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			1			2			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		342			444			371			1247	
Travel Time (s)		7.8			10.1			8.4			28.3	
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)	11	301	9	27	411	3	0	446	14	2	405	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	310	0	27	414	0	0	460	0	2	418	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	NA		Perm	NA			NA		Perm	NA	
Protected Phases		4			8			1			6	
Permitted Phases	4			8						6		
Detector Phase	4	4		8	8			1		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0			10.0		10.0	10.0	
Minimum Split (s)	31.0	31.0		31.0	31.0			31.0		31.0	31.0	
Total Split (s)	46.0	46.0		46.0	46.0			46.0		46.0	46.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%			50.0%		50.0%	50.0%	
Maximum Green (s)	40.0	40.0		40.0	40.0			40.0		40.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Recall Mode	None	None		None	None			C-Min		C-Min	C-Min	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Flash Dont Walk (s)	18.0	18.0		18.0	18.0			18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)	26.7	26.7		26.7	26.7			53.3		53.3	53.3	
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.58		0.58	0.58	
v/c Ratio	0.08	0.58		0.12	0.77			0.43		0.00	0.39	
Control Delay	21.6	31.0		22.4	38.9			13.7		11.0	13.2	
Queue Delay	0.0	0.0		0.0	0.1			1.7		0.0	0.0	
Total Delay	21.6	31.0		22.4	39.0			15.4		11.0	13.2	
LOS	C	C		C	D			B		B	B	
Approach Delay		30.7			38.0			15.4			13.2	
Approach LOS		C			D			B			B	
Queue Length 50th (ft)	5	153		12	220			137		1	121	
Queue Length 95th (ft)	16	202		28	281			263		4	233	
Internal Link Dist (ft)		262			364			291			1167	
Turn Bay Length (ft)				175						200		
Base Capacity (vph)	208	807		331	809			1075		464	1074	
Starvation Cap Reductn	0	0		0	39			429		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	0.05	0.38		0.08	0.54			0.71		0.00	0.39	

Intersection Summary			
Area Type:	Other		
Cycle Length: 92			
Actuated Cycle Length: 92			
Offset: 0 (0%), Referenced to phase 1:NET and 6:SWTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 23.9		Intersection LOS: C	
Intersection Capacity Utilization 53.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 38: Ferry St/111 & Library St



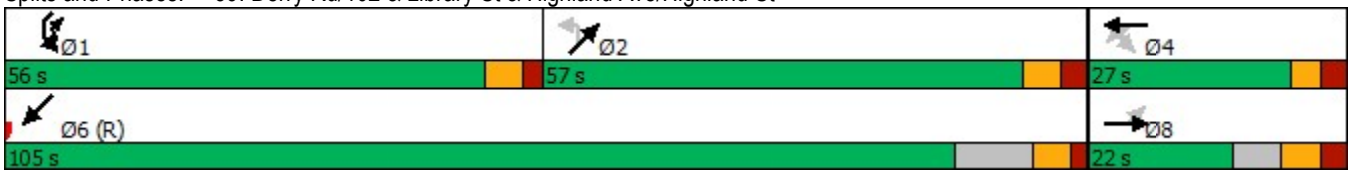
Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NWR	NWR2	NEL	NET
Lane Configurations												
Traffic Volume (vph)	10	10	4	6	2	2	13	52	357	6	1	570
Future Volume (vph)	10	10	4	6	2	2	13	52	357	6	1	570
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12	16	12	12	12	12	12
Storage Length (ft)	0		0			0		0	0		0	
Storage Lanes	0		0			0		0	1		0	
Taper Length (ft)	25					25					25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.955					0.897		0.865			0.998
Flt Protected		0.984					0.997					
Satd. Flow (prot)	0	1927	0	0	0	0	1834	0	1611	0	0	1859
Flt Permitted		0.781					0.980					0.999
Satd. Flow (perm)	0	1530	0	0	0	0	1803	0	1611	0	0	1857
Right Turn on Red				Yes				Yes		Yes		
Satd. Flow (RTOR)		7					57		86			
Link Speed (mph)		30					30					30
Link Distance (ft)		286					634					617
Travel Time (s)		6.5					14.4					14.0
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
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%
Adj. Flow (vph)	11	11	4	7	2	2	14	57	388	7	1	620
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	0	0	0	75	0	395	0	0	632
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Left	Left	Right	Right	Right	Left	Left
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	0.85	1.00	1.00	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	9	15	15		9	9	9	15	
Turn Type	Perm	NA			Perm	Perm	NA		Over		Perm	NA
Protected Phases		8					4		1			2
Permitted Phases	8				4	4					2	
Detector Phase	8	8			4	4	4		1		2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0	5.0	5.0		10.0		10.0	10.0
Minimum Split (s)	22.0	22.0			11.0	11.0	11.0		16.0		17.0	17.0
Total Split (s)	22.0	22.0			27.0	27.0	27.0		56.0		57.0	57.0
Total Split (%)	15.7%	15.7%			19.3%	19.3%	19.3%		40.0%		40.7%	40.7%
Maximum Green (s)	15.0	15.0			21.0	21.0	21.0		50.0		50.0	50.0
Yellow Time (s)	4.0	4.0			3.0	3.0	3.0		4.0		4.0	4.0
All-Red Time (s)	3.0	3.0			3.0	3.0	3.0		2.0		3.0	3.0
Lost Time Adjust (s)		0.0					0.0		0.0			0.0
Total Lost Time (s)		7.0					6.0		6.0			7.0
Lead/Lag									Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		4.0	4.0

Lane Group	NER	SWL	SWT
Lane Configurations			
Traffic Volume (vph)	10	361	576
Future Volume (vph)	10	361	576
Ideal Flow (vphpl)	1900	1900	1900
Lane Width (ft)	12	12	12
Storage Length (ft)	0	0	
Storage Lanes	0	1	
Taper Length (ft)		25	
Lane Util. Factor	1.00	1.00	1.00
Frt			
Flt Protected		0.950	
Satd. Flow (prot)	0	1719	1810
Flt Permitted		0.950	
Satd. Flow (perm)	0	1719	1810
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			30
Link Distance (ft)			845
Travel Time (s)			19.2
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	5%
Adj. Flow (vph)	11	392	626
Shared Lane Traffic (%)			
Lane Group Flow (vph)	0	392	626
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(ft)			12
Link Offset(ft)			0
Crosswalk Width(ft)			16
Two way Left Turn Lane			
Headway Factor	1.00	1.00	1.00
Turning Speed (mph)	9	15	
Turn Type		Prot	NA
Protected Phases		1	6
Permitted Phases			
Detector Phase		1	6
Switch Phase			
Minimum Initial (s)		10.0	10.0
Minimum Split (s)		16.0	16.0
Total Split (s)		56.0	105.0
Total Split (%)		40.0%	75.0%
Maximum Green (s)		50.0	99.0
Yellow Time (s)		4.0	4.0
All-Red Time (s)		2.0	2.0
Lost Time Adjust (s)		0.0	0.0
Total Lost Time (s)		6.0	6.0
Lead/Lag		Lead	
Lead-Lag Optimize?			
Vehicle Extension (s)		3.0	3.0

Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NWR	NWR2	NEL	NET
Recall Mode	None	None			None	None	None		None		Min	Min
Walk Time (s)	7.0	7.0										
Flash Dont Walk (s)	8.0	8.0										
Pedestrian Calls (#/hr)	0	0										
Act Effct Green (s)		7.7					8.7		39.5			72.8
Actuated g/C Ratio		0.06					0.06		0.28			0.52
v/c Ratio		0.37					0.45		0.77			0.65
Control Delay		63.8					30.7		45.0			30.8
Queue Delay		0.0					0.0		1.5			3.2
Total Delay		63.8					30.7		46.4			34.0
LOS		E					C		D			C
Approach Delay		63.8					30.7					34.0
Approach LOS		E					C					C
Queue Length 50th (ft)		23					16		263			409
Queue Length 95th (ft)		59					67		349			666
Internal Link Dist (ft)		206					554					537
Turn Bay Length (ft)												
Base Capacity (vph)		224					318		631			966
Starvation Cap Reductn		0					0		100			232
Spillback Cap Reductn		0					0		0			0
Storage Cap Reductn		0					0		0			0
Reduced v/c Ratio		0.15					0.24		0.74			0.86

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 6:SWT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 32.3		Intersection LOS: C	
Intersection Capacity Utilization 82.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 39: Derry Rd/102 & Library St & Highland Ave/Highland St



Lane Group	NER	SWL	SWT
Recall Mode		None	C-Min
Walk Time (s)			
Flash Dont Walk (s)			
Pedestrian Calls (#/hr)			
Act Effct Green (s)		39.5	119.3
Actuated g/C Ratio		0.28	0.85
v/c Ratio		0.81	0.41
Control Delay		59.5	3.3
Queue Delay		0.0	0.0
Total Delay		59.5	3.3
LOS		E	A
Approach Delay			24.9
Approach LOS			C
Queue Length 50th (ft)		332	97
Queue Length 95th (ft)		411	156
Internal Link Dist (ft)			765
Turn Bay Length (ft)			
Base Capacity (vph)		614	1542
Starvation Cap Reductn		0	0
Spillback Cap Reductn		0	0
Storage Cap Reductn		0	0
Reduced v/c Ratio		0.64	0.41

Intersection Summary

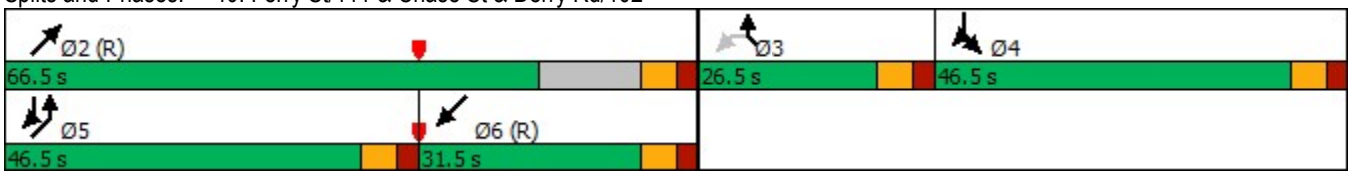
Lane Group	SBL	SBR	NWL	NWR	NWR2	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	73	697	243	13	17	403	480	9	0	480	0
Future Volume (vph)	73	697	243	13	17	403	480	9	0	480	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	13	12	12	12	12	12
Storage Length (ft)	150	300	0	0		0		0	0		0
Storage Lanes	1	1	1	1		1		0	0		0
Taper Length (ft)	25		25			25			25		
Lane Util. Factor	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt		0.850		0.850			0.997				
Flt Protected	0.950		0.950			0.950					
Satd. Flow (prot)	1719	2707	1719	1641	0	1776	1804	0	0	3438	0
Flt Permitted	0.950		0.189			0.950					
Satd. Flow (perm)	1719	2707	342	1641	0	1776	1804	0	0	3438	0
Right Turn on Red		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		73		119			1				
Link Speed (mph)	30		30				30			30	
Link Distance (ft)	617		345				426			371	
Travel Time (s)	14.0		7.8				9.7			8.4	
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
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	2%	5%	2%
Adj. Flow (vph)	79	758	264	14	18	438	522	10	0	522	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	79	758	264	32	0	438	532	0	0	522	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12		12				13			13	
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	0.92	1.00	0.96	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9	9	15		9	15		9
Turn Type	Prot	pt+ov	Perm	Prot		Prot	NA			NA	
Protected Phases	4	4 5		3		5	2			6	
Permitted Phases			3								
Detector Phase	4	4 5	3	3		5	2			6	
Switch Phase											
Minimum Initial (s)	8.0		5.0	5.0		8.0	10.0			10.0	
Minimum Split (s)	24.5		24.5	24.5		24.5	24.5			24.5	
Total Split (s)	46.5		26.5	26.5		46.5	66.5			31.5	
Total Split (%)	30.8%		17.5%	17.5%		30.8%	44.0%			20.9%	
Maximum Green (s)	40.0		20.0	20.0		40.0	60.0			25.0	
Yellow Time (s)	4.0		4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)	2.5		2.5	2.5		2.5	2.5			2.5	
Lost Time Adjust (s)	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.5		6.5	6.5		6.5	6.5			6.5	
Lead/Lag	Lag		Lead	Lead		Lead				Lag	
Lead-Lag Optimize?											
Vehicle Extension (s)	1.5		1.5	1.5		1.5	1.5			1.5	

Lane Group	SBL	SBR	NWL	NWR	NWR2	NEL	NET	NER	SWL	SWT	SWR
Recall Mode	None		None	None		None	C-Min			C-Min	
Walk Time (s)	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	11.0		11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0		0	0		0	0			0	
Act Effct Green (s)	32.2	82.0	21.2	21.2		43.3	78.1			28.3	
Actuated g/C Ratio	0.21	0.54	0.14	0.14		0.29	0.52			0.19	
v/c Ratio	0.22	0.50	5.50	0.10		0.86	0.57			0.81	
Control Delay	49.0	20.2	2101.9	0.6		68.0	28.6			69.9	
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0			1.7	
Total Delay	49.0	20.2	2101.9	0.6		68.0	28.6			71.6	
LOS	D	C	F	A		E	C			E	
Approach Delay	22.9		1874.7				46.4			71.6	
Approach LOS	C		F				D			E	
Queue Length 50th (ft)	66	217	~493	0		386	336			270	
Queue Length 95th (ft)	107	273	#651	0		#633	512			#376	
Internal Link Dist (ft)	537		265				346			291	
Turn Bay Length (ft)	150	300									
Base Capacity (vph)	455	1509	48	332		516	933			644	
Starvation Cap Reductn	0	0	0	0		0	0			38	
Spillback Cap Reductn	0	0	0	0		0	0			0	
Storage Cap Reductn	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.17	0.50	5.50	0.10		0.85	0.57			0.86	

Intersection Summary

Area Type: Other
Cycle Length: 151
Actuated Cycle Length: 151
Offset: 0 (0%), Referenced to phase 2:NET and 6:SWT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 5.50
Intersection Signal Delay: 250.1 Intersection LOS: F
Intersection Capacity Utilization 77.4% 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: 40: Ferry St/111 & Chase St & Derry Rd/102



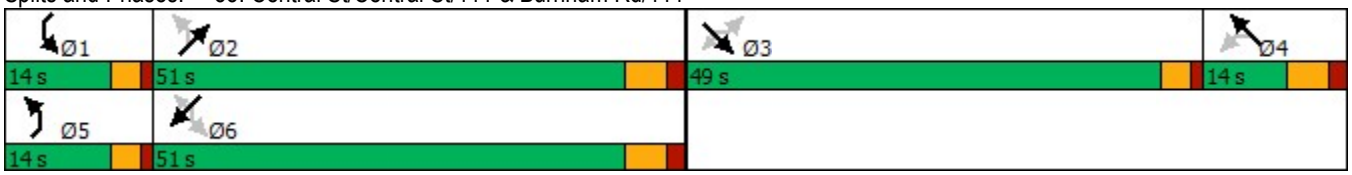
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	390	4	34	16	6	14	13	269	14	17	368	513
Future Volume (vph)	390	4	34	16	6	14	13	269	14	17	368	513
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	16	12	12	12	12	12	12	14
Storage Length (ft)	0		200	0		0	120		0	280		280
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.948			0.993				0.850
Flt Protected		0.953			0.979		0.950			0.950		
Satd. Flow (prot)	0	1775	1794	0	1959	0	1770	1850	0	1770	1863	1689
Flt Permitted		0.438			0.700		0.262			0.399		
Satd. Flow (perm)	0	816	1794	0	1401	0	488	1850	0	743	1863	1689
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			111		15			2				558
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		882			126			314			2248	
Travel Time (s)		20.0			2.9			7.1			51.1	
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)	424	4	37	17	7	15	14	292	15	18	400	558
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	428	37	0	39	0	14	307	0	18	400	558
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	0.85	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	0.92
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		6
Detector Phase	3	3	3	4	4		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	4.0	4.0		4.0	10.0		4.0	10.0	10.0
Minimum Split (s)	14.0	14.0	14.0	10.0	10.0		8.0	16.0		8.0	16.0	16.0
Total Split (s)	49.0	49.0	49.0	14.0	14.0		14.0	51.0		14.0	51.0	51.0
Total Split (%)	38.3%	38.3%	38.3%	10.9%	10.9%		10.9%	39.8%		10.9%	39.8%	39.8%
Maximum Green (s)	45.0	45.0	45.0	8.0	8.0		10.0	45.0		10.0	45.0	45.0
Yellow Time (s)	3.0	3.0	3.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	2.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		6.0		4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		2.0	3.0		2.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Act Effct Green (s)		47.0	47.0		7.0		33.7	29.6		33.7	29.6	29.6
Actuated g/C Ratio		0.48	0.48		0.07		0.35	0.30		0.35	0.30	0.30
v/c Ratio		1.09	0.04		0.34		0.06	0.55		0.06	0.71	0.62
Control Delay		102.0	0.1		44.2		20.2	32.8		20.1	38.4	5.7
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		102.0	0.1		44.2		20.2	32.8		20.1	38.4	5.7
LOS		F	A		D		C	C		C	D	A
Approach Delay		93.9			44.3			32.3			19.4	
Approach LOS		F			D			C			B	
Queue Length 50th (ft)		~309	0		14		6	158		8	220	0
Queue Length 95th (ft)		#672	0		56		18	272		22	366	74
Internal Link Dist (ft)		802			46			234			2168	
Turn Bay Length (ft)			200				120			280		280
Base Capacity (vph)		393	922		134		311	892		376	897	1103
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		1.09	0.04		0.29		0.05	0.34		0.05	0.45	0.51

Intersection Summary

Area Type: Other
Cycle Length: 128
Actuated Cycle Length: 97.6
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 41.4 Intersection LOS: D
Intersection Capacity Utilization 56.2% 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: 55: Central St/Central St/111 & Burnham Rd/111



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations												
Traffic Volume (vph)	26	28	478	26	137	267	124	28	149	102	3	11
Future Volume (vph)	26	28	478	26	137	267	124	28	149	102	3	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	12	16	12	12	16	12
Storage Length (ft)		300		300	300		300		140		300	
Storage Lanes		1		1	1		2		1		0	
Taper Length (ft)		25			25				25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850	0.850		0.982		
Flt Protected		0.950			0.950				0.950			
Satd. Flow (prot)	0	1719	1652	1641	1770	1810	1538	1743	1719	1824	0	0
Flt Permitted		0.260			0.260				0.514			
Satd. Flow (perm)	0	470	1652	1641	484	1810	1538	1743	930	1824	0	0
Right Turn on Red				Yes				Yes				Yes
Satd. Flow (RTOR)				132				132		3		
Link Speed (mph)			30			30				30		
Link Distance (ft)			2248			4120				755		
Travel Time (s)			51.1			93.6				17.2		
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
Heavy Vehicles (%)	5%	5%	15%	5%	2%	5%	5%	5%	5%	2%	2%	5%
Adj. Flow (vph)	28	30	520	28	149	290	135	30	162	111	3	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	58	520	28	149	290	135	30	162	126	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Right	Left	Left	Right	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	0.92	1.00	1.00	1.00	0.85	1.00	1.00	0.85	1.00
Turning Speed (mph)	15	15		9	15		9	9	15		9	9
Turn Type	custom	Prot	NA	Free	custom	NA	Perm	Free	pm+pt	NA		
Protected Phases		1	6			2			7	4		
Permitted Phases	1			Free	5		2	Free	4			
Detector Phase	1	1	6		5	2	2		7	4		
Switch Phase												
Minimum Initial (s)	4.0	4.0	15.0		4.0	15.0	15.0		4.0	10.0		
Minimum Split (s)	8.0	8.0	21.0		8.0	21.0	21.0		8.0	16.0		
Total Split (s)	19.0	19.0	66.0		19.0	66.0	66.0		19.0	51.0		
Total Split (%)	10.9%	10.9%	37.9%		10.9%	37.9%	37.9%		10.9%	29.3%		
Maximum Green (s)	15.0	15.0	60.0		15.0	60.0	60.0		15.0	45.0		
Yellow Time (s)	3.0	3.0	4.0		3.0	4.0	4.0		3.0	4.0		
All-Red Time (s)	1.0	1.0	2.0		1.0	2.0	2.0		1.0	2.0		
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0		0.0	0.0		
Total Lost Time (s)		4.0	6.0		4.0	6.0	6.0		4.0	6.0		
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag		Lag			
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	3.0		2.0	3.0	3.0		2.0	3.0		

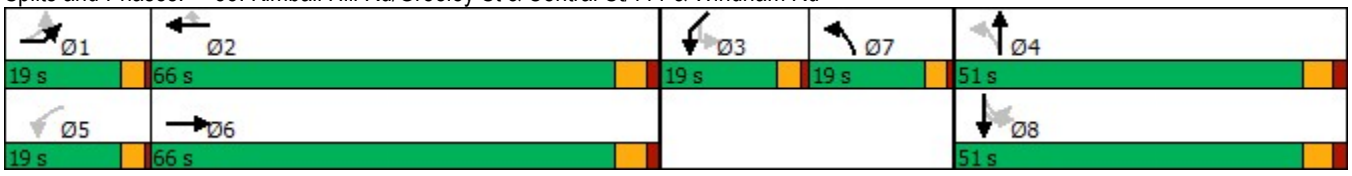
Lane Group	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations								
Traffic Volume (vph)	10	94	63	72	40	16	32	15
Future Volume (vph)	10	94	63	72	40	16	32	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	12	12	12
Storage Length (ft)		0		0		0	0	
Storage Lanes		0		0		1	0	
Taper Length (ft)		25				25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.959			0.938		
Flt Protected			0.979			0.974		
Satd. Flow (prot)	0	0	1925	0	0	1702	0	0
Flt Permitted			0.730			0.974		
Satd. Flow (perm)	0	0	1436	0	0	1702	0	0
Right Turn on Red				No				No
Satd. Flow (RTOR)								
Link Speed (mph)			30			30		
Link Distance (ft)			869			736		
Travel Time (s)			19.8			16.7		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	5%	5%	2%	2%	2%	2%
Adj. Flow (vph)	11	102	68	78	43	17	35	16
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	0	259	0	0	111	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)			12			12		
Link Offset(ft)			0			0		
Crosswalk Width(ft)			16			16		
Two way Left Turn Lane								
Headway Factor	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15		9	15	15	9	9
Turn Type	Perm	Perm	NA		Perm	Prot		
Protected Phases			8			3		
Permitted Phases	8	8			3			
Detector Phase	8	8	8		3	3		
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0		4.0	4.0		
Minimum Split (s)	16.0	16.0	16.0		8.0	8.0		
Total Split (s)	51.0	51.0	51.0		19.0	19.0		
Total Split (%)	29.3%	29.3%	29.3%		10.9%	10.9%		
Maximum Green (s)	45.0	45.0	45.0		15.0	15.0		
Yellow Time (s)	4.0	4.0	4.0		3.0	3.0		
All-Red Time (s)	2.0	2.0	2.0		1.0	1.0		
Lost Time Adjust (s)			0.0			0.0		
Total Lost Time (s)			6.0			4.0		
Lead/Lag					Lead	Lead		
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0		2.0	2.0		

Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Recall Mode	None	None	Min		None	Min	Min		None	None		
Act Effct Green (s)		15.4	52.0	150.9	15.4	52.0	52.0	150.9	47.6	32.5		
Actuated g/C Ratio		0.10	0.34	1.00	0.10	0.34	0.34	1.00	0.32	0.22		
v/c Ratio		1.23	0.91	0.02	3.04	0.46	0.25	0.02	0.45	0.32		
Control Delay		258.4	69.9	0.0	996.2	42.7	38.8	0.0	41.3	52.4		
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay		258.4	69.9	0.0	996.2	42.7	38.8	0.0	41.3	52.4		
LOS		F	E	A	F	D	D	A	D	D		
Approach Delay			84.7			274.9				46.2		
Approach LOS			F			F				D		
Queue Length 50th (ft)		~79	513	0	~278	233	100	0	125	112		
Queue Length 95th (ft)		#198	#796	0	#461	355	172	0	189	177		
Internal Link Dist (ft)			2168			4040				675		
Turn Bay Length (ft)		300		300	300		300	300	140			
Base Capacity (vph)		47	675	1641	49	740	628	1743	384	561		
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		1.23	0.77	0.02	3.04	0.39	0.21	0.02	0.42	0.22		

Intersection Summary			
Area Type:	Other		
Cycle Length: 174			
Actuated Cycle Length: 150.9			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 3.04			
Intersection Signal Delay: 140.7		Intersection LOS: F	
Intersection Capacity Utilization 75.5%		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: 58: Kimball Hill Rd/Greeley St & Central St/111 & Windham Rd



Lane Group	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Recall Mode	None	None	None		None	None		
Act Effct Green (s)			32.5			13.2		
Actuated g/C Ratio			0.22			0.09		
v/c Ratio			0.84			0.75		
Control Delay			81.6			99.9		
Queue Delay			0.0			0.0		
Total Delay			81.6			99.9		
LOS			F			F		
Approach Delay			81.6			99.9		
Approach LOS			F			F		
Queue Length 50th (ft)			267			116		
Queue Length 95th (ft)			382			#231		
Internal Link Dist (ft)			789			656		
Turn Bay Length (ft)								
Base Capacity (vph)			440			173		
Starvation Cap Reductn			0			0		
Spillback Cap Reductn			0			0		
Storage Cap Reductn			0			0		
Reduced v/c Ratio			0.59			0.64		

Intersection Summary

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	88	285	237	49	214	178
Future Volume (vph)	88	285	237	49	214	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.897		0.977			
Flt Protected	0.988					0.973
Satd. Flow (prot)	1777	0	1768	0	0	1694
Flt Permitted	0.988					0.973
Satd. Flow (perm)	1777	0	1768	0	0	1694
Link Speed (mph)	30		30			30
Link Distance (ft)	832		787			870
Travel Time (s)	18.9		17.9			19.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	15%	5%	5%	5%	15%	2%
Adj. Flow (vph)	96	310	258	53	233	193
Shared Lane Traffic (%)						
Lane Group Flow (vph)	406	0	311	0	0	426
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	16		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

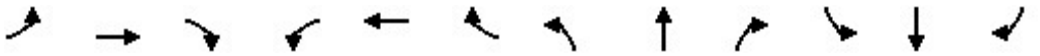
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 69.1%		ICU Level of Service C	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	164	133	54	170	87	23
Future Volume (vph)	164	133	54	170	87	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12
Storage Length (ft)		0	180		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.939				0.972	
Flt Protected			0.950		0.962	
Satd. Flow (prot)	1629	0	1770	1810	1705	0
Flt Permitted			0.950		0.962	
Satd. Flow (perm)	1629	0	1770	1810	1705	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1417			420	606	
Travel Time (s)	32.2			9.5	13.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	15%	2%	5%	15%	30%
Adj. Flow (vph)	178	145	59	185	95	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	323	0	59	185	120	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	16	
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	0.85	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.3%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	142	2	174	226	9	201
Future Volume (vph)	142	2	174	226	9	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	16	16	12
Storage Length (ft)		0	80		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.871	
Flt Protected			0.950		0.998	
Satd. Flow (prot)	1646	0	1719	1872	1775	0
Flt Permitted			0.950		0.998	
Satd. Flow (perm)	1646	0	1719	1872	1775	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	2748			314	1025	
Travel Time (s)	62.5			7.1	23.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	15%	30%	5%	15%	15%	5%
Adj. Flow (vph)	154	2	189	246	10	218
Shared Lane Traffic (%)						
Lane Group Flow (vph)	156	0	189	246	228	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	16	
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	0.85	0.85	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 40.2%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	0	268	1	0	0	133	660	0	0	800	11
Future Volume (vph)	44	0	268	1	0	0	133	660	0	0	800	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	12	12	12	12	12	12	15	12
Storage Length (ft)	130		0	0		0	465		0	0		0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850								0.998	
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1719	0	1538	1770	1863	0	1770	1863	0	0	1986	0
Flt Permitted	0.950			0.950			0.119					
Satd. Flow (perm)	1719	0	1538	1770	1863	0	222	1863	0	0	1986	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			270								1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		468			79			2433			1216	
Travel Time (s)		10.6			1.8			55.3			27.6	
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
Heavy Vehicles (%)	5%	2%	5%	2%	2%	2%	2%	2%	2%	2%	5%	5%
Adj. Flow (vph)	48	0	291	1	0	0	145	717	0	0	870	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	0	291	1	0	0	145	717	0	0	882	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	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot		pt+ov	Split			pm+pt	NA			NA	
Protected Phases	4		4 1	8	8		1	6			2	
Permitted Phases							6			2		
Detector Phase	4		4 1	8	8		1	6		2	2	
Switch Phase												
Minimum Initial (s)	3.0			5.0	5.0		3.0	10.0		10.0	10.0	
Minimum Split (s)	9.0			11.0	11.0		7.0	16.0		16.0	16.0	
Total Split (s)	16.0			16.0	16.0		14.0	97.0		97.0	97.0	
Total Split (%)	11.2%			11.2%	11.2%		9.8%	67.8%		67.8%	67.8%	
Maximum Green (s)	10.0			10.0	10.0		10.0	91.0		91.0	91.0	
Yellow Time (s)	4.0			4.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	2.0			2.0	2.0		1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0			0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0			6.0	6.0		4.0	6.0			6.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5			0.4	0.4		2.0	5.0		5.0	5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None			None	None		None	Min		Min	Min	
Act Effct Green (s)	7.7		18.1	5.4			61.1	58.9			47.7	
Actuated g/C Ratio	0.10		0.22	0.07			0.75	0.73			0.59	
v/c Ratio	0.29		0.53	0.01			0.49	0.53			0.75	
Control Delay	47.0		9.4	51.0			9.0	6.6			17.1	
Queue Delay	0.0		0.0	0.0			0.0	0.0			0.0	
Total Delay	47.0		9.4	51.0			9.0	6.6			17.1	
LOS	D		A	D			A	A			B	
Approach Delay		14.8			51.0			7.0			17.1	
Approach LOS		B			D			A			B	
Queue Length 50th (ft)	21		7	0			13	109			259	
Queue Length 95th (ft)	80		87	7			47	298			605	
Internal Link Dist (ft)		388			1			2353			1136	
Turn Bay Length (ft)	130						465					
Base Capacity (vph)	230		576	237			374	1797			1872	
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	0.21		0.51	0.00			0.39	0.40			0.47	

Intersection Summary			
Area Type:	Other		
Cycle Length: 143			
Actuated Cycle Length: 81			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 12.6		Intersection LOS: B	
Intersection Capacity Utilization 99.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 76: Derry Rd/102 & Elm Ave

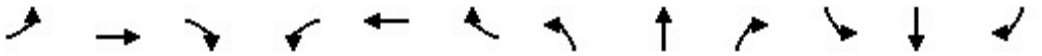
Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	95	68	34	435	504	47
Future Volume (vph)	95	68	34	435	504	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.944				0.989	
Flt Protected	0.972			0.996		
Satd. Flow (prot)	1904	0	0	1659	1775	0
Flt Permitted	0.972			0.996		
Satd. Flow (perm)	1904	0	0	1659	1775	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	420			2236	3657	
Travel Time (s)	9.5			50.8	83.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	2%	2%	15%	5%	15%
Adj. Flow (vph)	103	74	37	473	548	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	177	0	0	510	599	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	16			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

A.2 Base Model (2022) - PM Peak (49 pages)

Reference Table – HUD# to # in SYNCRHO Reports

HUD#	# in SYNCHRO Reports	Intersection / Direction TOWARD
1	**40**	111-102-3A (Ferry & Chase)
2	**38**	Library & Ferry
3	**39**	Library and Highland
4	**55**	Burnham and Central
5	**58**	Central-Kimball-Greeley (Rt.111 & Greeley)
6	**76**	Derry and 102 (Route 102 & Elm Ave)
7	**82**	NH 102/Page Rd
8	**34**	NH 3A Central St/Chase St
9	**33**	Central and Library
10	**29**	Lowell and Central
11	**25**	Lowell and Pelham
12	**22**	Lowell and Executive
13	**10**	Lowell-Hampshire-Oblate
14	**1**	Lowell & Wason
16	**4**	NH 3A Lowell Rd/Walmart Blvd
17	**5**	NH 3A Lowell Rd/Rena Ave
18	**7**	NH 3A Lowell Rd/Dracut Rd/Steele Rd
19	**67**	Dracut Rd/Sherburne Rd
20	**70**	Kimball Hill Rd/Bush Hill Rd
21	**73**	Central St/Belknap Rd
22	**24**	Lowell & Fox Hollow Dr
23	**27**	Lowell & Birch St
15_com	**2**	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined
15M	-	NH 3A Lowell Rd/Sagamore Bridge Rd - Northern Section
15N	-	NH 3A Lowell Rd/Sagamore Bridge Rd - Middle Section
15S	-	NH 3A Lowell Rd/Sagamore Bridge Rd - Southern Section



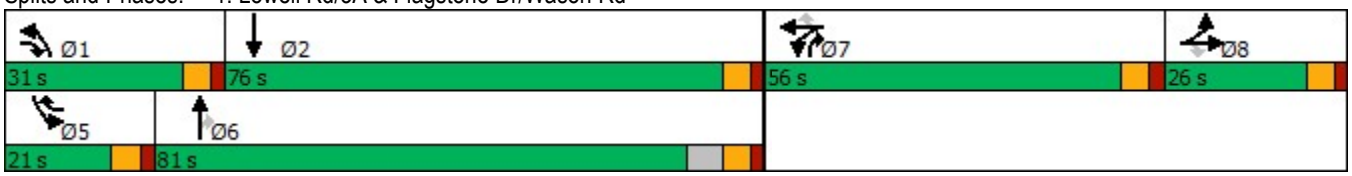
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	72	292	314	32	38	143	875	529	60	836	32
Future Volume (vph)	47	72	292	314	32	38	143	875	529	60	836	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	14	12	12	12	12	12	12
Storage Length (ft)	0		0	0		100	650		350	200		0
Storage Lanes	0		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.994	
Flt Protected		0.981		0.950	0.961		0.950			0.950		
Satd. Flow (prot)	0	1621	1592	1491	1508	1498	1719	3438	1538	1570	3120	0
Flt Permitted		0.981		0.950	0.961		0.950			0.950		
Satd. Flow (perm)	0	1621	1592	1491	1508	1498	1719	3438	1538	1570	3120	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			107			87			402		2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		573			432			1014			1071	
Travel Time (s)		13.0			9.8			23.0			24.3	
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
Heavy Vehicles (%)	15%	15%	15%	15%	15%	15%	5%	5%	5%	15%	15%	15%
Adj. Flow (vph)	51	78	317	341	35	41	155	951	575	65	909	35
Shared Lane Traffic (%)				45%								
Lane Group Flow (vph)	0	129	317	188	188	41	155	951	575	65	944	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	0.85	1.00	1.00	0.92	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	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	8	8	1	7	7	5	1	6	7	5	2	
Permitted Phases			8			7			6			
Detector Phase	8	8	1	7	7	5	1	6	7	5	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	10.0	
Minimum Split (s)	26.0	26.0	11.0	31.0	31.0	11.0	11.0	31.0	31.0	11.0	31.0	
Total Split (s)	26.0	26.0	31.0	56.0	56.0	21.0	31.0	81.0	56.0	21.0	76.0	
Total Split (%)	13.8%	13.8%	16.4%	29.6%	29.6%	11.1%	16.4%	42.9%	29.6%	11.1%	40.2%	
Maximum Green (s)	20.0	20.0	25.0	50.0	50.0	15.0	25.0	75.0	50.0	15.0	70.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.0	2.5	2.5	3.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min	
Walk Time (s)	7.0	7.0						7.0			7.0	
Flash Dont Walk (s)	11.0	11.0						11.0			11.0	
Pedestrian Calls (#/hr)	0	0						0			0	
Act Effct Green (s)		16.4	41.5	26.5	26.5	37.5	18.8	58.3	91.2	11.0	50.5	
Actuated g/C Ratio		0.12	0.30	0.19	0.19	0.27	0.14	0.42	0.66	0.08	0.37	
v/c Ratio		0.67	0.57	0.66	0.65	0.09	0.66	0.65	0.50	0.52	0.82	
Control Delay		81.7	33.4	66.3	65.7	0.4	75.9	34.8	4.4	85.2	47.7	
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	
Total Delay		81.7	33.4	66.3	65.7	0.4	75.9	34.8	4.5	85.2	47.7	
LOS		F	C	E	E	A	E	C	A	F	D	
Approach Delay		47.4			59.5			28.2			50.2	
Approach LOS		D			E			C			D	
Queue Length 50th (ft)		113	159	168	167	0	135	355	56	58	405	
Queue Length 95th (ft)		#248	334	306	305	0	263	529	130	134	605	
Internal Link Dist (ft)		493			352			934			991	
Turn Bay Length (ft)						100	650		350	200		
Base Capacity (vph)		250	639	576	583	522	332	2126	1371	181	1689	
Starvation Cap Reductn		0	0	0	0	0	0	0	90	0	0	
Spillback Cap Reductn		0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn		0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.52	0.50	0.33	0.32	0.08	0.47	0.45	0.45	0.36	0.56	

Intersection Summary

Area Type: Other
Cycle Length: 189
Actuated Cycle Length: 137.7
Natural Cycle: 110
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 40.5 Intersection LOS: D
Intersection Capacity Utilization 66.7% 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: Lowell Rd/3A & Flagstone Dr/Wason Rd



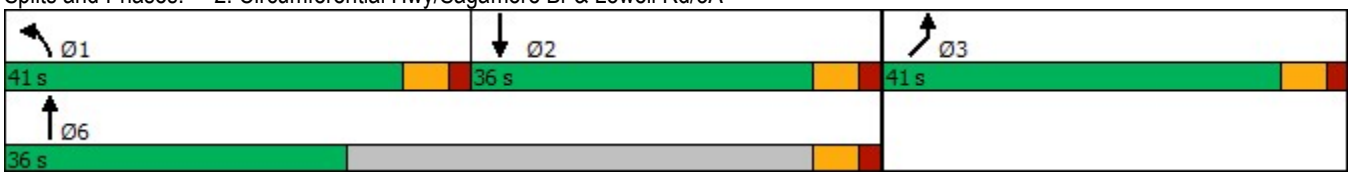
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	SBR2	NEL	NER
Lane Configurations									
Traffic Volume (vph)	0	0	941	520	472	0	1117	1316	962
Future Volume (vph)	0	0	941	520	472	0	1117	1316	962
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	14	12
Storage Length (ft)	0	0	550			300		0	0
Storage Lanes	0	0	2			1		2	1
Taper Length (ft)	25		25					25	
Lane Util. Factor	1.00	1.00	0.97	0.95	0.95	1.00	1.00	0.97	1.00
Frt							0.850		0.850
Flt Protected			0.950					0.950	
Satd. Flow (prot)	0	0	3335	3438	3539	0	1538	3557	1583
Flt Permitted			0.950					0.950	
Satd. Flow (perm)	0	0	3335	3438	3539	0	1538	3557	1583
Right Turn on Red							Yes		Yes
Satd. Flow (RTOR)							712		476
Link Speed (mph)	55			30	30			42	
Link Distance (ft)	1050			613	1014			972	
Travel Time (s)	13.0			13.9	23.0			15.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	5%	5%	2%	2%	5%	5%	2%
Adj. Flow (vph)	0	0	1023	565	513	0	1214	1430	1046
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	0	1023	565	513	0	1214	1430	1046
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right	Right	Left	Right
Median Width(ft)	0			24	24			28	
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	0.92	1.00
Turning Speed (mph)	15	9	15			9	9	15	9
Turn Type			Prot	NA	NA		Free	Prot	Free
Protected Phases			1	6	2			3	
Permitted Phases							Free		Free
Detector Phase			1	6	2			3	
Switch Phase									
Minimum Initial (s)			7.0	10.0	10.0			10.0	
Minimum Split (s)			13.0	16.0	16.0			16.0	
Total Split (s)			41.0	36.0	36.0			41.0	
Total Split (%)			34.7%	30.5%	30.5%			34.7%	
Maximum Green (s)			35.0	30.0	30.0			35.0	
Yellow Time (s)			4.0	4.0	4.0			4.0	
All-Red Time (s)			2.0	2.0	2.0			2.0	
Lost Time Adjust (s)			0.0	0.0	0.0			0.0	
Total Lost Time (s)			6.0	6.0	6.0			6.0	
Lead/Lag			Lead		Lag				
Lead-Lag Optimize?									
Vehicle Extension (s)			4.0	4.0	4.0			4.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	SBR2	NEL	NER
Recall Mode			None	Min	Min			None	
Act Effct Green (s)			35.1	64.1	23.0		111.2	35.1	111.2
Actuated g/C Ratio			0.32	0.58	0.21		1.00	0.32	1.00
v/c Ratio			0.97	0.29	0.70		0.79	1.28	0.66
Control Delay			60.6	12.2	46.2		4.2	164.5	2.2
Queue Delay			0.0	0.0	0.0		0.0	0.0	0.0
Total Delay			60.6	12.2	46.2		4.2	164.5	2.2
LOS			E	B	D		A	F	A
Approach Delay				43.4	16.7			95.9	
Approach LOS				D	B			F	
Queue Length 50th (ft)			369	101	180		0	~663	0
Queue Length 95th (ft)			#562	132	237		0	#873	0
Internal Link Dist (ft)	970			533	934			892	
Turn Bay Length (ft)			550				300		
Base Capacity (vph)			1051	2198	956		1538	1121	1583
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			0.97	0.26	0.54		0.79	1.28	0.66

Intersection Summary			
Area Type:	Other		
Cycle Length: 118			
Actuated Cycle Length: 111.2			
Natural Cycle: 110			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.28			
Intersection Signal Delay: 57.9		Intersection LOS: E	
Intersection Capacity Utilization 92.4%		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: 2: Circumferential Hwy/Sagamore Br & Lowell Rd/3A



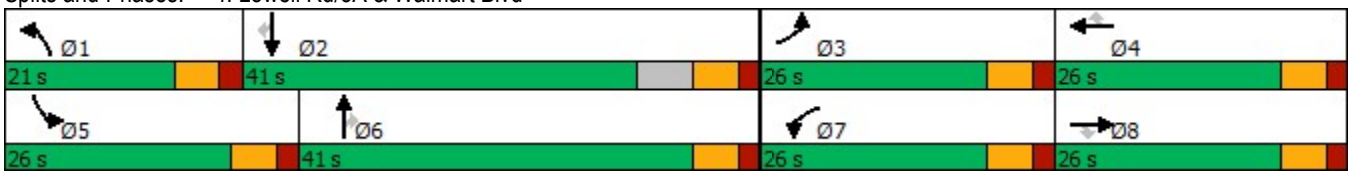
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	184	23	74	72	17	195	76	1013	54	199	1000	179
Future Volume (vph)	184	23	74	72	17	195	76	1013	54	199	1000	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	400		250	400		0
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1863	1583	3433	1863	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	1863	1583	3433	1863	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			138			212			138			171
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		304			245			982			569	
Travel Time (s)		6.9			5.6			22.3			12.9	
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
Heavy Vehicles (%)	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	200	25	80	78	18	212	83	1101	59	216	1087	195
Shared Lane Traffic (%)												
Lane Group Flow (vph)	200	25	80	78	18	212	83	1101	59	216	1087	195
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
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	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	16.0	16.0	11.0	16.0	16.0
Total Split (s)	26.0	26.0	26.0	26.0	26.0	26.0	21.0	41.0	41.0	26.0	41.0	41.0
Total Split (%)	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	17.6%	34.5%	34.5%	21.8%	34.5%	34.5%
Maximum Green (s)	20.0	20.0	20.0	20.0	20.0	20.0	15.0	35.0	35.0	20.0	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	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None

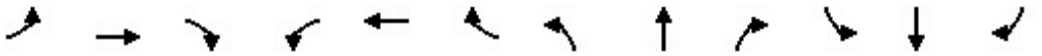
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	16.6	19.6	19.6	8.6	8.7	8.7	8.8	35.2	35.2	12.4	41.8	41.8
Actuated g/C Ratio	0.17	0.20	0.20	0.09	0.09	0.09	0.09	0.36	0.36	0.13	0.43	0.43
v/c Ratio	0.68	0.07	0.19	0.26	0.11	0.63	0.27	0.86	0.09	0.49	0.71	0.25
Control Delay	51.2	34.6	1.6	45.4	43.6	15.3	45.3	38.2	0.3	44.4	28.4	5.8
Queue Delay	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 Delay	51.2	34.6	1.6	45.4	43.6	15.3	45.3	38.2	0.3	44.4	28.4	5.8
LOS	D	C	A	D	D	B	D	D	A	D	C	A
Approach Delay		36.8			24.6			36.9			27.8	
Approach LOS		D			C			D			C	
Queue Length 50th (ft)	114	13	0	23	11	0	24	323	0	64	296	9
Queue Length 95th (ft)	211	38	6	50	33	68	52	#547	0	110	452	59
Internal Link Dist (ft)		224			165			902			489	
Turn Bay Length (ft)							400		250	400		
Base Capacity (vph)	356	415	460	710	385	495	533	1282	661	710	1551	790
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.06	0.17	0.11	0.05	0.43	0.16	0.86	0.09	0.30	0.70	0.25

Intersection Summary

Area Type: Other
Cycle Length: 119
Actuated Cycle Length: 97.2
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 31.7 Intersection LOS: C
Intersection Capacity Utilization 65.5% 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: 4: Lowell Rd/3A & Walmart Blvd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1	22	32	1	7	22	1034	14	64	1077	5
Future Volume (vph)	85	1	22	32	1	7	22	1034	14	64	1077	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	0		60	0		0	350		0	350		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	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
Frt			0.850		0.975			0.998			0.999	
Flt Protected		0.953			0.962		0.950			0.950		
Satd. Flow (prot)	0	1725	1583	0	1980	0	1770	3532	0	1770	3532	0
Flt Permitted		0.696			0.708		0.950			0.950		
Satd. Flow (perm)	0	1260	1583	0	1457	0	1770	3532	0	1770	3532	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)			75					1				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		297			325			1749			982	
Travel Time (s)		6.8			7.4			39.8			22.3	
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
Heavy Vehicles (%)	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	30%
Adj. Flow (vph)	92	1	24	35	1	8	24	1124	15	70	1171	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	93	24	0	44	0	24	1139	0	70	1176	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			24			24	
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	0.85	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	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		3			7		1	6		5	2	
Permitted Phases	3		3	7								
Detector Phase	3	3	3	7	7		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0		11.0	16.0		11.0	16.0	
Total Split (s)	34.0	34.0	34.0	34.0	34.0		31.0	66.0		26.0	66.0	
Total Split (%)	26.0%	26.0%	26.0%	26.0%	26.0%		23.7%	50.4%		19.8%	50.4%	
Maximum Green (s)	28.0	28.0	28.0	28.0	28.0		25.0	60.0		20.0	60.0	
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)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None	None	None	None		None	None		None	None	
Act Effct Green (s)		14.5	14.5		13.8		9.4	44.8		11.5	52.2	
Actuated g/C Ratio		0.19	0.19		0.18		0.12	0.59		0.15	0.69	
v/c Ratio		0.38	0.07		0.16		0.11	0.54		0.26	0.48	
Control Delay		39.9	0.4		35.2		42.0	16.0		40.1	10.8	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		39.9	0.4		35.2		42.0	16.0		40.1	10.8	
LOS		D	A		D		D	B		D	B	
Approach Delay		31.8			35.3			16.5			12.5	
Approach LOS		C			D			B			B	
Queue Length 50th (ft)		42	0		19		11	215		32	123	
Queue Length 95th (ft)		111	0		59		43	354		90	336	
Internal Link Dist (ft)		217			245			1669			902	
Turn Bay Length (ft)			60				350			350		
Base Capacity (vph)		583	773		674		743	2864		595	2709	
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		0.16	0.03		0.07		0.03	0.40		0.12	0.43	

Intersection Summary			
Area Type:	Other		
Cycle Length: 131			
Actuated Cycle Length: 75.5			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.54			
Intersection Signal Delay: 15.6		Intersection LOS: B	
Intersection Capacity Utilization 58.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 5: Lowell Rd/3A & Rena Ave

Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBT	WBR	NBL	NBT	SBL2	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	22	0	8	4	1	0	1	0	413	1	761	355
Future Volume (vph)	22	0	8	4	1	0	1	0	413	1	761	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0				0	240			820	
Storage Lanes	1		0				0	2			1	
Taper Length (ft)	25							25			25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850				0.932						0.991
Flt Protected	0.950					0.976					0.950	
Satd. Flow (prot)	1770	1583	0	0	0	1694	0	1863	3438	0	1770	3413
Flt Permitted	0.784					0.835					0.066	
Satd. Flow (perm)	1460	1583	0	0	0	1450	0	1863	3438	0	123	3413
Right Turn on Red				Yes			Yes					
Satd. Flow (RTOR)		132				132						6
Link Speed (mph)		30				30			30			30
Link Distance (ft)		386				220			909			1749
Travel Time (s)		8.8				5.0			20.7			39.8
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	5%	2%	2%	5%
Adj. Flow (vph)	24	0	9	4	1	0	1	0	449	1	827	386
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	13	0	0	0	2	0	0	449	0	828	412
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Left	Right	Left	Left	Left	Left	Left
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	9	15		9	15		15	15	
Turn Type	Perm	NA			Perm	NA		Prot	NA	custom	Prot	NA
Protected Phases		4				4		1	6		5	2
Permitted Phases	4				4					5		
Detector Phase	4	4			4	4		1	6	5	5	2
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0	5.0		5.0	8.0	5.0	5.0	8.0
Minimum Split (s)	11.0	11.0			11.0	11.0		11.0	16.0	11.0	11.0	14.0
Total Split (s)	26.0	26.0			26.0	26.0		21.0	56.0	66.0	66.0	56.0
Total Split (%)	14.9%	14.9%			14.9%	14.9%		12.1%	32.2%	37.9%	37.9%	32.2%
Maximum Green (s)	20.0	20.0			20.0	20.0		15.0	50.0	60.0	60.0	50.0
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)	2.0	2.0			2.0	2.0		2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0				0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0				6.0		6.0	6.0		6.0	6.0
Lead/Lag	Lag	Lag			Lag	Lag		Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0	4.0	5.0	5.0	4.0
Recall Mode	None	None			None	None		None	None	None	None	None

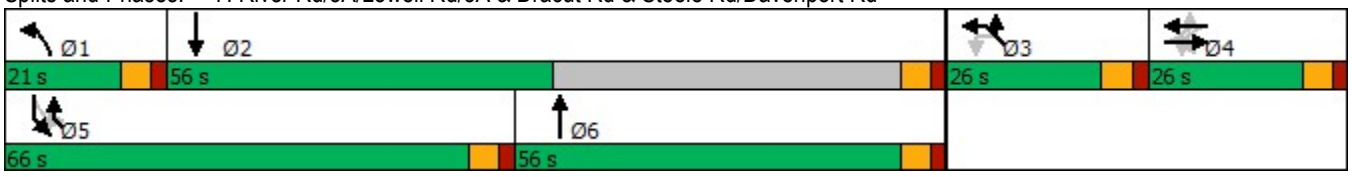
Lane Group	SBR	NWL2	NWL	NWR	NWR2
Lane Configurations					
Traffic Volume (vph)	24	5	2	634	1
Future Volume (vph)	24	5	2	634	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Storage Length (ft)	0		120	0	
Storage Lanes	0		1	1	
Taper Length (ft)			25		
Lane Util. Factor	0.95	1.00	1.00	1.00	1.00
Frt				0.850	
Flt Protected			0.950		
Satd. Flow (prot)	0	0	1770	1583	0
Flt Permitted			0.950		
Satd. Flow (perm)	0	0	1770	1583	0
Right Turn on Red	Yes				Yes
Satd. Flow (RTOR)				56	
Link Speed (mph)			30		
Link Distance (ft)			960		
Travel Time (s)			21.8		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%
Adj. Flow (vph)	26	5	2	689	1
Shared Lane Traffic (%)					
Lane Group Flow (vph)	0	0	7	690	0
Enter Blocked Intersection	No	No	No	No	No
Lane Alignment	Right	Left	Left	Right	Right
Median Width(ft)			12		
Link Offset(ft)			0		
Crosswalk Width(ft)			16		
Two way Left Turn Lane					
Headway Factor	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15	15	9	9
Turn Type		Perm	Prot	pt+ov	
Protected Phases			3	3 5	
Permitted Phases		3			
Detector Phase		3	3	3 5	
Switch Phase					
Minimum Initial (s)		5.0	5.0		
Minimum Split (s)		11.0	11.0		
Total Split (s)		26.0	26.0		
Total Split (%)		14.9%	14.9%		
Maximum Green (s)		20.0	20.0		
Yellow Time (s)		4.0	4.0		
All-Red Time (s)		2.0	2.0		
Lost Time Adjust (s)			0.0		
Total Lost Time (s)			6.0		
Lead/Lag		Lead	Lead		
Lead-Lag Optimize?					
Vehicle Extension (s)		3.0	3.0		
Recall Mode		None	None		

Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBT	WBR	NBL	NBT	SBL2	SBL	SBT
Act Effct Green (s)	7.8	7.8				7.8			24.0		60.5	90.6
Actuated g/C Ratio	0.06	0.06				0.06			0.18		0.46	0.69
v/c Ratio	0.28	0.06				0.01			0.71		14.79	0.17
Control Delay	70.8	0.5				0.0			57.8		6194.4	7.9
Queue Delay	0.0	0.0				0.0			0.0		0.0	0.0
Total Delay	70.8	0.5				0.0			57.8		6194.4	7.9
LOS	E	A				A			E		F	A
Approach Delay		46.1							57.8			4138.9
Approach LOS		D							E			F
Queue Length 50th (ft)	21	0				0			199		~1448	66
Queue Length 95th (ft)	55	0				0			265		#1826	94
Internal Link Dist (ft)		306				140			829			1669
Turn Bay Length (ft)	50										820	
Base Capacity (vph)	224	354				334			1320		56	2505
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	0.11	0.04				0.01			0.34		14.79	0.16

Intersection Summary

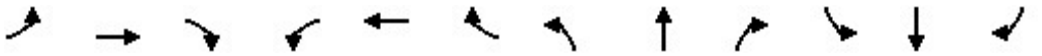
Area Type: Other
Cycle Length: 174
Actuated Cycle Length: 131.4
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 14.79
Intersection Signal Delay: 2132.9 Intersection LOS: F
Intersection Capacity Utilization 117.1% ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: River Rd/3A/Lowell Rd/3A & Dracut Rd & Steele Rd/Davenport Rd



Lane Group	SBR	NWL2	NWL	NWR	NWR2
Act Effct Green (s)			20.2	83.4	
Actuated g/C Ratio			0.15	0.63	
v/c Ratio			0.03	0.67	
Control Delay			53.7	17.5	
Queue Delay			0.0	0.0	
Total Delay			53.7	17.5	
LOS			D	B	
Approach Delay			17.8		
Approach LOS			B		
Queue Length 50th (ft)			5	236	
Queue Length 95th (ft)			22	409	
Internal Link Dist (ft)			880		
Turn Bay Length (ft)			120		
Base Capacity (vph)			271	1025	
Starvation Cap Reductn			0	0	
Spillback Cap Reductn			0	0	
Storage Cap Reductn			0	0	
Reduced v/c Ratio			0.03	0.67	

Intersection Summary

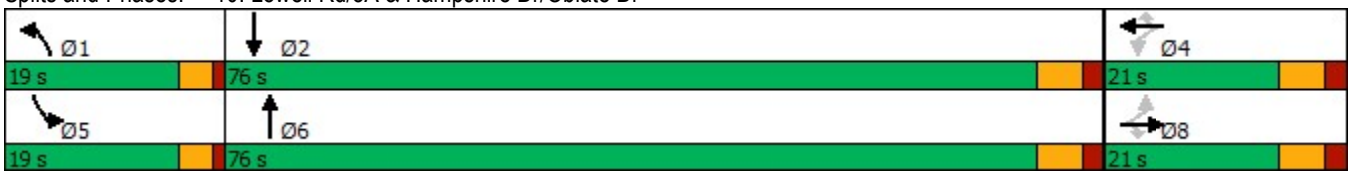


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	1	67	6	0	2	23	1004	11	3	915	18
Future Volume (vph)	19	1	67	6	0	2	23	1004	11	3	915	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	16	12	12	12	12	12	12
Storage Length (ft)	0		150	0		120	270		0	250		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	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
Frt			0.850			0.850		0.998			0.997	
Flt Protected		0.954			0.950		0.950			0.950		
Satd. Flow (prot)	0	1777	1794	0	1770	1794	1770	3532	0	1770	3529	0
Flt Permitted		0.752			0.769		0.950			0.950		
Satd. Flow (perm)	0	1401	1794	0	1432	1794	1770	3532	0	1770	3529	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73			66		2			3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		412			436			437			1173	
Travel Time (s)		9.4			9.9			9.9			26.7	
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)	21	1	73	7	0	2	25	1091	12	3	995	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	73	0	7	2	25	1103	0	3	1015	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	0.85	1.00	1.00	0.85	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	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						
Detector Phase	8	8	8	4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	15.0		4.0	15.0	
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	16.0	8.0	28.0		8.0	28.0	
Total Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	19.0	76.0		19.0	76.0	
Total Split (%)	18.1%	18.1%	18.1%	18.1%	18.1%	18.1%	16.4%	65.5%		16.4%	65.5%	
Maximum Green (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	70.0		15.0	70.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.0	6.0		4.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.0	3.0		2.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	

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)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0			0	
Act Effct Green (s)		6.7	6.7		6.3	6.3	5.6	33.8		4.9	33.6	
Actuated g/C Ratio		0.14	0.14		0.13	0.13	0.11	0.68		0.10	0.68	
v/c Ratio		0.12	0.24		0.04	0.01	0.13	0.46		0.02	0.42	
Control Delay		23.9	9.6		23.5	0.0	24.8	6.6		25.3	6.6	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		23.9	9.6		23.5	0.0	24.8	6.6		25.3	6.6	
LOS		C	A		C	A	C	A		C	A	
Approach Delay		12.9			18.3			7.0			6.7	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		5	0		2	0	6	72		1	63	
Queue Length 95th (ft)		28	34		14	0	31	186		9	180	
Internal Link Dist (ft)		332			356			357			1093	
Turn Bay Length (ft)			150			120	270			250		
Base Capacity (vph)		442	616		452	612	559	3532		559	3529	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.05	0.12		0.02	0.00	0.04	0.31		0.01	0.29	

Intersection Summary			
Area Type:	Other		
Cycle Length: 116			
Actuated Cycle Length: 49.6			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.46			
Intersection Signal Delay: 7.1		Intersection LOS: A	
Intersection Capacity Utilization 49.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 10: Lowell Rd/3A & Hampshire Dr/Oblate Dr

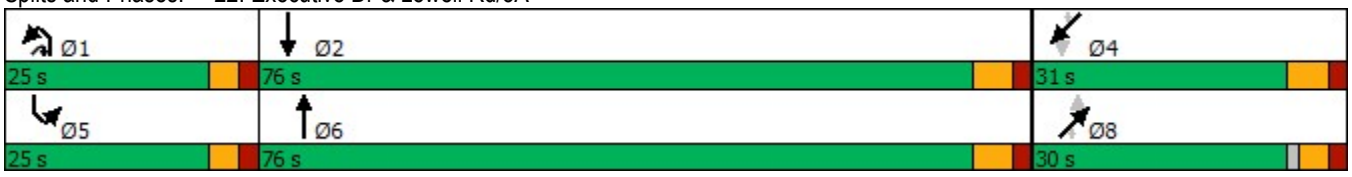


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	63	834	32	36	722	105	128	3	140	74	3	49
Future Volume (vph)	63	834	32	36	722	105	128	3	140	74	3	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	16	12	12	14
Storage Length (ft)	400		0	180		300	0		0	0		0
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.981				0.850			0.850
Flt Protected	0.950			0.950				0.953			0.954	
Satd. Flow (prot)	1570	3120	0	1770	3472	0	0	1775	1794	0	1777	1689
Flt Permitted	0.950			0.950				0.670			0.634	
Satd. Flow (perm)	1570	3120	0	1770	3472	0	0	1248	1794	0	1181	1689
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			18				152			66
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		669			399			262			149	
Travel Time (s)		15.2			9.1			6.0			3.4	
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
Heavy Vehicles (%)	15%	15%	15%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	68	907	35	39	785	114	139	3	152	80	3	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	942	0	39	899	0	0	142	152	0	83	53
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	0.85	1.00	1.00	0.92
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases	1	6		5	2			8	1		4	
Permitted Phases							8		8	4		4
Detector Phase	1	6		5	2		8	8	1	4	4	4
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	3.0	3.0	4.0	4.0	4.0
Minimum Split (s)	8.0	31.0		8.0	31.0		30.0	30.0	8.0	31.0	31.0	31.0
Total Split (s)	25.0	76.0		25.0	76.0		30.0	30.0	25.0	31.0	31.0	31.0
Total Split (%)	18.9%	57.6%		18.9%	57.6%		22.7%	22.7%	18.9%	23.5%	23.5%	23.5%
Maximum Green (s)	20.0	70.0		20.0	70.0		25.0	25.0	20.0	25.0	25.0	25.0
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	6.0		5.0	6.0			5.0	5.0		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	2.0	2.0	2.0	2.0	2.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		18.0			18.0		18.0	18.0		18.0	18.0	18.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	8.1	35.7		6.5	28.8			13.2	26.5		12.1	12.1
Actuated g/C Ratio	0.12	0.53		0.10	0.43			0.20	0.39		0.18	0.18
v/c Ratio	0.36	0.57		0.23	0.60			0.58	0.19		0.39	0.15
Control Delay	37.7	14.1		37.3	16.6			37.7	3.7		33.1	7.0
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	37.7	14.1		37.3	16.6			37.7	3.7		33.1	7.0
LOS	D	B		D	B			D	A		C	A
Approach Delay		15.7			17.5			20.2			22.9	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	26	142		15	132			52	0		30	0
Queue Length 95th (ft)	78	265		53	250			134	35		84	23
Internal Link Dist (ft)		589			319			182			69	
Turn Bay Length (ft)	400			180								
Base Capacity (vph)	498	2908		562	3237			515	1126		469	710
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	0.14	0.32		0.07	0.28			0.28	0.13		0.18	0.07

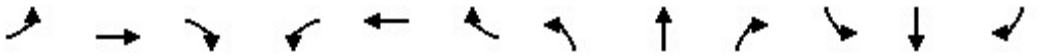
Intersection Summary			
Area Type:	Other		
Cycle Length: 132			
Actuated Cycle Length: 67.1			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 17.3		Intersection LOS: B	
Intersection Capacity Utilization 54.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 22: Executive Dr & Lowell Rd/3A



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	1011	1133	0
Future Volume (vph)	0	0	0	1011	1133	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	2111	0	1863	1863	0
Flt						
Sat						
Lin						
Lin						
Tra						
Pea						
Adj						
Sha						
Lar						
Ent						
Lar						
Me						
Lin						
Cro						
Tw						
Headway Factor	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 63.0%		ICU Level of Service B	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	4	71	13	3	22	71	796	6	23	1049	16
Future Volume (vph)	50	4	71	13	3	22	71	796	6	23	1049	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	14	14	12	12	12	12	12	12
Storage Length (ft)	0		120	0		0	250		400	220		0
Storage Lanes	0		1	0		1	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	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.998	
Flt Protected		0.956			0.960		0.950			0.950		
Satd. Flow (prot)	0	1781	1583	0	1549	1325	1719	1810	1538	1719	1806	0
Flt Permitted		0.728			0.724		0.146			0.281		
Satd. Flow (perm)	0	1356	1583	0	1168	1325	264	1810	1538	508	1806	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			77			24			62		1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		271			227			1282			634	
Travel Time (s)		6.2			5.2			29.1			14.4	
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
Heavy Vehicles (%)	2%	2%	2%	30%	5%	30%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	54	4	77	14	3	24	77	865	7	25	1140	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	58	77	0	17	24	77	865	7	25	1157	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	0.92	0.92	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	NA	Perm	Perm	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8	1	5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	8	8	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	31.0	31.0	11.0	31.0	
Total Split (s)	16.0	16.0	16.0	16.0	16.0	16.0	16.0	116.0	116.0	16.0	126.0	
Total Split (%)	10.1%	10.1%	10.1%	10.1%	10.1%	10.1%	10.1%	73.4%	73.4%	10.1%	79.7%	
Maximum Green (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	110.0	110.0	10.0	120.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	1.5	1.5	1.5	1.5	1.0	1.5	1.5	1.5	1.0	1.5	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	
Walk Time (s)								7.0	7.0		7.0	
Flash Dont Walk (s)								18.0	18.0		18.0	
Pedestrian Calls (#/hr)								0	0		0	
Act Effct Green (s)		9.9	9.9		9.9	20.9	131.5	127.3	127.3	129.8	124.8	
Actuated g/C Ratio		0.06	0.06		0.06	0.13	0.83	0.81	0.81	0.82	0.79	
v/c Ratio		0.68	0.45		0.23	0.12	0.29	0.59	0.01	0.05	0.81	
Control Delay		107.9	22.3		77.4	21.2	4.6	8.4	0.0	2.1	16.0	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	18.7	
Total Delay		107.9	22.3		77.4	21.2	4.6	8.4	0.0	2.1	34.7	
LOS		F	C		E	C	A	A	A	A	C	
Approach Delay		59.1			44.5			8.0			34.1	
Approach LOS		E			D			A			C	
Queue Length 50th (ft)		59	0		17	0	10	325	0	3	632	
Queue Length 95th (ft)		#135	55		45	30	16	406	0	7	854	
Internal Link Dist (ft)		191			147			1202			554	
Turn Bay Length (ft)			120				250		400	220		
Base Capacity (vph)		93	181		80	237	318	1458	1251	510	1426	
Starvation Cap Reductn		0	0		0	0	0	0	0	0	293	
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		0.62	0.43		0.21	0.10	0.24	0.59	0.01	0.05	1.02	

Intersection Summary			
Area Type:	Other		
Cycle Length: 158			
Actuated Cycle Length: 158			
Offset: 45 (28%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 25.0		Intersection LOS: C	
Intersection Capacity Utilization 79.7%		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.			

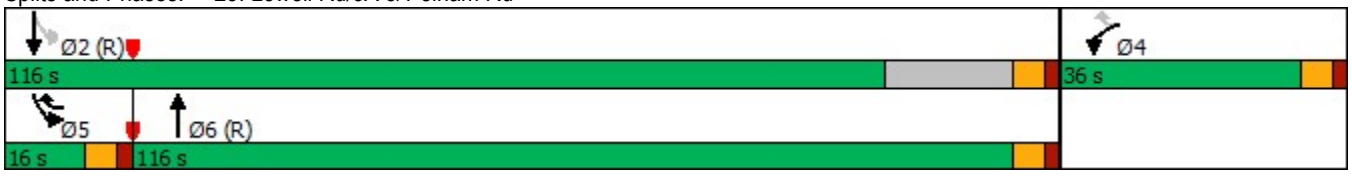
Splits and Phases: 24: Lowell Rd/3A & Fox Hollow Dr

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	118	119	1036	94	94	802
Future Volume (vph)	118	119	1036	94	94	802
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12
Storage Length (ft)	0	100		0	160	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.989			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1719	1794	1842	0	1388	1462
Flt Permitted	0.950				0.048	
Satd. Flow (perm)	1719	1794	1842	0	70	1462
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		112	6			
Link Speed (mph)	30		30			30
Link Distance (ft)	345		634			526
Travel Time (s)	7.8		14.4			12.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	2%	2%	2%	30%	30%
Adj. Flow (vph)	128	129	1126	102	102	872
Shared Lane Traffic (%)						
Lane Group Flow (vph)	128	129	1228	0	102	872
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA		pm+pt	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4			2	
Detector Phase	4	5	6		5	2
Switch Phase						
Minimum Initial (s)	5.0	3.0	10.0		3.0	10.0
Minimum Split (s)	11.0	9.0	31.0		9.0	16.0
Total Split (s)	36.0	16.0	116.0		16.0	116.0
Total Split (%)	21.4%	9.5%	69.0%		9.5%	69.0%
Maximum Green (s)	30.0	10.0	110.0		10.0	110.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	1.5	1.5		1.5	1.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Recall Mode	None	None	C-Min		None	C-Min
Walk Time (s)			7.0			
Flash Dont Walk (s)			18.0			
Pedestrian Calls (#/hr)			0			
Act Effct Green (s)	16.4	35.4	120.6		139.6	139.6
Actuated g/C Ratio	0.10	0.21	0.72		0.83	0.83
v/c Ratio	0.76	0.28	0.93		0.64	0.72
Control Delay	100.5	12.3	34.5		47.2	10.9
Queue Delay	0.0	0.0	45.4		0.0	0.0
Total Delay	100.5	12.3	79.9		47.2	10.9
LOS	F	B	E		D	B
Approach Delay	56.2		79.9			14.7
Approach LOS	E		E			B
Queue Length 50th (ft)	140	15	1076		47	337
Queue Length 95th (ft)	210	69	#1692		120	613
Internal Link Dist (ft)	265		554			446
Turn Bay Length (ft)		100			160	
Base Capacity (vph)	306	472	1324		164	1214
Starvation Cap Reductn	0	0	240		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.42	0.27	1.13		0.62	0.72

Intersection Summary			
Area Type:	Other		
Cycle Length: 168			
Actuated Cycle Length: 168			
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 51.6		Intersection LOS: D	
Intersection Capacity Utilization 87.0%		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.			

Splits and Phases: 25: Lowell Rd/3A & Pelham Rd

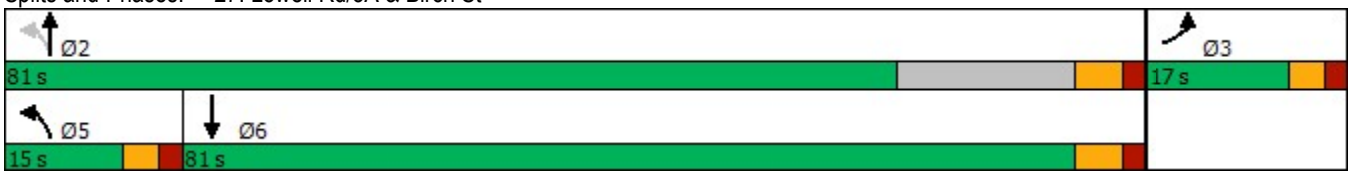


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	58	45	97	790	722	14
Future Volume (vph)	58	45	97	790	722	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	12	12	12	12
Storage Length (ft)	0	0	150			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.941				0.997	
Flt Protected	0.973		0.950			
Satd. Flow (prot)	1878	0	1570	1652	1804	0
Flt Permitted	0.973		0.187			
Satd. Flow (perm)	1878	0	309	1652	1804	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	28				2	
Link Speed (mph)	30			30	30	
Link Distance (ft)	442			1237	1199	
Travel Time (s)	10.0			28.1	27.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	15%	15%	5%	5%
Adj. Flow (vph)	63	49	105	859	785	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	112	0	105	859	800	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	16			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot		pm+pt	NA	NA	
Protected Phases	3		5	2	6	
Permitted Phases			2			
Detector Phase	3		5	2	6	
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	
Minimum Split (s)	17.0		10.0	11.0	11.0	
Total Split (s)	17.0		15.0	81.0	81.0	
Total Split (%)	15.0%		13.3%	71.7%	71.7%	
Maximum Green (s)	12.0		10.0	75.0	75.0	
Yellow Time (s)	3.0		3.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	5.0		5.0	6.0	6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.0	2.0	2.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Recall Mode	None		None	Min	Min	
Walk Time (s)	7.0					
Flash Dont Walk (s)	3.0					
Pedestrian Calls (#/hr)	0					
Act Effct Green (s)	7.9		49.9	50.7	41.1	
Actuated g/C Ratio	0.12		0.76	0.78	0.63	
v/c Ratio	0.44		0.27	0.67	0.71	
Control Delay	31.0		4.5	8.6	16.8	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	31.0		4.5	8.6	16.8	
LOS	C		A	A	B	
Approach Delay	31.0			8.1	16.8	
Approach LOS	C			A	B	
Queue Length 50th (ft)	31		9	156	246	
Queue Length 95th (ft)	97		24	334	475	
Internal Link Dist (ft)	362			1157	1119	
Turn Bay Length (ft)			150			
Base Capacity (vph)	395		444	1642	1734	
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		0.24	0.52	0.46	

Intersection Summary			
Area Type:	Other		
Cycle Length: 113			
Actuated Cycle Length: 65.4			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 13.2		Intersection LOS: B	
Intersection Capacity Utilization 63.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 27: Lowell Rd/3A & Birch St



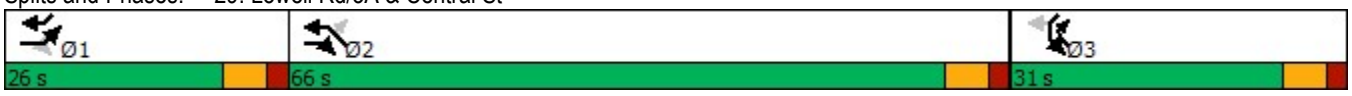
Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	199	650	718	145	190	76
Future Volume (vph)	199	650	718	145	190	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	11	11
Storage Length (ft)	300	0	0	80	0	120
Storage Lanes	1	1	1	1	1	1
Taper Length (ft)	25		25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		0.850
Flt Protected	0.950		0.950		0.950	
Satd. Flow (prot)	1770	1583	1770	1689	1711	1531
Flt Permitted	0.950		0.950		0.950	
Satd. Flow (perm)	1770	1583	1770	1689	1711	1531
Right Turn on Red		Yes		Yes		Yes
Satd. Flow (RTOR)		289		96		83
Link Speed (mph)	30		30		30	
Link Distance (ft)	636		905		654	
Travel Time (s)	14.5		20.6		14.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	216	707	780	158	207	83
Shared Lane Traffic (%)						
Lane Group Flow (vph)	216	707	780	158	207	83
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Right
Median Width(ft)	12		12		11	
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	0.92	1.04	1.04
Turning Speed (mph)	15	9	15	9	15	9
Turn Type	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov
Protected Phases	1	2	2	3	3	1
Permitted Phases		1		2		3
Detector Phase	1	2	2	3	3	1
Switch Phase						
Minimum Initial (s)	8.0	10.0	10.0	8.0	8.0	8.0
Minimum Split (s)	14.0	31.0	31.0	31.0	31.0	14.0
Total Split (s)	26.0	66.0	66.0	31.0	31.0	26.0
Total Split (%)	21.1%	53.7%	53.7%	25.2%	25.2%	21.1%
Maximum Green (s)	20.0	60.0	60.0	25.0	25.0	20.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	2.5	2.5	2.0	2.0	1.5
Recall Mode	None	Min	Min	None	None	None

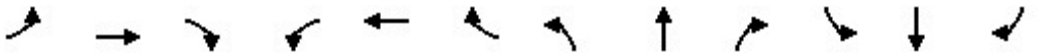
Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0	18.0	18.0	18.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	16.5	77.3	54.7	78.4	17.5	40.2
Actuated g/C Ratio	0.15	0.72	0.51	0.73	0.16	0.38
v/c Ratio	0.80	0.58	0.86	0.13	0.74	0.13
Control Delay	67.5	6.2	36.0	2.1	61.1	5.4
Queue Delay	0.0	0.5	0.0	0.0	0.0	0.0
Total Delay	67.5	6.7	36.0	2.1	61.1	5.4
LOS	E	A	D	A	E	A
Approach Delay	21.0		30.3		45.2	
Approach LOS	C		C		D	
Queue Length 50th (ft)	154	106	470	11	148	0
Queue Length 95th (ft)	#278	235	#817	29	234	31
Internal Link Dist (ft)	556		825		574	
Turn Bay Length (ft)	300			80		120
Base Capacity (vph)	340	1309	1021	1383	411	681
Starvation Cap Reductn	0	242	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	0.64	0.66	0.76	0.11	0.50	0.12

Intersection Summary			
Area Type:	Other		
Cycle Length: 123			
Actuated Cycle Length: 107.2			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 28.3		Intersection LOS: C	
Intersection Capacity Utilization 76.3%		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.

Splits and Phases: 29: Lowell Rd/3A & Central St



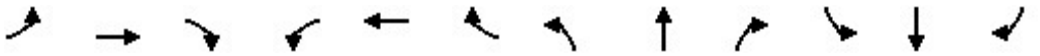


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	320	0	4	563	227	1	0	1	340	1	3
Future Volume (vph)	1	320	0	4	563	227	1	0	1	340	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	16	12
Storage Length (ft)	0		0	0		200	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850		0.932			0.999	
Flt Protected								0.976			0.953	
Satd. Flow (prot)	0	1810	0	0	1863	1583	0	1694	0	0	2010	0
Flt Permitted		0.999			0.998						0.728	
Satd. Flow (perm)	0	1808	0	0	1859	1583	0	1736	0	0	1535	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						167		80				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		888			636			108			794	
Travel Time (s)		20.2			14.5			2.5			18.0	
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
Heavy Vehicles (%)	2%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1	348	0	4	612	247	1	0	1	370	1	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	349	0	0	616	247	0	2	0	0	374	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	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			3			4	
Permitted Phases	2			6		6	3			4		
Detector Phase	2	2		6	6	6	3	3		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	5.0		10.0	10.0	
Minimum Split (s)	31.0	31.0		16.0	16.0	16.0	21.0	21.0		31.0	31.0	
Total Split (s)	51.0	51.0		51.0	51.0	51.0	21.0	21.0		51.0	51.0	
Total Split (%)	41.5%	41.5%		41.5%	41.5%	41.5%	17.1%	17.1%		41.5%	41.5%	
Maximum Green (s)	45.0	45.0		45.0	45.0	45.0	15.0	15.0		45.0	45.0	
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)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0			6.0	
Lead/Lag							Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0		3.0	3.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Walk Time (s)	7.0	7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	8.0	8.0					8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0					0	0		0	0	
Act Effct Green (s)		34.9			34.9	34.9		5.4			25.4	
Actuated g/C Ratio		0.47			0.47	0.47		0.07			0.34	
v/c Ratio		0.41			0.71	0.30		0.01			0.72	
Control Delay		16.8			23.4	6.6		0.0			32.1	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		16.8			23.4	6.6		0.0			32.1	
LOS		B			C	A		A			C	
Approach Delay		16.8			18.6						32.1	
Approach LOS		B			B						C	
Queue Length 50th (ft)		92			196	18		0			144	
Queue Length 95th (ft)		255			519	88		0			320	
Internal Link Dist (ft)		808			556			28			714	
Turn Bay Length (ft)						200						
Base Capacity (vph)		1174			1207	1086		438			997	
Starvation Cap Reductn		0			8	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.30			0.51	0.23		0.00			0.38	

Intersection Summary			
Area Type:	Other		
Cycle Length: 123			
Actuated Cycle Length: 74.8			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 21.4		Intersection LOS: C	
Intersection Capacity Utilization 68.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 33: Central St & Library St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	503	5	7	15	265	0	10	4	61	6	5
Future Volume (vph)	209	503	5	7	15	265	0	10	4	61	6	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	16	12	16	12	12	16	12
Storage Length (ft)	0		0	0		250	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.964			0.991	
Flt Protected		0.986			0.984						0.959	
Satd. Flow (prot)	0	2037	0	0	2037	1743	0	2035	0	0	1958	0
Flt Permitted		0.986			0.984						0.959	
Satd. Flow (perm)	0	2037	0	0	2037	1743	0	2035	0	0	1958	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		439			888			261			628	
Travel Time (s)		10.0			20.2			5.9			14.3	
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
Heavy Vehicles (%)	2%	5%	2%	2%	5%	5%	2%	2%	2%	5%	2%	2%
Adj. Flow (vph)	227	547	5	8	16	288	0	11	4	66	7	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	779	0	0	24	288	0	15	0	0	78	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	0.85	1.00	1.00	0.85	0.85	1.00	0.85	1.00	1.00	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBL	EBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	0	0	0	926	0	1437
Future Volume (vph)	0	0	0	926	0	1437
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.88
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	3539	0	2787
Flt						
Sat						
Lin						
Lin						
Tra						
Pe						
Adj						
Sh						
Lar						
En						
Lar						
Me						
Lin						
Cro						
Tw						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Free			Free	Free	

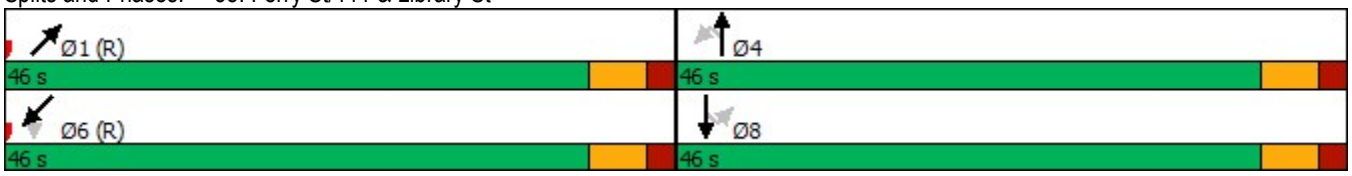
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.6%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	20	384	15	39	289	4	0	386	32	6	571	8
Future Volume (vph)	20	384	15	39	289	4	0	386	32	6	571	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	175		0	0		0	200		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.998			0.990			0.998	
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1770	1852	0	1770	1859	0	0	1844	0	1770	1859	0
Flt Permitted	0.412			0.252						0.428		
Satd. Flow (perm)	767	1852	0	469	1859	0	0	1844	0	797	1859	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			1			6			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		342			444			371			1247	
Travel Time (s)		7.8			10.1			8.4			28.3	
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)	22	417	16	42	314	4	0	420	35	7	621	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	433	0	42	318	0	0	455	0	7	630	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	NA		Perm	NA			NA		Perm	NA	
Protected Phases		4			8			1			6	
Permitted Phases	4			8						6		
Detector Phase	4	4		8	8			1		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0			10.0		10.0	10.0	
Minimum Split (s)	31.0	31.0		31.0	31.0			31.0		31.0	31.0	
Total Split (s)	46.0	46.0		46.0	46.0			46.0		46.0	46.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%			50.0%		50.0%	50.0%	
Maximum Green (s)	40.0	40.0		40.0	40.0			40.0		40.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Recall Mode	None	None		None	None			C-Min		C-Min	C-Min	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Flash Dont Walk (s)	18.0	18.0		18.0	18.0			18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)	28.1	28.1		28.1	28.1			51.9		51.9	51.9	
Actuated g/C Ratio	0.31	0.31		0.31	0.31			0.56		0.56	0.56	
v/c Ratio	0.09	0.76		0.29	0.56			0.44		0.02	0.60	
Control Delay	20.6	37.1		27.4	29.5			14.6		12.2	18.0	
Queue Delay	0.0	0.0		0.0	0.0			1.6		0.0	0.0	
Total Delay	20.6	37.1		27.4	29.5			16.3		12.2	18.0	
LOS	C	D		C	C			B		B	B	
Approach Delay		36.3			29.3			16.3			17.9	
Approach LOS		D			C			B			B	
Queue Length 50th (ft)	9	226		19	154			141		2	226	
Queue Length 95th (ft)	23	287		42	202			268		10	419	
Internal Link Dist (ft)		262			364			291			1167	
Turn Bay Length (ft)				175						200		
Base Capacity (vph)	333	806		203	808			1041		449	1048	
Starvation Cap Reductn	0	0		0	0			400		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	0.07	0.54		0.21	0.39			0.71		0.02	0.60	

Intersection Summary			
Area Type:	Other		
Cycle Length: 92			
Actuated Cycle Length: 92			
Offset: 0 (0%), Referenced to phase 1:NET and 6:SWTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 24.1		Intersection LOS: C	
Intersection Capacity Utilization 72.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 38: Ferry St/111 & Library St



Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NWR	NWR2	NET	NER
Lane Configurations												
Traffic Volume (vph)	28	13	11	16	1	1	15	27	449	10	665	16
Future Volume (vph)	28	13	11	16	1	1	15	27	449	10	665	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12	16	12	12	12	12	12
Storage Length (ft)	0		0			0		0	0			0
Storage Lanes	0		0			0		0	1			0
Taper Length (ft)	25					25						
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.946					0.917		0.865		0.997	
Flt Protected		0.980					0.998					
Satd. Flow (prot)	0	1901	0	0	0	0	1877	0	1611	0	1857	0
Flt Permitted		0.889					0.987					
Satd. Flow (perm)	0	1725	0	0	0	0	1856	0	1611	0	1857	0
Right Turn on Red				Yes				Yes		Yes		
Satd. Flow (RTOR)		9					29		86			
Link Speed (mph)		30					30				30	
Link Distance (ft)		286					634				617	
Travel Time (s)		6.5					14.4				14.0	
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
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%
Adj. Flow (vph)	30	14	12	17	1	1	16	29	488	11	723	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	73	0	0	0	0	47	0	499	0	740	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Left	Left	Right	Right	Right	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	0.85	1.00	1.00	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	9	15	15		9	9	9		9
Turn Type	Perm	NA			Perm	Perm	NA		Over		NA	
Protected Phases		8					4		1		2	
Permitted Phases	8				4	4						
Detector Phase	8	8			4	4	4		1		2	
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0	5.0	5.0		10.0		10.0	
Minimum Split (s)	22.0	22.0			11.0	11.0	11.0		16.0		17.0	
Total Split (s)	22.0	22.0			27.0	27.0	27.0		56.0		57.0	
Total Split (%)	15.7%	15.7%			19.3%	19.3%	19.3%		40.0%		40.7%	
Maximum Green (s)	15.0	15.0			21.0	21.0	21.0		50.0		50.0	
Yellow Time (s)	4.0	4.0			3.0	3.0	3.0		4.0		4.0	
All-Red Time (s)	3.0	3.0			3.0	3.0	3.0		2.0		3.0	
Lost Time Adjust (s)		0.0					0.0		0.0		0.0	
Total Lost Time (s)		7.0					6.0		6.0		7.0	
Lead/Lag									Lead		Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		4.0	

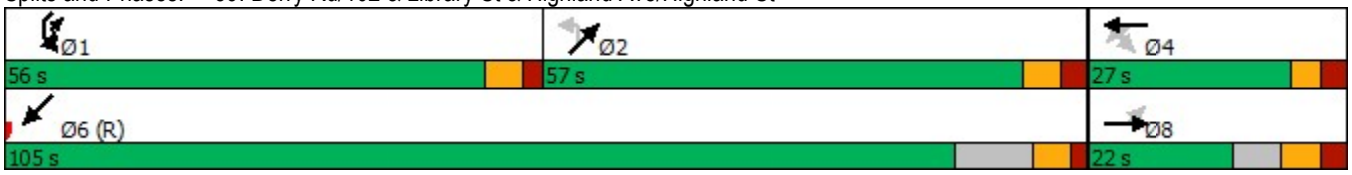
Lane Group	SWL	SWT	SWR
Lane Configurations			
Traffic Volume (vph)	302	446	2
Future Volume (vph)	302	446	2
Ideal Flow (vphpl)	1900	1900	1900
Lane Width (ft)	12	12	12
Storage Length (ft)	0		150
Storage Lanes	1		0
Taper Length (ft)	25		
Lane Util. Factor	1.00	1.00	1.00
Frt		0.999	
Flt Protected	0.950		
Satd. Flow (prot)	1770	1808	0
Flt Permitted	0.950		
Satd. Flow (perm)	1770	1808	0
Right Turn on Red			Yes
Satd. Flow (RTOR)			
Link Speed (mph)		30	
Link Distance (ft)		845	
Travel Time (s)		19.2	
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	2%
Adj. Flow (vph)	328	485	2
Shared Lane Traffic (%)			
Lane Group Flow (vph)	328	487	0
Enter Blocked Intersection	No	No	No
Lane Alignment	Left	Left	Right
Median Width(ft)		12	
Link Offset(ft)		0	
Crosswalk Width(ft)		16	
Two way Left Turn Lane			
Headway Factor	1.00	1.00	1.00
Turning Speed (mph)	15		9
Turn Type	Prot	NA	
Protected Phases	1	6	
Permitted Phases			
Detector Phase	1	6	
Switch Phase			
Minimum Initial (s)	10.0	10.0	
Minimum Split (s)	16.0	16.0	
Total Split (s)	56.0	105.0	
Total Split (%)	40.0%	75.0%	
Maximum Green (s)	50.0	99.0	
Yellow Time (s)	4.0	4.0	
All-Red Time (s)	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	6.0	6.0	
Lead/Lag	Lead		
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	3.0	

Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NWR	NWR2	NET	NER
Recall Mode	None	None			None	None	None		None		Min	
Walk Time (s)	7.0	7.0										
Flash Dont Walk (s)	8.0	8.0										
Pedestrian Calls (#/hr)	0	0										
Act Effct Green (s)		10.8					11.5		44.6		67.3	
Actuated g/C Ratio		0.08					0.08		0.32		0.48	
v/c Ratio		0.52					0.26		0.87		0.83	
Control Delay		66.4					32.1		53.1		43.8	
Queue Delay		0.0					0.0		13.7		12.3	
Total Delay		66.4					32.1		66.8		56.1	
LOS		E					C		E		E	
Approach Delay		66.4					32.1				56.1	
Approach LOS		E					C				E	
Queue Length 50th (ft)		57					15		361		604	
Queue Length 95th (ft)		107					55		469		#1017	
Internal Link Dist (ft)		206					554				537	
Turn Bay Length (ft)												
Base Capacity (vph)		254					303		642		892	
Starvation Cap Reductn		0					0		130		142	
Spillback Cap Reductn		0					0		0		0	
Storage Cap Reductn		0					0		0		0	
Reduced v/c Ratio		0.29					0.16		0.97		0.99	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 6:SWT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 44.6 Intersection LOS: D
Intersection Capacity Utilization 91.6% 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.

Splits and Phases: 39: Derry Rd/102 & Library St & Highland Ave/Highland St



Lane Group	SWL	SWT	SWR
Recall Mode	None	C-Min	
Walk Time (s)			
Flash Dont Walk (s)			
Pedestrian Calls (#/hr)			
Act Effct Green (s)	44.6	120.0	
Actuated g/C Ratio	0.32	0.86	
v/c Ratio	0.58	0.31	
Control Delay	43.2	3.4	
Queue Delay	0.0	0.0	
Total Delay	43.2	3.4	
LOS	D	A	
Approach Delay		19.4	
Approach LOS		B	
Queue Length 50th (ft)	247	82	
Queue Length 95th (ft)	315	142	
Internal Link Dist (ft)		765	
Turn Bay Length (ft)			
Base Capacity (vph)	645	1550	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.51	0.31	

Intersection Summary

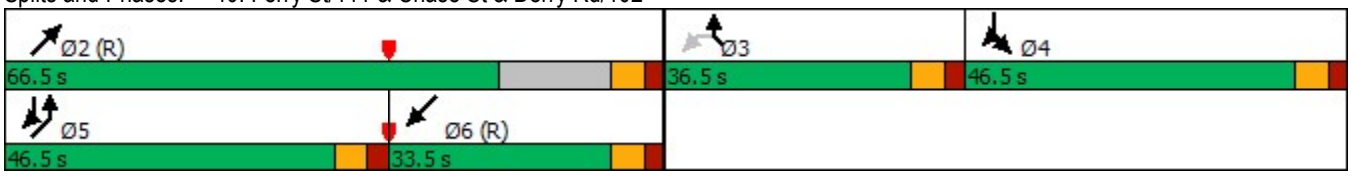
Lane Group	SBL	SBR	NWL	NWR	NWR2	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	65	541	349	35	128	368	547	11	0	547	0
Future Volume (vph)	65	541	349	35	128	368	547	11	0	547	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	13	12	12	12	12	12
Storage Length (ft)	150	300	0	0		0		0	0		0
Storage Lanes	1	1	1	1		1		0	0		0
Taper Length (ft)	25		25			25			25		
Lane Util. Factor	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt		0.850		0.850			0.997				
Flt Protected	0.950		0.950			0.950					
Satd. Flow (prot)	1719	2707	1719	1641	0	1829	1857	0	0	3539	0
Flt Permitted	0.950		0.133			0.950					
Satd. Flow (perm)	1719	2707	241	1641	0	1829	1857	0	0	3539	0
Right Turn on Red		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		70		110			1				
Link Speed (mph)	30		30				30			30	
Link Distance (ft)	617		345				426			371	
Travel Time (s)	14.0		7.8				9.7			8.4	
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
Heavy Vehicles (%)	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	71	588	379	38	139	400	595	12	0	595	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	71	588	379	177	0	400	607	0	0	595	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12		12				13			13	
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	0.92	1.00	0.96	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9	9	15		9	15		9
Turn Type	Prot	pt+ov	Perm	Prot		Prot	NA			NA	
Protected Phases	4	4 5		3		5	2			6	
Permitted Phases			3								
Detector Phase	4	4 5	3	3		5	2			6	
Switch Phase											
Minimum Initial (s)	8.0		5.0	5.0		8.0	10.0			10.0	
Minimum Split (s)	24.5		24.5	24.5		24.5	24.5			24.5	
Total Split (s)	46.5		36.5	36.5		46.5	66.5			33.5	
Total Split (%)	28.5%		22.4%	22.4%		28.5%	40.8%			20.6%	
Maximum Green (s)	40.0		30.0	30.0		40.0	60.0			27.0	
Yellow Time (s)	4.0		4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)	2.5		2.5	2.5		2.5	2.5			2.5	
Lost Time Adjust (s)	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.5		6.5	6.5		6.5	6.5			6.5	
Lead/Lag	Lag		Lead	Lead		Lead				Lag	
Lead-Lag Optimize?											
Vehicle Extension (s)	1.5		1.5	1.5		1.5	1.5			1.5	

Lane Group	SBL	SBR	NWL	NWR	NWR2	NEL	NET	NER	SWL	SWT	SWR
Recall Mode	None		None	None		None	C-Min			C-Min	
Walk Time (s)	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	11.0		11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0		0	0		0	0			0	
Act Effct Green (s)	27.4	76.9	30.0	30.0		43.0	86.1			36.6	
Actuated g/C Ratio	0.17	0.47	0.18	0.18		0.26	0.53			0.22	
v/c Ratio	0.25	0.45	8.61	0.45		0.83	0.62			0.75	
Control Delay	59.9	25.3	3478.9	26.7		71.4	31.1			66.0	
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0			12.9	
Total Delay	59.9	25.3	3478.9	26.7		71.4	31.1			78.9	
LOS	E	C	F	C		E	C			E	
Approach Delay	29.1		2379.9				47.1			78.9	
Approach LOS	C		F				D			E	
Queue Length 50th (ft)	67	203	~754	62		398	439			317	
Queue Length 95th (ft)	112	233	#973	142		529	626			#480	
Internal Link Dist (ft)	537		265				346			291	
Turn Bay Length (ft)	150	300									
Base Capacity (vph)	421	1334	44	391		497	981			793	
Starvation Cap Reductn	0	0	0	0		0	0			183	
Spillback Cap Reductn	0	0	0	0		0	0			0	
Storage Cap Reductn	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.17	0.44	8.61	0.45		0.80	0.62			0.98	

Intersection Summary	
Area Type:	Other
Cycle Length: 163	
Actuated Cycle Length: 163	
Offset: 0 (0%), Referenced to phase 2:NET and 6:SWT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 8.61	
Intersection Signal Delay: 510.0	Intersection LOS: F
Intersection Capacity Utilization 83.2%	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.

Splits and Phases: 40: Ferry St/111 & Chase St & Derry Rd/102



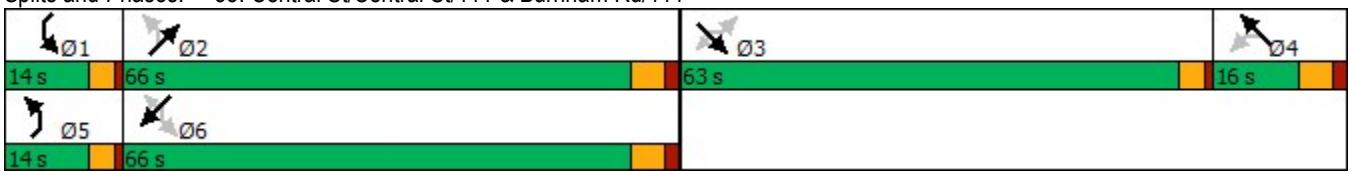
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	447	9	44	27	5	16	25	401	18	23	368	513
Future Volume (vph)	447	9	44	27	5	16	25	401	18	23	368	513
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	16	12	12	12	12	12	12	14
Storage Length (ft)	0		200	0		0	120		0	280		280
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.955			0.993				0.850
Flt Protected		0.953			0.972		0.950			0.950		
Satd. Flow (prot)	0	1775	1794	0	1960	0	1770	1850	0	1770	1863	1689
Flt Permitted		0.574			0.577		0.228			0.150		
Satd. Flow (perm)	0	1069	1794	0	1163	0	425	1850	0	279	1863	1689
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89		12			2				558
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		882			126			314			2248	
Travel Time (s)		20.0			2.9			7.1			51.1	
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)	486	10	48	29	5	17	27	436	20	25	400	558
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	496	48	0	51	0	27	456	0	25	400	558
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	0.85	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	0.92
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		6
Detector Phase	3	3	3	4	4		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	4.0	4.0		4.0	10.0		4.0	10.0	10.0
Minimum Split (s)	14.0	14.0	14.0	10.0	10.0		8.0	16.0		8.0	16.0	16.0
Total Split (s)	63.0	63.0	63.0	16.0	16.0		14.0	66.0		14.0	66.0	66.0
Total Split (%)	39.6%	39.6%	39.6%	10.1%	10.1%		8.8%	41.5%		8.8%	41.5%	41.5%
Maximum Green (s)	59.0	59.0	59.0	10.0	10.0		10.0	60.0		10.0	60.0	60.0
Yellow Time (s)	3.0	3.0	3.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	2.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		6.0		4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		2.0	3.0		2.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Act Effct Green (s)		60.9	60.9		8.7		41.2	35.7		41.0	35.6	35.6
Actuated g/C Ratio		0.49	0.49		0.07		0.33	0.29		0.33	0.29	0.29
v/c Ratio		0.94	0.05		0.55		0.13	0.86		0.16	0.75	0.63
Control Delay		63.1	0.5		72.4		26.8	58.3		27.4	50.2	6.2
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		63.1	0.5		72.4		26.8	58.3		27.4	50.2	6.2
LOS		E	A		E		C	E		C	D	A
Approach Delay		57.5			72.4			56.5			24.6	
Approach LOS		E			E			E			C	
Queue Length 50th (ft)		~455	0		32		15	371		14	314	0
Queue Length 95th (ft)		#795	3		#95		34	509		33	436	83
Internal Link Dist (ft)		802			46			234			2168	
Turn Bay Length (ft)			200				120			280		280
Base Capacity (vph)		525	926		107		259	924		220	930	1122
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		0.94	0.05		0.48		0.10	0.49		0.11	0.43	0.50

Intersection Summary

Area Type: Other
Cycle Length: 159
Actuated Cycle Length: 124.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 42.0 Intersection LOS: D
Intersection Capacity Utilization 62.4% 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: 55: Central St/Central St/111 & Burnham Rd/111



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations												
Traffic Volume (vph)	77	26	613	60	171	295	65	26	190	146	25	63
Future Volume (vph)	77	26	613	60	171	295	65	26	190	146	25	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	12	16	12	12	12	12
Storage Length (ft)		300		300	300		300		140		300	
Storage Lanes		1		1	1		2		1		0	
Taper Length (ft)		25			25				25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850	0.850		0.944		
Flt Protected		0.950			0.950				0.950			
Satd. Flow (prot)	0	1770	1810	1689	1719	1810	1538	1794	1570	1713	0	0
Flt Permitted		0.261			0.261				0.558			
Satd. Flow (perm)	0	486	1810	1689	472	1810	1538	1794	922	1713	0	0
Right Turn on Red				Yes				Yes				Yes
Satd. Flow (RTOR)				121				121		9		
Link Speed (mph)			30			30				30		
Link Distance (ft)			2248			4120				755		
Travel Time (s)			51.1			93.6				17.2		
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
Heavy Vehicles (%)	2%	2%	5%	2%	5%	5%	5%	2%	15%	5%	2%	5%
Adj. Flow (vph)	84	28	666	65	186	321	71	28	207	159	27	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	112	666	65	186	321	71	28	207	254	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Right	Left	Left	Right	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	0.92	1.00	1.00	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15		9	15		9	9	15		9	9
Turn Type	custom	Prot	NA	Free	custom	NA	Perm	Free	pm+pt	NA		
Protected Phases		1	6			2			7	4		
Permitted Phases	1			Free	5		2	Free	4			
Detector Phase	1	1	6		5	2	2		7	4		
Switch Phase												
Minimum Initial (s)	4.0	4.0	15.0		4.0	15.0	15.0		4.0	10.0		
Minimum Split (s)	8.0	8.0	21.0		8.0	21.0	21.0		8.0	16.0		
Total Split (s)	19.0	19.0	81.0		19.0	81.0	81.0		19.0	51.0		
Total Split (%)	10.1%	10.1%	42.9%		10.1%	42.9%	42.9%		10.1%	27.0%		
Maximum Green (s)	15.0	15.0	75.0		15.0	75.0	75.0		15.0	45.0		
Yellow Time (s)	3.0	3.0	4.0		3.0	4.0	4.0		3.0	4.0		
All-Red Time (s)	1.0	1.0	2.0		1.0	2.0	2.0		1.0	2.0		
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0		0.0	0.0		
Total Lost Time (s)		4.0	6.0		4.0	6.0	6.0		4.0	6.0		
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag		Lag			
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	3.0		2.0	3.0	3.0		2.0	3.0		

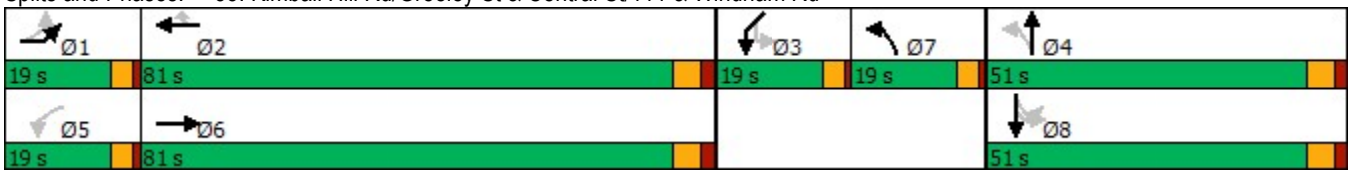
Lane Group	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations								
Traffic Volume (vph)	3	59	49	50	33	19	32	7
Future Volume (vph)	3	59	49	50	33	19	32	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	12	12	12
Storage Length (ft)		0		0		0	0	
Storage Lanes		0		0		1	0	
Taper Length (ft)		25				25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.958			0.942		
Flt Protected			0.981			0.972		
Satd. Flow (prot)	0	0	1927	0	0	1706	0	0
Flt Permitted			0.429			0.972		
Satd. Flow (perm)	0	0	843	0	0	1706	0	0
Right Turn on Red				No				No
Satd. Flow (RTOR)								
Link Speed (mph)			30			30		
Link Distance (ft)			869			736		
Travel Time (s)			19.8			16.7		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	5%	5%	2%	2%	2%	2%
Adj. Flow (vph)	3	64	53	54	36	21	35	8
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	0	174	0	0	100	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)			12			12		
Link Offset(ft)			0			0		
Crosswalk Width(ft)			16			16		
Two way Left Turn Lane								
Headway Factor	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15		9	15	15	9	9
Turn Type	Perm	Perm	NA		Perm	Prot		
Protected Phases			8			3		
Permitted Phases	8	8			3			
Detector Phase	8	8	8		3	3		
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0		4.0	4.0		
Minimum Split (s)	16.0	16.0	16.0		8.0	8.0		
Total Split (s)	51.0	51.0	51.0		19.0	19.0		
Total Split (%)	27.0%	27.0%	27.0%		10.1%	10.1%		
Maximum Green (s)	45.0	45.0	45.0		15.0	15.0		
Yellow Time (s)	4.0	4.0	4.0		3.0	3.0		
All-Red Time (s)	2.0	2.0	2.0		1.0	1.0		
Lost Time Adjust (s)			0.0			0.0		
Total Lost Time (s)			6.0			4.0		
Lead/Lag					Lead	Lead		
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0		2.0	2.0		

Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Recall Mode	None	None	Min		None	Min	Min		None	None		
Act Effct Green (s)		15.3	66.6	170.2	15.3	66.6	66.6	170.2	52.6	35.9		
Actuated g/C Ratio		0.09	0.39	1.00	0.09	0.39	0.39	1.00	0.31	0.21		
v/c Ratio		2.60	0.94	0.04	4.43	0.45	0.12	0.02	0.61	0.69		
Control Delay		804.6	72.5	0.1	1610.7	41.7	35.3	0.0	54.8	71.2		
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay		804.6	72.5	0.1	1610.7	41.7	35.3	0.0	54.8	71.2		
LOS		F	E	A	F	D	D	A	D	E		
Approach Delay			164.2			520.6				63.8		
Approach LOS			F			F				E		
Queue Length 50th (ft)		~230	752	0	~417	279	53	0	194	275		
Queue Length 95th (ft)		#385	#1046	0	#610	391	96	0	276	382		
Internal Link Dist (ft)			2168			4040				675		
Turn Bay Length (ft)		300		300	300		300	300	140			
Base Capacity (vph)		43	815	1689	42	815	693	1794	347	469		
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		2.60	0.82	0.04	4.43	0.39	0.10	0.02	0.60	0.54		

Intersection Summary			
Area Type:	Other		
Cycle Length: 189			
Actuated Cycle Length: 170.2			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 4.43			
Intersection Signal Delay: 236.9		Intersection LOS: F	
Intersection Capacity Utilization 90.8%		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.

Splits and Phases: 58: Kimball Hill Rd/Greeley St & Central St/111 & Windham Rd



Lane Group	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Recall Mode	None	None	None		None	None		
Act Effct Green (s)			35.9			13.2		
Actuated g/C Ratio			0.21			0.08		
v/c Ratio			0.98			0.76		
Control Delay			130.0			113.7		
Queue Delay			0.0			0.0		
Total Delay			130.0			113.7		
LOS			F			F		
Approach Delay			130.0			113.7		
Approach LOS			F			F		
Queue Length 50th (ft)			210			120		
Queue Length 95th (ft)			#364			#224		
Internal Link Dist (ft)			789			656		
Turn Bay Length (ft)								
Base Capacity (vph)			227			153		
Starvation Cap Reductn			0			0		
Spillback Cap Reductn			0			0		
Storage Cap Reductn			0			0		
Reduced v/c Ratio			0.77			0.65		

Intersection Summary

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	85	299	358	103	332	452
Future Volume (vph)	85	299	358	103	332	452
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.895		0.970			
Flt Protected	0.989					0.979
Satd. Flow (prot)	1827	0	1795	0	0	1824
Flt Permitted	0.989					0.979
Satd. Flow (perm)	1827	0	1795	0	0	1824
Link Speed (mph)	30		30			30
Link Distance (ft)	832		787			870
Travel Time (s)	18.9		17.9			19.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	2%	5%	2%	2%
Adj. Flow (vph)	92	325	389	112	361	491
Shared Lane Traffic (%)						
Lane Group Flow (vph)	417	0	501	0	0	852
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	16		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

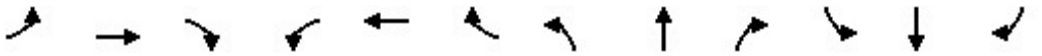
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	100.4%	ICU Level of Service	G
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	183	114	40	221	289	41
Future Volume (vph)	183	114	40	221	289	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12
Storage Length (ft)		0	180		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.948				0.983	
Flt Protected			0.950		0.958	
Satd. Flow (prot)	1492	0	1770	1652	1735	0
Flt Permitted			0.950		0.958	
Satd. Flow (perm)	1492	0	1770	1652	1735	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1417			420	606	
Travel Time (s)	32.2			9.5	13.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	15%	30%	2%	15%	15%	30%
Adj. Flow (vph)	199	124	43	240	314	45
Shared Lane Traffic (%)						
Lane Group Flow (vph)	323	0	43	240	359	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	16	
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	0.85	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.4%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	185	1	141	190	8	231
Future Volume (vph)	185	1	141	190	8	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	16	16	12
Storage Length (ft)		0	80		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.870	
Flt Protected			0.950		0.998	
Satd. Flow (prot)	1861	0	1770	2111	1833	0
Flt Permitted			0.950		0.998	
Satd. Flow (perm)	1861	0	1770	2111	1833	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	2748			314	1025	
Travel Time (s)	62.5			7.1	23.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	201	1	153	207	9	251
Shared Lane Traffic (%)						
Lane Group Flow (vph)	202	0	153	207	260	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	16	
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	0.85	0.85	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	0	186	1	0	0	251	728	0	0	644	14
Future Volume (vph)	63	0	186	1	0	0	251	728	0	0	644	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	12	12	12	12	12	12	15	12
Storage Length (ft)	130		0	0		0	465		0	0		0
Storage Lanes	1		1	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850								0.997	
Flt Protected	0.950				0.950		0.950					
Satd. Flow (prot)	1770	0	1583	0	1770	0	1770	1863	0	0	2043	0
Flt Permitted	0.950				0.950		0.162					
Satd. Flow (perm)	1770	0	1583	0	1770	0	302	1863	0	0	2043	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			202								1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		468			79			2433			1216	
Travel Time (s)		10.6			1.8			55.3			27.6	
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)	68	0	202	1	0	0	273	791	0	0	700	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	0	202	0	1	0	273	791	0	0	715	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	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot		pt+ov	Split	NA		pm+pt	NA			NA	
Protected Phases	4		4 1	8	8		1	6			2	
Permitted Phases							6			2		
Detector Phase	4		4 1	8	8		1	6		2	2	
Switch Phase												
Minimum Initial (s)	3.0			5.0	5.0		3.0	10.0		10.0	10.0	
Minimum Split (s)	9.0			11.0	11.0		7.0	16.0		16.0	16.0	
Total Split (s)	21.0			16.0	16.0		19.0	107.0		107.0	107.0	
Total Split (%)	12.9%			9.8%	9.8%		11.7%	65.6%		65.6%	65.6%	
Maximum Green (s)	15.0			10.0	10.0		15.0	101.0		101.0	101.0	
Yellow Time (s)	4.0			4.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	2.0			2.0	2.0		1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0				0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0				6.0		4.0	6.0			6.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5			0.4	0.4		2.0	5.0		5.0	5.0	
Recall Mode	None			None	None		None	Min		Min	Min	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	8.6		21.3		5.4		53.2	51.0			37.5	
Actuated g/C Ratio	0.12		0.29		0.07		0.72	0.69			0.51	
v/c Ratio	0.33		0.34		0.01		0.68	0.62			0.69	
Control Delay	40.9		5.3		45.0		17.0	9.1			18.5	
Queue Delay	0.0		0.0		0.0		0.0	0.0			0.0	
Total Delay	40.9		5.3		45.0		17.0	9.1			18.5	
LOS	D		A		D		B	A			B	
Approach Delay		14.3			45.0			11.1			18.5	
Approach LOS		B			D			B			B	
Queue Length 50th (ft)	26		0		0		27	134			201	
Queue Length 95th (ft)	95		48		7		142	399			509	
Internal Link Dist (ft)		388			1			2353			1136	
Turn Bay Length (ft)	130						465					
Base Capacity (vph)	387		734		258		538	1863			1990	
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	0.18		0.28		0.00		0.51	0.42			0.36	

Intersection Summary			
Area Type:	Other		
Cycle Length: 163			
Actuated Cycle Length: 74			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 14.1		Intersection LOS: B	
Intersection Capacity Utilization 92.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 76: Derry Rd/102 & Elm Ave

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	74	49	47	365	469	92
Future Volume (vph)	74	49	47	365	469	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.946				0.978	
Flt Protected	0.971			0.994		
Satd. Flow (prot)	1905	0	0	1805	1770	0
Flt Permitted	0.971			0.994		
Satd. Flow (perm)	1905	0	0	1805	1770	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	420			2236	3657	
Travel Time (s)	9.5			50.8	83.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	2%	2%	5%	5%	5%
Adj. Flow (vph)	80	53	51	397	510	100
Shared Lane Traffic (%)						
Lane Group Flow (vph)	133	0	0	448	610	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	16			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 69.2%		ICU Level of Service C	
Analysis Period (min) 15			

A.3 Future 2030 Model - AM Peak (51 pages)

Reference Table – HUD# to # in SYNCRHO Reports

HUD#	# in SYNCHRO Reports	Intersection / Direction TOWARD
1	**40**	111-102-3A (Ferry & Chase)
2	**38**	Library & Ferry
3	**39**	Library and Highland
4	**55**	Burnham and Central
5	**58**	Central-Kimball-Greeley (Rt.111 & Greeley)
6	**76**	Derry and 102 (Route 102 & Elm Ave)
7	**82**	NH 102/Page Rd
8	**34**	NH 3A Central St/Chase St
9	**33**	Central and Library
10	**29**	Lowell and Central
11	**25**	Lowell and Pelham
12	**22**	Lowell and Executive
13	**10**	Lowell-Hampshire-Oblate
14	**1**	Lowell & Wason
16	**4**	NH 3A Lowell Rd/Walmart Blvd
17	**5**	NH 3A Lowell Rd/Rena Ave
18	**7**	NH 3A Lowell Rd/Dracut Rd/Steele Rd
19	**67**	Dracut Rd/Sherburne Rd
20	**70**	Kimball Hill Rd/Bush Hill Rd
21	**73**	Central St/Belknap Rd
22	**24**	Lowell & Fox Hollow Dr
23	**27**	Lowell & Birch St
15_com	**2**	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined
15M	-	NH 3A Lowell Rd/Sagamore Bridge Rd - Northern Section
15N	-	NH 3A Lowell Rd/Sagamore Bridge Rd - Middle Section
15S	-	NH 3A Lowell Rd/Sagamore Bridge Rd - Southern Section

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	24	246	432	64	45	186	859	178	22	848	29
Future Volume (vph)	36	24	246	432	64	45	186	859	178	22	848	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	14	12	12	12	12	12	12
Storage Length (ft)	0		0	0		200	650		350	200		0
Storage Lanes	0		1	1		1	1		2	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.88	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected		0.971		0.950	0.964		0.950			0.950		
Satd. Flow (prot)	0	1419	1408	1633	1657	1641	1719	3438	2707	1570	3139	1404
Flt Permitted		0.971		0.950	0.964		0.950			0.950		
Satd. Flow (perm)	0	1419	1408	1633	1657	1641	1719	3438	2707	1570	3139	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			267			145			193			211
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		573			432			1014			1071	
Travel Time (s)		13.0			9.8			23.0			24.3	
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
Heavy Vehicles (%)	30%	30%	30%	5%	5%	5%	5%	5%	5%	15%	15%	15%
Adj. Flow (vph)	39	26	267	470	70	49	202	934	193	24	922	32
Shared Lane Traffic (%)				43%								
Lane Group Flow (vph)	0	65	267	268	272	49	202	934	193	24	922	32
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	0.85	1.00	1.00	0.92	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	Split	NA	pm+ov	Split	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	Perm
Protected Phases	3	3	1	4	4	4 5	1	6	6 4	5	2	
Permitted Phases			3									2
Detector Phase	3	3	1	4	4	4 5	1	6	6 4	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	11.0	11.0	13.0	12.0	12.0		13.0	16.0		13.0	16.0	16.0
Total Split (s)	15.0	15.0	30.0	30.0	30.0		30.0	50.0		15.0	35.0	35.0
Total Split (%)	10.0%	10.0%	20.0%	20.0%	20.0%		20.0%	33.3%		10.0%	23.3%	23.3%
Maximum Green (s)	9.0	9.0	22.0	23.0	23.0		22.0	44.0		7.0	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	4.0
All-Red Time (s)	2.0	2.0	4.0	3.0	3.0		4.0	2.0		4.0	2.0	2.0
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)		6.0	8.0	7.0	7.0		8.0	6.0		8.0	6.0	6.0
Lead/Lag	Lead	Lead	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	3.0

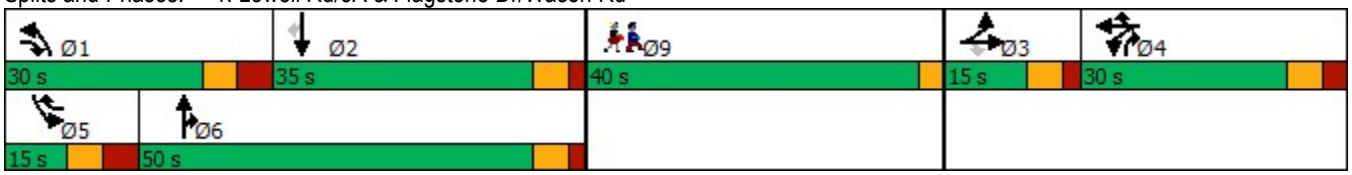
Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
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	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	40.0
Total Split (s)	40.0
Total Split (%)	27%
Maximum Green (s)	37.0
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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		8.7	25.4	23.0	23.0	37.6	18.7	44.4	69.7	6.5	29.3	29.3
Actuated g/C Ratio		0.08	0.24	0.22	0.22	0.35	0.18	0.42	0.65	0.06	0.27	0.27
v/c Ratio		0.57	0.50	0.76	0.76	0.07	0.67	0.65	0.11	0.25	1.07	0.06
Control Delay		67.6	5.3	55.4	55.3	0.2	52.7	28.6	0.7	55.7	90.4	0.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		67.6	5.3	55.4	55.3	0.2	52.7	28.6	0.7	55.7	90.4	0.2
LOS		E	A	E	E	A	D	C	A	E	F	A
Approach Delay		17.5			50.8			28.2			86.6	
Approach LOS		B			D			C			F	
Queue Length 50th (ft)		45	0	188	191	0	132	281	0	16	~379	0
Queue Length 95th (ft)		#102	31	#324	#326	0	209	354	6	44	#522	0
Internal Link Dist (ft)		493			352			934			991	
Turn Bay Length (ft)						200	650		350	200		
Base Capacity (vph)		119	574	352	357	678	354	1458	1856	102	859	537
Starvation Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.55	0.47	0.76	0.76	0.07	0.57	0.64	0.10	0.24	1.07	0.06

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 106.8
Natural Cycle: 145
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 48.9 Intersection LOS: D
Intersection Capacity Utilization 71.6% 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: 1: Lowell Rd/3A & Flagstone Dr/Wason Rd



Lane Group	Ø9
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	30.0
Pedestrian Calls (#/hr)	0
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	

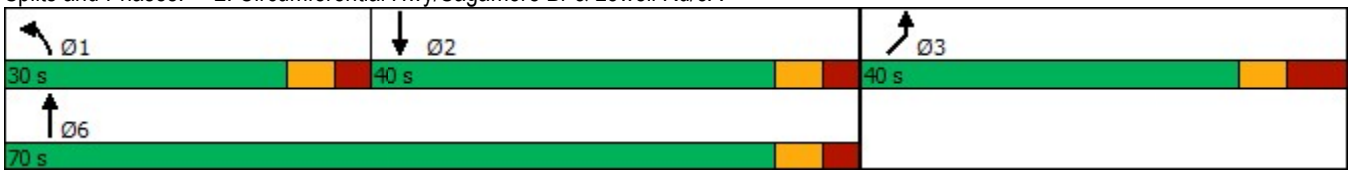
Intersection Summary

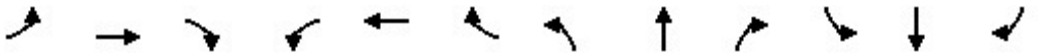
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	SBR2	NEL	NER
Lane Configurations									
Traffic Volume (vph)	0	0	689	234	279	0	1120	830	603
Future Volume (vph)	0	0	689	234	279	0	1120	830	603
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	14	12
Storage Length (ft)	0	0	470			450		0	0
Storage Lanes	0	0	2			1		2	1
Taper Length (ft)	25		25					25	
Lane Util. Factor	1.00	1.00	0.94	0.95	0.95	1.00	1.00	0.97	1.00
Frt							0.850		0.850
Flt Protected			0.950					0.950	
Satd. Flow (prot)	0	0	4848	3139	3438	0	1538	3557	1538
Flt Permitted			0.950					0.950	
Satd. Flow (perm)	0	0	4848	3139	3438	0	1538	3557	1538
Right Turn on Red							Yes		Yes
Satd. Flow (RTOR)							805		507
Link Speed (mph)	55			30	30			42	
Link Distance (ft)	1050			613	1014			974	
Travel Time (s)	13.0			13.9	23.0			15.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	5%	15%	5%	2%	5%	5%	5%
Adj. Flow (vph)	0	0	749	254	303	0	1217	902	655
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	0	749	254	303	0	1217	902	655
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right	Right	Left	Right
Median Width(ft)	0			36	36			28	
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	0.92	1.00
Turning Speed (mph)	15	9	15			9	9	15	9
Turn Type			Prot	NA	NA		Free	Prot	Free
Protected Phases			1	6	2			3	
Permitted Phases							Free		Free
Detector Phase			1	6	2			3	
Switch Phase									
Minimum Initial (s)			7.0	10.0	10.0			10.0	
Minimum Split (s)			14.0	17.0	17.0			19.0	
Total Split (s)			30.0	70.0	40.0			40.0	
Total Split (%)			27.3%	63.6%	36.4%			36.4%	
Maximum Green (s)			23.0	63.0	33.0			31.0	
Yellow Time (s)			4.0	4.0	4.0			4.0	
All-Red Time (s)			3.0	3.0	3.0			5.0	
Lost Time Adjust (s)			0.0	0.0	0.0			0.0	
Total Lost Time (s)			7.0	7.0	7.0			9.0	
Lead/Lag			Lead		Lag				
Lead-Lag Optimize?									
Vehicle Extension (s)			4.0	4.0	4.0			4.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	SBR2	NEL	NER
Recall Mode			None	Min	Min			None	
Act Effct Green (s)			19.8	41.1	14.2		85.7	28.4	85.7
Actuated g/C Ratio			0.23	0.48	0.17		1.00	0.33	1.00
v/c Ratio			0.67	0.17	0.53		0.79	0.77	0.43
Control Delay			33.8	13.1	37.3		4.2	31.3	0.9
Queue Delay			0.0	0.0	0.0		0.0	0.0	0.0
Total Delay			33.8	13.1	37.3		4.2	31.3	0.9
LOS			C	B	D		A	C	A
Approach Delay				28.6	10.8			18.5	
Approach LOS				C	B			B	
Queue Length 50th (ft)			135	41	83		0	223	0
Queue Length 95th (ft)			187	63	127		0	328	0
Internal Link Dist (ft)	970			533	934			894	
Turn Bay Length (ft)			470				450		
Base Capacity (vph)			1318	2338	1341		1538	1303	1538
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			0.57	0.11	0.23		0.79	0.69	0.43

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 85.7			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 18.1		Intersection LOS: B	
Intersection Capacity Utilization 64.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Circumferential Hwy/Sagamore Br & Lowell Rd/3A



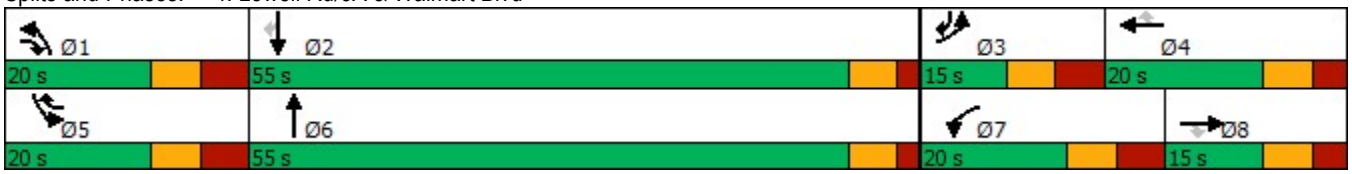


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	94	11	45	23	9	96	55	744	25	99	718	71
Future Volume (vph)	94	11	45	23	9	96	55	744	25	99	718	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	425		0	400		0
Storage Lanes	2		1	2		1	3		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	0.97	1.00	1.00	0.97	0.91	0.91	0.97	0.91	1.00
Frt			0.850			0.850		0.995				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	1863	1583	3335	1863	1538	3433	4920	0	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	1863	1583	3335	1863	1538	3433	4920	0	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			109		6				119
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		304			245			982			569	
Travel Time (s)		6.9			5.6			22.3			12.9	
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
Heavy Vehicles (%)	5%	2%	2%	5%	2%	5%	2%	5%	2%	5%	5%	5%
Adj. Flow (vph)	102	12	49	25	10	104	60	809	27	108	780	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	102	12	49	25	10	104	60	836	0	108	780	77
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
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	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6		5	2	3
Permitted Phases			8			4						2
Detector Phase	3	8	1	7	4	5	1	6		5	2	3
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0		5.0	10.0	5.0
Minimum Split (s)	13.0	12.0	13.0	13.0	12.0	13.0	13.0	16.0		13.0	16.0	13.0
Total Split (s)	15.0	15.0	20.0	20.0	20.0	20.0	20.0	55.0		20.0	55.0	15.0
Total Split (%)	13.6%	13.6%	18.2%	18.2%	18.2%	18.2%	18.2%	50.0%		18.2%	50.0%	13.6%
Maximum Green (s)	7.0	8.0	12.0	12.0	13.0	12.0	12.0	49.0		12.0	49.0	7.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	4.0	3.0	4.0	4.0	3.0	4.0	4.0	2.0		4.0	2.0	4.0
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)	8.0	7.0	8.0	8.0	7.0	8.0	8.0	6.0		8.0	6.0	8.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0		4.0	6.0	4.0
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	None

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	7.6	8.0	16.6	7.5	7.6	11.3	8.1	28.5		9.1	35.9	45.9
Actuated g/C Ratio	0.11	0.12	0.25	0.11	0.11	0.17	0.12	0.43		0.14	0.54	0.69
v/c Ratio	0.27	0.05	0.10	0.07	0.05	0.30	0.14	0.40		0.24	0.29	0.07
Control Delay	35.1	35.0	0.4	34.0	34.7	7.9	32.7	14.9		31.9	13.1	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	35.1	35.0	0.4	34.0	34.7	7.9	32.7	14.9		31.9	13.1	0.8
LOS	D	C	A	C	C	A	C	B		C	B	A
Approach Delay		24.6			14.5			16.1			14.2	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)	19	4	0	4	4	0	10	80		19	72	0
Queue Length 95th (ft)	58	25	0	20	22	35	37	164		57	146	8
Internal Link Dist (ft)		224			165			902			489	
Turn Bay Length (ft)							425			400		
Base Capacity (vph)	381	241	585	649	392	434	668	3752		649	3766	1100
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.27	0.05	0.08	0.04	0.03	0.24	0.09	0.22		0.17	0.21	0.07

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 66.3			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.40			
Intersection Signal Delay: 15.8		Intersection LOS: B	
Intersection Capacity Utilization 45.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Lowell Rd/3A & Walmart Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	0	2	3	0	0	19	831	0	0	698	63
Future Volume (vph)	8	0	2	3	0	0	19	831	0	0	698	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	200		200	0		0	350		0	425		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.91	0.91
Frt		0.850									0.988	
Flt Protected	0.950				0.950		0.950					
Satd. Flow (prot)	2694	1583	0	0	2006	0	1770	3438	0	1652	4892	0
Flt Permitted	0.950				0.950		0.950					
Satd. Flow (perm)	2694	1583	0	0	2006	0	1770	3438	0	1652	4892	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		351									20	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		301			325			1749			982	
Travel Time (s)		6.8			7.4			39.8			22.3	
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
Heavy Vehicles (%)	30%	2%	2%	2%	2%	5%	2%	5%	2%	15%	5%	2%
Adj. Flow (vph)	9	0	2	3	0	0	21	903	0	0	759	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	2	0	0	3	0	21	903	0	0	827	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			36			36	
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	0.85	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	Split	NA		Split	NA		Prot	NA		Prot	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases												
Detector Phase	3	3		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	12.0	12.0		12.0	12.0		13.0	16.0		13.0	16.0	
Total Split (s)	15.0	15.0		15.0	15.0		15.0	65.0		15.0	65.0	
Total Split (%)	13.6%	13.6%		13.6%	13.6%		13.6%	59.1%		13.6%	59.1%	
Maximum Green (s)	8.0	8.0		8.0	8.0		7.0	59.0		7.0	59.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		4.0	2.0		4.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0			7.0		8.0	6.0		8.0	6.0	
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	7.4	7.4			7.3		7.5	40.0			38.3	
Actuated g/C Ratio	0.17	0.17			0.17		0.17	0.91			0.87	
v/c Ratio	0.02	0.00			0.01		0.07	0.29			0.19	
Control Delay	22.9	0.0			23.7		23.2	3.3			5.3	
Queue Delay	0.0	0.0			0.0		0.0	0.0			0.0	
Total Delay	22.9	0.0			23.7		23.2	3.3			5.3	
LOS	C	A			C		C	A			A	
Approach Delay		18.7			23.7			3.7			5.3	
Approach LOS		B			C			A			A	
Queue Length 50th (ft)	1	0			1		3	0			0	
Queue Length 95th (ft)	9	0			9		30	171			141	
Internal Link Dist (ft)		221			245			1669			902	
Turn Bay Length (ft)	200						350					
Base Capacity (vph)	544	599			405		312	3273			4658	
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	0.02	0.00			0.01		0.07	0.28			0.18	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 43.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.29			
Intersection Signal Delay: 4.6		Intersection LOS: A	
Intersection Capacity Utilization 38.0%		ICU Level of Service A	
Analysis Period (min) 15			

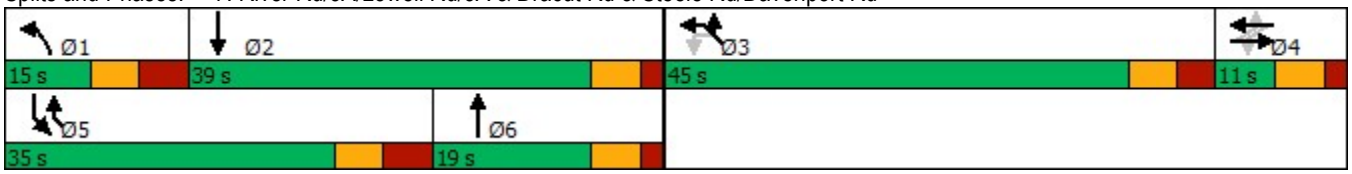
Splits and Phases: 5: Lowell Rd/3A & Rena Ave

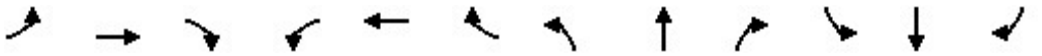
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR	NWL2	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	0	0	0	285	83	404	5	8	0	666
Future Volume (vph)	0	0	0	0	285	83	404	5	8	0	666
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			240		820		0		120	0
Storage Lanes	1			2		0		0		1	1
Taper Length (ft)	25			25		25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.97	1.00	1.00	1.00	1.00	1.00
Frt							0.998				0.850
Flt Protected						0.950				0.950	
Satd. Flow (prot)	1863	1863	1863	1863	3438	3335	1806	0	0	1770	1538
Flt Permitted						0.950				0.950	
Satd. Flow (perm)	1863	1863	1863	1863	3438	3335	1806	0	0	1770	1538
Right Turn on Red								Yes			
Satd. Flow (RTOR)							1				
Link Speed (mph)		30	30		30		30			30	
Link Distance (ft)		386	220		910		1749			960	
Travel Time (s)		8.8	5.0		20.7		39.8			21.8	
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
Heavy Vehicles (%)	2%	2%	2%	2%	5%	5%	5%	2%	2%	2%	5%
Adj. Flow (vph)	0	0	0	0	310	90	439	5	9	0	724
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	0	0	310	90	444	0	0	9	724
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Left	Left	Left	Left	Right	Left	Left	Right
Median Width(ft)		12	12		36		36			12	
Link Offset(ft)		0	0		0		0			0	
Crosswalk Width(ft)		16	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		15		9	15	15	9
Turn Type	Perm			Prot	NA	Prot	NA		Perm	Prot	pt+ov
Protected Phases		4	4	1	6	5	2			3	3 5
Permitted Phases	4								3		
Detector Phase	4	4	4	1	6	5	2		3	3	3 5
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	11.0	11.0	13.0	16.0	18.0	16.0		17.0	17.0	
Total Split (s)	11.0	11.0	11.0	15.0	19.0	35.0	39.0		45.0	45.0	
Total Split (%)	10.0%	10.0%	10.0%	13.6%	17.3%	31.8%	35.5%		40.9%	40.9%	
Maximum Green (s)	5.0	5.0	5.0	7.0	13.0	27.0	33.0		38.0	38.0	
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)	2.0	2.0	2.0	4.0	2.0	4.0	2.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0	6.0	6.0	8.0	6.0	8.0	6.0			7.0	
Lead/Lag	Lag	Lag	Lag	Lead	Lag	Lead	Lag		Lead	Lead	
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0	3.0	3.0	3.0	4.0	4.0	4.0		4.0	4.0	
Recall Mode	None	None	None	None	Min	None	Min		None	None	

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR	NWL2	NWL	NWR
Act Effct Green (s)					12.4	17.8	38.4			30.6	56.5
Actuated g/C Ratio					0.15	0.22	0.47			0.37	0.69
v/c Ratio					0.60	0.13	0.53			0.01	0.69
Control Delay					40.3	27.9	19.2			17.6	11.3
Queue Delay					0.0	0.0	0.0			0.0	0.0
Total Delay					40.3	27.9	19.2			17.6	11.3
LOS					D	C	B			B	B
Approach Delay					40.3		20.7			11.4	
Approach LOS					D		C			B	
Queue Length 50th (ft)					80	20	162			3	190
Queue Length 95th (ft)					146	41	272			14	296
Internal Link Dist (ft)		306	140		830		1669			880	
Turn Bay Length (ft)						820				120	
Base Capacity (vph)					557	1123	860			839	1236
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					0.56	0.08	0.52			0.01	0.59

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 82.3			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 20.2		Intersection LOS: C	
Intersection Capacity Utilization 60.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: River Rd/3A/Lowell Rd/3A & Dracut Rd & Steele Rd/Davenport Rd



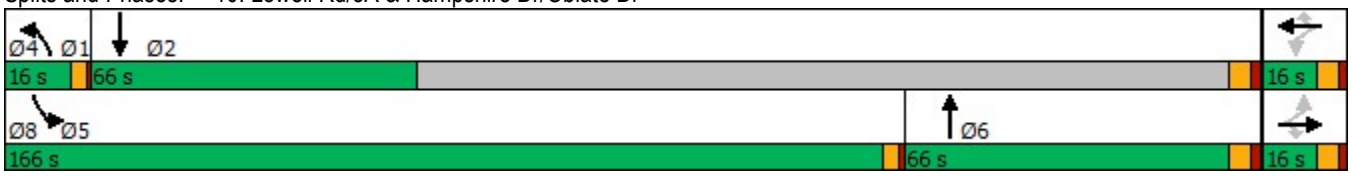


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	0	15	4	0	2	89	911	3	2	989	64
Future Volume (vph)	17	0	15	4	0	2	89	911	3	2	989	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	16	12	12	12	12	12	12
Storage Length (ft)	0		150	0		120	270		0	250		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	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
Frt			0.850			0.850					0.991	
Flt Protected		0.950			0.950		0.950			0.950		
Satd. Flow (prot)	0	1770	1794	0	1770	1794	1719	3438	0	1770	3507	0
Flt Permitted		0.930			0.930		0.950			0.950		
Satd. Flow (perm)	0	1732	1794	0	1732	1794	1719	3438	0	1770	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			48					12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		412			436			437			1173	
Travel Time (s)		9.4			9.9			9.9			26.7	
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	2%	2%	2%	2%
Adj. Flow (vph)	18	0	16	4	0	2	97	990	3	2	1075	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	16	0	4	2	97	993	0	2	1145	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	0.85	1.00	1.00	0.85	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	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						
Detector Phase	8	8	8	4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	15.0		4.0	15.0	
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	16.0	8.0	28.0		8.0	28.0	
Total Split (s)	16.0	16.0	16.0	16.0	16.0	16.0	16.0	66.0		166.0	66.0	
Total Split (%)	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	26.6%		66.9%	26.6%	
Maximum Green (s)	10.0	10.0	10.0	10.0	10.0	10.0	12.0	60.0		162.0	60.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.0	6.0		4.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.0	3.0		2.0	3.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0			0	
Act Effct Green (s)		6.7	6.7		6.2	6.2	12.1	60.0		4.7	43.0	
Actuated g/C Ratio		0.09	0.09		0.08	0.08	0.17	0.82		0.06	0.59	
v/c Ratio		0.11	0.08		0.03	0.01	0.34	0.35		0.02	0.55	
Control Delay		32.9	1.7		32.0	0.0	31.3	4.0		34.0	11.5	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		32.9	1.7		32.0	0.0	31.3	4.0		34.0	11.5	
LOS		C	A		C	A	C	A		C	B	
Approach Delay		18.2			21.3			6.4			11.5	
Approach LOS		B			C			A			B	
Queue Length 50th (ft)		7	0		2	0	36	64		1	175	
Queue Length 95th (ft)		28	3		11	0	88	156		8	243	
Internal Link Dist (ft)		332			356			357			1093	
Turn Bay Length (ft)			150			120	270			250		
Base Capacity (vph)		239	288		239	288	284	3026		1770	3507	
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		0.08	0.06		0.02	0.01	0.34	0.33		0.00	0.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 248			
Actuated Cycle Length: 73.1			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 9.2		Intersection LOS: A	
Intersection Capacity Utilization 55.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 10: Lowell Rd/3A & Hampshire Dr/Oblate Dr



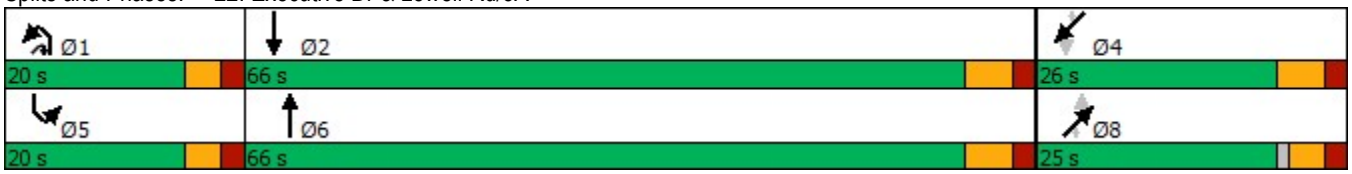
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	224	442	217	169	786	142	31	7	84	211	22	130
Future Volume (vph)	224	442	217	169	786	142	31	7	84	211	22	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	16	12	12	14
Storage Length (ft)	400		0	180		300	0		0	0		0
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.951			0.977				0.850			0.850
Flt Protected	0.950			0.950				0.961			0.957	
Satd. Flow (prot)	1719	3270	0	1770	3458	0	0	1739	1743	0	1783	1689
Flt Permitted	0.950			0.950				0.699			0.716	
Satd. Flow (perm)	1719	3270	0	1770	3458	0	0	1265	1743	0	1334	1689
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		116			28				91			141
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		669			399			262			149	
Travel Time (s)		15.2			9.1			6.0			3.4	
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
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	243	480	236	184	854	154	34	8	91	229	24	141
Shared Lane Traffic (%)												
Lane Group Flow (vph)	243	716	0	184	1008	0	0	42	91	0	253	141
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	0.85	1.00	1.00	0.92
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases	1	6		5	2			8	1		4	
Permitted Phases							8		8	4		4
Detector Phase	1	6		5	2		8	8	1	4	4	4
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	3.0	3.0	4.0	4.0	4.0
Minimum Split (s)	8.0	31.0		8.0	31.0		25.0	25.0	8.0	26.0	26.0	26.0
Total Split (s)	20.0	66.0		20.0	66.0		25.0	25.0	20.0	26.0	26.0	26.0
Total Split (%)	17.9%	58.9%		17.9%	58.9%		22.3%	22.3%	17.9%	23.2%	23.2%	23.2%
Maximum Green (s)	15.0	60.0		15.0	60.0		20.0	20.0	15.0	20.0	20.0	20.0
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	6.0		5.0	6.0			5.0	5.0		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	2.0	2.0	2.0	2.0	2.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	15.1	37.2		12.7	34.8			21.2	41.3		20.2	20.2
Actuated g/C Ratio	0.17	0.43		0.15	0.40			0.24	0.47		0.23	0.23
v/c Ratio	0.82	0.49		0.72	0.72			0.14	0.10		0.82	0.28
Control Delay	59.6	16.1		53.0	24.4			30.4	4.2		56.9	7.5
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	59.6	16.1		53.0	24.4			30.4	4.2		56.9	7.5
LOS	E	B		D	C			C	A		E	A
Approach Delay		27.2			28.8			12.5			39.2	
Approach LOS		C			C			B			D	
Queue Length 50th (ft)	128	122		95	232			18	0		131	0
Queue Length 95th (ft)	#300	173		#201	297			52	29		#312	50
Internal Link Dist (ft)		589			319			182			69	
Turn Bay Length (ft)	400			180								
Base Capacity (vph)	297	2303		306	2406			306	873		308	498
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	0.82	0.31		0.60	0.42			0.14	0.10		0.82	0.28

Intersection Summary

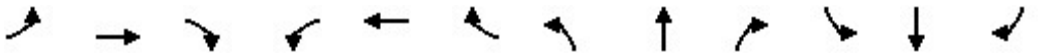
Area Type: Other
Cycle Length: 112
Actuated Cycle Length: 87.2
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 28.9 Intersection LOS: C
Intersection Capacity Utilization 72.3% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 22: Executive Dr & Lowell Rd/3A



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	709	851	0
Future Volume (vph)	0	0	0	709	851	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12
Storage Length (ft)	0	0	0			400
Storage Lanes	0	1	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt						
Sa						
Flt						
Sa						
Lir						
Lir						
Tr						
Pe						
Ad						
Sh						
La						
Er						
La						
Me						
Lir						
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.1%		ICU Level of Service A	
Analysis Period (min) 15			

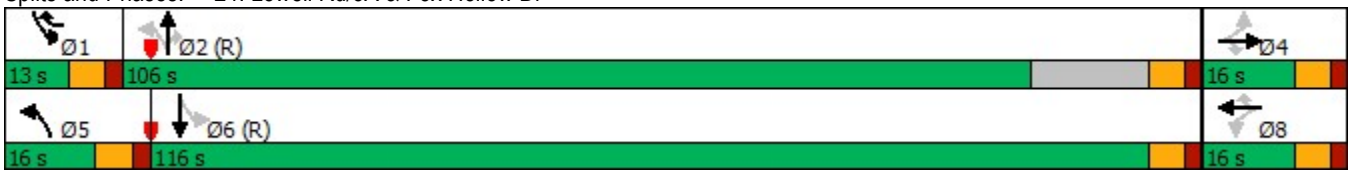


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	0	38	0	4	0	32	1011	0	0	813	3
Future Volume (vph)	34	0	38	0	4	0	32	1011	0	0	813	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	14	14	12	12	12	12	12	12
Storage Length (ft)	0		120	0		0	250		400	220		0
Storage Lanes	0		1	0		1	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	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850								0.999	
Flt Protected		0.950					0.950					
Satd. Flow (prot)	0	1719	1538	0	1987	1987	1770	1863	1863	1652	1651	0
Flt Permitted		0.755					0.259					
Satd. Flow (perm)	0	1366	1538	0	1987	1987	482	1863	1863	1652	1651	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			66									
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		271			227			1282			634	
Travel Time (s)		6.2			5.2			29.1			14.4	
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
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	15%	15%	15%
Adj. Flow (vph)	37	0	41	0	4	0	35	1099	0	0	884	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	37	41	0	4	0	35	1099	0	0	887	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	0.92	0.92	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	NA	Perm		NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8	1	5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	8	8	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	31.0	31.0	11.0	31.0	
Total Split (s)	16.0	16.0	16.0	16.0	16.0	13.0	16.0	106.0	106.0	13.0	116.0	
Total Split (%)	10.8%	10.8%	10.8%	10.8%	10.8%	8.8%	10.8%	71.6%	71.6%	8.8%	78.4%	
Maximum Green (s)	10.0	10.0	10.0	10.0	10.0	7.0	10.0	100.0	100.0	7.0	110.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	1.5	1.5	1.5	1.5	1.0	1.5	1.5	1.5	1.0	1.5	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	
Walk Time (s)								7.0	7.0		7.0	
Flash Dont Walk (s)								18.0	18.0		18.0	
Pedestrian Calls (#/hr)								0	0		0	
Act Effct Green (s)		8.1	8.1		8.1		130.1	131.3			122.5	
Actuated g/C Ratio		0.05	0.05		0.05		0.88	0.89			0.83	
v/c Ratio		0.49	0.28		0.04		0.07	0.67			0.65	
Control Delay		88.9	9.3		64.8		2.0	5.7			9.6	
Queue Delay		0.0	0.0		0.0		0.0	0.0			2.1	
Total Delay		88.9	9.3		64.8		2.0	5.7			11.6	
LOS		F	A		E		A	A			B	
Approach Delay		47.1			64.8			5.6			11.6	
Approach LOS		D			E			A			B	
Queue Length 50th (ft)		35	0		4		3	260			332	
Queue Length 95th (ft)		74	16		16		10	454			534	
Internal Link Dist (ft)		191			147			1202			554	
Turn Bay Length (ft)			120				250					
Base Capacity (vph)		96	169		139		510	1652			1366	
Starvation Cap Reductn		0	0		0		0	0			321	
Spillback Cap Reductn		0	0		0		0	0			0	
Storage Cap Reductn		0	0		0		0	0			0	
Reduced v/c Ratio		0.39	0.24		0.03		0.07	0.67			0.85	

Intersection Summary			
Area Type:	Other		
Cycle Length: 148			
Actuated Cycle Length: 148			
Offset: 45 (30%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 9.8		Intersection LOS: A	
Intersection Capacity Utilization 71.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 24: Lowell Rd/3A & Fox Hollow Dr

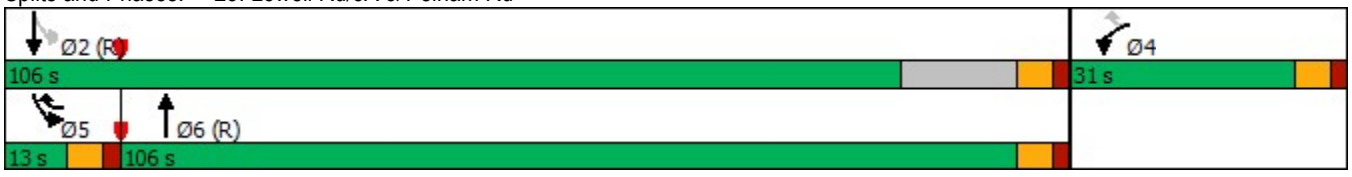


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	202	77	591	87	78	868
Future Volume (vph)	202	77	591	87	78	868
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12
Storage Length (ft)	0	100		0	160	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.983			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1719	1743	1779	0	1388	1462
Flt Permitted	0.950				0.267	
Satd. Flow (perm)	1719	1743	1779	0	390	1462
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		61	11			
Link Speed (mph)	30		30			30
Link Distance (ft)	345		634			526
Travel Time (s)	7.8		14.4			12.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	5%	5%	30%	30%
Adj. Flow (vph)	220	84	642	95	85	943
Shared Lane Traffic (%)						
Lane Group Flow (vph)	220	84	737	0	85	943
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA		pm+pt	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4			2	
Detector Phase	4	5	6		5	2
Switch Phase						
Minimum Initial (s)	5.0	3.0	10.0		3.0	10.0
Minimum Split (s)	11.0	9.0	31.0		9.0	16.0
Total Split (s)	31.0	13.0	106.0		13.0	106.0
Total Split (%)	20.7%	8.7%	70.7%		8.7%	70.7%
Maximum Green (s)	25.0	7.0	100.0		7.0	100.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	1.5	1.5		1.5	1.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Recall Mode	None	None	C-Min		None	C-Min
Walk Time (s)			7.0			
Flash Dont Walk (s)			18.0			
Pedestrian Calls (#/hr)			0			
Act Effct Green (s)	23.4	35.9	102.1		114.6	114.6
Actuated g/C Ratio	0.16	0.24	0.68		0.76	0.76
v/c Ratio	0.82	0.18	0.61		0.25	0.84
Control Delay	84.5	15.3	16.7		7.0	22.1
Queue Delay	0.0	0.0	2.4		0.0	0.0
Total Delay	84.5	15.3	19.1		7.0	22.1
LOS	F	B	B		A	C
Approach Delay	65.3		19.1			20.9
Approach LOS	E		B			C
Queue Length 50th (ft)	211	18	360		19	547
Queue Length 95th (ft)	293	58	589		41	#1112
Internal Link Dist (ft)	265		554			446
Turn Bay Length (ft)		100			160	
Base Capacity (vph)	303	474	1237		347	1131
Starvation Cap Reductn	0	0	359		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.73	0.18	0.84		0.24	0.83

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 26.8		Intersection LOS: C	
Intersection Capacity Utilization 66.9%		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: 25: Lowell Rd/3A & Pelham Rd

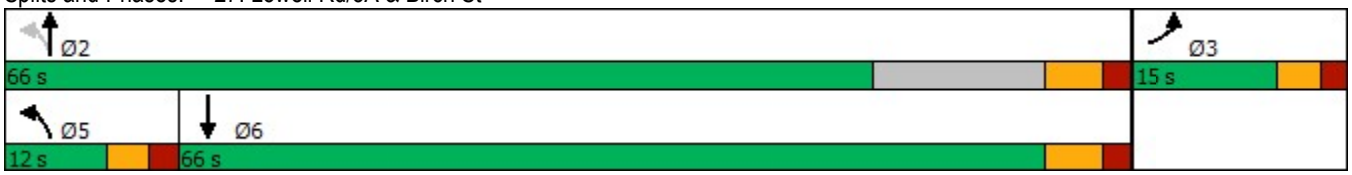


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	35	32	32	594	680	10
Future Volume (vph)	35	32	32	594	680	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	12	12	12	12
Storage Length (ft)	0	0	150			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.935				0.998	
Flt Protected	0.975		0.950			
Satd. Flow (prot)	1870	0	1719	1810	1806	0
Flt Permitted	0.975		0.250			
Satd. Flow (perm)	1870	0	452	1810	1806	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	35				2	
Link Speed (mph)	30			30	30	
Link Distance (ft)	442			1237	1199	
Travel Time (s)	10.0			28.1	27.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	38	35	35	646	739	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	73	0	35	646	750	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	16			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot		pm+pt	NA	NA	
Protected Phases	3		5	2	6	
Permitted Phases			2			
Detector Phase	3		5	2	6	
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	
Minimum Split (s)	15.0		10.0	11.0	11.0	
Total Split (s)	15.0		12.0	66.0	66.0	
Total Split (%)	16.1%		12.9%	71.0%	71.0%	
Maximum Green (s)	10.0		7.0	60.0	60.0	
Yellow Time (s)	3.0		3.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	5.0		5.0	6.0	6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.0	2.0	2.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Recall Mode	None		None	Min	Min	
Walk Time (s)	7.0					
Flash Dont Walk (s)	3.0					
Pedestrian Calls (#/hr)	0					
Act Effct Green (s)	6.6		40.9	43.6	40.1	
Actuated g/C Ratio	0.13		0.78	0.83	0.77	
v/c Ratio	0.28		0.07	0.43	0.54	
Control Delay	20.4		2.6	4.1	9.3	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	20.4		2.6	4.1	9.3	
LOS	C		A	A	A	
Approach Delay	20.4			4.0	9.3	
Approach LOS	C			A	A	
Queue Length 50th (ft)	12		2	75	95	
Queue Length 95th (ft)	54		9	151	360	
Internal Link Dist (ft)	362			1157	1119	
Turn Bay Length (ft)			150			
Base Capacity (vph)	430		544	1786	1713	
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	0.17		0.06	0.36	0.44	

Intersection Summary			
Area Type:	Other		
Cycle Length: 93			
Actuated Cycle Length: 52.4			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.54			
Intersection Signal Delay: 7.4		Intersection LOS: A	
Intersection Capacity Utilization 49.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 27: Lowell Rd/3A & Birch St

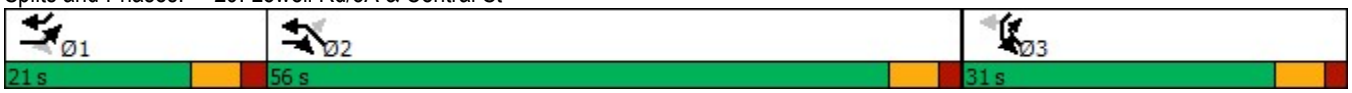


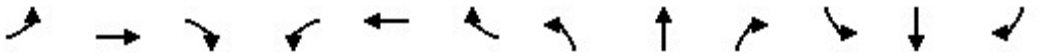
Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	69	697	495	128	150	92
Future Volume (vph)	69	697	495	128	150	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	11	11
Storage Length (ft)	300	0	0	80	0	120
Storage Lanes	1	1	1	1	1	1
Taper Length (ft)	25		25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		0.850
Flt Protected	0.950		0.950		0.950	
Satd. Flow (prot)	1770	1583	1719	1641	1711	1531
Flt Permitted	0.950		0.950		0.950	
Satd. Flow (perm)	1770	1583	1719	1641	1711	1531
Right Turn on Red		Yes		Yes		Yes
Satd. Flow (RTOR)		440		139		100
Link Speed (mph)	30		30		30	
Link Distance (ft)	636		905		654	
Travel Time (s)	14.5		20.6		14.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	5%	5%	2%	2%
Adj. Flow (vph)	75	758	538	139	163	100
Shared Lane Traffic (%)						
Lane Group Flow (vph)	75	758	538	139	163	100
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Right
Median Width(ft)	12		12		11	
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	0.92	1.04	1.04
Turning Speed (mph)	15	9	15	9	15	9
Turn Type	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov
Protected Phases	1	2	2	3	3	1
Permitted Phases		1		2		3
Detector Phase	1	2	2	3	3	1
Switch Phase						
Minimum Initial (s)	8.0	10.0	10.0	8.0	8.0	8.0
Minimum Split (s)	14.0	31.0	31.0	31.0	31.0	14.0
Total Split (s)	21.0	56.0	56.0	31.0	31.0	21.0
Total Split (%)	19.4%	51.9%	51.9%	28.7%	28.7%	19.4%
Maximum Green (s)	15.0	50.0	50.0	25.0	25.0	15.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	2.5	2.5	2.0	2.0	1.5

Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Recall Mode	None	Min	Min	None	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0	18.0	18.0	18.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	9.6	46.5	35.4	57.0	12.8	29.0
Actuated g/C Ratio	0.13	0.64	0.49	0.79	0.18	0.40
v/c Ratio	0.32	0.65	0.64	0.11	0.54	0.15
Control Delay	39.8	5.6	19.2	0.8	39.3	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	5.6	19.2	0.8	39.3	5.2
LOS	D	A	B	A	D	A
Approach Delay	8.7		15.4		26.3	
Approach LOS	A		B		C	
Queue Length 50th (ft)	32	50	175	0	69	0
Queue Length 95th (ft)	89	161	343	12	157	32
Internal Link Dist (ft)	556		825		574	
Turn Bay Length (ft)	300			80		120
Base Capacity (vph)	404	1423	1220	1497	651	810
Starvation Cap Reductn	0	36	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	0.19	0.55	0.44	0.09	0.25	0.12

Intersection Summary			
Area Type:	Other		
Cycle Length: 108			
Actuated Cycle Length: 72.5			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 13.9		Intersection LOS: B	
Intersection Capacity Utilization 57.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 29: Lowell Rd/3A & Central St



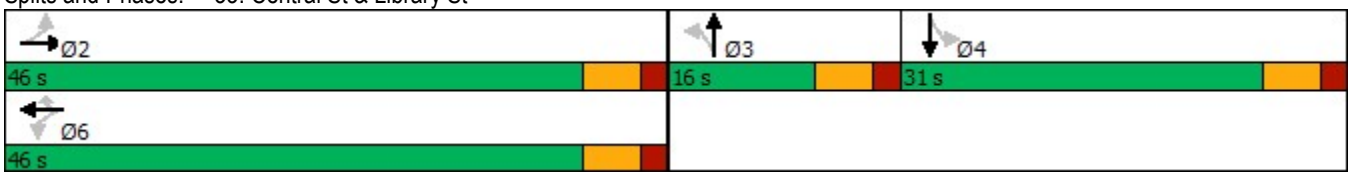


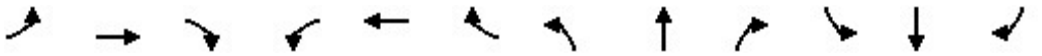
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	325	0	2	282	295	1	1	1	382	9	1
Future Volume (vph)	1	325	0	2	282	295	1	1	1	382	9	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	16	12
Storage Length (ft)	0		0	0		200	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850		0.955				
Flt Protected								0.984			0.954	
Satd. Flow (prot)	0	1863	0	0	1863	1583	0	1750	0	0	2014	0
Flt Permitted		0.999			0.997						0.730	
Satd. Flow (perm)	0	1861	0	0	1857	1583	0	1779	0	0	1541	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						321		1				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		888			636			108			794	
Travel Time (s)		20.2			14.5			2.5			18.0	
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)	1	353	0	2	307	321	1	1	1	415	10	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	354	0	0	309	321	0	3	0	0	426	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	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			3			4	
Permitted Phases	2			6		6	3			4		
Detector Phase	2	2		6	6	6	3	3		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	5.0		10.0	10.0	
Minimum Split (s)	31.0	31.0		16.0	16.0	16.0	16.0	16.0		31.0	31.0	
Total Split (s)	46.0	46.0		46.0	46.0	46.0	16.0	16.0		31.0	31.0	
Total Split (%)	49.5%	49.5%		49.5%	49.5%	49.5%	17.2%	17.2%		33.3%	33.3%	
Maximum Green (s)	40.0	40.0		40.0	40.0	40.0	10.0	10.0		25.0	25.0	
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)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0			6.0	
Lead/Lag							Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	

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	
Flash Dont Walk (s)	3.0	3.0					3.0	3.0		3.0	3.0	
Pedestrian Calls (#/hr)	0	0					0	0		0	0	
Act Effct Green (s)		16.0			16.0	16.0		5.1			25.6	
Actuated g/C Ratio		0.29			0.29	0.29		0.09			0.46	
v/c Ratio		0.66			0.58	0.47		0.02			0.60	
Control Delay		24.1			21.8	4.8		26.0			19.3	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		24.1			21.8	4.8		26.0			19.3	
LOS		C			C	A		C			B	
Approach Delay		24.1			13.1			26.0			19.3	
Approach LOS		C			B			C			B	
Queue Length 50th (ft)		94			80	0		1			87	
Queue Length 95th (ft)		207			179	50		9			#325	
Internal Link Dist (ft)		808			556			28			714	
Turn Bay Length (ft)						200						
Base Capacity (vph)		1370			1367	1250		328			709	
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		0.26			0.23	0.26		0.01			0.60	

Intersection Summary			
Area Type:	Other		
Cycle Length: 93			
Actuated Cycle Length: 55.6			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 17.7		Intersection LOS: B	
Intersection Capacity Utilization 56.3%		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: 33: Central St & Library St





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	294	0	3	8	194	0	2	3	61	2	4
Future Volume (vph)	18	294	0	3	8	194	0	2	3	61	2	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	16	12	16	12	12	16	12
Storage Length (ft)	0		0	0		250	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850		0.919			0.992	
Flt Protected		0.997			0.988						0.956	
Satd. Flow (prot)	0	2071	0	0	2086	1743	0	1666	0	0	1793	0
Flt Permitted		0.997			0.988						0.956	
Satd. Flow (perm)	0	2071	0	0	2086	1743	0	1666	0	0	1793	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		439			888			261			628	
Travel Time (s)		10.0			20.2			5.9			14.3	
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
Heavy Vehicles (%)	30%	2%	2%	2%	2%	5%	2%	2%	30%	15%	2%	2%
Adj. Flow (vph)	20	320	0	3	9	211	0	2	3	66	2	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	340	0	0	12	211	0	5	0	0	72	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	0.85	1.00	1.00	0.85	0.85	1.00	0.85	1.00	1.00	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	0	0	0	960	0	1353
Future Volume (vph)	0	0	0	960	0	1353
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.88
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	3539	0	2787
Fl						
Sa						
Li						
Li						
Tr						
Pe						
Ad						
Sh						
La						
Er						
La						
M						
Li						
Cr						
Tv						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Free			Free	Free	

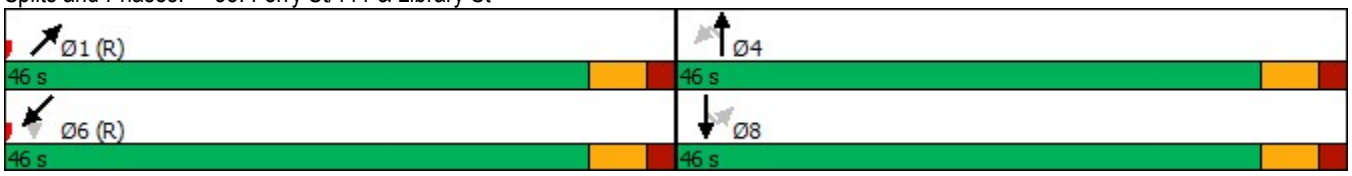
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.7%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	53	268	5	24	361	3	0	457	13	0	318	11
Future Volume (vph)	53	268	5	24	361	3	0	457	13	0	318	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	175		0	0		0	200		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.999			0.996			0.995	
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1770	1857	0	1770	1861	0	0	1855	0	1863	1853	0
Flt Permitted	0.267			0.419								
Satd. Flow (perm)	497	1857	0	780	1861	0	0	1855	0	1863	1853	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			1			2			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		342			444			371			1247	
Travel Time (s)		7.8			10.1			8.4			28.3	
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)	58	291	5	26	392	3	0	497	14	0	346	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	296	0	26	395	0	0	511	0	0	358	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	NA		Perm	NA			NA		Perm	NA	
Protected Phases		4			8			1			6	
Permitted Phases	4			8						6		
Detector Phase	4	4		8	8			1		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0			10.0		10.0	10.0	
Minimum Split (s)	31.0	31.0		31.0	31.0			31.0		31.0	31.0	
Total Split (s)	46.0	46.0		46.0	46.0			46.0		46.0	46.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%			50.0%		50.0%	50.0%	
Maximum Green (s)	40.0	40.0		40.0	40.0			40.0		40.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Recall Mode	None	None		None	None			C-Min		C-Min	C-Min	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Flash Dont Walk (s)	18.0	18.0		18.0	18.0			18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)	25.6	25.6		25.6	25.6			54.4			54.4	
Actuated g/C Ratio	0.28	0.28		0.28	0.28			0.59			0.59	
v/c Ratio	0.42	0.57		0.12	0.76			0.47			0.33	
Control Delay	34.8	31.9		23.2	39.6			13.7			11.8	
Queue Delay	0.0	0.0		0.0	0.1			2.1			0.0	
Total Delay	34.8	31.9		23.2	39.7			15.8			11.8	
LOS	C	C		C	D			B			B	
Approach Delay		32.4			38.7			15.8			11.8	
Approach LOS		C			D			B			B	
Queue Length 50th (ft)	28	148		11	210			153			96	
Queue Length 95th (ft)	58	199		28	274			291			188	
Internal Link Dist (ft)		262			364			291			1167	
Turn Bay Length (ft)				175								
Base Capacity (vph)	216	807		339	809			1097			1096	
Starvation Cap Reductn	0	0		0	32			429			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.27	0.37		0.08	0.51			0.76			0.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 92			
Actuated Cycle Length: 92			
Offset: 0 (0%), Referenced to phase 1:NET and 6:SWTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 24.4		Intersection LOS: C	
Intersection Capacity Utilization 67.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 38: Ferry St/111 & Library St



Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NWR	NWR2	NEL	NET
Lane Configurations												
Traffic Volume (vph)	8	6	6	7	2	12	13	50	376	6	6	619
Future Volume (vph)	8	6	6	7	2	12	13	50	376	6	6	619
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12	16	12	12	12	12	12
Storage Length (ft)	0		0			0		0	0		0	
Storage Lanes	0		0			0		0	1		0	
Taper Length (ft)	25					25					25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.935					0.912		0.865			0.983
Flt Protected		0.986					0.991					
Satd. Flow (prot)	0	1891	0	0	0	0	1853	0	1611	0	0	1831
Flt Permitted		0.828					0.929					0.994
Satd. Flow (perm)	0	1588	0	0	0	0	1738	0	1611	0	0	1820
Right Turn on Red				Yes				Yes		Yes		
Satd. Flow (RTOR)		8					54		86			
Link Speed (mph)		30					30					30
Link Distance (ft)		286					634					617
Travel Time (s)		6.5					14.4					14.0
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
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%
Adj. Flow (vph)	9	7	7	8	2	13	14	54	409	7	7	673
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	31	0	0	0	0	83	0	416	0	0	776
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Left	Left	Right	Right	Right	Left	Left
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	0.85	1.00	1.00	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	9	15	15		9	9	9	15	
Turn Type	Perm	NA			Perm	Perm	NA		Over		Perm	NA
Protected Phases		8					4		1			2
Permitted Phases	8				4	4					2	
Detector Phase	8	8			4	4	4		1		2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0	5.0	5.0		10.0		10.0	10.0
Minimum Split (s)	22.0	22.0			12.0	12.0	12.0		16.0		17.0	17.0
Total Split (s)	22.0	22.0			27.0	27.0	27.0		56.0		57.0	57.0
Total Split (%)	15.7%	15.7%			19.3%	19.3%	19.3%		40.0%		40.7%	40.7%
Maximum Green (s)	15.0	15.0			20.0	20.0	20.0		50.0		50.0	50.0
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0		4.0	4.0
All-Red Time (s)	3.0	3.0			3.0	3.0	3.0		2.0		3.0	3.0
Lost Time Adjust (s)		0.0					0.0		0.0			0.0
Total Lost Time (s)		7.0					7.0		6.0			7.0
Lead/Lag									Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		4.0	4.0

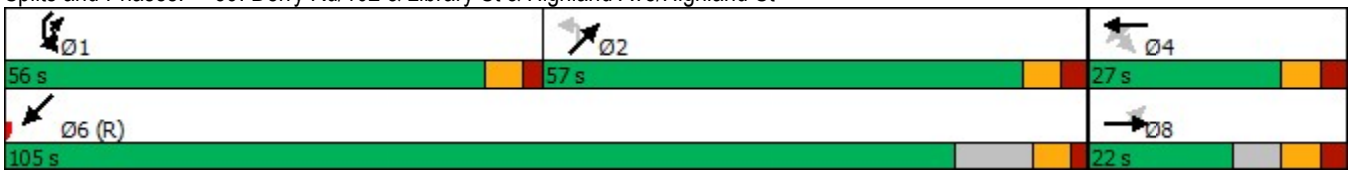
Lane Group	NER	SWL	SWT
Lane Configurations			
Traffic Volume (vph)	88	355	596
Future Volume (vph)	88	355	596
Ideal Flow (vphpl)	1900	1900	1900
Lane Width (ft)	12	12	12
Storage Length (ft)	0	0	
Storage Lanes	0	1	
Taper Length (ft)		25	
Lane Util. Factor	1.00	1.00	1.00
Frt			
Flt Protected		0.950	
Satd. Flow (prot)	0	1719	1810
Flt Permitted		0.950	
Satd. Flow (perm)	0	1719	1810
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			30
Link Distance (ft)			845
Travel Time (s)			19.2
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	5%
Adj. Flow (vph)	96	386	648
Shared Lane Traffic (%)			
Lane Group Flow (vph)	0	386	648
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(ft)			12
Link Offset(ft)			0
Crosswalk Width(ft)			16
Two way Left Turn Lane			
Headway Factor	1.00	1.00	1.00
Turning Speed (mph)	9	15	
Turn Type		Prot	NA
Protected Phases		1	6
Permitted Phases			
Detector Phase		1	6
Switch Phase			
Minimum Initial (s)		10.0	10.0
Minimum Split (s)		16.0	16.0
Total Split (s)		56.0	105.0
Total Split (%)		40.0%	75.0%
Maximum Green (s)		50.0	99.0
Yellow Time (s)		4.0	4.0
All-Red Time (s)		2.0	2.0
Lost Time Adjust (s)		0.0	0.0
Total Lost Time (s)		6.0	6.0
Lead/Lag		Lead	
Lead-Lag Optimize?			
Vehicle Extension (s)		3.0	3.0

Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NWR	NWR2	NEL	NET
Recall Mode	None	None			None	None	None		None		Min	Min
Walk Time (s)	7.0	7.0										
Flash Dont Walk (s)	8.0	8.0										
Pedestrian Calls (#/hr)	0	0										
Act Effct Green (s)		8.3					8.3		39.2			72.4
Actuated g/C Ratio		0.06					0.06		0.28			0.52
v/c Ratio		0.30					0.54		0.81			0.82
Control Delay		56.9					39.2		48.9			39.2
Queue Delay		0.0					0.0		1.7			23.3
Total Delay		56.9					39.2		50.7			62.5
LOS		E					D		D			E
Approach Delay		56.9					39.2					62.5
Approach LOS		E					D					E
Queue Length 50th (ft)		20					26		287			576
Queue Length 95th (ft)		54					79		375			#1013
Internal Link Dist (ft)		206					554					537
Turn Bay Length (ft)												
Base Capacity (vph)		233					294		631			941
Starvation Cap Reductn		0					0		95			187
Spillback Cap Reductn		0					0		0			0
Storage Cap Reductn		0					0		0			0
Reduced v/c Ratio		0.13					0.28		0.78			1.03

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 6:SWT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 42.6 Intersection LOS: D
Intersection Capacity Utilization 91.6% 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.

Splits and Phases: 39: Derry Rd/102 & Library St & Highland Ave/Highland St



Lane Group	NER	SWL	SWT
Recall Mode		None	C-Min
Walk Time (s)			
Flash Dont Walk (s)			
Pedestrian Calls (#/hr)			
Act Effct Green (s)		39.2	118.7
Actuated g/C Ratio		0.28	0.85
v/c Ratio		0.80	0.42
Control Delay		59.0	3.7
Queue Delay		0.0	0.0
Total Delay		59.0	3.7
LOS		E	A
Approach Delay			24.3
Approach LOS			C
Queue Length 50th (ft)		327	104
Queue Length 95th (ft)		404	184
Internal Link Dist (ft)			765
Turn Bay Length (ft)			
Base Capacity (vph)		614	1534
Starvation Cap Reductn		0	0
Spillback Cap Reductn		0	0
Storage Cap Reductn		0	0
Reduced v/c Ratio		0.63	0.42

Intersection Summary

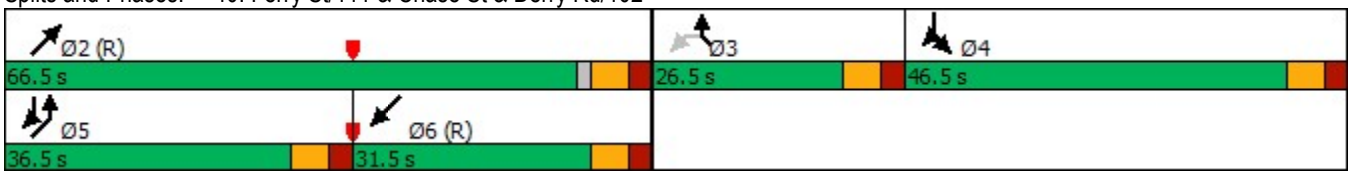
Lane Group	SBL	SBR	NWL	NWR	NWR2	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	72	649	217	14	17	420	531	9	0	487	0
Future Volume (vph)	72	649	217	14	17	420	531	9	0	487	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	13	12	12	12	12	12
Storage Length (ft)	150	300	0	0		0		0	0		0
Storage Lanes	1	1	1	1		1		0	0		0
Taper Length (ft)	25		25			25			25		
Lane Util. Factor	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt		0.850		0.850			0.997				
Flt Protected	0.950		0.950			0.950					
Satd. Flow (prot)	1719	2707	1719	1641	0	1776	1804	0	0	3438	0
Flt Permitted	0.950		0.189			0.950					
Satd. Flow (perm)	1719	2707	342	1641	0	1776	1804	0	0	3438	0
Right Turn on Red		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		111		128			1				
Link Speed (mph)	30		30				30			30	
Link Distance (ft)	617		345				426			371	
Travel Time (s)	14.0		7.8				9.7			8.4	
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
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	2%	5%	2%
Adj. Flow (vph)	78	705	236	15	18	457	577	10	0	529	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	78	705	236	33	0	457	587	0	0	529	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12		12				13			13	
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	0.92	1.00	0.96	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9	9	15		9	15		9
Turn Type	Prot	pt+ov	Perm	Prot		Prot	NA			NA	
Protected Phases	4	4 5		3		5	2			6	
Permitted Phases			3								
Detector Phase	4	4 5	3	3		5	2			6	
Switch Phase											
Minimum Initial (s)	8.0		5.0	5.0		10.0	10.0			10.0	
Minimum Split (s)	24.5		24.5	24.5		24.5	24.5			24.5	
Total Split (s)	46.5		26.5	26.5		36.5	66.5			31.5	
Total Split (%)	33.0%		18.8%	18.8%		25.9%	47.2%			22.3%	
Maximum Green (s)	40.0		20.0	20.0		30.0	60.0			25.0	
Yellow Time (s)	4.0		4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)	2.5		2.5	2.5		2.5	2.5			2.5	
Lost Time Adjust (s)	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.5		6.5	6.5		6.5	6.5			6.5	
Lead/Lag	Lag		Lead	Lead		Lead				Lag	
Lead-Lag Optimize?											
Vehicle Extension (s)	1.5		1.5	1.5		1.5	1.5			1.5	

Lane Group	SBL	SBR	NWL	NWR	NWR2	NEL	NET	NER	SWL	SWT	SWR
Recall Mode	None		None	None		Min	C-Min			C-Min	
Walk Time (s)	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	11.0		11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0		0	0		0	0			0	
Act Effct Green (s)	26.5	76.5	21.2	21.2		43.5	73.7			23.8	
Actuated g/C Ratio	0.19	0.54	0.15	0.15		0.31	0.52			0.17	
v/c Ratio	0.24	0.46	4.63	0.09		0.84	0.62			0.91	
Control Delay	48.2	17.4	1689.2	0.5		60.7	28.6			78.6	
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0			4.2	
Total Delay	48.2	17.4	1689.2	0.5		60.7	28.6			82.8	
LOS	D	B	F	A		E	C			F	
Approach Delay	20.4		1482.0				42.6			82.8	
Approach LOS	C		F				D			F	
Queue Length 50th (ft)	62	181	~403	0		389	360			251	
Queue Length 95th (ft)	101	236	#578	0		#692	570			#343	
Internal Link Dist (ft)	537		265				346			291	
Turn Bay Length (ft)	150	300									
Base Capacity (vph)	487	1506	51	355		547	944			609	
Starvation Cap Reductn	0	0	0	0		0	0			40	
Spillback Cap Reductn	0	0	0	0		0	0			0	
Storage Cap Reductn	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.16	0.47	4.63	0.09		0.84	0.62			0.93	

Intersection Summary

Area Type: Other
Cycle Length: 141
Actuated Cycle Length: 141
Offset: 0 (0%), Referenced to phase 2:NET and 6:SWT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 4.63
Intersection Signal Delay: 191.6 Intersection LOS: F
Intersection Capacity Utilization 77.1% 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: 40: Ferry St/111 & Chase St & Derry Rd/102



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	435	4	36	16	6	14	13	233	14	17	408	462
Future Volume (vph)	435	4	36	16	6	14	13	233	14	17	408	462
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	16	12	12	12	12	12	12	14
Storage Length (ft)	0		200	0		0	120		0	280		280
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.948			0.992				0.850
Flt Protected		0.953			0.979		0.950			0.950		
Satd. Flow (prot)	0	1775	1794	0	1959	0	1770	1848	0	1770	1863	1689
Flt Permitted		0.438			0.700		0.222			0.470		
Satd. Flow (perm)	0	816	1794	0	1401	0	414	1848	0	875	1863	1689
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			111		15			3				502
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		882			126			314			2248	
Travel Time (s)		20.0			2.9			7.1			51.1	
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)	473	4	39	17	7	15	14	253	15	18	443	502
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	477	39	0	39	0	14	268	0	18	443	502
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	0.85	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	0.92
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		6
Detector Phase	3	3	3	4	4		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	4.0	4.0		4.0	10.0		4.0	10.0	10.0
Minimum Split (s)	14.0	14.0	14.0	10.0	10.0		8.0	16.0		8.0	16.0	16.0
Total Split (s)	49.0	49.0	49.0	14.0	14.0		14.0	51.0		14.0	51.0	51.0
Total Split (%)	38.3%	38.3%	38.3%	10.9%	10.9%		10.9%	39.8%		10.9%	39.8%	39.8%
Maximum Green (s)	45.0	45.0	45.0	8.0	8.0		10.0	45.0		10.0	45.0	45.0
Yellow Time (s)	3.0	3.0	3.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	2.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		6.0		4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		2.0	3.0		2.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min

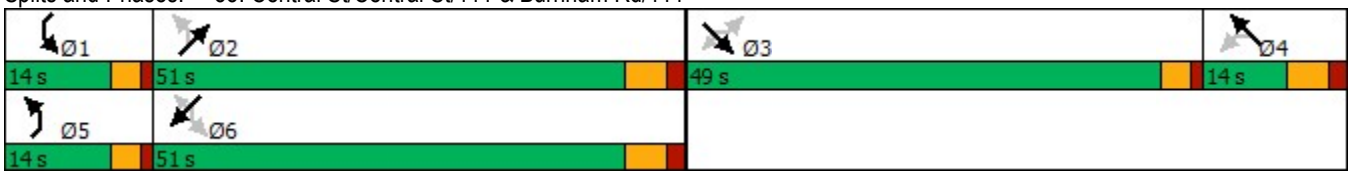
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Act Effct Green (s)		46.9	46.9		7.1		35.9	31.8		35.8	31.8	31.8
Actuated g/C Ratio		0.47	0.47		0.07		0.36	0.32		0.36	0.32	0.32
v/c Ratio		1.24	0.04		0.35		0.06	0.45		0.05	0.75	0.57
Control Delay		158.3	0.1		45.1		19.9	30.2		19.7	39.8	5.3
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		158.3	0.1		45.1		19.9	30.2		19.7	39.8	5.3
LOS		F	A		D		B	C		B	D	A
Approach Delay		146.3			45.1			29.7			21.4	
Approach LOS		F			D			C			C	
Queue Length 50th (ft)		~392	0		15		6	134		8	252	0
Queue Length 95th (ft)		#762	0		56		18	235		22	415	71
Internal Link Dist (ft)		802			46			234			2168	
Turn Bay Length (ft)			200				120			280		280
Base Capacity (vph)		384	903		131		295	871		418	877	1060
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		1.24	0.04		0.30		0.05	0.31		0.04	0.51	0.47

Intersection Summary			
Area Type:	Other		
Cycle Length: 128			
Actuated Cycle Length: 99.7			
Natural Cycle: 140			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.24			
Intersection Signal Delay: 59.0		Intersection LOS: E	
Intersection Capacity Utilization 60.8%		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: 55: Central St/Central St/111 & Burnham Rd/111



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations												
Traffic Volume (vph)	41	20	590	1	44	270	133	28	143	155	3	6
Future Volume (vph)	41	20	590	1	44	270	133	28	143	155	3	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	12	16	12	12	16	12
Storage Length (ft)		300		300	300		300		140		300	
Storage Lanes		1		1	1		2		1		0	
Taper Length (ft)		25			25				25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850	0.850		0.992		
Flt Protected		0.950			0.950				0.950			
Satd. Flow (prot)	0	1719	1652	1641	1770	1810	1538	1743	1719	1846	0	0
Flt Permitted		0.267			0.267				0.396			
Satd. Flow (perm)	0	483	1652	1641	497	1810	1538	1743	717	1846	0	0
Right Turn on Red				Yes				Yes				Yes
Satd. Flow (RTOR)				132				132		1		
Link Speed (mph)			30			30				30		
Link Distance (ft)			2248			4120				755		
Travel Time (s)			51.1			93.6				17.2		
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
Heavy Vehicles (%)	5%	5%	15%	5%	2%	5%	5%	5%	5%	2%	2%	5%
Adj. Flow (vph)	45	22	641	1	48	293	145	30	155	168	3	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	67	641	1	48	293	145	30	155	178	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Right	Left	Left	Right	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	0.92	1.00	1.00	1.00	0.85	1.00	1.00	0.85	1.00
Turning Speed (mph)	15	15		9	15		9	9	15		9	9
Turn Type	custom	Prot	NA	Free	custom	NA	Perm	Free	pm+pt	NA		
Protected Phases		1	6			2			7	4		
Permitted Phases	1			Free	5		2	Free	4			
Detector Phase	1	1	6		5	2	2		7	4		
Switch Phase												
Minimum Initial (s)	4.0	4.0	15.0		4.0	15.0	15.0		4.0	10.0		
Minimum Split (s)	8.0	8.0	21.0		8.0	21.0	21.0		8.0	16.0		
Total Split (s)	19.0	19.0	66.0		19.0	66.0	66.0		19.0	51.0		
Total Split (%)	10.9%	10.9%	37.9%		10.9%	37.9%	37.9%		10.9%	29.3%		
Maximum Green (s)	15.0	15.0	60.0		15.0	60.0	60.0		15.0	45.0		
Yellow Time (s)	3.0	3.0	4.0		3.0	4.0	4.0		3.0	4.0		
All-Red Time (s)	1.0	1.0	2.0		1.0	2.0	2.0		1.0	2.0		
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0		0.0	0.0		
Total Lost Time (s)		4.0	6.0		4.0	6.0	6.0		4.0	6.0		
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag		Lag			
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	3.0		2.0	3.0	3.0		2.0	3.0		

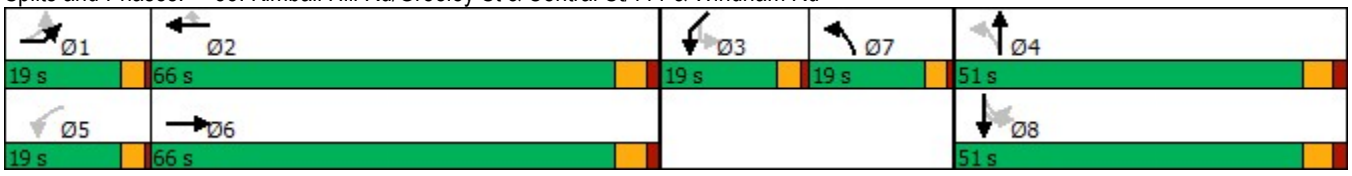
Lane Group	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations								
Traffic Volume (vph)	8	108	168	86	40	36	6	15
Future Volume (vph)	8	108	168	86	40	36	6	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	12	12	12
Storage Length (ft)		0		0		0	0	
Storage Lanes		0		0		1	0	
Taper Length (ft)		25				25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.969			0.970		
Flt Protected			0.985			0.962		
Satd. Flow (prot)	0	0	1957	0	0	1738	0	0
Flt Permitted			0.685			0.962		
Satd. Flow (perm)	0	0	1361	0	0	1738	0	0
Right Turn on Red				No				No
Satd. Flow (RTOR)								
Link Speed (mph)			30			30		
Link Distance (ft)			869			736		
Travel Time (s)			19.8			16.7		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	5%	5%	2%	2%	2%	2%
Adj. Flow (vph)	9	117	183	93	43	39	7	16
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	0	402	0	0	105	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)			12			12		
Link Offset(ft)			0			0		
Crosswalk Width(ft)			16			16		
Two way Left Turn Lane								
Headway Factor	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15		9	15	15	9	9
Turn Type	Perm	Perm	NA		Perm	Prot		
Protected Phases			8			3		
Permitted Phases	8	8			3			
Detector Phase	8	8	8		3	3		
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0		4.0	4.0		
Minimum Split (s)	16.0	16.0	16.0		8.0	8.0		
Total Split (s)	51.0	51.0	51.0		19.0	19.0		
Total Split (%)	29.3%	29.3%	29.3%		10.9%	10.9%		
Maximum Green (s)	45.0	45.0	45.0		15.0	15.0		
Yellow Time (s)	4.0	4.0	4.0		3.0	3.0		
All-Red Time (s)	2.0	2.0	2.0		1.0	1.0		
Lost Time Adjust (s)			0.0			0.0		
Total Lost Time (s)			6.0			4.0		
Lead/Lag					Lead	Lead		
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0		2.0	2.0		

Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Recall Mode	None	None	Min		None	Min	Min		None	None		
Act Effct Green (s)		15.0	60.0	170.8	15.0	60.0	60.0	170.8	60.4	45.0		
Actuated g/C Ratio		0.09	0.35	1.00	0.09	0.35	0.35	1.00	0.35	0.26		
v/c Ratio		1.60	1.11	0.00	1.12	0.46	0.27	0.02	0.47	0.37		
Control Delay		401.6	119.4	0.0	238.3	46.4	42.1	0.0	41.8	54.3		
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay		401.6	119.4	0.0	238.3	46.4	42.1	0.0	41.8	54.3		
LOS		F	F	A	F	D	D	A	D	D		
Approach Delay			145.9			60.3				48.5		
Approach LOS			F			E				D		
Queue Length 50th (ft)		~109	~841	0	~63	262	120	0	121	167		
Queue Length 95th (ft)		#222	#1092	0	#162	359	185	0	182	246		
Internal Link Dist (ft)			2168			4040				675		
Turn Bay Length (ft)		300		300	300		300	300	140			
Base Capacity (vph)		42	580	1641	43	636	540	1743	347	487		
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		1.60	1.11	0.00	1.12	0.46	0.27	0.02	0.45	0.37		

Intersection Summary			
Area Type:	Other		
Cycle Length: 174			
Actuated Cycle Length: 170.8			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.60			
Intersection Signal Delay: 106.0		Intersection LOS: F	
Intersection Capacity Utilization 90.7%		ICU Level of Service E	
Analysis Period (min) 15			

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

Splits and Phases: 58: Kimball Hill Rd/Greeley St & Central St/111 & Windham Rd



Lane Group	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Recall Mode	None	None	None		None	None		
Act Effct Green (s)			45.0			13.3		
Actuated g/C Ratio			0.26			0.08		
v/c Ratio			1.12			0.78		
Control Delay			140.1			112.3		
Queue Delay			0.0			0.0		
Total Delay			140.1			112.3		
LOS			F			F		
Approach Delay			140.1			112.3		
Approach LOS			F			F		
Queue Length 50th (ft)			~534			119		
Queue Length 95th (ft)			#758			#210		
Internal Link Dist (ft)			789			656		
Turn Bay Length (ft)								
Base Capacity (vph)			358			152		
Starvation Cap Reductn			0			0		
Spillback Cap Reductn			0			0		
Storage Cap Reductn			0			0		
Reduced v/c Ratio			1.12			0.69		

Intersection Summary

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	86	269	307	49	185	155
Future Volume (vph)	86	269	307	49	185	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	150	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1570	1538	1777	0	1570	1863
Flt Permitted	0.950				0.327	
Satd. Flow (perm)	1570	1538	1777	0	540	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		292	11			
Link Speed (mph)	30		30			30
Link Distance (ft)	832		787			870
Travel Time (s)	18.9		17.9			19.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	15%	5%	5%	5%	15%	2%
Adj. Flow (vph)	93	292	334	53	201	168
Shared Lane Traffic (%)						
Lane Group Flow (vph)	93	292	387	0	201	168
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA		pm+pt	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4			2	
Detector Phase	4	5	6		5	2
Switch Phase						
Minimum Initial (s)	5.0	3.0	10.0		3.0	10.0
Minimum Split (s)	11.0	9.0	16.0		9.0	16.0
Total Split (s)	31.0	13.0	106.0		13.0	106.0
Total Split (%)	20.7%	8.7%	70.7%		8.7%	70.7%
Maximum Green (s)	25.0	7.0	100.0		7.0	100.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	1.5	1.5		1.5	1.5
Recall Mode	None	None	Min		None	Min

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Act Effct Green (s)	7.1	17.2	15.5		29.1	31.0
Actuated g/C Ratio	0.16	0.38	0.34		0.64	0.68
v/c Ratio	0.38	0.38	0.63		0.39	0.13
Control Delay	24.7	3.4	18.3		6.9	4.6
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	24.7	3.4	18.3		6.9	4.6
LOS	C	A	B		A	A
Approach Delay	8.6		18.3			5.8
Approach LOS	A		B			A
Queue Length 50th (ft)	23	0	86		21	16
Queue Length 95th (ft)	66	39	167		49	39
Internal Link Dist (ft)	752		707			790
Turn Bay Length (ft)		150			150	
Base Capacity (vph)	915	768	1777		514	1863
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	0.10	0.38	0.22		0.39	0.09

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 45.4			
Natural Cycle: 45			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 11.0		Intersection LOS: B	
Intersection Capacity Utilization 49.1%		ICU Level of Service A	
Analysis Period (min) 15			

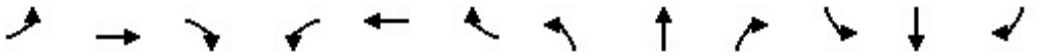
Splits and Phases: 67: Dracut Rd & Sherburne Rd

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	104	206	69	136	93	24
Future Volume (vph)	104	206	69	136	93	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12
Storage Length (ft)		0	180		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.910				0.972	
Flt Protected			0.950		0.962	
Satd. Flow (prot)	1549	0	1719	1652	1705	0
Flt Permitted			0.950		0.962	
Satd. Flow (perm)	1549	0	1719	1652	1705	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1417			420	606	
Travel Time (s)	32.2			9.5	13.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	15%	5%	15%	15%	30%
Adj. Flow (vph)	113	224	75	148	101	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	337	0	75	148	127	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	16	
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	0.85	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.6%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	96	2	218	233	8	196
Future Volume (vph)	96	2	218	233	8	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	16	16	12
Storage Length (ft)		0	80		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997				0.870	
Flt Protected			0.950		0.998	
Satd. Flow (prot)	1643	0	1719	1872	1774	0
Flt Permitted			0.950		0.998	
Satd. Flow (perm)	1643	0	1719	1872	1774	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	2748			314	1025	
Travel Time (s)	62.5			7.1	23.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	15%	30%	5%	15%	15%	5%
Adj. Flow (vph)	104	2	237	253	9	213
Shared Lane Traffic (%)						
Lane Group Flow (vph)	106	0	237	253	222	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	16	
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	0.85	0.85	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.0%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	0	291	1	0	0	156	641	0	0	774	12
Future Volume (vph)	42	0	291	1	0	0	156	641	0	0	774	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	12	12	12	12	12	12	15	12
Storage Length (ft)	130		0	0		0	465		0	0		0
Storage Lanes	1		1	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850								0.998	
Flt Protected	0.950				0.950		0.950					
Satd. Flow (prot)	1719	0	1538	0	1770	0	1770	1863	0	0	1986	0
Flt Permitted	0.950				0.950		0.125					
Satd. Flow (perm)	1719	0	1538	0	1770	0	233	1863	0	0	1986	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			278								1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		468			79			2433			1216	
Travel Time (s)		10.6			1.8			55.3			27.6	
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
Heavy Vehicles (%)	5%	2%	5%	2%	2%	2%	2%	2%	2%	2%	5%	5%
Adj. Flow (vph)	46	0	316	1	0	0	170	697	0	0	841	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	0	316	0	1	0	170	697	0	0	854	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	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot		pt+ov	Split	NA		pm+pt	NA			NA	
Protected Phases	4		4 1	8	8		1	6			2	
Permitted Phases	4						6			2		
Detector Phase	4		4 1	8	8		1	6		2	2	
Switch Phase												
Minimum Initial (s)	3.0			5.0	5.0		3.0	10.0		10.0	10.0	
Minimum Split (s)	9.0			11.0	11.0		7.0	16.0		16.0	16.0	
Total Split (s)	16.0			16.0	16.0		14.0	91.0		91.0	91.0	
Total Split (%)	11.7%			11.7%	11.7%		10.2%	66.4%		66.4%	66.4%	
Maximum Green (s)	10.0			10.0	10.0		10.0	85.0		85.0	85.0	
Yellow Time (s)	4.0			4.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	2.0			2.0	2.0		1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0				0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0				6.0		4.0	6.0			6.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5			0.4	0.4		2.0	5.0		5.0	5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None			None	None		None	Min		Min	Min	
Act Effct Green (s)	7.7		18.3		5.4		58.9	56.8			45.4	
Actuated g/C Ratio	0.10		0.23		0.07		0.75	0.72			0.58	
v/c Ratio	0.27		0.55		0.01		0.55	0.52			0.75	
Control Delay	45.1		10.4		49.0		11.6	6.7			17.3	
Queue Delay	0.0		0.0		0.0		0.0	0.0			0.0	
Total Delay	45.1		10.4		49.0		11.6	6.7			17.3	
LOS	D		B		D		B	A			B	
Approach Delay		14.8			49.0			7.7			17.3	
Approach LOS		B			D			A			B	
Queue Length 50th (ft)	19		13		0		15	102			246	
Queue Length 95th (ft)	75		102		7		68	286			577	
Internal Link Dist (ft)		388			1			2353			1136	
Turn Bay Length (ft)	130						465					
Base Capacity (vph)	236		589		243		385	1789			1862	
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	0.19		0.54		0.00		0.44	0.39			0.46	

Intersection Summary			
Area Type:	Other		
Cycle Length: 137			
Actuated Cycle Length: 78.9			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 12.9		Intersection LOS: B	
Intersection Capacity Utilization 94.4%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 76: Derry Rd/102 & Elm Ave

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	101	67	26	449	489	51
Future Volume (vph)	101	67	26	449	489	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.987	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1719	1583	1770	1652	1770	0
Flt Permitted	0.950		0.255			
Satd. Flow (perm)	1719	1583	475	1652	1770	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		73			7	
Link Speed (mph)	30			30	30	
Link Distance (ft)	420			2236	3657	
Travel Time (s)	9.5			50.8	83.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	2%	2%	15%	5%	15%
Adj. Flow (vph)	110	73	28	488	532	55
Shared Lane Traffic (%)						
Lane Group Flow (vph)	110	73	28	488	587	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
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	pm+pt	NA	NA	
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	3.0	3.0	10.0	10.0	
Minimum Split (s)	11.0	9.0	9.0	16.0	16.0	
Total Split (s)	31.0	13.0	13.0	106.0	106.0	
Total Split (%)	20.7%	8.7%	8.7%	70.7%	70.7%	
Maximum Green (s)	25.0	7.0	7.0	100.0	100.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	1.5	1.5	1.5	1.5	
Recall Mode	None	None	None	Min	Min	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Act Effct Green (s)	8.1	19.2	37.0	37.0	28.3	
Actuated g/C Ratio	0.14	0.33	0.64	0.64	0.49	
v/c Ratio	0.46	0.13	0.07	0.46	0.67	
Control Delay	31.3	5.5	4.2	6.9	16.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	31.3	5.5	4.2	6.9	16.7	
LOS	C	A	A	A	B	
Approach Delay	21.0			6.7	16.7	
Approach LOS	C			A	B	
Queue Length 50th (ft)	34	0	3	67	148	
Queue Length 95th (ft)	93	26	10	139	287	
Internal Link Dist (ft)	340			2156	3577	
Turn Bay Length (ft)		150	150			
Base Capacity (vph)	768	636	468	1652	1770	
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	0.14	0.11	0.06	0.30	0.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 57.4			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 13.3		Intersection LOS: B	
Intersection Capacity Utilization 44.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 82: Derry Rd/102 & Page Rd

A.4 Future 2030 Model - PM Peak (51 pages)

Reference Table – HUD# to # in SYNCRHO Reports

HUD#	# in SYNCHRO Reports	Intersection / Direction TOWARD
1	**40**	111-102-3A (Ferry & Chase)
2	**38**	Library & Ferry
3	**39**	Library and Highland
4	**55**	Burnham and Central
5	**58**	Central-Kimball-Greeley (Rt.111 & Greeley)
6	**76**	Derry and 102 (Route 102 & Elm Ave)
7	**82**	NH 102/Page Rd
8	**34**	NH 3A Central St/Chase St
9	**33**	Central and Library
10	**29**	Lowell and Central
11	**25**	Lowell and Pelham
12	**22**	Lowell and Executive
13	**10**	Lowell-Hampshire-Oblate
14	**1**	Lowell & Wason
16	**4**	NH 3A Lowell Rd/Walmart Blvd
17	**5**	NH 3A Lowell Rd/Rena Ave
18	**7**	NH 3A Lowell Rd/Dracut Rd/Steele Rd
19	**67**	Dracut Rd/Sherburne Rd
20	**70**	Kimball Hill Rd/Bush Hill Rd
21	**73**	Central St/Belknap Rd
22	**24**	Lowell & Fox Hollow Dr
23	**27**	Lowell & Birch St
15_com	**2**	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined
15M	-	NH 3A Lowell Rd/Sagamore Bridge Rd - Northern Section
15N	-	NH 3A Lowell Rd/Sagamore Bridge Rd - Middle Section
15S	-	NH 3A Lowell Rd/Sagamore Bridge Rd - Southern Section

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	73	324	314	32	38	196	875	529	60	939	32
Future Volume (vph)	48	73	324	314	32	38	196	875	529	60	939	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	14	12	12	12	12	12	12
Storage Length (ft)	0		0	0		200	650		350	200		0
Storage Lanes	0		1	1		1	1		2	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.88	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected		0.981		0.950	0.961		0.950			0.950		
Satd. Flow (prot)	0	1621	1592	1491	1508	1498	1719	3438	2707	1570	3139	1404
Flt Permitted		0.981		0.950	0.961		0.950			0.950		
Satd. Flow (perm)	0	1621	1592	1491	1508	1498	1719	3438	2707	1570	3139	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			352			115			575			167
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		573			432			1014			1071	
Travel Time (s)		13.0			9.8			23.0			24.3	
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
Heavy Vehicles (%)	15%	15%	15%	15%	15%	15%	5%	5%	5%	15%	15%	15%
Adj. Flow (vph)	52	79	352	341	35	41	213	951	575	65	1021	35
Shared Lane Traffic (%)				45%								
Lane Group Flow (vph)	0	131	352	188	188	41	213	951	575	65	1021	35
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	0.85	1.00	1.00	0.92	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	Split	NA	pm+ov	Split	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	Perm
Protected Phases	3	3	1	4	4	4 5	1	6	6 4	5	2	
Permitted Phases			3									2
Detector Phase	3	3	1	4	4	4 5	1	6	6 4	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	11.0	11.0	13.0	12.0	12.0		13.0	16.0		13.0	16.0	16.0
Total Split (s)	40.0	40.0	30.0	30.0	30.0		30.0	65.0		15.0	50.0	50.0
Total Split (%)	21.1%	21.1%	15.8%	15.8%	15.8%		15.8%	34.2%		7.9%	26.3%	26.3%
Maximum Green (s)	34.0	34.0	22.0	23.0	23.0		22.0	59.0		7.0	44.0	44.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	4.0	3.0	3.0		4.0	2.0		4.0	2.0	2.0
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)		6.0	8.0	7.0	7.0		8.0	6.0		8.0	6.0	6.0
Lead/Lag	Lead	Lead	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	3.0

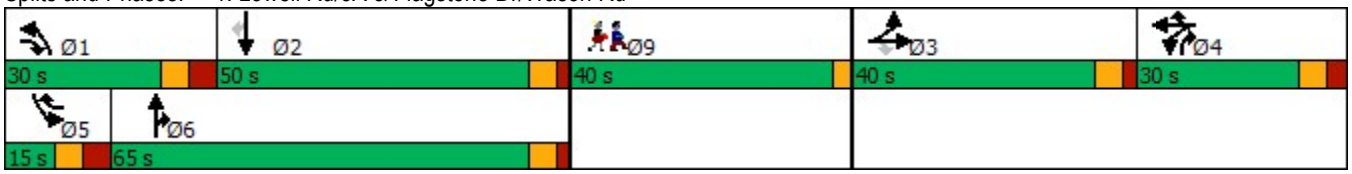
Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
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	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	40.0
Total Split (s)	40.0
Total Split (%)	21%
Maximum Green (s)	37.0
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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		15.9	35.9	23.0	23.0	38.0	22.0	59.0	83.1	7.0	44.0	44.0
Actuated g/C Ratio		0.12	0.27	0.17	0.17	0.29	0.17	0.45	0.63	0.05	0.33	0.33
v/c Ratio		0.67	0.51	0.73	0.72	0.08	0.74	0.62	0.30	0.78	0.98	0.06
Control Delay		72.5	4.6	69.1	68.3	0.3	69.6	30.5	0.9	114.5	66.2	0.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		72.5	4.6	69.1	68.3	0.3	69.6	30.5	0.9	114.5	66.2	0.2
LOS		E	A	E	E	A	E	C	A	F	E	A
Approach Delay		23.0			62.0			25.5			67.0	
Approach LOS		C			E			C			E	
Queue Length 50th (ft)		109	0	162	162	0	176	321	0	56	452	0
Queue Length 95th (ft)		178	41	#290	#287	0	#306	423	14	#149	#644	0
Internal Link Dist (ft)		493			352			934			991	
Turn Bay Length (ft)						200	650		350	200		
Base Capacity (vph)		417	689	259	262	513	286	1537	1916	83	1047	579
Starvation Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.31	0.51	0.73	0.72	0.08	0.74	0.62	0.30	0.78	0.98	0.06

Intersection Summary

Area Type: Other
Cycle Length: 190
Actuated Cycle Length: 132
Natural Cycle: 145
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 41.6 Intersection LOS: D
Intersection Capacity Utilization 73.1% 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: 1: Lowell Rd/3A & Flagstone Dr/Wason Rd



Lane Group	Ø9
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	30.0
Pedestrian Calls (#/hr)	0
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

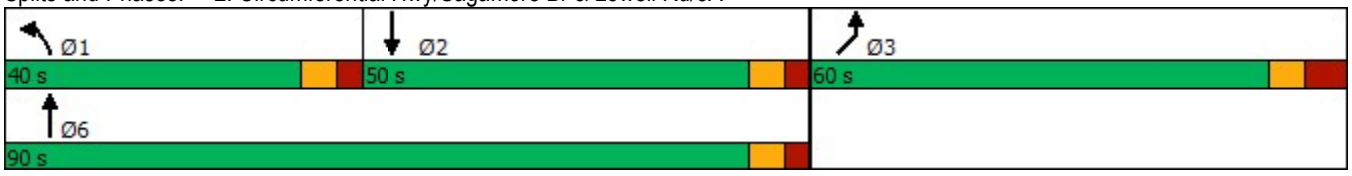
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	SBR2	NEL	NER
Lane Configurations									
Traffic Volume (vph)	0	0	941	531	703	0	1365	1316	885
Future Volume (vph)	0	0	941	531	703	0	1365	1316	885
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	14	12
Storage Length (ft)	0	0	470			450		0	0
Storage Lanes	0	0	2			1		2	1
Taper Length (ft)	25		25					25	
Lane Util. Factor	1.00	1.00	0.94	0.95	0.95	1.00	1.00	0.97	1.00
Frt							0.850		0.850
Flt Protected			0.950					0.950	
Satd. Flow (prot)	0	0	4848	3139	3539	0	1538	3557	1583
Flt Permitted			0.950					0.950	
Satd. Flow (perm)	0	0	4848	3139	3539	0	1538	3557	1583
Right Turn on Red							Yes		Yes
Satd. Flow (RTOR)							808		345
Link Speed (mph)	55			30	30			42	
Link Distance (ft)	1050			613	1014			974	
Travel Time (s)	13.0			13.9	23.0			15.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	5%	15%	2%	2%	5%	5%	2%
Adj. Flow (vph)	0	0	1023	577	764	0	1484	1430	962
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	0	1023	577	764	0	1484	1430	962
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right	Right	Left	Right
Median Width(ft)	0			36	36			28	
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	0.92	1.00
Turning Speed (mph)	15	9	15			9	9	15	9
Turn Type			Prot	NA	NA		Free	Prot	Free
Protected Phases			1	6	2			3	
Permitted Phases							Free		Free
Detector Phase			1	6	2			3	
Switch Phase									
Minimum Initial (s)			7.0	10.0	10.0			10.0	
Minimum Split (s)			14.0	17.0	17.0			19.0	
Total Split (s)			40.0	90.0	50.0			60.0	
Total Split (%)			26.7%	60.0%	33.3%			40.0%	
Maximum Green (s)			33.0	83.0	43.0			51.0	
Yellow Time (s)			4.0	4.0	4.0			4.0	
All-Red Time (s)			3.0	3.0	3.0			5.0	
Lost Time Adjust (s)			0.0	0.0	0.0			0.0	
Total Lost Time (s)			7.0	7.0	7.0			9.0	
Lead/Lag			Lead		Lag				
Lead-Lag Optimize?									
Vehicle Extension (s)			4.0	4.0	4.0			4.0	

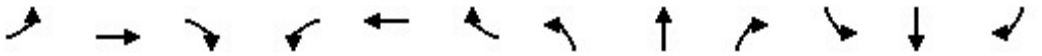
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	SBR2	NEL	NER
Recall Mode			None	Min	Min			None	
Act Effct Green (s)			33.0	78.5	38.5		145.6	51.1	145.6
Actuated g/C Ratio			0.23	0.54	0.26		1.00	0.35	1.00
v/c Ratio			0.93	0.34	0.82		0.96	1.15	0.61
Control Delay			70.2	19.5	58.1		17.9	118.4	1.7
Queue Delay			0.0	0.0	0.0		0.0	0.0	0.0
Total Delay			70.2	19.5	58.1		17.9	118.4	1.7
LOS			E	B	E		B	F	A
Approach Delay				51.9	31.5			71.5	
Approach LOS				D	C			E	
Queue Length 50th (ft)			346	157	360		0	~838	0
Queue Length 95th (ft)			#445	198	437		#156	#1001	0
Internal Link Dist (ft)	970			533	934			894	
Turn Bay Length (ft)			470				450		
Base Capacity (vph)			1099	1791	1046		1538	1247	1583
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			0.93	0.32	0.73		0.96	1.15	0.61

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 145.6			
Natural Cycle: 130			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.15			
Intersection Signal Delay: 52.1		Intersection LOS: D	
Intersection Capacity Utilization 94.0%		ICU Level of Service F	
Analysis Period (min) 15			

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

Splits and Phases: 2: Circumferential Hwy/Sagamore Br & Lowell Rd/3A





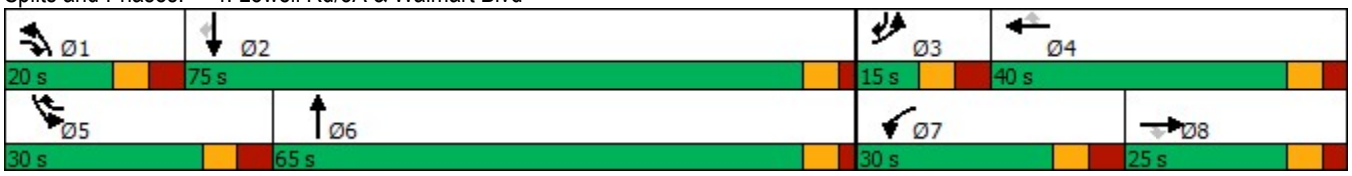
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	23	70	74	17	200	76	1013	56	204	974	179
Future Volume (vph)	169	23	70	74	17	200	76	1013	56	204	974	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	425		0	400		0
Storage Lanes	2		1	2		1	3		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	0.97	1.00	1.00	0.97	0.91	0.91	0.97	0.91	1.00
Frt			0.850			0.850		0.992				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	1863	1583	3433	1863	1583	3433	5045	0	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	1863	1583	3433	1863	1583	3433	5045	0	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			196			80		7				195
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		304			245			982			569	
Travel Time (s)		6.9			5.6			22.3			12.9	
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
Heavy Vehicles (%)	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	184	25	76	80	18	217	83	1101	61	222	1059	195
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	25	76	80	18	217	83	1162	0	222	1059	195
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
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	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6		5	2	3
Permitted Phases			8			4						2
Detector Phase	3	8	1	7	4	5	1	6		5	2	3
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0		5.0	10.0	5.0
Minimum Split (s)	13.0	12.0	13.0	13.0	12.0	13.0	13.0	16.0		13.0	16.0	13.0
Total Split (s)	15.0	25.0	20.0	30.0	40.0	30.0	20.0	65.0		30.0	75.0	15.0
Total Split (%)	10.0%	16.7%	13.3%	20.0%	26.7%	20.0%	13.3%	43.3%		20.0%	50.0%	10.0%
Maximum Green (s)	7.0	18.0	12.0	22.0	33.0	22.0	12.0	59.0		22.0	69.0	7.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	4.0	3.0	4.0	4.0	3.0	4.0	4.0	2.0		4.0	2.0	4.0
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)	8.0	7.0	8.0	8.0	7.0	8.0	8.0	6.0		8.0	6.0	8.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0		4.0	6.0	4.0
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	None

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	10.8	8.8	22.0	9.3	9.4	21.4	9.4	47.0		14.7	52.3	69.4
Actuated g/C Ratio	0.11	0.09	0.21	0.09	0.09	0.21	0.09	0.46		0.14	0.51	0.68
v/c Ratio	0.52	0.16	0.15	0.26	0.11	0.55	0.26	0.50		0.45	0.41	0.17
Control Delay	54.1	55.0	0.7	52.4	51.5	28.1	52.4	21.1		47.1	16.6	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	54.1	55.0	0.7	52.4	51.5	28.1	52.4	21.1		47.1	16.6	1.7
LOS	D	D	A	D	D	C	D	C		D	B	A
Approach Delay		39.9			35.6			23.1			19.2	
Approach LOS		D			D			C			B	
Queue Length 50th (ft)	58	17	0	28	13	96	29	219		76	168	0
Queue Length 95th (ft)	#161	50	0	58	39	160	60	285		129	227	28
Internal Link Dist (ft)		224			165			902			489	
Turn Bay Length (ft)							425			400		
Base Capacity (vph)	351	347	539	782	636	520	426	3087		782	3631	1135
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.52	0.07	0.14	0.10	0.03	0.42	0.19	0.38		0.28	0.29	0.17

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 102.5
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.55
Intersection Signal Delay: 24.0 Intersection LOS: C
Intersection Capacity Utilization 55.6% 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: 4: Lowell Rd/3A & Walmart Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	1	24	3	1	1	23	1061	10	31	1085	9
Future Volume (vph)	93	1	24	3	1	1	23	1061	10	31	1085	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	200		200	0		0	350		0	425		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.91	0.91
Frt		0.856			0.973			0.999			0.999	
Flt Protected	0.950				0.971		0.950			0.950		
Satd. Flow (prot)	3335	1595	0	0	1995	0	1770	3536	0	1770	5039	0
Flt Permitted	0.950				0.971		0.950			0.950		
Satd. Flow (perm)	3335	1595	0	0	1995	0	1770	3536	0	1770	5039	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		26						1			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		301			325			1749			982	
Travel Time (s)		6.8			7.4			39.8			22.3	
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
Heavy Vehicles (%)	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	100%
Adj. Flow (vph)	101	1	26	3	1	1	25	1153	11	34	1179	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	27	0	0	5	0	25	1164	0	34	1189	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			36			36	
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	0.85	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	Split	NA		Split	NA		Prot	NA		Prot	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases												
Detector Phase	3	3		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	12.0	12.0		12.0	12.0		13.0	16.0		13.0	16.0	
Total Split (s)	35.0	35.0		15.0	15.0		20.0	80.0		20.0	80.0	
Total Split (%)	23.3%	23.3%		10.0%	10.0%		13.3%	53.3%		13.3%	53.3%	
Maximum Green (s)	28.0	28.0		8.0	8.0		12.0	74.0		12.0	74.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		4.0	2.0		4.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0			7.0		8.0	6.0		8.0	6.0	
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	9.8	9.8			7.3		8.3	44.5		8.8	48.1	
Actuated g/C Ratio	0.12	0.12			0.09		0.10	0.56		0.11	0.61	
v/c Ratio	0.25	0.12			0.03		0.14	0.59		0.17	0.39	
Control Delay	39.5	19.0			45.6		43.6	15.3		42.7	10.5	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	39.5	19.0			45.6		43.6	15.3		42.7	10.5	
LOS	D	B			D		D	B		D	B	
Approach Delay		35.2			45.6			15.9			11.4	
Approach LOS		D			D			B			B	
Queue Length 50th (ft)	22	0			2		11	205		15	64	
Queue Length 95th (ft)	67	30			18		48	416		59	247	
Internal Link Dist (ft)		221			245			1669			902	
Turn Bay Length (ft)	200						350			425		
Base Capacity (vph)	1271	624			217		289	3155		289	4496	
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	0.08	0.04			0.02		0.09	0.37		0.12	0.26	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 79.5			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 14.8		Intersection LOS: B	
Intersection Capacity Utilization 44.6%		ICU Level of Service A	
Analysis Period (min) 15			

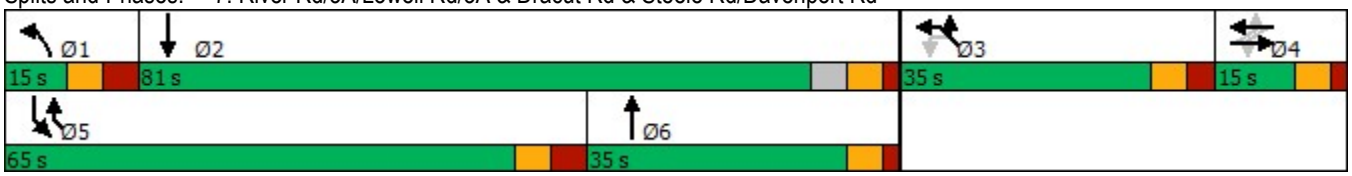
Splits and Phases: 5: Lowell Rd/3A & Rena Ave

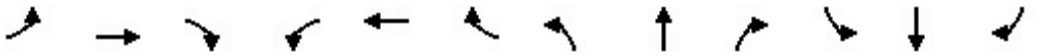
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR	NWL2	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	5	0	0	0	422	144	315	2	5	2	653
Future Volume (vph)	5	0	0	0	422	144	315	2	5	2	653
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			240		820		0		120	0
Storage Lanes	1			2		0		0		1	1
Taper Length (ft)	25			25		25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.97	1.00	1.00	1.00	1.00	1.00
Frt							0.999				0.850
Flt Protected	0.950					0.950				0.950	
Satd. Flow (prot)	1770	1863	1863	1863	3438	3433	1808	0	0	1770	1583
Flt Permitted						0.950				0.950	
Satd. Flow (perm)	1863	1863	1863	1863	3438	3433	1808	0	0	1770	1583
Right Turn on Red								Yes			
Satd. Flow (RTOR)											
Link Speed (mph)		30	30		30		30			30	
Link Distance (ft)		386	220		910		1749			960	
Travel Time (s)		8.8	5.0		20.7		39.8			21.8	
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
Heavy Vehicles (%)	2%	2%	2%	2%	5%	2%	5%	2%	2%	2%	2%
Adj. Flow (vph)	5	0	0	0	459	157	342	2	5	2	710
Shared Lane Traffic (%)											
Lane Group Flow (vph)	5	0	0	0	459	157	344	0	0	7	710
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Left	Left	Left	Left	Right	Left	Left	Right
Median Width(ft)		12	12		36		36			12	
Link Offset(ft)		0	0		0		0			0	
Crosswalk Width(ft)		16	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		15		9	15	15	9
Turn Type	Perm			Prot	NA	Prot	NA		Perm	Prot	pt+ov
Protected Phases		4	4	1	6	5	2			3	3 5
Permitted Phases	4								3		
Detector Phase	4	4	4	1	6	5	2		3	3	3 5
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	11.0	11.0	13.0	16.0	18.0	16.0		17.0	17.0	
Total Split (s)	15.0	15.0	15.0	15.0	35.0	65.0	81.0		35.0	35.0	
Total Split (%)	10.0%	10.0%	10.0%	10.0%	23.3%	43.3%	54.0%		23.3%	23.3%	
Maximum Green (s)	9.0	9.0	9.0	7.0	29.0	57.0	75.0		28.0	28.0	
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)	2.0	2.0	2.0	4.0	2.0	4.0	2.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0	6.0	6.0	8.0	6.0	8.0	6.0			7.0	
Lead/Lag	Lag	Lag	Lag	Lead	Lag	Lead	Lag		Lead	Lead	
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0	3.0	3.0	3.0	4.0	4.0	4.0		4.0	4.0	
Recall Mode	None	None	None	None	Min	None	Min		None	None	

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR	NWL2	NWL	NWR
Act Effct Green (s)	6.3				20.5	32.5	61.4			27.6	67.6
Actuated g/C Ratio	0.06				0.20	0.31	0.59			0.26	0.65
v/c Ratio	0.05				0.68	0.15	0.32			0.01	0.69
Control Delay	58.6				46.6	27.2	11.9			39.5	17.0
Queue Delay	0.0				0.0	0.0	0.0			0.0	0.0
Total Delay	58.6				46.6	27.2	11.9			39.5	17.0
LOS	E				D	C	B			D	B
Approach Delay		58.6			46.6		16.7			17.2	
Approach LOS		E			D		B			B	
Queue Length 50th (ft)	3				133	37	103			3	251
Queue Length 95th (ft)	20				283	76	199			20	440
Internal Link Dist (ft)		306	140		830		1669			880	
Turn Bay Length (ft)	50					820				120	
Base Capacity (vph)	168				1001	1966	1454			498	1388
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	0.03				0.46	0.08	0.24			0.01	0.51

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 104.6			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 25.2		Intersection LOS: C	
Intersection Capacity Utilization 72.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 7: River Rd/3A/Lowell Rd/3A & Dracut Rd & Steele Rd/Davenport Rd



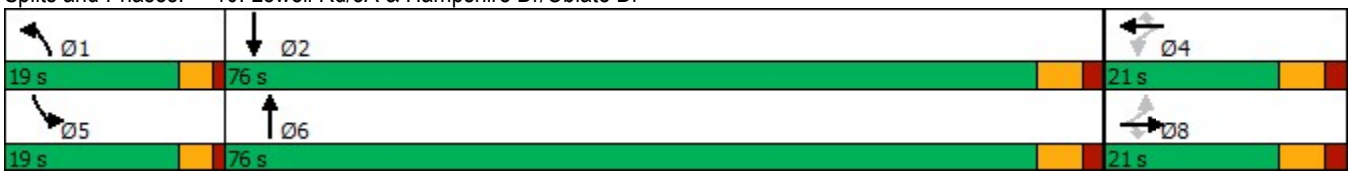


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	1	70	6	0	2	25	1004	11	3	1031	34
Future Volume (vph)	50	1	70	6	0	2	25	1004	11	3	1031	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	16	12	12	12	12	12	12
Storage Length (ft)	0		150	0		120	270		0	250		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	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
Frt			0.850			0.850		0.998			0.995	
Flt Protected		0.953			0.950		0.950			0.950		
Satd. Flow (prot)	0	1775	1794	0	1770	1794	1770	3532	0	1770	3522	0
Flt Permitted		0.725			0.721		0.950			0.950		
Satd. Flow (perm)	0	1350	1794	0	1343	1794	1770	3532	0	1770	3522	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			76			66		2			5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		412			436			437			1173	
Travel Time (s)		9.4			9.9			9.9			26.7	
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)	54	1	76	7	0	2	27	1091	12	3	1121	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	55	76	0	7	2	27	1103	0	3	1158	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	0.85	1.00	1.00	0.85	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	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						
Detector Phase	8	8	8	4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	15.0		4.0	15.0	
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	16.0	8.0	28.0		8.0	28.0	
Total Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	19.0	76.0		19.0	76.0	
Total Split (%)	18.1%	18.1%	18.1%	18.1%	18.1%	18.1%	16.4%	65.5%		16.4%	65.5%	
Maximum Green (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	70.0		15.0	70.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.0	6.0		4.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.0	3.0		2.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	

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)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0			0	
Act Effct Green (s)		8.6	8.6		7.2	7.2	6.0	41.0		5.1	39.0	
Actuated g/C Ratio		0.15	0.15		0.12	0.12	0.10	0.70		0.09	0.67	
v/c Ratio		0.28	0.23		0.04	0.01	0.15	0.44		0.02	0.49	
Control Delay		31.6	10.4		30.3	0.0	33.4	6.6		34.3	8.7	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		31.6	10.4		30.3	0.0	33.4	6.6		34.3	8.7	
LOS		C	B		C	A	C	A		C	A	
Approach Delay		19.3			23.6			7.2			8.8	
Approach LOS		B			C			A			A	
Queue Length 50th (ft)		15	0		2	0	8	83		1	88	
Queue Length 95th (ft)		62	37		15	0	39	211		10	246	
Internal Link Dist (ft)		332			356			357			1093	
Turn Bay Length (ft)			150			120	270			250		
Base Capacity (vph)		380	560		378	553	498	3392		498	3382	
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		0.14	0.14		0.02	0.00	0.05	0.33		0.01	0.34	

Intersection Summary			
Area Type:	Other		
Cycle Length: 116			
Actuated Cycle Length: 58.4			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 8.7		Intersection LOS: A	
Intersection Capacity Utilization 52.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 10: Lowell Rd/3A & Hampshire Dr/Oblate Dr

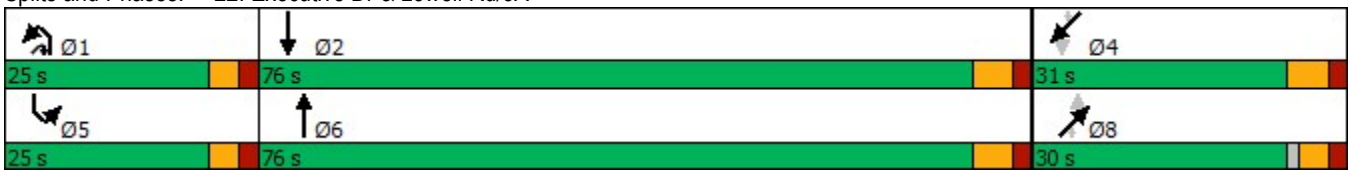


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	63	834	108	72	722	105	128	7	242	235	7	121
Future Volume (vph)	63	834	108	72	722	105	128	7	242	235	7	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	16	12	12	14
Storage Length (ft)	400		0	180		300	0		0	0		0
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.981				0.850			0.850
Flt Protected	0.950			0.950				0.955			0.954	
Satd. Flow (prot)	1570	3086	0	1770	3472	0	0	1779	1794	0	1777	1689
Flt Permitted	0.950			0.950				0.456			0.612	
Satd. Flow (perm)	1570	3086	0	1770	3472	0	0	849	1794	0	1140	1689
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			18				156			132
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		669			399			262			149	
Travel Time (s)		15.2			9.1			6.0			3.4	
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
Heavy Vehicles (%)	15%	15%	15%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	68	907	117	78	785	114	139	8	263	255	8	132
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	1024	0	78	899	0	0	147	263	0	263	132
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	0.85	1.00	1.00	0.92
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases	1	6		5	2			8	1		4	
Permitted Phases							8		8	4		4
Detector Phase	1	6		5	2		8	8	1	4	4	4
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	3.0	3.0	4.0	4.0	4.0
Minimum Split (s)	8.0	31.0		8.0	31.0		30.0	30.0	8.0	31.0	31.0	31.0
Total Split (s)	25.0	76.0		25.0	76.0		30.0	30.0	25.0	31.0	31.0	31.0
Total Split (%)	18.9%	57.6%		18.9%	57.6%		22.7%	22.7%	18.9%	23.5%	23.5%	23.5%
Maximum Green (s)	20.0	70.0		20.0	70.0		25.0	25.0	20.0	25.0	25.0	25.0
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	6.0		5.0	6.0			5.0	5.0		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	2.0	2.0	2.0	2.0	2.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		18.0			18.0		18.0	18.0		18.0	18.0	18.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	8.6	41.0		8.7	38.3			26.7	40.4		25.7	25.7
Actuated g/C Ratio	0.10	0.46		0.10	0.43			0.30	0.45		0.29	0.29
v/c Ratio	0.46	0.73		0.46	0.60			0.59	0.30		0.81	0.23
Control Delay	52.2	23.4		51.1	20.8			43.3	9.0		55.0	7.2
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	52.2	23.4		51.1	20.8			43.3	9.0		55.0	7.2
LOS	D	C		D	C			D	A		D	A
Approach Delay		25.2			23.3			21.3			39.0	
Approach LOS		C			C			C			D	
Queue Length 50th (ft)	38	245		43	192			72	36		141	0
Queue Length 95th (ft)	92	343		101	270			#201	109		#367	49
Internal Link Dist (ft)		589			319			182			69	
Turn Bay Length (ft)	400			180								
Base Capacity (vph)	358	2448		403	2754			251	1109		324	576
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	0.19	0.42		0.19	0.33			0.59	0.24		0.81	0.23

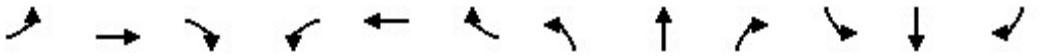
Intersection Summary			
Area Type:	Other		
Cycle Length: 132			
Actuated Cycle Length: 90.1			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 25.9		Intersection LOS: C	
Intersection Capacity Utilization 65.8%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 22: Executive Dr & Lowell Rd/3A



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	1473	1169	0
Future Volume (vph)	0	0	0	1473	1169	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12
Storage Length (ft)	0	0	0			400
Storage Lanes	0	1	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	2111	0	1863	1863	1863
Fl						
Sa						
Li						
Li						
Tr						
Pe						
Ad						
Sh						
La						
Er						
La						
M						
Li						
Cr						
Tv						
Headway Factor	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 80.9%		ICU Level of Service D	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	3	60	7	2	11	167	833	3	12	1102	17
Future Volume (vph)	50	3	60	7	2	11	167	833	3	12	1102	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	14	14	12	12	12	12	12	12
Storage Length (ft)	0		120	0		0	250		400	220		0
Storage Lanes	0		1	0		1	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	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.998	
Flt Protected		0.955			0.962		0.950			0.950		
Satd. Flow (prot)	0	1779	1583	0	1560	1325	1719	1810	1538	1719	1806	0
Flt Permitted		0.730			0.730		0.108			0.278		
Satd. Flow (perm)	0	1360	1583	0	1184	1325	195	1810	1538	503	1806	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65			21			62		1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		271			227			1282			634	
Travel Time (s)		6.2			5.2			29.1			14.4	
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
Heavy Vehicles (%)	2%	2%	2%	30%	5%	30%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	54	3	65	8	2	12	182	905	3	13	1198	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	57	65	0	10	12	182	905	3	13	1216	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	0.92	0.92	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	NA	Perm	Perm	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8	1	5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	8	8	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	31.0	31.0	11.0	31.0	
Total Split (s)	16.0	16.0	16.0	16.0	16.0	16.0	16.0	116.0	116.0	16.0	126.0	
Total Split (%)	10.1%	10.1%	10.1%	10.1%	10.1%	10.1%	10.1%	73.4%	73.4%	10.1%	79.7%	
Maximum Green (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	110.0	110.0	10.0	120.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	1.5	1.5	1.5	1.5	1.0	1.5	1.5	1.5	1.0	1.5	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	
Walk Time (s)								7.0	7.0		7.0	
Flash Dont Walk (s)								18.0	18.0		18.0	
Pedestrian Calls (#/hr)								0	0		0	
Act Effct Green (s)		8.9	8.9		8.9	19.9	136.2	130.5	130.5	128.0	123.0	
Actuated g/C Ratio		0.06	0.06		0.06	0.13	0.86	0.83	0.83	0.81	0.78	
v/c Ratio		0.75	0.43		0.15	0.06	0.74	0.61	0.00	0.03	0.86	
Control Delay		121.0	23.9		75.4	11.1	27.4	7.6	0.0	2.0	21.0	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	29.6	
Total Delay		121.0	23.9		75.4	11.1	27.4	7.6	0.0	2.0	50.6	
LOS		F	C		E	B	C	A	A	A	D	
Approach Delay		69.3			40.3			10.9			50.1	
Approach LOS		E			D			B			D	
Queue Length 50th (ft)		59	0		10	0	23	340	0	2	786	
Queue Length 95th (ft)		#130	51		32	13	102	445	0	4	1158	
Internal Link Dist (ft)		191			147			1202			554	
Turn Bay Length (ft)			120				250		400	220		
Base Capacity (vph)		86	161		74	226	265	1494	1280	500	1406	
Starvation Cap Reductn		0	0		0	0	0	0	0	0	254	
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		0.66	0.40		0.14	0.05	0.69	0.61	0.00	0.03	1.06	

Intersection Summary

Area Type: Other
Cycle Length: 158
Actuated Cycle Length: 158
Offset: 45 (28%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 33.6 Intersection LOS: C
Intersection Capacity Utilization 92.9% 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.

Splits and Phases: 24: Lowell Rd/3A & Fox Hollow Dr

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	122	156	1036	144	94	808
Future Volume (vph)	122	156	1036	144	94	808
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12
Storage Length (ft)	0	100		0	160	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.983			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1719	1743	1831	0	1388	1462
Flt Permitted	0.950				0.032	
Satd. Flow (perm)	1719	1743	1831	0	47	1462
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		112	9			
Link Speed (mph)	30		30			30
Link Distance (ft)	345		634			526
Travel Time (s)	7.8		14.4			12.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	2%	2%	30%	30%
Adj. Flow (vph)	133	170	1126	157	102	878
Shared Lane Traffic (%)						
Lane Group Flow (vph)	133	170	1283	0	102	878
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA		pm+pt	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4			2	
Detector Phase	4	5	6		5	2
Switch Phase						
Minimum Initial (s)	5.0	3.0	10.0		3.0	10.0
Minimum Split (s)	11.0	9.0	31.0		9.0	16.0
Total Split (s)	36.0	16.0	116.0		16.0	116.0
Total Split (%)	21.4%	9.5%	69.0%		9.5%	69.0%
Maximum Green (s)	30.0	10.0	110.0		10.0	110.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	1.5	1.5		1.5	1.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Recall Mode	None	None	C-Min		None	C-Min
Walk Time (s)			7.0			
Flash Dont Walk (s)			18.0			
Pedestrian Calls (#/hr)			0			
Act Effct Green (s)	16.9	35.8	120.2		139.1	139.1
Actuated g/C Ratio	0.10	0.21	0.72		0.83	0.83
v/c Ratio	0.77	0.37	0.98		0.72	0.73
Control Delay	100.5	20.6	43.6		69.9	11.4
Queue Delay	0.0	0.0	40.5		0.0	0.0
Total Delay	100.5	20.6	84.1		69.9	11.4
LOS	F	C	F		E	B
Approach Delay	55.7		84.1			17.5
Approach LOS	E		F			B
Queue Length 50th (ft)	145	52	1263		69	350
Queue Length 95th (ft)	216	116	#1822		141	637
Internal Link Dist (ft)	265		554			446
Turn Bay Length (ft)		100			160	
Base Capacity (vph)	306	464	1312		146	1210
Starvation Cap Reductn	0	0	209		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.43	0.37	1.16		0.70	0.73

Intersection Summary			
Area Type:	Other		
Cycle Length: 168			
Actuated Cycle Length: 168			
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 55.3		Intersection LOS: E	
Intersection Capacity Utilization 90.2%		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.			

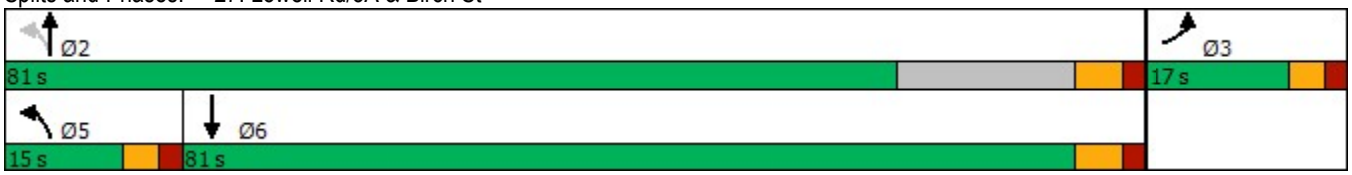
Splits and Phases: 25: Lowell Rd/3A & Pelham Rd

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	58	35	91	711	697	12
Future Volume (vph)	58	35	91	711	697	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	12	12	12	12
Storage Length (ft)	0	0	150			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.949				0.998	
Flt Protected	0.970		0.950			
Satd. Flow (prot)	1888	0	1570	1652	1806	0
Flt Permitted	0.970		0.195			
Satd. Flow (perm)	1888	0	322	1652	1806	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	21				2	
Link Speed (mph)	30			30	30	
Link Distance (ft)	442			1237	1199	
Travel Time (s)	10.0			28.1	27.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	15%	15%	5%	5%
Adj. Flow (vph)	63	38	99	773	758	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	101	0	99	773	771	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	16			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot		pm+pt	NA	NA	
Protected Phases	3		5	2	6	
Permitted Phases			2			
Detector Phase	3		5	2	6	
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	
Minimum Split (s)	17.0		10.0	11.0	11.0	
Total Split (s)	17.0		15.0	81.0	81.0	
Total Split (%)	15.0%		13.3%	71.7%	71.7%	
Maximum Green (s)	12.0		10.0	75.0	75.0	
Yellow Time (s)	3.0		3.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	5.0		5.0	6.0	6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.0	2.0	2.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Recall Mode	None		None	Min	Min	
Walk Time (s)	7.0					
Flash Dont Walk (s)	5.0					
Pedestrian Calls (#/hr)	0					
Act Effct Green (s)	7.6		47.2	48.0	38.5	
Actuated g/C Ratio	0.12		0.76	0.77	0.62	
v/c Ratio	0.41		0.25	0.61	0.69	
Control Delay	30.1		4.3	7.3	16.5	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	30.1		4.3	7.3	16.5	
LOS	C		A	A	B	
Approach Delay	30.1			7.0	16.5	
Approach LOS	C			A	B	
Queue Length 50th (ft)	28		8	123	227	
Queue Length 95th (ft)	89		22	263	444	
Internal Link Dist (ft)	362			1157	1119	
Turn Bay Length (ft)			150			
Base Capacity (vph)	408		459	1652	1750	
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		0.22	0.47	0.44	

Intersection Summary			
Area Type:	Other		
Cycle Length: 113			
Actuated Cycle Length: 62.4			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 12.5		Intersection LOS: B	
Intersection Capacity Utilization 61.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 27: Lowell Rd/3A & Birch St



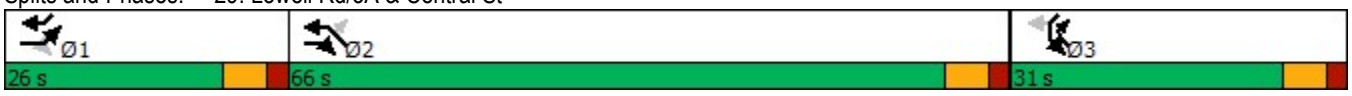
Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	177	633	757	83	200	64
Future Volume (vph)	177	633	757	83	200	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	11	11
Storage Length (ft)	300	0	0	80	0	120
Storage Lanes	1	1	1	1	1	1
Taper Length (ft)	25		25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		0.850
Flt Protected	0.950		0.950		0.950	
Satd. Flow (prot)	1770	1583	1770	1689	1711	1531
Flt Permitted	0.950		0.950		0.950	
Satd. Flow (perm)	1770	1583	1770	1689	1711	1531
Right Turn on Red		Yes		Yes		Yes
Satd. Flow (RTOR)		271		52		70
Link Speed (mph)	30		30		30	
Link Distance (ft)	636		905		654	
Travel Time (s)	14.5		20.6		14.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	192	688	823	90	217	70
Shared Lane Traffic (%)						
Lane Group Flow (vph)	192	688	823	90	217	70
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Right
Median Width(ft)	12		12		11	
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	0.92	1.04	1.04
Turning Speed (mph)	15	9	15	9	15	9
Turn Type	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov
Protected Phases	1	2	2	3	3	1
Permitted Phases		1		2		3
Detector Phase	1	2	2	3	3	1
Switch Phase						
Minimum Initial (s)	8.0	10.0	10.0	8.0	8.0	8.0
Minimum Split (s)	14.0	31.0	31.0	31.0	31.0	14.0
Total Split (s)	26.0	66.0	66.0	31.0	31.0	26.0
Total Split (%)	21.1%	53.7%	53.7%	25.2%	25.2%	21.1%
Maximum Green (s)	20.0	60.0	60.0	25.0	25.0	20.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	2.5	2.5	2.0	2.0	1.5
Recall Mode	None	Min	Min	None	None	None

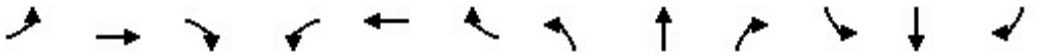
Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0	18.0	18.0	18.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	15.3	78.5	57.1	81.3	18.0	39.4
Actuated g/C Ratio	0.14	0.72	0.52	0.75	0.17	0.36
v/c Ratio	0.77	0.57	0.89	0.07	0.77	0.12
Control Delay	68.0	6.3	37.6	2.2	62.8	5.8
Queue Delay	0.0	0.5	0.0	0.0	0.0	0.0
Total Delay	68.0	6.8	37.6	2.2	62.8	5.8
LOS	E	A	D	A	E	A
Approach Delay	20.2		34.1		48.9	
Approach LOS	C		C		D	
Queue Length 50th (ft)	136	107	499	6	152	0
Queue Length 95th (ft)	228	228	#890	20	245	29
Internal Link Dist (ft)	556		825		574	
Turn Bay Length (ft)	300			80		120
Base Capacity (vph)	332	1267	996	1387	401	668
Starvation Cap Reductn	0	239	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.67	0.83	0.06	0.54	0.10

Intersection Summary			
Area Type:	Other		
Cycle Length: 123			
Actuated Cycle Length: 108.8			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 30.2		Intersection LOS: C	
Intersection Capacity Utilization 77.8%		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: 29: Lowell Rd/3A & Central St



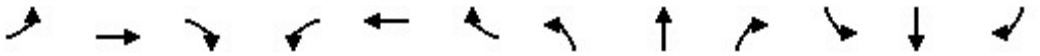


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	316	0	4	554	235	1	0	1	292	1	3
Future Volume (vph)	1	316	0	4	554	235	1	0	1	292	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	16	12
Storage Length (ft)	0		0	0		200	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850		0.932			0.999	
Flt Protected								0.976			0.953	
Satd. Flow (prot)	0	1810	0	0	1863	1583	0	1694	0	0	2010	0
Flt Permitted		0.999			0.998						0.728	
Satd. Flow (perm)	0	1808	0	0	1859	1583	0	1736	0	0	1535	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						175		80				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		888			636			108			794	
Travel Time (s)		20.2			14.5			2.5			18.0	
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
Heavy Vehicles (%)	2%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1	343	0	4	602	255	1	0	1	317	1	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	344	0	0	606	255	0	2	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	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			3			4	
Permitted Phases	2			6		6	3			4		
Detector Phase	2	2		6	6	6	3	3		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	5.0		10.0	10.0	
Minimum Split (s)	31.0	31.0		16.0	16.0	16.0	21.0	21.0		31.0	31.0	
Total Split (s)	51.0	51.0		51.0	51.0	51.0	21.0	21.0		51.0	51.0	
Total Split (%)	41.5%	41.5%		41.5%	41.5%	41.5%	17.1%	17.1%		41.5%	41.5%	
Maximum Green (s)	45.0	45.0		45.0	45.0	45.0	15.0	15.0		45.0	45.0	
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)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0			6.0	
Lead/Lag							Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0		3.0	3.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Walk Time (s)	7.0	7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	8.0	8.0					8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0					0	0		0	0	
Act Effct Green (s)		32.3			32.3	32.3		5.4			21.8	
Actuated g/C Ratio		0.47			0.47	0.47		0.08			0.32	
v/c Ratio		0.40			0.69	0.30		0.01			0.66	
Control Delay		15.1			20.8	5.9		0.0			29.7	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		15.1			20.8	5.9		0.0			29.7	
LOS		B			C	A		A			C	
Approach Delay		15.1			16.4						29.7	
Approach LOS		B			B						C	
Queue Length 50th (ft)		80			170	16		0			108	
Queue Length 95th (ft)		228			458	81		0			271	
Internal Link Dist (ft)		808			556			28			714	
Turn Bay Length (ft)						200						
Base Capacity (vph)		1273			1309	1166		473			1080	
Starvation Cap Reductn		0			8	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.27			0.47	0.22		0.00			0.30	

Intersection Summary			
Area Type:	Other		
Cycle Length: 123			
Actuated Cycle Length: 68.6			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 18.9		Intersection LOS: B	
Intersection Capacity Utilization 65.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 33: Central St & Library St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	514	5	7	15	269	0	8	4	61	6	5
Future Volume (vph)	108	514	5	7	15	269	0	8	4	61	6	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	16	12	16	12	12	16	12
Storage Length (ft)	0		0	0		250	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.958			0.991	
Flt Protected		0.991			0.984						0.959	
Satd. Flow (prot)	0	2041	0	0	2036	1759	0	2022	0	0	1958	0
Flt Permitted		0.991			0.984						0.959	
Satd. Flow (perm)	0	2041	0	0	2036	1759	0	2022	0	0	1958	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		439			888			261			628	
Travel Time (s)		10.0			20.2			5.9			14.3	
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
Heavy Vehicles (%)	2%	5%	2%	2%	2%	2%	2%	2%	2%	5%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	5	5	0	0	0	0	0	0
Adj. Flow (vph)	117	559	5	8	16	292	0	9	4	66	7	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	681	0	0	24	292	0	13	0	0	78	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	0.85	1.00	1.00	0.87	0.87	1.00	0.85	1.00	1.00	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 63.3%		ICU Level of Service B	
Analysis Period (min) 15			

Lane Group	EBL	EBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	0	0	0	964	0	1481
Future Volume (vph)	0	0	0	964	0	1481
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.88
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	3539	0	2787
Fl						
Sa						
Li						
Li						
Tr						
Pe						
Ad						
Sh						
La						
Ed						
La						
M						
Li						
C						
Tv						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.1%		ICU Level of Service B	
Analysis Period (min) 15			

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	20	352	12	38	232	8	131	451	32	2	568	7
Future Volume (vph)	20	352	12	38	232	8	131	451	32	2	568	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	175		0	0		0	200		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.995			0.993			0.998	
Flt Protected	0.950			0.950				0.989		0.950		
Satd. Flow (prot)	1770	1853	0	1770	1853	0	0	1829	0	1770	1859	0
Flt Permitted	0.480			0.275				0.580		0.387		
Satd. Flow (perm)	894	1853	0	512	1853	0	0	1073	0	721	1859	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			2			4			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		342			444			371			1247	
Travel Time (s)		7.8			10.1			8.4			28.3	
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)	22	383	13	41	252	9	142	490	35	2	617	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	396	0	41	261	0	0	667	0	2	625	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	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			1			6	
Permitted Phases	4			8			1			6		
Detector Phase	4	4		8	8		1	1		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	31.0	31.0		31.0	31.0		31.0	31.0		31.0	31.0	
Total Split (s)	46.0	46.0		46.0	46.0		46.0	46.0		46.0	46.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	40.0	40.0		40.0	40.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0		6.0	6.0	
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	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	

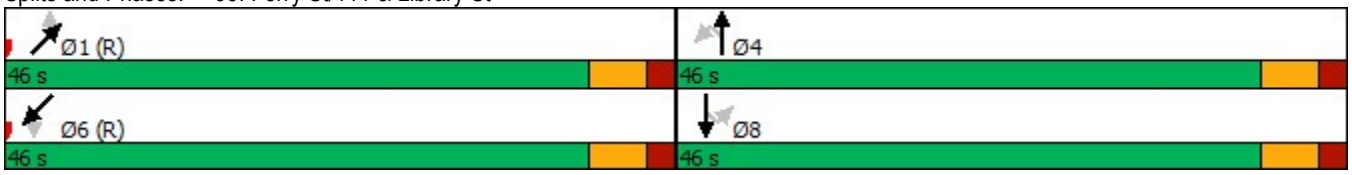
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Flash Dont Walk (s)	18.0	18.0		18.0	18.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	26.2	26.2		26.2	26.2			53.8		53.8	53.8	
Actuated g/C Ratio	0.28	0.28		0.28	0.28			0.58		0.58	0.58	
v/c Ratio	0.09	0.75		0.28	0.49			1.06		0.00	0.58	
Control Delay	21.6	38.1		28.1	29.1			76.6		11.0	16.3	
Queue Delay	0.0	0.0		0.0	0.0			15.1		0.0	0.0	
Total Delay	21.6	38.1		28.1	29.1			91.7		11.0	16.3	
LOS	C	D		C	C			F		B	B	
Approach Delay		37.2			29.0			91.7			16.2	
Approach LOS		D			C			F			B	
Queue Length 50th (ft)	9	208		19	125			~432		0	211	
Queue Length 95th (ft)	24	268		42	170			#715		4	398	
Internal Link Dist (ft)		262			364			291			1167	
Turn Bay Length (ft)				175						200		
Base Capacity (vph)	388	806		222	806			628		421	1086	
Starvation Cap Reductn	0	0		0	0			55		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	0.06	0.49		0.18	0.32			1.16		0.00	0.58	

Intersection Summary			
Area Type:	Other		
Cycle Length: 92			
Actuated Cycle Length: 92			
Offset: 0 (0%), Referenced to phase 1:NETL and 6:SWTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.06			
Intersection Signal Delay: 47.5		Intersection LOS: D	
Intersection Capacity Utilization 109.8%		ICU Level of Service H	
Analysis Period (min) 15			

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

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

Splits and Phases: 38: Ferry St/111 & Library St



Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NWR	NWR2	NET	NER
Lane Configurations												
Traffic Volume (vph)	28	13	5	15	1	1	10	27	470	10	417	16
Future Volume (vph)	28	13	5	15	1	1	10	27	470	10	417	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12	16	12	12	12	12	12
Storage Length (ft)	0		0			0		0	0			0
Storage Lanes	0		0			0		0	1			0
Taper Length (ft)	25					25						
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.956					0.907		0.865		0.995	
Flt Protected		0.977					0.998					
Satd. Flow (prot)	0	1915	0	0	0	0	1856	0	1611	0	1853	0
Flt Permitted		0.832					0.984					
Satd. Flow (perm)	0	1631	0	0	0	0	1830	0	1611	0	1853	0
Right Turn on Red				Yes				Yes		Yes		
Satd. Flow (RTOR)		10					29		86			
Link Speed (mph)		30					30				30	
Link Distance (ft)		286					634				617	
Travel Time (s)		6.5					14.4				14.0	
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
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%
Adj. Flow (vph)	30	14	5	16	1	1	11	29	511	11	453	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	65	0	0	0	0	42	0	522	0	470	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Left	Left	Right	Right	Right	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	0.85	1.00	1.00	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	9	15	15		9	9	9		9
Turn Type	Perm	NA			Perm	Perm	NA		Over		NA	
Protected Phases		8					4		1		2	
Permitted Phases	8				4	4						
Detector Phase	8	8			4	4	4		1		2	
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0	5.0	5.0		10.0		10.0	
Minimum Split (s)	22.0	22.0			12.0	12.0	12.0		16.0		17.0	
Total Split (s)	22.0	22.0			27.0	27.0	27.0		56.0		57.0	
Total Split (%)	15.7%	15.7%			19.3%	19.3%	19.3%		40.0%		40.7%	
Maximum Green (s)	15.0	15.0			20.0	20.0	20.0		50.0		50.0	
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0		4.0	
All-Red Time (s)	3.0	3.0			3.0	3.0	3.0		2.0		3.0	
Lost Time Adjust (s)		0.0					0.0		0.0		0.0	
Total Lost Time (s)		7.0					7.0		6.0		7.0	
Lead/Lag									Lead		Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		4.0	

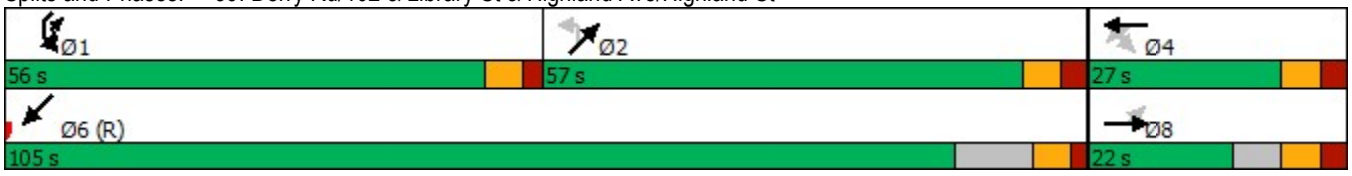
Lane Group	SWL	SWT	SWR
Lane Configurations			
Traffic Volume (vph)	286	377	1
Future Volume (vph)	286	377	1
Ideal Flow (vphpl)	1900	1900	1900
Lane Width (ft)	12	12	12
Storage Length (ft)	0		150
Storage Lanes	1		0
Taper Length (ft)	25		
Lane Util. Factor	1.00	1.00	1.00
Frt			
Flt Protected	0.950		
Satd. Flow (prot)	1770	1810	0
Flt Permitted	0.950		
Satd. Flow (perm)	1770	1810	0
Right Turn on Red			Yes
Satd. Flow (RTOR)			
Link Speed (mph)		30	
Link Distance (ft)		845	
Travel Time (s)		19.2	
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	2%
Adj. Flow (vph)	311	410	1
Shared Lane Traffic (%)			
Lane Group Flow (vph)	311	411	0
Enter Blocked Intersection	No	No	No
Lane Alignment	Left	Left	Right
Median Width(ft)		12	
Link Offset(ft)		0	
Crosswalk Width(ft)		16	
Two way Left Turn Lane			
Headway Factor	1.00	1.00	1.00
Turning Speed (mph)	15		9
Turn Type	Prot	NA	
Protected Phases	1	6	
Permitted Phases			
Detector Phase	1	6	
Switch Phase			
Minimum Initial (s)	10.0	10.0	
Minimum Split (s)	16.0	16.0	
Total Split (s)	56.0	105.0	
Total Split (%)	40.0%	75.0%	
Maximum Green (s)	50.0	99.0	
Yellow Time (s)	4.0	4.0	
All-Red Time (s)	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	6.0	6.0	
Lead/Lag	Lead		
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	3.0	

Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NWR	NWR2	NET	NER
Recall Mode	None	None			None	None	None		None		Min	
Walk Time (s)	7.0	7.0										
Flash Dont Walk (s)	8.0	8.0										
Pedestrian Calls (#/hr)	0	0										
Act Effct Green (s)		10.1					10.0		46.6		65.9	
Actuated g/C Ratio		0.07					0.07		0.33		0.47	
v/c Ratio		0.52					0.27		0.88		0.54	
Control Delay		66.4					31.6		52.8		32.9	
Queue Delay		0.0					0.0		25.9		0.8	
Total Delay		66.4					31.6		78.8		33.7	
LOS		E					C		E		C	
Approach Delay		66.4					31.6				33.7	
Approach LOS		E					C				C	
Queue Length 50th (ft)		49					11		379		316	
Queue Length 95th (ft)		97					49		498		500	
Internal Link Dist (ft)		206					554				537	
Turn Bay Length (ft)												
Base Capacity (vph)		241					286		649		871	
Starvation Cap Reductn		0					0		141		165	
Spillback Cap Reductn		0					0		0		0	
Storage Cap Reductn		0					0		0		0	
Reduced v/c Ratio		0.27					0.15		1.03		0.67	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 6:SWT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 41.9 Intersection LOS: D
Intersection Capacity Utilization 79.4% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 39: Derry Rd/102 & Library St & Highland Ave/Highland St



Lane Group	SWL	SWT	SWR
Recall Mode	None	C-Min	
Walk Time (s)			
Flash Dont Walk (s)			
Pedestrian Calls (#/hr)			
Act Effct Green (s)	46.6	120.7	
Actuated g/C Ratio	0.33	0.86	
v/c Ratio	0.53	0.26	
Control Delay	40.1	2.9	
Queue Delay	0.0	0.0	
Total Delay	40.1	2.9	
LOS	D	A	
Approach Delay		19.0	
Approach LOS		B	
Queue Length 50th (ft)	225	63	
Queue Length 95th (ft)	293	109	
Internal Link Dist (ft)		765	
Turn Bay Length (ft)			
Base Capacity (vph)	653	1560	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.48	0.26	

Intersection Summary

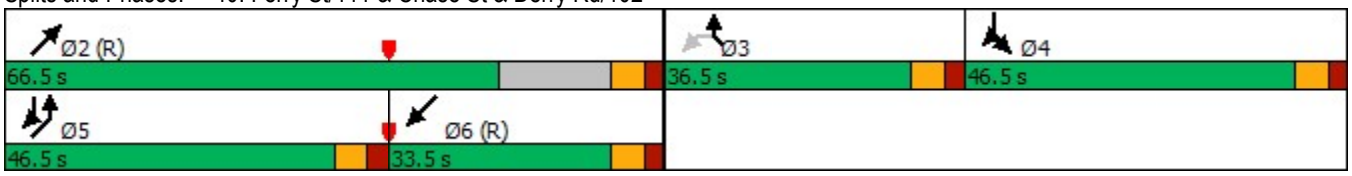
Lane Group	SBL	SBR	NWL	NWR	NWR2	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	64	490	425	31	128	219	734	11	0	566	0
Future Volume (vph)	64	490	425	31	128	219	734	11	0	566	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	13	12	12	12	12	12
Storage Length (ft)	150	300	0	0		0		0	0		0
Storage Lanes	1	1	1	1		1		0	0		0
Taper Length (ft)	25		25			25			25		
Lane Util. Factor	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt		0.850		0.850			0.998				
Flt Protected	0.950		0.950			0.950					
Satd. Flow (prot)	1719	2707	1719	1641	0	1829	1859	0	0	3539	0
Flt Permitted	0.950		0.133			0.950					
Satd. Flow (perm)	1719	2707	241	1641	0	1829	1859	0	0	3539	0
Right Turn on Red		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		67		111			1				
Link Speed (mph)	30		30				30			30	
Link Distance (ft)	617		345				426			371	
Travel Time (s)	14.0		7.8				9.7			8.4	
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
Heavy Vehicles (%)	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	70	533	462	34	139	238	798	12	0	615	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	70	533	462	173	0	238	810	0	0	615	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12		12				13			13	
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	0.92	1.00	0.96	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9	9	15		9	15		9
Turn Type	Prot	pt+ov	Perm	Prot		Prot	NA			NA	
Protected Phases	4	4 5		3		5	2			6	
Permitted Phases			3								
Detector Phase	4	4 5	3	3		5	2			6	
Switch Phase											
Minimum Initial (s)	8.0		5.0	5.0		10.0	10.0			10.0	
Minimum Split (s)	24.5		24.5	24.5		24.5	24.5			24.5	
Total Split (s)	46.5		36.5	36.5		46.5	66.5			33.5	
Total Split (%)	28.5%		22.4%	22.4%		28.5%	40.8%			20.6%	
Maximum Green (s)	40.0		30.0	30.0		40.0	60.0			27.0	
Yellow Time (s)	4.0		4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)	2.5		2.5	2.5		2.5	2.5			2.5	
Lost Time Adjust (s)	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.5		6.5	6.5		6.5	6.5			6.5	
Lead/Lag	Lag		Lead	Lead		Lead				Lag	
Lead-Lag Optimize?											
Vehicle Extension (s)	1.5		1.5	1.5		1.5	1.5			1.5	

Lane Group	SBL	SBR	NWL	NWR	NWR2	NEL	NET	NER	SWL	SWT	SWR
Recall Mode	None		None	None		Min	C-Min			C-Min	
Walk Time (s)	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	11.0		11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0		0	0		0	0			0	
Act Effct Green (s)	28.3	62.7	30.0	30.0		27.9	85.2			50.8	
Actuated g/C Ratio	0.17	0.38	0.18	0.18		0.17	0.52			0.31	
v/c Ratio	0.23	0.49	10.50	0.44		0.76	0.83			0.56	
Control Delay	58.8	33.3	4325.5	25.6		79.3	42.6			51.4	
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0			4.5	
Total Delay	58.8	33.3	4325.5	25.6		79.3	42.6			55.9	
LOS	E	C	F	C		E	D			E	
Approach Delay	36.3		3154.0				50.9			55.9	
Approach LOS	D		F				D			E	
Queue Length 50th (ft)	65	211	~939	57		245	724			291	
Queue Length 95th (ft)	113	231	#1170	137		321	#1038			406	
Internal Link Dist (ft)	537		265				346			291	
Turn Bay Length (ft)	150	300									
Base Capacity (vph)	421	1278	44	392		448	972			1102	
Starvation Cap Reductn	0	0	0	0		0	0			403	
Spillback Cap Reductn	0	0	0	0		0	0			0	
Storage Cap Reductn	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.17	0.42	10.50	0.44		0.53	0.83			0.88	

Intersection Summary			
Area Type:	Other		
Cycle Length: 163			
Actuated Cycle Length: 163			
Offset: 0 (0%), Referenced to phase 2:NET and 6:SWT, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 10.50			
Intersection Signal Delay: 728.2		Intersection LOS: F	
Intersection Capacity Utilization 85.8%		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.

Splits and Phases: 40: Ferry St/111 & Chase St & Derry Rd/102



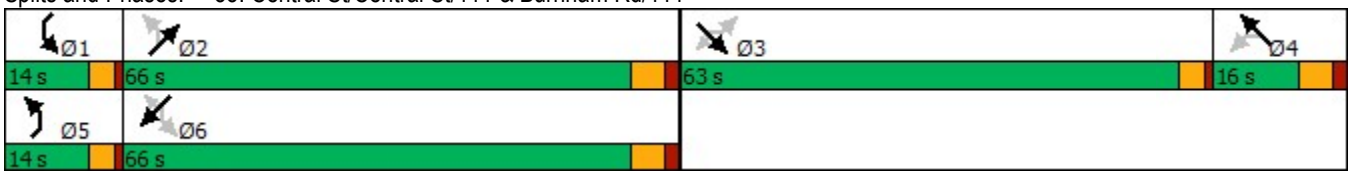
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	380	9	45	27	5	16	26	473	18	23	339	494
Future Volume (vph)	380	9	45	27	5	16	26	473	18	23	339	494
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	16	12	12	12	12	12	12	14
Storage Length (ft)	0		200	0		0	120		0	280		280
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.955			0.994				0.850
Flt Protected		0.953			0.972		0.950			0.950		
Satd. Flow (prot)	0	1775	1794	0	1960	0	1770	1852	0	1770	1863	1689
Flt Permitted		0.574			0.609		0.319			0.112		
Satd. Flow (perm)	0	1069	1794	0	1228	0	594	1852	0	209	1863	1689
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89		12			1				537
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		882			126			314			2248	
Travel Time (s)		20.0			2.9			7.1			51.1	
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)	413	10	49	29	5	17	28	514	20	25	368	537
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	423	49	0	51	0	28	534	0	25	368	537
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	0.85	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	0.92
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		6
Detector Phase	3	3	3	4	4		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	4.0	4.0		4.0	10.0		4.0	10.0	10.0
Minimum Split (s)	14.0	14.0	14.0	10.0	10.0		8.0	16.0		8.0	16.0	16.0
Total Split (s)	63.0	63.0	63.0	16.0	16.0		14.0	66.0		14.0	66.0	66.0
Total Split (%)	39.6%	39.6%	39.6%	10.1%	10.1%		8.8%	41.5%		8.8%	41.5%	41.5%
Maximum Green (s)	59.0	59.0	59.0	10.0	10.0		10.0	60.0		10.0	60.0	60.0
Yellow Time (s)	3.0	3.0	3.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	2.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		6.0		4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		2.0	3.0		2.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Act Effct Green (s)		61.0	61.0		8.7		48.4	42.8		48.2	42.7	42.7
Actuated g/C Ratio		0.46	0.46		0.07		0.37	0.33		0.37	0.33	0.33
v/c Ratio		0.85	0.06		0.56		0.10	0.88		0.17	0.61	0.59
Control Delay		53.9	0.5		76.3		24.8	59.4		26.6	42.2	5.4
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		53.9	0.5		76.3		24.8	59.4		26.6	42.2	5.4
LOS		D	A		E		C	E		C	D	A
Approach Delay		48.4			76.3			57.7			20.5	
Approach LOS		D			E			E			C	
Queue Length 50th (ft)		366	0		35		15	461		14	283	0
Queue Length 95th (ft)		#688	3		#96		35	618		32	391	77
Internal Link Dist (ft)		802			46			234			2168	
Turn Bay Length (ft)			200				120			280		280
Base Capacity (vph)		496	881		107		319	876		202	880	1081
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		0.85	0.06		0.48		0.09	0.61		0.12	0.42	0.50

Intersection Summary

Area Type: Other
Cycle Length: 159
Actuated Cycle Length: 131.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 38.8 Intersection LOS: D
Intersection Capacity Utilization 62.5% 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: 55: Central St/Central St/111 & Burnham Rd/111



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations												
Traffic Volume (vph)	63	14	719	69	171	295	79	26	190	259	25	44
Future Volume (vph)	63	14	719	69	171	295	79	26	190	259	25	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	12	16	12	12	16	12
Storage Length (ft)		300		300	300		300		140		300	
Storage Lanes		1		1	1		2		1		0	
Taper Length (ft)		25			25				25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850	0.850		0.968		
Flt Protected		0.950			0.950				0.950			
Satd. Flow (prot)	0	1770	1810	1689	1719	1810	1538	1794	1570	1755	0	0
Flt Permitted		0.267			0.267				0.447			
Satd. Flow (perm)	0	497	1810	1689	483	1810	1538	1794	739	1755	0	0
Right Turn on Red				Yes				Yes				Yes
Satd. Flow (RTOR)				121				121		4		
Link Speed (mph)			30			30				30		
Link Distance (ft)			2248			4120				755		
Travel Time (s)			51.1			93.6				17.2		
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
Heavy Vehicles (%)	2%	2%	5%	2%	5%	5%	5%	2%	15%	5%	2%	5%
Adj. Flow (vph)	68	15	782	75	186	321	86	28	207	282	27	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	83	782	75	186	321	86	28	207	357	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Right	Left	Left	Right	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	0.92	1.00	1.00	1.00	0.85	1.00	1.00	0.85	1.00
Turning Speed (mph)	15	15		9	15		9	9	15		9	9
Turn Type	custom	Prot	NA	Free	custom	NA	Perm	Free	pm+pt	NA		
Protected Phases		1	6			2			7	4		
Permitted Phases	1			Free	5		2	Free	4			
Detector Phase	1	1	6		5	2	2		7	4		
Switch Phase												
Minimum Initial (s)	4.0	4.0	15.0		4.0	15.0	15.0		4.0	10.0		
Minimum Split (s)	8.0	8.0	21.0		8.0	21.0	21.0		8.0	16.0		
Total Split (s)	19.0	19.0	81.0		19.0	81.0	81.0		19.0	51.0		
Total Split (%)	10.1%	10.1%	42.9%		10.1%	42.9%	42.9%		10.1%	27.0%		
Maximum Green (s)	15.0	15.0	75.0		15.0	75.0	75.0		15.0	45.0		
Yellow Time (s)	3.0	3.0	4.0		3.0	4.0	4.0		3.0	4.0		
All-Red Time (s)	1.0	1.0	2.0		1.0	2.0	2.0		1.0	2.0		
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0		0.0	0.0		
Total Lost Time (s)		4.0	6.0		4.0	6.0	6.0		4.0	6.0		
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag		Lag			
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	3.0		2.0	3.0	3.0		2.0	3.0		

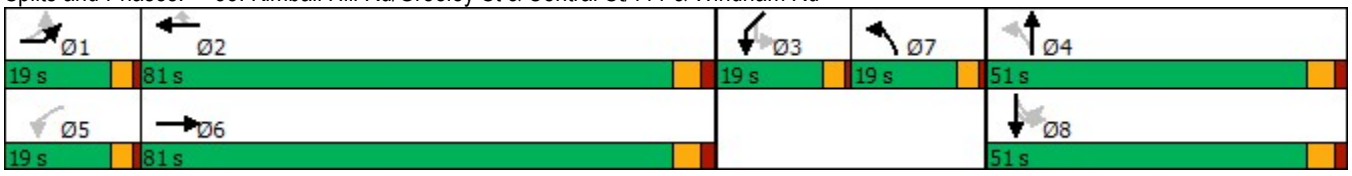
Lane Group	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations								
Traffic Volume (vph)	4	70	119	61	33	19	32	7
Future Volume (vph)	4	70	119	61	33	19	32	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	12	12	12
Storage Length (ft)		0		0		0	0	
Storage Lanes		0		0		1	0	
Taper Length (ft)		25				25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.968			0.942		
Flt Protected			0.986			0.972		
Satd. Flow (prot)	0	0	1957	0	0	1706	0	0
Flt Permitted			0.271			0.972		
Satd. Flow (perm)	0	0	538	0	0	1706	0	0
Right Turn on Red				No				No
Satd. Flow (RTOR)								
Link Speed (mph)			30			30		
Link Distance (ft)			869			736		
Travel Time (s)			19.8			16.7		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	5%	5%	2%	2%	2%	2%
Adj. Flow (vph)	4	76	129	66	36	21	35	8
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	0	275	0	0	100	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)			12			12		
Link Offset(ft)			0			0		
Crosswalk Width(ft)			16			16		
Two way Left Turn Lane								
Headway Factor	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15		9	15	15	9	9
Turn Type	Perm	Perm	NA		Perm	Prot		
Protected Phases			8			3		
Permitted Phases	8	8			3			
Detector Phase	8	8	8		3	3		
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0		4.0	4.0		
Minimum Split (s)	16.0	16.0	16.0		8.0	8.0		
Total Split (s)	51.0	51.0	51.0		19.0	19.0		
Total Split (%)	27.0%	27.0%	27.0%		10.1%	10.1%		
Maximum Green (s)	45.0	45.0	45.0		15.0	15.0		
Yellow Time (s)	4.0	4.0	4.0		3.0	3.0		
All-Red Time (s)	2.0	2.0	2.0		1.0	1.0		
Lost Time Adjust (s)			0.0			0.0		
Total Lost Time (s)			6.0			4.0		
Lead/Lag					Lead	Lead		
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0		2.0	2.0		

Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Recall Mode	None	None	Min		None	Min	Min		None	None		
Act Effct Green (s)		15.0	75.0	187.6	15.0	75.0	75.0	187.6	62.0	45.0		
Actuated g/C Ratio		0.08	0.40	1.00	0.08	0.40	0.40	1.00	0.33	0.24		
v/c Ratio		2.13	1.08	0.04	4.89	0.44	0.14	0.02	0.67	0.84		
Control Delay		612.3	109.1	0.0	1811.9	43.7	37.0	0.0	59.5	85.5		
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay		612.3	109.1	0.0	1811.9	43.7	37.0	0.0	59.5	85.5		
LOS		F	F	A	F	D	D	A	E	F		
Approach Delay			144.9			570.4				76.0		
Approach LOS			F			F				E		
Queue Length 50th (ft)		~163	~1087	0	~429	293	68	0	194	425		
Queue Length 95th (ft)		#291	#1352	0	#609	391	114	0	276	#597		
Internal Link Dist (ft)			2168			4040				675		
Turn Bay Length (ft)		300		300	300		300	300	140			
Base Capacity (vph)		39	723	1689	38	723	615	1794	310	423		
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		2.13	1.08	0.04	4.89	0.44	0.14	0.02	0.67	0.84		

Intersection Summary			
Area Type:	Other		
Cycle Length: 189			
Actuated Cycle Length: 187.6			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 4.89			
Intersection Signal Delay: 280.7		Intersection LOS: F	
Intersection Capacity Utilization 106.2%		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: 58: Kimball Hill Rd/Greeley St & Central St/111 & Windham Rd



Lane Group	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Recall Mode	None	None	None		None	None		
Act Effct Green (s)			45.0			13.6		
Actuated g/C Ratio			0.24			0.07		
v/c Ratio			2.13			0.81		
Control Delay			566.4			126.8		
Queue Delay			0.0			0.0		
Total Delay			566.4			126.8		
LOS			F			F		
Approach Delay			566.4			126.8		
Approach LOS			F			F		
Queue Length 50th (ft)			~542			124		
Queue Length 95th (ft)			#748			#224		
Internal Link Dist (ft)			789			656		
Turn Bay Length (ft)								
Base Capacity (vph)			129			136		
Starvation Cap Reductn			0			0		
Spillback Cap Reductn			0			0		
Storage Cap Reductn			0			0		
Reduced v/c Ratio			2.13			0.74		

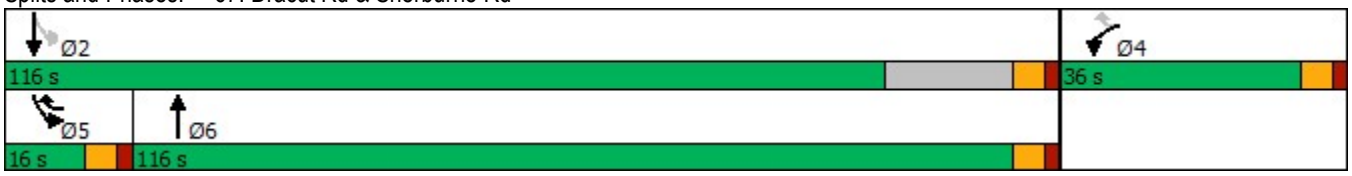
Intersection Summary

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	82	293	327	102	440	523
Future Volume (vph)	82	293	327	102	440	523
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	150	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.968			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1538	1764	0	1770	1863
Flt Permitted	0.950				0.268	
Satd. Flow (perm)	1770	1538	1764	0	499	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		318	19			
Link Speed (mph)	30		30			30
Link Distance (ft)	832		787			870
Travel Time (s)	18.9		17.9			19.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	5%	2%	2%	2%
Adj. Flow (vph)	89	318	355	111	478	568
Shared Lane Traffic (%)						
Lane Group Flow (vph)	89	318	466	0	478	568
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA		pm+pt	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4			2	
Detector Phase	4	5	6		5	2
Switch Phase						
Minimum Initial (s)	5.0	3.0	10.0		3.0	10.0
Minimum Split (s)	11.0	9.0	16.0		9.0	16.0
Total Split (s)	36.0	16.0	116.0		16.0	116.0
Total Split (%)	21.4%	9.5%	69.0%		9.5%	69.0%
Maximum Green (s)	30.0	10.0	110.0		10.0	110.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	1.5	1.5		1.5	1.5
Recall Mode	None	None	Min		None	Min

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Act Effct Green (s)	7.2	20.6	19.7		36.5	38.4
Actuated g/C Ratio	0.14	0.39	0.37		0.69	0.73
v/c Ratio	0.37	0.40	0.70		0.80	0.42
Control Delay	28.6	3.6	20.5		20.2	5.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	28.6	3.6	20.5		20.2	5.7
LOS	C	A	C		C	A
Approach Delay	9.1		20.5			12.3
Approach LOS	A		C			B
Queue Length 50th (ft)	27	0	121		59	73
Queue Length 95th (ft)	72	44	222		#196	145
Internal Link Dist (ft)	752		707			790
Turn Bay Length (ft)		150			150	
Base Capacity (vph)	1056	792	1764		597	1863
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	0.08	0.40	0.26		0.80	0.30

Intersection Summary			
Area Type:	Other		
Cycle Length: 168			
Actuated Cycle Length: 52.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 13.6		Intersection LOS: B	
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.			

Splits and Phases: 67: Dracut Rd & Sherburne Rd

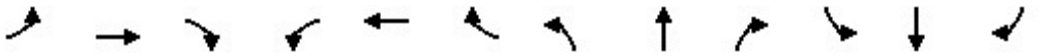


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	146	125	45	174	327	50
Future Volume (vph)	146	125	45	174	327	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12
Storage Length (ft)		0	180		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.938				0.982	
Flt Protected			0.950		0.958	
Satd. Flow (prot)	1462	0	1770	1652	1732	0
Flt Permitted			0.950		0.958	
Satd. Flow (perm)	1462	0	1770	1652	1732	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1417			420	606	
Travel Time (s)	32.2			9.5	13.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	15%	30%	2%	15%	15%	30%
Adj. Flow (vph)	159	136	49	189	355	54
Shared Lane Traffic (%)						
Lane Group Flow (vph)	295	0	49	189	409	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	16	
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	0.85	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 49.8%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	146	125	125	189	8	295
Future Volume (vph)	146	125	125	189	8	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	16	16	12
Storage Length (ft)		0	80		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.938				0.869	
Flt Protected			0.950		0.999	
Satd. Flow (prot)	1747	0	1770	2111	1833	0
Flt Permitted			0.950		0.999	
Satd. Flow (perm)	1747	0	1770	2111	1833	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	2748			314	1025	
Travel Time (s)	62.5			7.1	23.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	159	136	136	205	9	321
Shared Lane Traffic (%)						
Lane Group Flow (vph)	295	0	136	205	330	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	16	
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	0.85	0.85	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.9%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	0	229	0	0	0	273	672	0	0	624	14
Future Volume (vph)	64	0	229	0	0	0	273	672	0	0	624	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	12	12	12	12	12	12	15	12
Storage Length (ft)	130		0	0		0	465		0	0		0
Storage Lanes	1		1	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850								0.997	
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1770	0	1583	0	1863	0	1770	1863	0	0	2043	0
Flt Permitted	0.950						0.206					
Satd. Flow (perm)	1770	0	1583	0	1863	0	384	1863	0	0	2043	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			249								1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		468			79			2433			1216	
Travel Time (s)		10.6			1.8			55.3			27.6	
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)	70	0	249	0	0	0	297	730	0	0	678	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	0	249	0	0	0	297	730	0	0	693	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	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot		pt+ov				pm+pt	NA			NA	
Protected Phases	4		4 1	8	8		1	6			2	
Permitted Phases	4						6			2		
Detector Phase	4		4 1	8	8		1	6		2	2	
Switch Phase												
Minimum Initial (s)	3.0			5.0	5.0		3.0	10.0		10.0	10.0	
Minimum Split (s)	9.0			11.0	11.0		7.0	16.0		16.0	16.0	
Total Split (s)	21.0			16.0	16.0		19.0	101.0		101.0	101.0	
Total Split (%)	13.4%			10.2%	10.2%		12.1%	64.3%		64.3%	64.3%	
Maximum Green (s)	15.0			10.0	10.0		15.0	95.0		95.0	95.0	
Yellow Time (s)	4.0			4.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	2.0			2.0	2.0		1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0				0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0				6.0		4.0	6.0			6.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5			0.4	0.4		2.0	5.0		5.0	5.0	
Recall Mode	None			None	None		None	Min		Min	Min	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	8.3		21.7				50.2	48.2			34.8	
Actuated g/C Ratio	0.12		0.31				0.73	0.70			0.50	
v/c Ratio	0.33		0.37				0.64	0.56			0.67	
Control Delay	36.1		5.0				11.0	7.0			16.7	
Queue Delay	0.0		0.0				0.0	0.0			0.0	
Total Delay	36.1		5.0				11.0	7.0			16.7	
LOS	D		A				B	A			B	
Approach Delay		11.8						8.2			16.7	
Approach LOS		B						A			B	
Queue Length 50th (ft)	27		0				30	118			195	
Queue Length 95th (ft)	78		52				85	221			364	
Internal Link Dist (ft)		388			1			2353			1136	
Turn Bay Length (ft)	130						465					
Base Capacity (vph)	401		782				594	1863			2043	
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	0.17		0.32				0.50	0.39			0.34	

Intersection Summary			
Area Type:	Other		
Cycle Length: 157			
Actuated Cycle Length: 69			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 11.6		Intersection LOS: B	
Intersection Capacity Utilization 85.9%		ICU Level of Service E	
Analysis Period (min) 15			

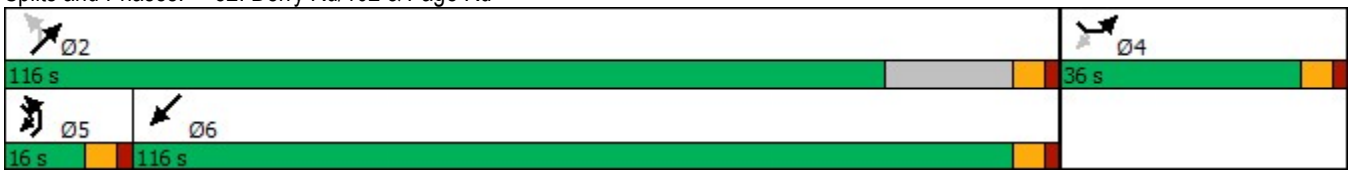
Splits and Phases: 76: Derry Rd/102 & Elm Ave

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	77	39	41	329	434	100
Future Volume (vph)	77	39	41	329	434	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.975	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1719	1583	1770	1810	1764	0
Flt Permitted	0.950		0.269			
Satd. Flow (perm)	1719	1583	501	1810	1764	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		42			14	
Link Speed (mph)	30			30	30	
Link Distance (ft)	420			2236	3657	
Travel Time (s)	9.5			50.8	83.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	2%	2%	5%	5%	5%
Adj. Flow (vph)	84	42	45	358	472	109
Shared Lane Traffic (%)						
Lane Group Flow (vph)	84	42	45	358	581	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
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	pm+pt	NA	NA	
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	3.0	3.0	10.0	10.0	
Minimum Split (s)	11.0	9.0	9.0	16.0	16.0	
Total Split (s)	36.0	16.0	16.0	116.0	116.0	
Total Split (%)	21.4%	9.5%	9.5%	69.0%	69.0%	
Maximum Green (s)	30.0	10.0	10.0	110.0	110.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	1.5	1.5	1.5	1.5	
Recall Mode	None	None	None	Min	Min	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Act Effct Green (s)	7.4	16.0	36.7	38.7	29.8	
Actuated g/C Ratio	0.14	0.30	0.69	0.72	0.56	
v/c Ratio	0.35	0.08	0.09	0.27	0.59	
Control Delay	29.2	6.3	4.0	4.7	14.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	29.2	6.3	4.0	4.7	14.9	
LOS	C	A	A	A	B	
Approach Delay	21.5			4.6	14.9	
Approach LOS	C			A	B	
Queue Length 50th (ft)	25	0	4	41	144	
Queue Length 95th (ft)	74	19	14	83	284	
Internal Link Dist (ft)	340			2156	3577	
Turn Bay Length (ft)		150	150			
Base Capacity (vph)	1036	647	599	1810	1764	
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	0.08	0.06	0.08	0.20	0.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 168			
Actuated Cycle Length: 53.4			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 11.9		Intersection LOS: B	
Intersection Capacity Utilization 48.3%		ICU Level of Service A	
Analysis Period (min) 15			

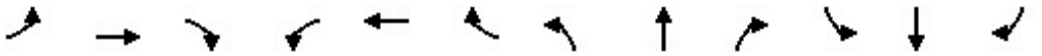
Splits and Phases: 82: Derry Rd/102 & Page Rd



A.5 Future 2045 Model - AM Peak (51 pages)

Reference Table – HUD# to # in SYNCRHO Reports

HUD#	# in SYNCHRO Reports	Intersection / Direction TOWARD
1	**40**	111-102-3A (Ferry & Chase)
2	**38**	Library & Ferry
3	**39**	Library and Highland
4	**55**	Burnham and Central
5	**58**	Central-Kimball-Greeley (Rt.111 & Greeley)
6	**76**	Derry and 102 (Route 102 & Elm Ave)
7	**82**	NH 102/Page Rd
8	**34**	NH 3A Central St/Chase St
9	**33**	Central and Library
10	**29**	Lowell and Central
11	**25**	Lowell and Pelham
12	**22**	Lowell and Executive
13	**10**	Lowell-Hampshire-Oblate
14	**1**	Lowell & Wason
16	**4**	NH 3A Lowell Rd/Walmart Blvd
17	**5**	NH 3A Lowell Rd/Rena Ave
18	**7**	NH 3A Lowell Rd/Dracut Rd/Steele Rd
19	**67**	Dracut Rd/Sherburne Rd
20	**70**	Kimball Hill Rd/Bush Hill Rd
21	**73**	Central St/Belknap Rd
22	**24**	Lowell & Fox Hollow Dr
23	**27**	Lowell & Birch St
15_com	**2**	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined
15M	-	NH 3A Lowell Rd/Sagamore Bridge Rd - Northern Section
15N	-	NH 3A Lowell Rd/Sagamore Bridge Rd - Middle Section
15S	-	NH 3A Lowell Rd/Sagamore Bridge Rd - Southern Section



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	24	253	432	67	45	181	879	178	22	848	29
Future Volume (vph)	36	24	253	432	67	45	181	879	178	22	848	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	14	12	12	12	12	12	12
Storage Length (ft)	0		0	0		200	650		350	200		0
Storage Lanes	0		1	1		1	1		2	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.88	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected		0.971		0.950	0.965		0.950			0.950		
Satd. Flow (prot)	0	1419	1408	1633	1659	1641	1719	3438	2707	1570	3139	1404
Flt Permitted		0.971		0.950	0.965		0.950			0.950		
Satd. Flow (perm)	0	1419	1408	1633	1659	1641	1719	3438	2707	1570	3139	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			275			145			193			211
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		573			432			1014			1071	
Travel Time (s)		13.0			9.8			23.0			24.3	
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
Heavy Vehicles (%)	30%	30%	30%	5%	5%	5%	5%	5%	5%	15%	15%	15%
Adj. Flow (vph)	39	26	275	470	73	49	197	955	193	24	922	32
Shared Lane Traffic (%)				43%								
Lane Group Flow (vph)	0	65	275	268	275	49	197	955	193	24	922	32
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	0.85	1.00	1.00	0.92	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	Split	NA	pm+ov	Split	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	Perm
Protected Phases	3	3	1	4	4	4 5	1	6	6 4	5	2	
Permitted Phases			3									2
Detector Phase	3	3	1	4	4	4 5	1	6	6 4	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	11.0	11.0	13.0	12.0	12.0		13.0	16.0		13.0	16.0	16.0
Total Split (s)	15.0	15.0	30.0	30.0	30.0		30.0	50.0		15.0	35.0	35.0
Total Split (%)	10.0%	10.0%	20.0%	20.0%	20.0%		20.0%	33.3%		10.0%	23.3%	23.3%
Maximum Green (s)	9.0	9.0	22.0	23.0	23.0		22.0	44.0		7.0	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	4.0
All-Red Time (s)	2.0	2.0	4.0	3.0	3.0		4.0	2.0		4.0	2.0	2.0
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)		6.0	8.0	7.0	7.0		8.0	6.0		8.0	6.0	6.0
Lead/Lag	Lead	Lead	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	3.0

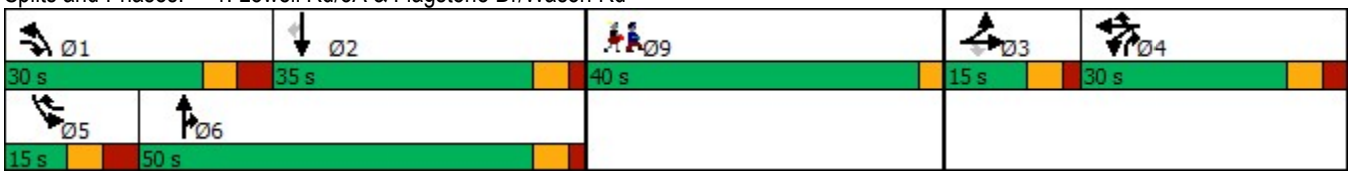
Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
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	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	40.0
Total Split (s)	40.0
Total Split (%)	27%
Maximum Green (s)	37.0
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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		8.7	25.2	23.0	23.0	37.6	18.5	44.4	69.7	6.5	29.5	29.5
Actuated g/C Ratio		0.08	0.24	0.22	0.22	0.35	0.17	0.42	0.65	0.06	0.28	0.28
v/c Ratio		0.56	0.51	0.76	0.77	0.07	0.66	0.67	0.11	0.25	1.06	0.06
Control Delay		67.6	5.4	55.5	56.0	0.2	52.7	29.0	0.7	55.7	86.8	0.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		67.6	5.4	55.5	56.0	0.2	52.7	29.0	0.7	55.7	86.8	0.2
LOS		E	A	E	E	A	D	C	A	E	F	A
Approach Delay		17.3			51.2			28.4			83.2	
Approach LOS		B			D			C			F	
Queue Length 50th (ft)		45	0	189	194	0	130	290	0	16	~372	0
Queue Length 95th (ft)		#102	32	#324	#332	0	204	364	6	44	#522	0
Internal Link Dist (ft)		493			352			934			991	
Turn Bay Length (ft)						200	650		350	200		
Base Capacity (vph)		120	579	352	357	677	354	1455	1853	102	868	540
Starvation Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.54	0.47	0.76	0.77	0.07	0.56	0.66	0.10	0.24	1.06	0.06

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 106.8
Natural Cycle: 145
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 47.9 Intersection LOS: D
Intersection Capacity Utilization 71.4% 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: 1: Lowell Rd/3A & Flagstone Dr/Wason Rd



Lane Group	Ø9
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	30.0
Pedestrian Calls (#/hr)	0
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	

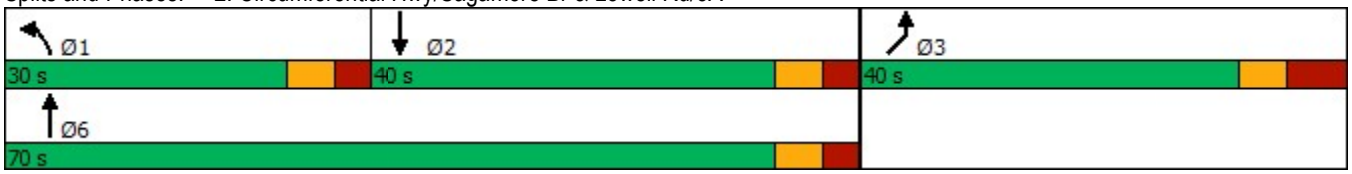
Intersection Summary

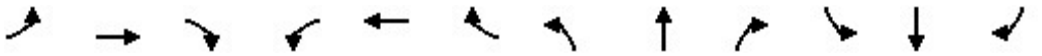
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	SBR2	NEL	NER
Lane Configurations									
Traffic Volume (vph)	0	0	689	235	244	0	1113	825	566
Future Volume (vph)	0	0	689	235	244	0	1113	825	566
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	14	12
Storage Length (ft)	0	0	470			450		0	0
Storage Lanes	0	0	2			1		2	1
Taper Length (ft)	25		25					25	
Lane Util. Factor	1.00	1.00	0.94	0.95	0.95	1.00	1.00	0.97	1.00
Frt							0.850		0.850
Flt Protected			0.950					0.950	
Satd. Flow (prot)	0	0	4848	3139	3438	0	1538	3557	1538
Flt Permitted			0.950					0.950	
Satd. Flow (perm)	0	0	4848	3139	3438	0	1538	3557	1538
Right Turn on Red							Yes		Yes
Satd. Flow (RTOR)							805		479
Link Speed (mph)	55			30	30			42	
Link Distance (ft)	1050			613	1014			974	
Travel Time (s)	13.0			13.9	23.0			15.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	5%	15%	5%	2%	5%	5%	5%
Adj. Flow (vph)	0	0	749	255	265	0	1210	897	615
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	0	749	255	265	0	1210	897	615
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right	Right	Left	Right
Median Width(ft)	0			36	36			28	
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	0.92	1.00
Turning Speed (mph)	15	9	15			9	9	15	9
Turn Type			Prot	NA	NA		Free	Prot	Free
Protected Phases			1	6	2			3	
Permitted Phases							Free		Free
Detector Phase			1	6	2			3	
Switch Phase									
Minimum Initial (s)			7.0	10.0	10.0			10.0	
Minimum Split (s)			14.0	17.0	17.0			19.0	
Total Split (s)			30.0	70.0	40.0			40.0	
Total Split (%)			27.3%	63.6%	36.4%			36.4%	
Maximum Green (s)			23.0	63.0	33.0			31.0	
Yellow Time (s)			4.0	4.0	4.0			4.0	
All-Red Time (s)			3.0	3.0	3.0			5.0	
Lost Time Adjust (s)			0.0	0.0	0.0			0.0	
Total Lost Time (s)			7.0	7.0	7.0			9.0	
Lead/Lag			Lead		Lag				
Lead-Lag Optimize?									
Vehicle Extension (s)			4.0	4.0	4.0			4.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	SBR2	NEL	NER
Recall Mode			None	Min	Min			None	
Act Effct Green (s)			19.7	39.8	13.0		84.1	28.1	84.1
Actuated g/C Ratio			0.23	0.47	0.15		1.00	0.33	1.00
v/c Ratio			0.66	0.17	0.50		0.79	0.76	0.40
Control Delay			32.9	13.3	37.1		4.1	30.2	0.8
Queue Delay			0.0	0.0	0.0		0.0	0.0	0.0
Total Delay			32.9	13.3	37.1		4.1	30.2	0.8
LOS			C	B	D		A	C	A
Approach Delay				27.9	10.1			18.2	
Approach LOS				C	B			B	
Queue Length 50th (ft)			132	41	71		0	215	0
Queue Length 95th (ft)			181	64	113		0	314	0
Internal Link Dist (ft)	970			533	934			894	
Turn Bay Length (ft)			470				450		
Base Capacity (vph)			1341	2379	1365		1538	1326	1538
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			0.56	0.11	0.19		0.79	0.68	0.40

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 84.1			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 17.6		Intersection LOS: B	
Intersection Capacity Utilization 64.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Circumferential Hwy/Sagamore Br & Lowell Rd/3A



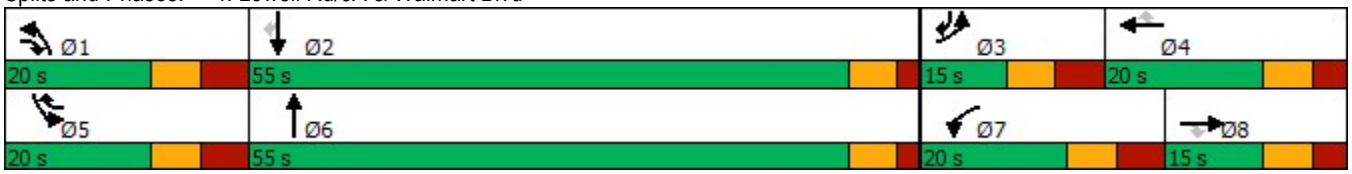


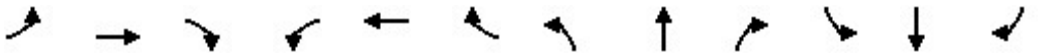
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	11	45	22	9	92	54	757	24	95	720	68
Future Volume (vph)	92	11	45	22	9	92	54	757	24	95	720	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	425		0	400		0
Storage Lanes	2		1	2		1	3		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	0.97	1.00	1.00	0.97	0.91	0.91	0.97	0.91	1.00
Frt			0.850			0.850		0.995				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	1863	1583	3335	1863	1538	3433	4920	0	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	1863	1583	3335	1863	1538	3433	4920	0	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			109		5				119
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		304			245			982			569	
Travel Time (s)		6.9			5.6			22.3			12.9	
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
Heavy Vehicles (%)	5%	2%	2%	5%	2%	5%	2%	5%	2%	5%	5%	5%
Adj. Flow (vph)	100	12	49	24	10	100	59	823	26	103	783	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	12	49	24	10	100	59	849	0	103	783	74
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
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	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6		5	2	3
Permitted Phases			8			4						2
Detector Phase	3	8	1	7	4	5	1	6		5	2	3
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0		5.0	10.0	5.0
Minimum Split (s)	13.0	12.0	13.0	13.0	12.0	13.0	13.0	16.0		13.0	16.0	13.0
Total Split (s)	15.0	15.0	20.0	20.0	20.0	20.0	20.0	55.0		20.0	55.0	15.0
Total Split (%)	13.6%	13.6%	18.2%	18.2%	18.2%	18.2%	18.2%	50.0%		18.2%	50.0%	13.6%
Maximum Green (s)	7.0	8.0	12.0	12.0	13.0	12.0	12.0	49.0		12.0	49.0	7.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	4.0	3.0	4.0	4.0	3.0	4.0	4.0	2.0		4.0	2.0	4.0
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)	8.0	7.0	8.0	8.0	7.0	8.0	8.0	6.0		8.0	6.0	8.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0		4.0	6.0	4.0
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	None

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	7.5	8.0	16.6	7.4	7.5	11.2	8.1	29.2		9.0	36.4	46.4
Actuated g/C Ratio	0.11	0.12	0.25	0.11	0.11	0.17	0.12	0.44		0.13	0.54	0.69
v/c Ratio	0.27	0.05	0.10	0.06	0.05	0.29	0.14	0.39		0.23	0.29	0.07
Control Delay	35.3	35.3	0.4	34.3	34.9	7.5	33.0	14.8		32.3	13.0	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	35.3	35.3	0.4	34.3	34.9	7.5	33.0	14.8		32.3	13.0	0.7
LOS	D	D	A	C	C	A	C	B		C	B	A
Approach Delay		24.7			14.4			15.9			14.1	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)	18	4	0	4	4	0	10	81		18	72	0
Queue Length 95th (ft)	57	25	0	20	22	33	37	165		56	147	6
Internal Link Dist (ft)		224			165			902			489	
Turn Bay Length (ft)							425			400		
Base Capacity (vph)	375	238	580	638	386	429	657	3743		638	3757	1102
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.27	0.05	0.08	0.04	0.03	0.23	0.09	0.23		0.16	0.21	0.07

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 66.9			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.39			
Intersection Signal Delay: 15.7		Intersection LOS: B	
Intersection Capacity Utilization 46.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Lowell Rd/3A & Walmart Blvd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	0	2	2	0	12	19	838	2	4	695	62
Future Volume (vph)	8	0	2	2	0	12	19	838	2	4	695	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	200		200	0		0	350		0	425		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.91	0.91
Frt		0.850			0.883						0.988	
Flt Protected	0.950				0.993		0.950			0.950		
Satd. Flow (prot)	2694	1583	0	0	1805	0	1770	3438	0	1570	4892	0
Flt Permitted	0.950				0.993		0.950			0.950		
Satd. Flow (perm)	2694	1583	0	0	1805	0	1770	3438	0	1570	4892	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		354									20	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		301			325			1749			982	
Travel Time (s)		6.8			7.4			39.8			22.3	
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
Heavy Vehicles (%)	30%	2%	2%	2%	2%	5%	2%	5%	2%	15%	5%	2%
Adj. Flow (vph)	9	0	2	2	0	13	21	911	2	4	755	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	2	0	0	15	0	21	913	0	4	822	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			36			36	
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	0.85	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	Split	NA		Split	NA		Prot	NA		Prot	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases												
Detector Phase	3	3		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	12.0	12.0		12.0	12.0		13.0	16.0		13.0	16.0	
Total Split (s)	15.0	15.0		15.0	15.0		15.0	65.0		15.0	65.0	
Total Split (%)	13.6%	13.6%		13.6%	13.6%		13.6%	59.1%		13.6%	59.1%	
Maximum Green (s)	8.0	8.0		8.0	8.0		7.0	59.0		7.0	59.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		4.0	2.0		4.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0			7.0		8.0	6.0		8.0	6.0	
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	7.7	7.7			8.0		7.8	42.8		7.7	42.8	
Actuated g/C Ratio	0.16	0.16			0.17		0.16	0.89		0.16	0.89	
v/c Ratio	0.02	0.00			0.05		0.07	0.30		0.02	0.19	
Control Delay	27.4	0.0			27.1		27.6	5.7		28.5	4.6	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	27.4	0.0			27.1		27.6	5.7		28.5	4.6	
LOS	C	A			C		C	A		C	A	
Approach Delay		22.4			27.1			6.2			4.8	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)	1	0			3		4	0		1	0	
Queue Length 95th (ft)	10	0			28		35	264		13	139	
Internal Link Dist (ft)		221			245			1669			902	
Turn Bay Length (ft)	200						350			425		
Base Capacity (vph)	518	590			347		297	3190		264	4541	
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	0.02	0.00			0.04		0.07	0.29		0.02	0.18	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 48.1			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.30			
Intersection Signal Delay: 5.8		Intersection LOS: A	
Intersection Capacity Utilization 38.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 5: Lowell Rd/3A & Rena Ave

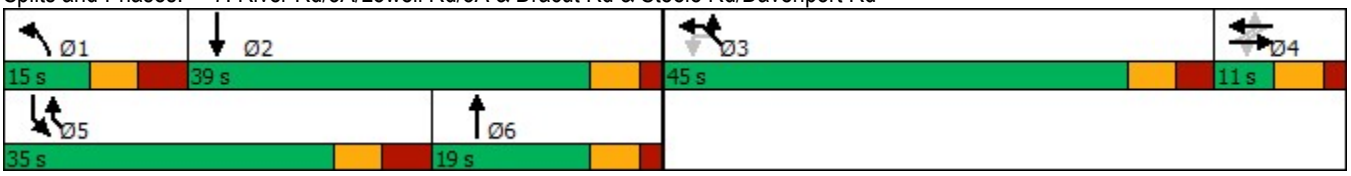
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR	NWL2	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	0	0	0	391	63	572	6	8	0	699
Future Volume (vph)	0	0	0	0	391	63	572	6	8	0	699
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			240		820		0		120	0
Storage Lanes	1			2		0		0		1	1
Taper Length (ft)	25			25		25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.97	1.00	1.00	1.00	1.00	1.00
Frt							0.998				0.850
Flt Protected						0.950				0.950	
Satd. Flow (prot)	1863	1863	1863	1863	3438	3335	1806	0	0	1770	1538
Flt Permitted						0.950				0.950	
Satd. Flow (perm)	1863	1863	1863	1863	3438	3335	1806	0	0	1770	1538
Right Turn on Red								Yes			
Satd. Flow (RTOR)							1				
Link Speed (mph)		30	30		30		30			30	
Link Distance (ft)		386	220		910		1749			960	
Travel Time (s)		8.8	5.0		20.7		39.8			21.8	
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
Heavy Vehicles (%)	2%	2%	2%	2%	5%	5%	5%	2%	2%	2%	5%
Adj. Flow (vph)	0	0	0	0	425	68	622	7	9	0	760
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	0	0	425	68	629	0	0	9	760
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Left	Left	Left	Left	Right	Left	Left	Right
Median Width(ft)		12	12		36		36			12	
Link Offset(ft)		0	0		0		0			0	
Crosswalk Width(ft)		16	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		15		9	15	15	9
Turn Type	Perm			Prot	NA	Prot	NA		Perm	Prot	pt+ov
Protected Phases		4	4	1	6	5	2			3	3 5
Permitted Phases	4								3		
Detector Phase	4	4	4	1	6	5	2		3	3	3 5
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	11.0	11.0	13.0	16.0	18.0	16.0		17.0	17.0	
Total Split (s)	11.0	11.0	11.0	15.0	19.0	35.0	39.0		45.0	45.0	
Total Split (%)	10.0%	10.0%	10.0%	13.6%	17.3%	31.8%	35.5%		40.9%	40.9%	
Maximum Green (s)	5.0	5.0	5.0	7.0	13.0	27.0	33.0		38.0	38.0	
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)	2.0	2.0	2.0	4.0	2.0	4.0	2.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0	6.0	6.0	8.0	6.0	8.0	6.0			7.0	
Lead/Lag	Lag	Lag	Lag	Lead	Lag	Lead	Lag		Lead	Lead	
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0	3.0	3.0	3.0	4.0	4.0	4.0		4.0	4.0	
Recall Mode	None	None	None	None	Min	None	Min		None	None	

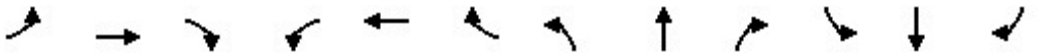
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR	NWL2	NWL	NWR
Act Effct Green (s)					13.2	19.3	40.6			33.6	61.1
Actuated g/C Ratio					0.15	0.22	0.46			0.38	0.70
v/c Ratio					0.82	0.09	0.75			0.01	0.71
Control Delay					52.5	28.0	26.6			18.0	11.9
Queue Delay					0.0	0.0	0.0			0.0	0.0
Total Delay					52.5	28.0	26.6			18.0	11.9
LOS					D	C	C			B	B
Approach Delay					52.5		26.7			12.0	
Approach LOS					D		C			B	
Queue Length 50th (ft)					125	15	296			3	209
Queue Length 95th (ft)					#237	33	438			14	327
Internal Link Dist (ft)		306	140		830		1669			880	
Turn Bay Length (ft)						820				120	
Base Capacity (vph)					518	1043	839			779	1193
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					0.82	0.07	0.75			0.01	0.64

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 87.4			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 26.5		Intersection LOS: C	
Intersection Capacity Utilization 64.9%		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: 7: River Rd/3A/Lowell Rd/3A & Dracut Rd & Steele Rd/Davenport Rd



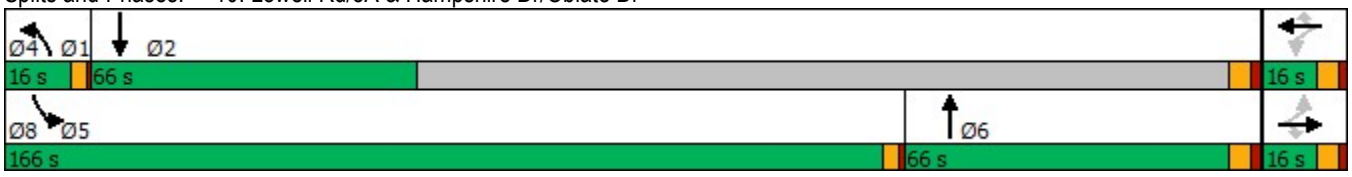


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	0	15	4	0	2	88	950	3	2	989	70
Future Volume (vph)	18	0	15	4	0	2	88	950	3	2	989	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	16	12	12	12	12	12	12
Storage Length (ft)	0		150	0		120	270		0	250		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	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
Frt			0.850			0.850					0.990	
Flt Protected		0.950			0.950		0.950			0.950		
Satd. Flow (prot)	0	1770	1794	0	1770	1794	1719	3438	0	1770	3504	0
Flt Permitted		0.889			0.889		0.950			0.950		
Satd. Flow (perm)	0	1656	1794	0	1656	1794	1719	3438	0	1770	3504	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			48					14	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		412			436			437			1173	
Travel Time (s)		9.4			9.9			9.9			26.7	
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	2%	2%	2%	2%
Adj. Flow (vph)	20	0	16	4	0	2	96	1033	3	2	1075	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	16	0	4	2	96	1036	0	2	1151	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	0.85	1.00	1.00	0.85	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	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						
Detector Phase	8	8	8	4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	15.0		4.0	15.0	
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	16.0	8.0	28.0		8.0	28.0	
Total Split (s)	16.0	16.0	16.0	16.0	16.0	16.0	16.0	66.0		166.0	66.0	
Total Split (%)	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	26.6%		66.9%	26.6%	
Maximum Green (s)	10.0	10.0	10.0	10.0	10.0	10.0	12.0	60.0		162.0	60.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.0	6.0		4.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.0	3.0		2.0	3.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0			0	
Act Effct Green (s)		6.8	6.8		6.2	6.2	12.1	61.7		4.7	44.9	
Actuated g/C Ratio		0.09	0.09		0.08	0.08	0.16	0.82		0.06	0.60	
v/c Ratio		0.13	0.08		0.03	0.01	0.35	0.37		0.02	0.55	
Control Delay		33.6	1.4		32.5	0.0	32.3	4.1		34.5	11.3	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		33.6	1.4		32.5	0.0	32.3	4.1		34.5	11.3	
LOS		C	A		C	A	C	A		C	B	
Approach Delay		19.3			21.7			6.5			11.4	
Approach LOS		B			C			A			B	
Queue Length 50th (ft)		8	0		2	0	36	69		1	177	
Queue Length 95th (ft)		30	3		11	0	90	166		8	246	
Internal Link Dist (ft)		332			356			357			1093	
Turn Bay Length (ft)			150			120	270			250		
Base Capacity (vph)		221	281		221	281	276	3037		1770	3504	
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		0.09	0.06		0.02	0.01	0.35	0.34		0.00	0.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 248			
Actuated Cycle Length: 75.1			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 9.1		Intersection LOS: A	
Intersection Capacity Utilization 55.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 10: Lowell Rd/3A & Hampshire Dr/Oblate Dr



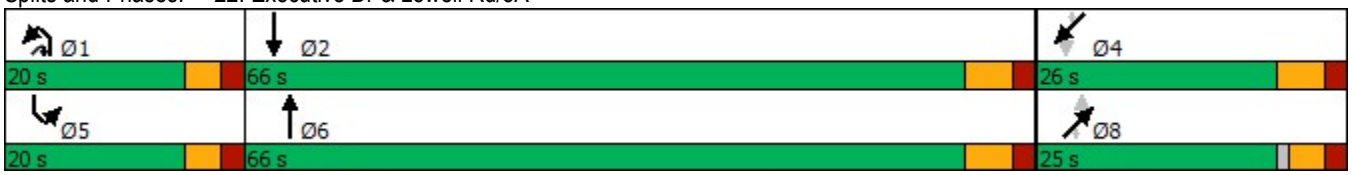
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	231	442	254	192	786	142	31	8	84	277	23	137
Future Volume (vph)	231	442	254	192	786	142	31	8	84	277	23	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	16	12	12	14
Storage Length (ft)	400		0	180		300	0		0	0		0
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.945			0.977				0.850			0.850
Flt Protected	0.950			0.950				0.962			0.956	
Satd. Flow (prot)	1719	3249	0	1770	3458	0	0	1741	1743	0	1781	1689
Flt Permitted	0.950			0.950				0.568			0.711	
Satd. Flow (perm)	1719	3249	0	1770	3458	0	0	1028	1743	0	1324	1689
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		157			28				91			149
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		669			399			262			149	
Travel Time (s)		15.2			9.1			6.0			3.4	
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
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	251	480	276	209	854	154	34	9	91	301	25	149
Shared Lane Traffic (%)												
Lane Group Flow (vph)	251	756	0	209	1008	0	0	43	91	0	326	149
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	0.85	1.00	1.00	0.92
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases	1	6		5	2			8	1		4	
Permitted Phases							8		8	4		4
Detector Phase	1	6		5	2		8	8	1	4	4	4
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	3.0	3.0	4.0	4.0	4.0
Minimum Split (s)	8.0	31.0		8.0	31.0		25.0	25.0	8.0	26.0	26.0	26.0
Total Split (s)	20.0	66.0		20.0	66.0		25.0	25.0	20.0	26.0	26.0	26.0
Total Split (%)	17.9%	58.9%		17.9%	58.9%		22.3%	22.3%	17.9%	23.2%	23.2%	23.2%
Maximum Green (s)	15.0	60.0		15.0	60.0		20.0	20.0	15.0	20.0	20.0	20.0
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	6.0		5.0	6.0			5.0	5.0		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	2.0	2.0	2.0	2.0	2.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	15.1	36.0		13.9	34.8			21.2	41.3		20.2	20.2
Actuated g/C Ratio	0.17	0.41		0.16	0.40			0.24	0.47		0.23	0.23
v/c Ratio	0.85	0.53		0.74	0.72			0.17	0.10		1.07	0.30
Control Delay	62.7	16.1		53.5	24.4			31.4	4.2		106.2	7.4
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	62.7	16.1		53.5	24.4			31.4	4.2		106.2	7.4
LOS	E	B		D	C			C	A		F	A
Approach Delay		27.7			29.4			12.9			75.2	
Approach LOS		C			C			B			E	
Queue Length 50th (ft)	133	126		107	232			19	0		~197	0
Queue Length 95th (ft)	#314	175		#242	297			54	29		#425	51
Internal Link Dist (ft)		589			319			182			69	
Turn Bay Length (ft)	400			180								
Base Capacity (vph)	297	2301		306	2406			249	873		306	504
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	0.85	0.33		0.68	0.42			0.17	0.10		1.07	0.30

Intersection Summary

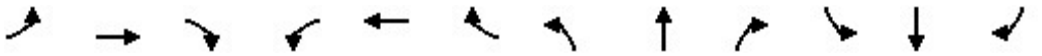
Area Type: Other
Cycle Length: 112
Actuated Cycle Length: 87.2
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 35.7 Intersection LOS: D
Intersection Capacity Utilization 76.4% ICU Level of Service D
Analysis Period (min) 15
~ Volume exceeds capacity, 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: 22: Executive Dr & Lowell Rd/3A



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	724	892	0
Future Volume (vph)	0	0	0	724	892	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12
Storage Length (ft)	0	0	0			400
Storage Lanes	0	1	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Fl						
Sa						
Fl						
Sa						
Li						
Li						
Tr						
Pe						
Ad						
Sh						
La						
Er						
La						
M						
Li						
Cr						
Two way Left Turn Lane						
Headway Factor	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.3%		ICU Level of Service A	
Analysis Period (min) 15			



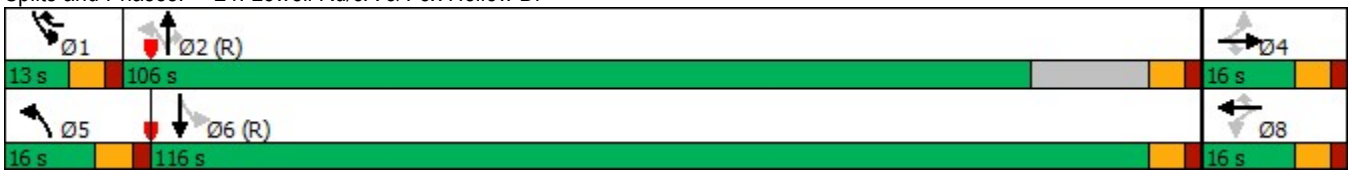
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	1	38	9	4	13	29	975	3	9	845	3
Future Volume (vph)	38	1	38	9	4	13	29	975	3	9	845	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	14	14	12	12	12	12	12	12
Storage Length (ft)	0		120	0		0	250		400	220		0
Storage Lanes	0		1	0		1	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	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			
Flt Protected		0.953			0.966		0.950			0.950		
Satd. Flow (prot)	0	1724	1538	0	1919	1689	1770	1863	1583	1570	1652	0
Flt Permitted		0.721			0.762		0.258			0.200		
Satd. Flow (perm)	0	1305	1538	0	1514	1689	481	1863	1583	330	1652	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			66			22			66			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		271			227			1282			634	
Travel Time (s)		6.2			5.2			29.1			14.4	
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
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	15%	15%	15%
Adj. Flow (vph)	41	1	41	10	4	14	32	1060	3	10	918	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	42	41	0	14	14	32	1060	3	10	921	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	0.92	0.92	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	NA	Perm	Perm	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8	1	5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	8	8	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	31.0	31.0	11.0	31.0	
Total Split (s)	16.0	16.0	16.0	16.0	16.0	13.0	16.0	106.0	106.0	13.0	116.0	
Total Split (%)	10.8%	10.8%	10.8%	10.8%	10.8%	8.8%	10.8%	71.6%	71.6%	8.8%	78.4%	
Maximum Green (s)	10.0	10.0	10.0	10.0	10.0	7.0	10.0	100.0	100.0	7.0	110.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	1.5	1.5	1.5	1.5	1.0	1.5	1.5	1.5	1.0	1.5	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	
Walk Time (s)								7.0	7.0		7.0	
Flash Dont Walk (s)								18.0	18.0		18.0	
Pedestrian Calls (#/hr)								0	0		0	
Act Effct Green (s)		8.9	8.9		8.9	17.7	125.7	123.9	123.9	125.7	123.9	
Actuated g/C Ratio		0.06	0.06		0.06	0.12	0.85	0.84	0.84	0.85	0.84	
v/c Ratio		0.54	0.27		0.15	0.06	0.07	0.68	0.00	0.03	0.67	
Control Delay		90.6	8.7		67.7	12.3	2.3	9.9	0.0	2.2	10.0	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	2.0	
Total Delay		90.6	8.7		67.7	12.3	2.3	9.9	0.0	2.2	12.0	
LOS		F	A		E	B	A	A	A	A	B	
Approach Delay		50.1			40.0			9.7			11.9	
Approach LOS		D			D			A			B	
Queue Length 50th (ft)		40	0		13	0	3	440	0	1	373	
Queue Length 95th (ft)		82	16		37	15	10	702	0	4	611	
Internal Link Dist (ft)		191			147			1202			554	
Turn Bay Length (ft)			120				250		400	220		
Base Capacity (vph)		95	173		110	244	505	1563	1339	341	1382	
Starvation Cap Reductn		0	0		0	0	0	0	0	0	302	
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		0.44	0.24		0.13	0.06	0.06	0.68	0.00	0.03	0.85	

Intersection Summary

Area Type: Other
Cycle Length: 148
Actuated Cycle Length: 148
Offset: 45 (30%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 12.6 Intersection LOS: B
Intersection Capacity Utilization 74.6% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 24: Lowell Rd/3A & Fox Hollow Dr

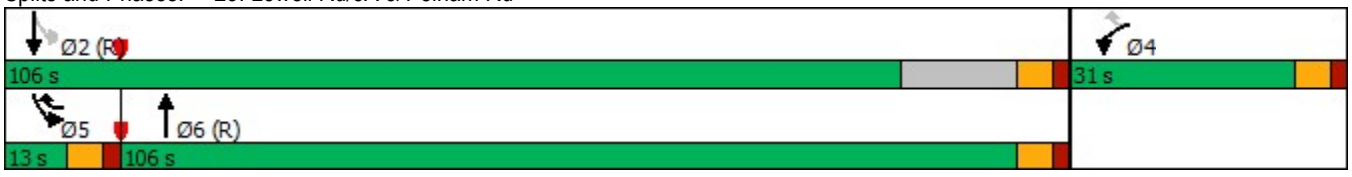


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	202	77	585	89	109	868
Future Volume (vph)	202	77	585	89	109	868
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12
Storage Length (ft)	0	100		0	160	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1719	1743	1777	0	1388	1462
Flt Permitted	0.950				0.266	
Satd. Flow (perm)	1719	1743	1777	0	389	1462
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		61	11			
Link Speed (mph)	30		30			30
Link Distance (ft)	345		634			526
Travel Time (s)	7.8		14.4			12.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	5%	5%	30%	30%
Adj. Flow (vph)	220	84	636	97	118	943
Shared Lane Traffic (%)						
Lane Group Flow (vph)	220	84	733	0	118	943
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA		pm+pt	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4			2	
Detector Phase	4	5	6		5	2
Switch Phase						
Minimum Initial (s)	5.0	3.0	10.0		3.0	10.0
Minimum Split (s)	11.0	9.0	31.0		9.0	16.0
Total Split (s)	31.0	13.0	106.0		13.0	106.0
Total Split (%)	20.7%	8.7%	70.7%		8.7%	70.7%
Maximum Green (s)	25.0	7.0	100.0		7.0	100.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	1.5	1.5		1.5	1.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Recall Mode	None	None	C-Min		None	C-Min
Walk Time (s)			7.0			
Flash Dont Walk (s)			18.0			
Pedestrian Calls (#/hr)			0			
Act Effct Green (s)	23.4	36.8	101.2		114.6	114.6
Actuated g/C Ratio	0.16	0.25	0.67		0.76	0.76
v/c Ratio	0.82	0.18	0.61		0.34	0.84
Control Delay	84.5	14.9	17.2		8.0	22.1
Queue Delay	0.0	0.0	2.4		0.0	0.0
Total Delay	84.5	14.9	19.6		8.0	22.1
LOS	F	B	B		A	C
Approach Delay	65.3		19.6			20.6
Approach LOS	E		B			C
Queue Length 50th (ft)	211	17	366		27	547
Queue Length 95th (ft)	293	58	594		54	#1112
Internal Link Dist (ft)	265		554			446
Turn Bay Length (ft)		100			160	
Base Capacity (vph)	303	479	1230		349	1131
Starvation Cap Reductn	0	0	353		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.73	0.18	0.84		0.34	0.83

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 26.7		Intersection LOS: C	
Intersection Capacity Utilization 68.4%		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: 25: Lowell Rd/3A & Pelham Rd

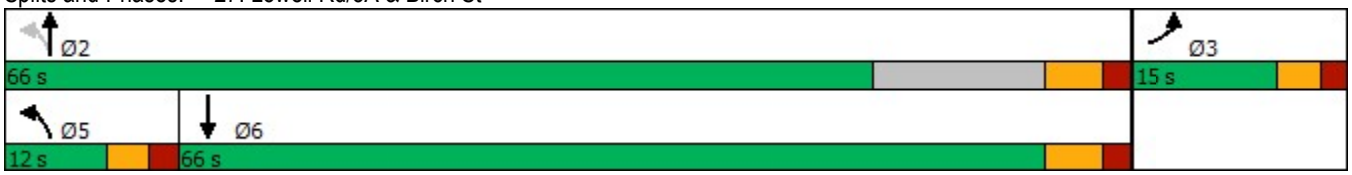


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	35	32	31	559	717	10
Future Volume (vph)	35	32	31	559	717	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	12	12	12	12
Storage Length (ft)	0	0	150			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.935				0.998	
Flt Protected	0.975		0.950			
Satd. Flow (prot)	1870	0	1719	1810	1806	0
Flt Permitted	0.975		0.236			
Satd. Flow (perm)	1870	0	427	1810	1806	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	35				2	
Link Speed (mph)	30			30	30	
Link Distance (ft)	442			1237	1199	
Travel Time (s)	10.0			28.1	27.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	38	35	34	608	779	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	73	0	34	608	790	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	16			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot		pm+pt	NA	NA	
Protected Phases	3		5	2	6	
Permitted Phases			2			
Detector Phase	3		5	2	6	
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	
Minimum Split (s)	15.0		10.0	11.0	11.0	
Total Split (s)	15.0		12.0	66.0	66.0	
Total Split (%)	16.1%		12.9%	71.0%	71.0%	
Maximum Green (s)	10.0		7.0	60.0	60.0	
Yellow Time (s)	3.0		3.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	5.0		5.0	6.0	6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.0	2.0	2.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Recall Mode	None		None	Min	Min	
Walk Time (s)	7.0					
Flash Dont Walk (s)	3.0					
Pedestrian Calls (#/hr)	0					
Act Effct Green (s)	6.7		43.4	46.2	42.7	
Actuated g/C Ratio	0.12		0.79	0.84	0.78	
v/c Ratio	0.28		0.07	0.40	0.56	
Control Delay	21.6		2.5	3.7	9.4	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	21.6		2.5	3.7	9.4	
LOS	C		A	A	A	
Approach Delay	21.6			3.7	9.4	
Approach LOS	C			A	A	
Queue Length 50th (ft)	13		2	69	105	
Queue Length 95th (ft)	57		8	138	395	
Internal Link Dist (ft)	362			1157	1119	
Turn Bay Length (ft)			150			
Base Capacity (vph)	416		525	1763	1679	
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	0.18		0.06	0.34	0.47	

Intersection Summary			
Area Type:	Other		
Cycle Length: 93			
Actuated Cycle Length: 55			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 7.5		Intersection LOS: A	
Intersection Capacity Utilization 51.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 27: Lowell Rd/3A & Birch St

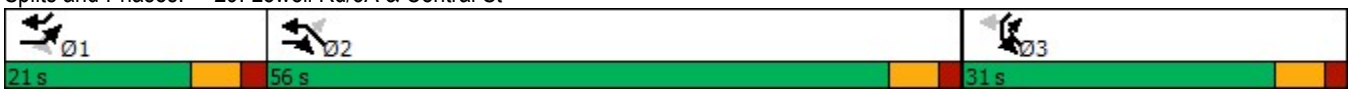


Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	67	716	485	123	139	101
Future Volume (vph)	67	716	485	123	139	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	11	11
Storage Length (ft)	300	0	0	80	0	120
Storage Lanes	1	1	1	1	1	1
Taper Length (ft)	25		25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		0.850
Flt Protected	0.950		0.950		0.950	
Satd. Flow (prot)	1770	1583	1719	1641	1711	1531
Flt Permitted	0.950		0.950		0.950	
Satd. Flow (perm)	1770	1583	1719	1641	1711	1531
Right Turn on Red		Yes		Yes		Yes
Satd. Flow (RTOR)		471		134		110
Link Speed (mph)	30		30		30	
Link Distance (ft)	636		905		654	
Travel Time (s)	14.5		20.6		14.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	5%	5%	2%	2%
Adj. Flow (vph)	73	778	527	134	151	110
Shared Lane Traffic (%)						
Lane Group Flow (vph)	73	778	527	134	151	110
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Right
Median Width(ft)	12		12		11	
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	0.92	1.04	1.04
Turning Speed (mph)	15	9	15	9	15	9
Turn Type	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov
Protected Phases	1	2	2	3	3	1
Permitted Phases		1		2		3
Detector Phase	1	2	2	3	3	1
Switch Phase						
Minimum Initial (s)	8.0	10.0	10.0	8.0	8.0	8.0
Minimum Split (s)	14.0	31.0	31.0	31.0	31.0	14.0
Total Split (s)	21.0	56.0	56.0	31.0	31.0	21.0
Total Split (%)	19.4%	51.9%	51.9%	28.7%	28.7%	19.4%
Maximum Green (s)	15.0	50.0	50.0	25.0	25.0	15.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	2.5	2.5	2.0	2.0	1.5

Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Recall Mode	None	Min	Min	None	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0	18.0	18.0	18.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	9.5	45.8	34.7	55.7	12.2	28.3
Actuated g/C Ratio	0.13	0.64	0.49	0.78	0.17	0.40
v/c Ratio	0.31	0.66	0.63	0.10	0.52	0.16
Control Delay	38.9	5.4	18.5	0.8	38.6	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	5.4	18.5	0.8	38.6	5.2
LOS	D	A	B	A	D	A
Approach Delay	8.3		14.9		24.5	
Approach LOS	A		B		C	
Queue Length 50th (ft)	30	46	166	0	62	0
Queue Length 95th (ft)	86	151	324	12	147	35
Internal Link Dist (ft)	556		825		574	
Turn Bay Length (ft)	300			80		120
Base Capacity (vph)	409	1438	1239	1507	660	814
Starvation Cap Reductn	0	35	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	0.18	0.55	0.43	0.09	0.23	0.14

Intersection Summary			
Area Type:	Other		
Cycle Length: 108			
Actuated Cycle Length: 71.2			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 13.2		Intersection LOS: B	
Intersection Capacity Utilization 56.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 29: Lowell Rd/3A & Central St

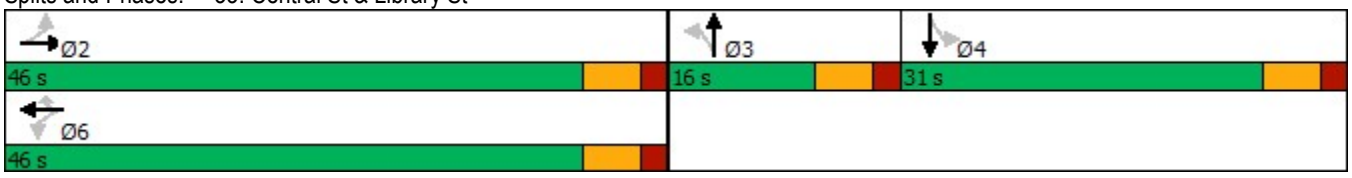


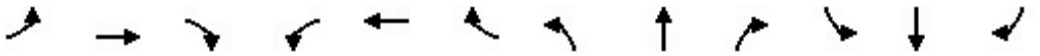
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	325	0	2	272	299	1	1	1	388	9	1
Future Volume (vph)	1	325	0	2	272	299	1	1	1	388	9	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	16	12
Storage Length (ft)	0		0	0		200	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850		0.955				
Flt Protected								0.984			0.954	
Satd. Flow (prot)	0	1863	0	0	1863	1583	0	1750	0	0	2014	0
Flt Permitted		0.999			0.997						0.730	
Satd. Flow (perm)	0	1861	0	0	1857	1583	0	1779	0	0	1541	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						325		1				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		888			636			108			794	
Travel Time (s)		20.2			14.5			2.5			18.0	
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)	1	353	0	2	296	325	1	1	1	422	10	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	354	0	0	298	325	0	3	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	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			3			4	
Permitted Phases	2			6		6	3			4		
Detector Phase	2	2		6	6	6	3	3		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	5.0		10.0	10.0	
Minimum Split (s)	31.0	31.0		16.0	16.0	16.0	16.0	16.0		31.0	31.0	
Total Split (s)	46.0	46.0		46.0	46.0	46.0	16.0	16.0		31.0	31.0	
Total Split (%)	49.5%	49.5%		49.5%	49.5%	49.5%	17.2%	17.2%		33.3%	33.3%	
Maximum Green (s)	40.0	40.0		40.0	40.0	40.0	10.0	10.0		25.0	25.0	
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)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0			6.0	
Lead/Lag							Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	

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	
Flash Dont Walk (s)	3.0	3.0					3.0	3.0		3.0	3.0	
Pedestrian Calls (#/hr)	0	0					0	0		0	0	
Act Effct Green (s)		15.8			15.8	15.8		5.1			25.6	
Actuated g/C Ratio		0.29			0.29	0.29		0.09			0.46	
v/c Ratio		0.67			0.56	0.48		0.02			0.61	
Control Delay		24.4			21.5	4.9		25.7			19.3	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		24.4			21.5	4.9		25.7			19.3	
LOS		C			C	A		C			B	
Approach Delay		24.4			12.8			25.7			19.3	
Approach LOS		C			B			C			B	
Queue Length 50th (ft)		94			76	0		1			88	
Queue Length 95th (ft)		208			172	50		9			#329	
Internal Link Dist (ft)		808			556			28			714	
Turn Bay Length (ft)						200						
Base Capacity (vph)		1375			1372	1254		329			712	
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		0.26			0.22	0.26		0.01			0.61	

Intersection Summary			
Area Type:	Other		
Cycle Length: 93			
Actuated Cycle Length: 55.4			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 17.7		Intersection LOS: B	
Intersection Capacity Utilization 56.6%		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: 33: Central St & Library St





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	299	1	3	8	191	0	3	3	61	2	4
Future Volume (vph)	18	299	1	3	8	191	0	3	3	61	2	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	16	12	16	12	12	16	12
Storage Length (ft)	0		0	0		250	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850		0.932			0.992	
Flt Protected		0.997			0.988						0.956	
Satd. Flow (prot)	0	2072	0	0	2086	1743	0	1730	0	0	1793	0
Flt Permitted		0.997			0.988						0.956	
Satd. Flow (perm)	0	2072	0	0	2086	1743	0	1730	0	0	1793	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		439			888			261			628	
Travel Time (s)		10.0			20.2			5.9			14.3	
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
Heavy Vehicles (%)	30%	2%	2%	2%	2%	5%	2%	2%	30%	15%	2%	2%
Adj. Flow (vph)	20	325	1	3	9	208	0	3	3	66	2	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	346	0	0	12	208	0	6	0	0	72	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	0.85	1.00	1.00	0.85	0.85	1.00	0.85	1.00	1.00	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	0	0	0	977	0	1335
Future Volume (vph)	0	0	0	977	0	1335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.88
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	3539	0	2787
Fl						
S						
Li						
Li						
Tr						
P						
A						
Sl						
La						
E						
La						
M						
Li						
C						
Tv						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Free			Free	Free	

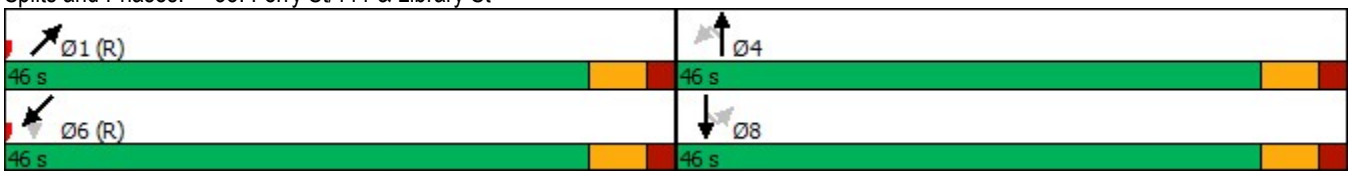
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.0%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	63	254	4	24	371	3	0	489	13	1	283	11
Future Volume (vph)	63	254	4	24	371	3	0	489	13	1	283	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	175		0	0		0	200		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.999			0.997			0.994	
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1770	1859	0	1770	1861	0	0	1857	0	1770	1852	0
Flt Permitted	0.262			0.451						0.369		
Satd. Flow (perm)	488	1859	0	840	1861	0	0	1857	0	687	1852	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			1			2			3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		342			444			371			1247	
Travel Time (s)		7.8			10.1			8.4			28.3	
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)	68	276	4	26	403	3	0	532	14	1	308	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	280	0	26	406	0	0	546	0	1	320	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	NA		Perm	NA			NA		Perm	NA	
Protected Phases		4			8			1			6	
Permitted Phases	4			8						6		
Detector Phase	4	4		8	8			1		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0			10.0		10.0	10.0	
Minimum Split (s)	31.0	31.0		31.0	31.0			31.0		31.0	31.0	
Total Split (s)	46.0	46.0		46.0	46.0			46.0		46.0	46.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%			50.0%		50.0%	50.0%	
Maximum Green (s)	40.0	40.0		40.0	40.0			40.0		40.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Recall Mode	None	None		None	None			C-Min		C-Min	C-Min	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Flash Dont Walk (s)	18.0	18.0		18.0	18.0			18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)	26.3	26.3		26.3	26.3			53.7		53.7	53.7	
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.58		0.58	0.58	
v/c Ratio	0.49	0.53		0.11	0.76			0.50		0.00	0.30	
Control Delay	37.7	30.1		22.2	39.0			14.8		11.0	11.8	
Queue Delay	0.0	0.0		0.0	0.1			2.7		0.0	0.0	
Total Delay	37.7	30.1		22.2	39.1			17.4		11.0	11.8	
LOS	D	C		C	D			B		B	B	
Approach Delay		31.6			38.1			17.4			11.8	
Approach LOS		C			D			B			B	
Queue Length 50th (ft)	33	137		11	216			171		0	85	
Queue Length 95th (ft)	68	183		27	277			326		3	171	
Internal Link Dist (ft)		262			364			291			1167	
Turn Bay Length (ft)				175						200		
Base Capacity (vph)	212	808		365	809			1084		400	1082	
Starvation Cap Reductn	0	0		0	38			406		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	0.32	0.35		0.07	0.53			0.81		0.00	0.30	

Intersection Summary			
Area Type:	Other		
Cycle Length: 92			
Actuated Cycle Length: 92			
Offset: 0 (0%), Referenced to phase 1:NET and 6:SWTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 24.7		Intersection LOS: C	
Intersection Capacity Utilization 69.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 38: Ferry St/111 & Library St



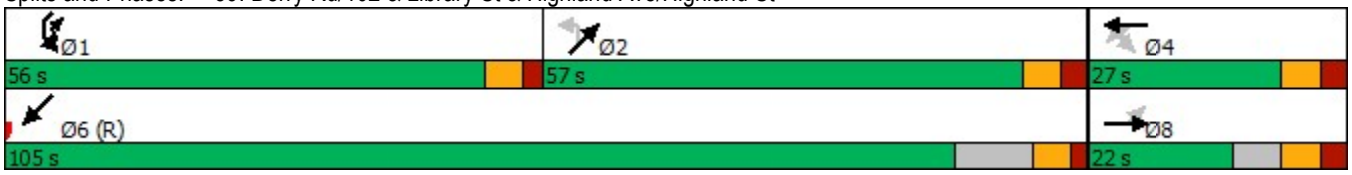
Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NWR	NWR2	NEL	NET
Lane Configurations												
Traffic Volume (vph)	8	6	8	7	2	24	13	50	365	6	1	653
Future Volume (vph)	8	6	8	7	2	24	13	50	365	6	1	653
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12	16	12	12	12	12	12
Storage Length (ft)	0		0			0		0	0		0	
Storage Lanes	0		0			0		0	1		0	
Taper Length (ft)	25					25					25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.930					0.924		0.865			0.980
Flt Protected		0.987					0.986					
Satd. Flow (prot)	0	1882	0	0	0	0	1868	0	1611	0	0	1825
Flt Permitted		0.820					0.890					
Satd. Flow (perm)	0	1564	0	0	0	0	1686	0	1611	0	0	1825
Right Turn on Red				Yes				Yes		Yes		
Satd. Flow (RTOR)		8					39		86			
Link Speed (mph)		30					30					30
Link Distance (ft)		286					634					617
Travel Time (s)		6.5					14.4					14.0
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
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%
Adj. Flow (vph)	9	7	9	8	2	26	14	54	397	7	1	710
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	0	0	0	96	0	404	0	0	832
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Left	Left	Right	Right	Right	Left	Left
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	0.85	1.00	1.00	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	9	15	15		9	9	9	15	
Turn Type	Perm	NA			Perm	Perm	NA		Over		Perm	NA
Protected Phases		8					4		1			2
Permitted Phases	8				4	4					2	
Detector Phase	8	8			4	4	4		1		2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0	5.0	5.0		10.0		10.0	10.0
Minimum Split (s)	22.0	22.0			12.0	12.0	12.0		16.0		17.0	17.0
Total Split (s)	22.0	22.0			27.0	27.0	27.0		56.0		57.0	57.0
Total Split (%)	15.7%	15.7%			19.3%	19.3%	19.3%		40.0%		40.7%	40.7%
Maximum Green (s)	15.0	15.0			20.0	20.0	20.0		50.0		50.0	50.0
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0		4.0	4.0
All-Red Time (s)	3.0	3.0			3.0	3.0	3.0		2.0		3.0	3.0
Lost Time Adjust (s)		0.0					0.0		0.0			0.0
Total Lost Time (s)		7.0					7.0		6.0			7.0
Lead/Lag									Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		4.0	4.0

Lane Group	NER	SWL	SWT
Lane Configurations			
Traffic Volume (vph)	111	355	573
Future Volume (vph)	111	355	573
Ideal Flow (vphpl)	1900	1900	1900
Lane Width (ft)	12	12	12
Storage Length (ft)	0	0	
Storage Lanes	0	1	
Taper Length (ft)		25	
Lane Util. Factor	1.00	1.00	1.00
Frt			
Flt Protected		0.950	
Satd. Flow (prot)	0	1719	1810
Flt Permitted		0.950	
Satd. Flow (perm)	0	1719	1810
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			30
Link Distance (ft)			845
Travel Time (s)			19.2
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	5%
Adj. Flow (vph)	121	386	623
Shared Lane Traffic (%)			
Lane Group Flow (vph)	0	386	623
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(ft)			12
Link Offset(ft)			0
Crosswalk Width(ft)			16
Two way Left Turn Lane			
Headway Factor	1.00	1.00	1.00
Turning Speed (mph)	9	15	
Turn Type		Prot	NA
Protected Phases		1	6
Permitted Phases			
Detector Phase		1	6
Switch Phase			
Minimum Initial (s)		10.0	10.0
Minimum Split (s)		16.0	16.0
Total Split (s)		56.0	105.0
Total Split (%)		40.0%	75.0%
Maximum Green (s)		50.0	99.0
Yellow Time (s)		4.0	4.0
All-Red Time (s)		2.0	2.0
Lost Time Adjust (s)		0.0	0.0
Total Lost Time (s)		6.0	6.0
Lead/Lag		Lead	
Lead-Lag Optimize?			
Vehicle Extension (s)		3.0	3.0

Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NWR	NWR2	NEL	NET
Recall Mode	None	None			None	None	None		None		Min	Min
Walk Time (s)	7.0	7.0										
Flash Dont Walk (s)	8.0	8.0										
Pedestrian Calls (#/hr)	0	0										
Act Effct Green (s)		10.3					10.3		39.1			70.6
Actuated g/C Ratio		0.07					0.07		0.28			0.50
v/c Ratio		0.27					0.60		0.79			0.91
Control Delay		53.4					52.8		47.1			47.7
Queue Delay		0.0					0.0		1.5			46.4
Total Delay		53.4					52.8		48.6			94.1
LOS		D					D		D			F
Approach Delay		53.4					52.8					94.1
Approach LOS		D					D					F
Queue Length 50th (ft)		22					51		274			676
Queue Length 95th (ft)		56					108		363			#1153
Internal Link Dist (ft)		206					554					537
Turn Bay Length (ft)												
Base Capacity (vph)		230					274		630			919
Starvation Cap Reductn		0					0		95			162
Spillback Cap Reductn		0					0		0			0
Storage Cap Reductn		0					0		0			0
Reduced v/c Ratio		0.14					0.35		0.76			1.10

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 6:SWT, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 54.9		Intersection LOS: D	
Intersection Capacity Utilization 95.0%		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.			

Splits and Phases: 39: Derry Rd/102 & Library St & Highland Ave/Highland St



Lane Group	NER	SWL	SWT
Recall Mode		None	C-Min
Walk Time (s)			
Flash Dont Walk (s)			
Pedestrian Calls (#/hr)			
Act Effct Green (s)		39.1	116.7
Actuated g/C Ratio		0.28	0.83
v/c Ratio		0.80	0.41
Control Delay		59.3	4.2
Queue Delay		0.0	0.0
Total Delay		59.3	4.2
LOS		E	A
Approach Delay			25.3
Approach LOS			C
Queue Length 50th (ft)		327	114
Queue Length 95th (ft)		406	199
Internal Link Dist (ft)			765
Turn Bay Length (ft)			
Base Capacity (vph)		613	1508
Starvation Cap Reductn		0	0
Spillback Cap Reductn		0	0
Storage Cap Reductn		0	0
Reduced v/c Ratio		0.63	0.41

Intersection Summary

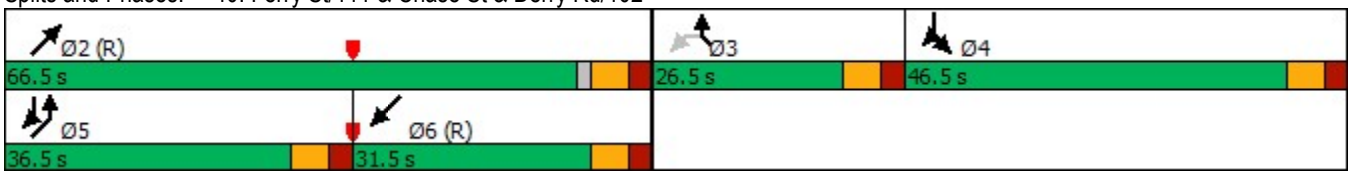
Lane Group	SBL	SBR	NWL	NWR	NWR2	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	73	668	218	14	17	422	546	9	0	449	0
Future Volume (vph)	73	668	218	14	17	422	546	9	0	449	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	13	12	12	12	12	12
Storage Length (ft)	150	300	0	0		0		0	0		0
Storage Lanes	1	1	1	1		1		0	0		0
Taper Length (ft)	25		25			25			25		
Lane Util. Factor	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt		0.850		0.850			0.998				
Flt Protected	0.950		0.950			0.950					
Satd. Flow (prot)	1719	2707	1719	1641	0	1776	1806	0	0	3438	0
Flt Permitted	0.950		0.180			0.950					
Satd. Flow (perm)	1719	2707	326	1641	0	1776	1806	0	0	3438	0
Right Turn on Red		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		118		128			1				
Link Speed (mph)	30		30				30			30	
Link Distance (ft)	617		345				426			371	
Travel Time (s)	14.0		7.8				9.7			8.4	
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
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	2%	5%	2%
Adj. Flow (vph)	79	726	237	15	18	459	593	10	0	488	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	79	726	237	33	0	459	603	0	0	488	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12		12				13			13	
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	0.92	1.00	0.96	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9	9	15		9	15		9
Turn Type	Prot	pt+ov	Perm	Prot		Prot	NA			NA	
Protected Phases	4	4 5		3		5	2			6	
Permitted Phases			3								
Detector Phase	4	4 5	3	3		5	2			6	
Switch Phase											
Minimum Initial (s)	8.0		5.0	5.0		10.0	10.0			10.0	
Minimum Split (s)	24.5		24.5	24.5		24.5	24.5			24.5	
Total Split (s)	46.5		26.5	26.5		36.5	66.5			31.5	
Total Split (%)	33.0%		18.8%	18.8%		25.9%	47.2%			22.3%	
Maximum Green (s)	40.0		20.0	20.0		30.0	60.0			25.0	
Yellow Time (s)	4.0		4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)	2.5		2.5	2.5		2.5	2.5			2.5	
Lost Time Adjust (s)	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.5		6.5	6.5		6.5	6.5			6.5	
Lead/Lag	Lag		Lead	Lead		Lead				Lag	
Lead-Lag Optimize?											
Vehicle Extension (s)	1.5		1.5	1.5		1.5	1.5			1.5	

Lane Group	SBL	SBR	NWL	NWR	NWR2	NEL	NET	NER	SWL	SWT	SWR
Recall Mode	None		None	None		Min	C-Min			C-Min	
Walk Time (s)	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	11.0		11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0		0	0		0	0			0	
Act Effct Green (s)	27.4	76.5	22.2	22.2		42.6	71.9			22.8	
Actuated g/C Ratio	0.19	0.54	0.16	0.16		0.30	0.51			0.16	
v/c Ratio	0.24	0.48	4.65	0.09		0.86	0.66			0.88	
Control Delay	47.4	17.5	1706.2	0.5		63.4	30.7			75.2	
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0			1.1	
Total Delay	47.4	17.5	1706.2	0.5		63.4	30.7			76.3	
LOS	D	B	F	A		E	C			E	
Approach Delay	20.4		1497.7				44.8			76.3	
Approach LOS	C		F				D			E	
Queue Length 50th (ft)	62	188	~405	0		394	384			230	
Queue Length 95th (ft)	101	244	#554	0		#706	601			295	
Internal Link Dist (ft)	537		265				346			291	
Turn Bay Length (ft)	150	300									
Base Capacity (vph)	487	1506	51	366		536	920			609	
Starvation Cap Reductn	0	0	0	0		0	0			27	
Spillback Cap Reductn	0	0	0	0		0	0			0	
Storage Cap Reductn	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.16	0.48	4.65	0.09		0.86	0.66			0.84	

Intersection Summary	
Area Type:	Other
Cycle Length: 141	
Actuated Cycle Length: 141	
Offset: 0 (0%), Referenced to phase 2:NET and 6:SWT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 4.65	
Intersection Signal Delay: 192.6	Intersection LOS: F
Intersection Capacity Utilization 76.2%	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: 40: Ferry St/111 & Chase St & Derry Rd/102



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	470	4	37	16	6	14	13	186	14	17	429	452
Future Volume (vph)	470	4	37	16	6	14	13	186	14	17	429	452
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	16	12	12	12	12	12	12	14
Storage Length (ft)	0		200	0		0	120		0	280		280
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.948			0.990				0.850
Flt Protected		0.953			0.979		0.950			0.950		
Satd. Flow (prot)	0	1775	1794	0	1959	0	1770	1844	0	1770	1863	1689
Flt Permitted		0.438			0.700		0.203			0.547		
Satd. Flow (perm)	0	816	1794	0	1401	0	378	1844	0	1019	1863	1689
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			111		15			3				491
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		882			126			314			2248	
Travel Time (s)		20.0			2.9			7.1			51.1	
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)	511	4	40	17	7	15	14	202	15	18	466	491
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	515	40	0	39	0	14	217	0	18	466	491
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	0.85	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	0.92
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		6
Detector Phase	3	3	3	4	4		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	4.0	4.0		4.0	10.0		4.0	10.0	10.0
Minimum Split (s)	14.0	14.0	14.0	10.0	10.0		8.0	16.0		8.0	16.0	16.0
Total Split (s)	49.0	49.0	49.0	14.0	14.0		14.0	51.0		14.0	51.0	51.0
Total Split (%)	38.3%	38.3%	38.3%	10.9%	10.9%		10.9%	39.8%		10.9%	39.8%	39.8%
Maximum Green (s)	45.0	45.0	45.0	8.0	8.0		10.0	45.0		10.0	45.0	45.0
Yellow Time (s)	3.0	3.0	3.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	2.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		6.0		4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		2.0	3.0		2.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min

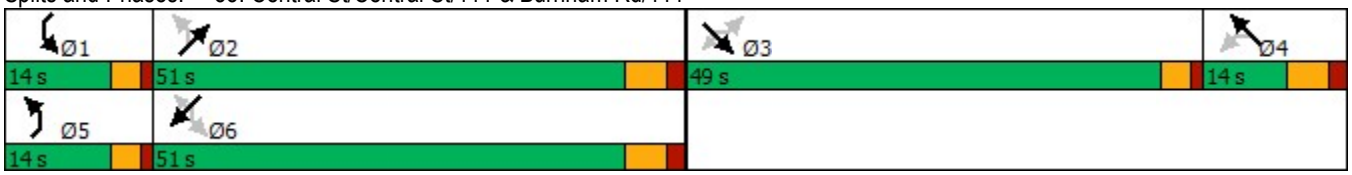
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Act Effct Green (s)		46.9	46.9		7.0		37.1	33.0		37.0	32.9	32.9
Actuated g/C Ratio		0.47	0.47		0.07		0.37	0.33		0.37	0.33	0.33
v/c Ratio		1.36	0.04		0.35		0.07	0.36		0.04	0.77	0.56
Control Delay		205.0	0.1		45.7		19.8	28.2		19.5	40.6	5.1
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		205.0	0.1		45.7		19.8	28.2		19.5	40.6	5.1
LOS		F	A		D		B	C		B	D	A
Approach Delay		190.2			45.7			27.7			22.3	
Approach LOS		F			D			C			C	
Queue Length 50th (ft)		~453	0		15		6	105		8	269	0
Queue Length 95th (ft)		#831	0		57		18	189		22	442	70
Internal Link Dist (ft)		802			46			234			2168	
Turn Bay Length (ft)			200				120			280		280
Base Capacity (vph)		379	893		129		287	859		464	866	1048
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		1.36	0.04		0.30		0.05	0.25		0.04	0.54	0.47

Intersection Summary			
Area Type:	Other		
Cycle Length: 128			
Actuated Cycle Length: 100.8			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.36			
Intersection Signal Delay: 75.3		Intersection LOS: E	
Intersection Capacity Utilization 63.8%		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: 55: Central St/Central St/111 & Burnham Rd/111



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations												
Traffic Volume (vph)	35	22	607	15	11	268	134	28	164	165	3	6
Future Volume (vph)	35	22	607	15	11	268	134	28	164	165	3	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	12	16	12	12	16	12
Storage Length (ft)		300		300	300		300		140		300	
Storage Lanes		1		1	1		2		1		0	
Taper Length (ft)		25			25				25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850	0.850		0.992		
Flt Protected		0.950			0.950				0.950			
Satd. Flow (prot)	0	1719	1652	1641	1770	1810	1538	1743	1719	1846	0	0
Flt Permitted		0.265			0.833				0.407			
Satd. Flow (perm)	0	480	1652	1641	1552	1810	1538	1743	736	1846	0	0
Right Turn on Red				Yes				Yes				Yes
Satd. Flow (RTOR)				132				132		1		
Link Speed (mph)			30			30				30		
Link Distance (ft)			2248			4120				755		
Travel Time (s)			51.1			93.6				17.2		
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
Heavy Vehicles (%)	5%	5%	15%	5%	2%	5%	5%	5%	5%	2%	2%	5%
Adj. Flow (vph)	38	24	660	16	12	291	146	30	178	179	3	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	62	660	16	12	291	146	30	178	189	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Right	Left	Left	Right	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	0.92	1.00	1.00	1.00	0.85	1.00	1.00	0.85	1.00
Turning Speed (mph)	15	15		9	15		9	9	15		9	9
Turn Type	custom	Prot	NA	Free	custom	NA	Perm	Free	pm+pt	NA		
Protected Phases		1	6			2			7	4		
Permitted Phases	1			Free	5		2	Free	4			
Detector Phase	1	1	6		5	2	2		7	4		
Switch Phase												
Minimum Initial (s)	4.0	4.0	15.0		4.0	15.0	15.0		4.0	10.0		
Minimum Split (s)	8.0	8.0	21.0		8.0	21.0	21.0		8.0	16.0		
Total Split (s)	19.0	19.0	66.0		19.0	66.0	66.0		19.0	51.0		
Total Split (%)	10.9%	10.9%	37.9%		10.9%	37.9%	37.9%		10.9%	29.3%		
Maximum Green (s)	15.0	15.0	60.0		15.0	60.0	60.0		15.0	45.0		
Yellow Time (s)	3.0	3.0	4.0		3.0	4.0	4.0		3.0	4.0		
All-Red Time (s)	1.0	1.0	2.0		1.0	2.0	2.0		1.0	2.0		
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0		0.0	0.0		
Total Lost Time (s)		4.0	6.0		4.0	6.0	6.0		4.0	6.0		
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag		Lag			
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	3.0		2.0	3.0	3.0		2.0	3.0		

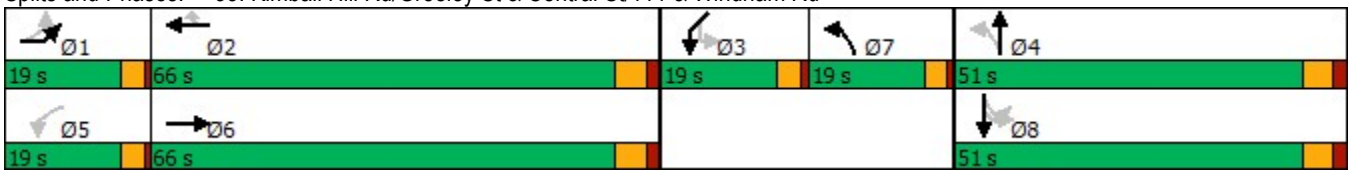
Lane Group	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations								
Traffic Volume (vph)	8	110	178	78	40	39	14	15
Future Volume (vph)	8	110	178	78	40	39	14	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	12	12	12
Storage Length (ft)		0		0		0	0	
Storage Lanes		0		0		1	0	
Taper Length (ft)		25				25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.972			0.964		
Flt Protected			0.984			0.965		
Satd. Flow (prot)	0	0	1961	0	0	1733	0	0
Flt Permitted			0.685			0.965		
Satd. Flow (perm)	0	0	1365	0	0	1733	0	0
Right Turn on Red				No				No
Satd. Flow (RTOR)								
Link Speed (mph)			30			30		
Link Distance (ft)			869			736		
Travel Time (s)			19.8			16.7		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	5%	5%	2%	2%	2%	2%
Adj. Flow (vph)	9	120	193	85	43	42	15	16
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	0	407	0	0	116	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)			12			12		
Link Offset(ft)			0			0		
Crosswalk Width(ft)			16			16		
Two way Left Turn Lane								
Headway Factor	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15		9	15	15	9	9
Turn Type	Perm	Perm	NA		Perm	Prot		
Protected Phases			8			3		
Permitted Phases	8	8			3			
Detector Phase	8	8	8		3	3		
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0		4.0	4.0		
Minimum Split (s)	16.0	16.0	16.0		8.0	8.0		
Total Split (s)	51.0	51.0	51.0		19.0	19.0		
Total Split (%)	29.3%	29.3%	29.3%		10.9%	10.9%		
Maximum Green (s)	45.0	45.0	45.0		15.0	15.0		
Yellow Time (s)	4.0	4.0	4.0		3.0	3.0		
All-Red Time (s)	2.0	2.0	2.0		1.0	1.0		
Lost Time Adjust (s)			0.0			0.0		
Total Lost Time (s)			6.0			4.0		
Lead/Lag					Lead	Lead		
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0		2.0	2.0		

Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Recall Mode	None	None	Min		None	Min	Min		None	None		
Act Effct Green (s)		15.1	60.3	158.7	8.7	47.5	47.5	158.7	60.5	45.2		
Actuated g/C Ratio		0.10	0.38	1.00	0.05	0.30	0.30	1.00	0.38	0.28		
v/c Ratio		1.38	1.05	0.01	0.14	0.54	0.32	0.02	0.49	0.36		
Control Delay		312.9	97.1	0.0	77.0	50.5	45.2	0.0	38.2	49.4		
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay		312.9	97.1	0.0	77.0	50.5	45.2	0.0	38.2	49.4		
LOS		F	F	A	E	D	D	A	D	D		
Approach Delay			113.1			46.4				44.0		
Approach LOS			F			D				D		
Queue Length 50th (ft)		~81	~711	0	12	259	121	0	114	151		
Queue Length 95th (ft)		#209	#1139	0	37	357	185	0	207	261		
Internal Link Dist (ft)			2168			4040				675		
Turn Bay Length (ft)		300		300	300		300	300	140			
Base Capacity (vph)		45	627	1641	147	688	584	1743	380	526		
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		1.38	1.05	0.01	0.08	0.42	0.25	0.02	0.47	0.36		

Intersection Summary			
Area Type:	Other		
Cycle Length: 174			
Actuated Cycle Length: 158.7			
Natural Cycle: 120			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.38			
Intersection Signal Delay: 85.4		Intersection LOS: F	
Intersection Capacity Utilization 93.0%		ICU Level of Service F	
Analysis Period (min) 15			

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

Splits and Phases: 58: Kimball Hill Rd/Greeley St & Central St/111 & Windham Rd



Lane Group	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Recall Mode	None	None	None		None	None		
Act Effct Green (s)			45.2			13.4		
Actuated g/C Ratio			0.28			0.08		
v/c Ratio			1.05			0.79		
Control Delay			112.1			106.5		
Queue Delay			0.0			0.0		
Total Delay			112.1			106.5		
LOS			F			F		
Approach Delay			112.1			106.5		
Approach LOS			F			F		
Queue Length 50th (ft)			~437			116		
Queue Length 95th (ft)			#769			#242		
Internal Link Dist (ft)			789			656		
Turn Bay Length (ft)								
Base Capacity (vph)			389			164		
Starvation Cap Reductn			0			0		
Spillback Cap Reductn			0			0		
Storage Cap Reductn			0			0		
Reduced v/c Ratio			1.05			0.71		

Intersection Summary

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	85	309	316	48	159	134
Future Volume (vph)	85	309	316	48	159	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	150	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1570	1538	1777	0	1570	1863
Flt Permitted	0.950				0.323	
Satd. Flow (perm)	1570	1538	1777	0	534	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		336	11			
Link Speed (mph)	30		30			30
Link Distance (ft)	832		787			870
Travel Time (s)	18.9		17.9			19.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	15%	5%	5%	5%	15%	2%
Adj. Flow (vph)	92	336	343	52	173	146
Shared Lane Traffic (%)						
Lane Group Flow (vph)	92	336	395	0	173	146
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA		pm+pt	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4			2	
Detector Phase	4	5	6		5	2
Switch Phase						
Minimum Initial (s)	5.0	3.0	10.0		3.0	10.0
Minimum Split (s)	11.0	9.0	16.0		9.0	16.0
Total Split (s)	31.0	13.0	106.0		13.0	106.0
Total Split (%)	20.7%	8.7%	70.7%		8.7%	70.7%
Maximum Green (s)	25.0	7.0	100.0		7.0	100.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	1.5	1.5		1.5	1.5
Recall Mode	None	None	Min		None	Min

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Act Effct Green (s)	7.1	17.0	15.7		29.2	31.2
Actuated g/C Ratio	0.16	0.37	0.35		0.64	0.69
v/c Ratio	0.38	0.43	0.64		0.34	0.11
Control Delay	24.8	3.6	18.3		6.4	4.6
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	24.8	3.6	18.3		6.4	4.6
LOS	C	A	B		A	A
Approach Delay	8.2		18.3			5.5
Approach LOS	A		B			A
Queue Length 50th (ft)	23	0	88		17	14
Queue Length 95th (ft)	65	42	172		42	35
Internal Link Dist (ft)	752		707			790
Turn Bay Length (ft)		150			150	
Base Capacity (vph)	916	794	1777		512	1863
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	0.10	0.42	0.22		0.34	0.08

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 45.5			
Natural Cycle: 45			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 10.9		Intersection LOS: B	
Intersection Capacity Utilization 48.7%		ICU Level of Service A	
Analysis Period (min) 15			

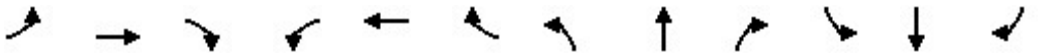
Splits and Phases: 67: Dracut Rd & Sherburne Rd

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	104	205	68	133	96	24
Future Volume (vph)	104	205	68	133	96	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12
Storage Length (ft)		0	180		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.910				0.973	
Flt Protected			0.950		0.962	
Satd. Flow (prot)	1549	0	1719	1652	1708	0
Flt Permitted			0.950		0.962	
Satd. Flow (perm)	1549	0	1719	1652	1708	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1417			420	606	
Travel Time (s)	32.2			9.5	13.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	15%	5%	15%	15%	30%
Adj. Flow (vph)	113	223	74	145	104	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	336	0	74	145	130	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	16	
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	0.85	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.6%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	59	2	261	236	8	187
Future Volume (vph)	59	2	261	236	8	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	16	16	12
Storage Length (ft)		0	80		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.996				0.871	
Flt Protected			0.950		0.998	
Satd. Flow (prot)	1639	0	1719	1872	1775	0
Flt Permitted			0.950		0.998	
Satd. Flow (perm)	1639	0	1719	1872	1775	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	2748			314	1025	
Travel Time (s)	62.5			7.1	23.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	15%	30%	5%	15%	15%	5%
Adj. Flow (vph)	64	2	284	257	9	203
Shared Lane Traffic (%)						
Lane Group Flow (vph)	66	0	284	257	212	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	16	
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	0.85	0.85	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.8%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	0	292	1	0	0	143	646	0	0	781	12
Future Volume (vph)	41	0	292	1	0	0	143	646	0	0	781	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	12	12	12	12	12	12	15	12
Storage Length (ft)	130		0	0		0	465		0	0		0
Storage Lanes	1		1	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850								0.998	
Flt Protected	0.950				0.950		0.950					
Satd. Flow (prot)	1719	0	1538	0	1770	0	1770	1863	0	0	1986	0
Flt Permitted	0.950				0.950		0.122					
Satd. Flow (perm)	1719	0	1538	0	1770	0	227	1863	0	0	1986	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			275								1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		468			79			2433			1216	
Travel Time (s)		10.6			1.8			55.3			27.6	
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
Heavy Vehicles (%)	5%	2%	5%	2%	2%	2%	2%	2%	2%	2%	5%	5%
Adj. Flow (vph)	45	0	317	1	0	0	155	702	0	0	849	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	0	317	0	1	0	155	702	0	0	862	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	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot		pt+ov	Split	NA		pm+pt	NA			NA	
Protected Phases	4		4 1	8	8		1	6			2	
Permitted Phases	4						6			2		
Detector Phase	4		4 1	8	8		1	6		2	2	
Switch Phase												
Minimum Initial (s)	3.0			5.0	5.0		3.0	10.0		10.0	10.0	
Minimum Split (s)	9.0			11.0	11.0		7.0	16.0		16.0	16.0	
Total Split (s)	16.0			16.0	16.0		14.0	91.0		91.0	91.0	
Total Split (%)	11.7%			11.7%	11.7%		10.2%	66.4%		66.4%	66.4%	
Maximum Green (s)	10.0			10.0	10.0		10.0	85.0		85.0	85.0	
Yellow Time (s)	4.0			4.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	2.0			2.0	2.0		1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0				0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0				6.0		4.0	6.0			6.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5			0.4	0.4		2.0	5.0		5.0	5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None			None	None		None	Min		Min	Min	
Act Effct Green (s)	7.8		18.2		5.4		59.3	57.1			45.9	
Actuated g/C Ratio	0.10		0.23		0.07		0.75	0.72			0.58	
v/c Ratio	0.27		0.56		0.01		0.51	0.52			0.75	
Control Delay	45.2		10.9		49.0		10.1	6.7			17.3	
Queue Delay	0.0		0.0		0.0		0.0	0.0			0.0	
Total Delay	45.2		10.9		49.0		10.1	6.7			17.3	
LOS	D		B		D		B	A			B	
Approach Delay		15.2			49.0			7.4			17.3	
Approach LOS		B			D			A			B	
Queue Length 50th (ft)	19		14		0		13	104			247	
Queue Length 95th (ft)	75		107		7		56	289			585	
Internal Link Dist (ft)		388			1			2353			1136	
Turn Bay Length (ft)	130						465					
Base Capacity (vph)	235		585		242		380	1787			1860	
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	0.19		0.54		0.00		0.41	0.39			0.46	

Intersection Summary			
Area Type:	Other		
Cycle Length: 137			
Actuated Cycle Length: 79.3			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 12.9		Intersection LOS: B	
Intersection Capacity Utilization 95.0%		ICU Level of Service F	
Analysis Period (min) 15			

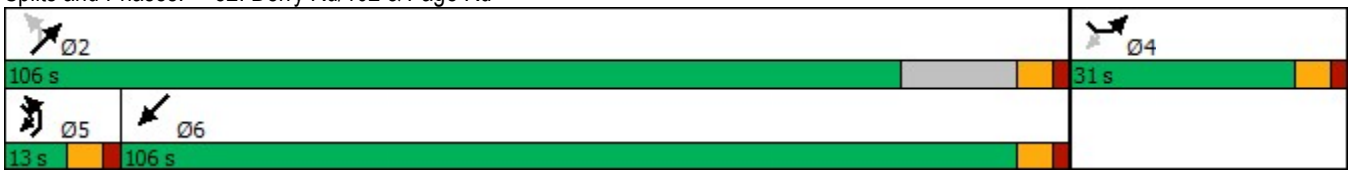
Splits and Phases: 76: Derry Rd/102 & Elm Ave

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	102	71	27	444	486	52
Future Volume (vph)	102	71	27	444	486	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.987	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1719	1583	1770	1652	1770	0
Flt Permitted	0.950		0.256			
Satd. Flow (perm)	1719	1583	477	1652	1770	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		77			8	
Link Speed (mph)	30			30	30	
Link Distance (ft)	420			2236	3657	
Travel Time (s)	9.5			50.8	83.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	2%	2%	15%	5%	15%
Adj. Flow (vph)	111	77	29	483	528	57
Shared Lane Traffic (%)						
Lane Group Flow (vph)	111	77	29	483	585	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
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	pm+pt	NA	NA	
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	3.0	3.0	10.0	10.0	
Minimum Split (s)	11.0	9.0	9.0	16.0	16.0	
Total Split (s)	31.0	13.0	13.0	106.0	106.0	
Total Split (%)	20.7%	8.7%	8.7%	70.7%	70.7%	
Maximum Green (s)	25.0	7.0	7.0	100.0	100.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	1.5	1.5	1.5	1.5	
Recall Mode	None	None	None	Min	Min	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Act Effct Green (s)	8.1	19.3	37.0	37.0	28.3	
Actuated g/C Ratio	0.14	0.34	0.64	0.64	0.49	
v/c Ratio	0.46	0.13	0.07	0.45	0.67	
Control Delay	31.3	5.4	4.2	6.8	16.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	31.3	5.4	4.2	6.8	16.7	
LOS	C	A	A	A	B	
Approach Delay	20.7			6.7	16.7	
Approach LOS	C			A	B	
Queue Length 50th (ft)	34	0	3	66	148	
Queue Length 95th (ft)	93	27	11	138	287	
Internal Link Dist (ft)	340			2156	3577	
Turn Bay Length (ft)		150	150			
Base Capacity (vph)	768	640	468	1652	1770	
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	0.14	0.12	0.06	0.29	0.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 57.5			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 13.3		Intersection LOS: B	
Intersection Capacity Utilization 44.4%		ICU Level of Service A	
Analysis Period (min) 15			

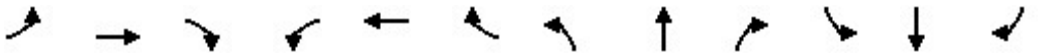
Splits and Phases: 82: Derry Rd/102 & Page Rd



A.6 Future 2045 Model - PM Peak (53 pages)

Reference Table – HUD# to # in SYNCRHO Reports

HUD#	# in SYNCHRO Reports	Intersection / Direction TOWARD
1	**40**	111-102-3A (Ferry & Chase)
2	**38**	Library & Ferry
3	**39**	Library and Highland
4	**55**	Burnham and Central
5	**58**	Central-Kimball-Greeley (Rt.111 & Greeley)
6	**76**	Derry and 102 (Route 102 & Elm Ave)
7	**82**	NH 102/Page Rd
8	**34**	NH 3A Central St/Chase St
9	**33**	Central and Library
10	**29**	Lowell and Central
11	**25**	Lowell and Pelham
12	**22**	Lowell and Executive
13	**10**	Lowell-Hampshire-Oblate
14	**1**	Lowell & Wason
16	**4**	NH 3A Lowell Rd/Walmart Blvd
17	**5**	NH 3A Lowell Rd/Rena Ave
18	**7**	NH 3A Lowell Rd/Dracut Rd/Steele Rd
19	**67**	Dracut Rd/Sherburne Rd
20	**70**	Kimball Hill Rd/Bush Hill Rd
21	**73**	Central St/Belknap Rd
22	**24**	Lowell & Fox Hollow Dr
23	**27**	Lowell & Birch St
15_com	**2**	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined
15M	-	NH 3A Lowell Rd/Sagamore Bridge Rd - Northern Section
15N	-	NH 3A Lowell Rd/Sagamore Bridge Rd - Middle Section
15S	-	NH 3A Lowell Rd/Sagamore Bridge Rd - Southern Section



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	76	297	314	34	38	209	875	529	60	942	32
Future Volume (vph)	48	76	297	314	34	38	209	875	529	60	942	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	14	12	12	12	12	12	12
Storage Length (ft)	0		0	0		200	650		350	200		0
Storage Lanes	0		1	1		1	1		2	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.88	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected		0.981		0.950	0.961		0.950			0.950		
Satd. Flow (prot)	0	1621	1592	1491	1508	1498	1719	3438	2707	1570	3139	1404
Flt Permitted		0.981		0.950	0.961		0.950			0.950		
Satd. Flow (perm)	0	1621	1592	1491	1508	1498	1719	3438	2707	1570	3139	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			323			115			575			167
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		573			432			1014			1071	
Travel Time (s)		13.0			9.8			23.0			24.3	
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
Heavy Vehicles (%)	15%	15%	15%	15%	15%	15%	5%	5%	5%	15%	15%	15%
Adj. Flow (vph)	52	83	323	341	37	41	227	951	575	65	1024	35
Shared Lane Traffic (%)				45%								
Lane Group Flow (vph)	0	135	323	188	190	41	227	951	575	65	1024	35
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	0.85	1.00	1.00	0.92	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	Split	NA	pm+ov	Split	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	Perm
Protected Phases	3	3	1	4	4	4 5	1	6	6 4	5	2	
Permitted Phases			3									2
Detector Phase	3	3	1	4	4	4 5	1	6	6 4	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	11.0	11.0	13.0	12.0	12.0		13.0	16.0		13.0	16.0	16.0
Total Split (s)	40.0	40.0	30.0	30.0	30.0		30.0	65.0		15.0	50.0	50.0
Total Split (%)	21.1%	21.1%	15.8%	15.8%	15.8%		15.8%	34.2%		7.9%	26.3%	26.3%
Maximum Green (s)	34.0	34.0	22.0	23.0	23.0		22.0	59.0		7.0	44.0	44.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	4.0	3.0	3.0		4.0	2.0		4.0	2.0	2.0
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)		6.0	8.0	7.0	7.0		8.0	6.0		8.0	6.0	6.0
Lead/Lag	Lead	Lead	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	3.0

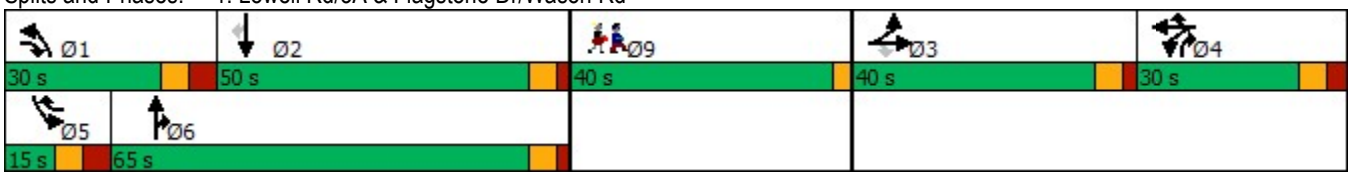
Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
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	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	40.0
Total Split (s)	40.0
Total Split (%)	21%
Maximum Green (s)	37.0
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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		16.2	36.2	23.0	23.0	38.0	22.0	59.0	83.1	7.0	44.0	44.0
Actuated g/C Ratio		0.12	0.27	0.17	0.17	0.29	0.17	0.45	0.63	0.05	0.33	0.33
v/c Ratio		0.68	0.48	0.73	0.73	0.08	0.79	0.62	0.30	0.78	0.98	0.06
Control Delay		72.9	4.4	69.4	69.1	0.3	74.1	30.7	0.9	114.7	67.4	0.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		72.9	4.4	69.4	69.1	0.3	74.1	30.7	0.9	114.7	67.4	0.2
LOS		E	A	E	E	A	E	C	A	F	E	A
Approach Delay		24.6			62.5			26.5			68.1	
Approach LOS		C			E			C			E	
Queue Length 50th (ft)		113	0	162	164	0	189	322	0	56	456	0
Queue Length 95th (ft)		184	40	#291	#292	0	#339	426	14	#149	#651	0
Internal Link Dist (ft)		493			352			934			991	
Turn Bay Length (ft)						200	650		350	200		
Base Capacity (vph)		416	670	259	262	512	286	1534	1913	83	1044	578
Starvation Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.32	0.48	0.73	0.73	0.08	0.79	0.62	0.30	0.78	0.98	0.06

Intersection Summary

Area Type: Other
Cycle Length: 190
Actuated Cycle Length: 132.3
Natural Cycle: 145
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 42.8 Intersection LOS: D
Intersection Capacity Utilization 71.5% 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: Lowell Rd/3A & Flagstone Dr/Wason Rd



Lane Group	Ø9
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	30.0
Pedestrian Calls (#/hr)	0
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

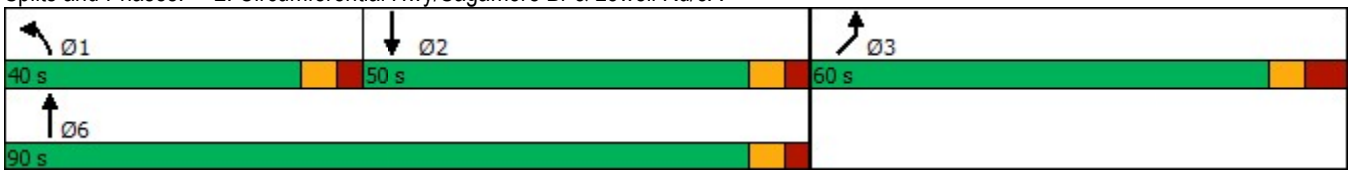
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	SBR2	NEL	NER
Lane Configurations									
Traffic Volume (vph)	0	0	941	530	751	0	1445	1316	771
Future Volume (vph)	0	0	941	530	751	0	1445	1316	771
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	14	12
Storage Length (ft)	0	0	470			450		0	0
Storage Lanes	0	0	2			1		2	1
Taper Length (ft)	25		25					25	
Lane Util. Factor	1.00	1.00	0.94	0.95	0.95	1.00	1.00	0.97	1.00
Frt							0.850		0.850
Flt Protected			0.950					0.950	
Satd. Flow (prot)	0	0	4848	3139	3539	0	1538	3557	1583
Flt Permitted			0.950					0.950	
Satd. Flow (perm)	0	0	4848	3139	3539	0	1538	3557	1583
Right Turn on Red							Yes		Yes
Satd. Flow (RTOR)							808		300
Link Speed (mph)	55			30	30			42	
Link Distance (ft)	1050			613	1014			974	
Travel Time (s)	13.0			13.9	23.0			15.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	5%	15%	2%	2%	5%	5%	2%
Adj. Flow (vph)	0	0	1023	576	816	0	1571	1430	838
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	0	1023	576	816	0	1571	1430	838
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right	Right	Left	Right
Median Width(ft)	0			36	36			28	
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	0.92	1.00
Turning Speed (mph)	15	9	15			9	9	15	9
Turn Type			Prot	NA	NA		Free	Prot	Free
Protected Phases			1	6	2			3	
Permitted Phases							Free		Free
Detector Phase			1	6	2			3	
Switch Phase									
Minimum Initial (s)			7.0	10.0	10.0			10.0	
Minimum Split (s)			14.0	17.0	17.0			19.0	
Total Split (s)			40.0	90.0	50.0			60.0	
Total Split (%)			26.7%	60.0%	33.3%			40.0%	
Maximum Green (s)			33.0	83.0	43.0			51.0	
Yellow Time (s)			4.0	4.0	4.0			4.0	
All-Red Time (s)			3.0	3.0	3.0			5.0	
Lost Time Adjust (s)			0.0	0.0	0.0			0.0	
Total Lost Time (s)			7.0	7.0	7.0			9.0	
Lead/Lag			Lead		Lag				
Lead-Lag Optimize?									
Vehicle Extension (s)			4.0	4.0	4.0			4.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	SBR2	NEL	NER
Recall Mode			None	Min	Min			None	
Act Effct Green (s)			33.0	79.9	39.9		147.0	51.0	147.0
Actuated g/C Ratio			0.22	0.54	0.27		1.00	0.35	1.00
v/c Ratio			0.94	0.34	0.85		1.02	1.16	0.53
Control Delay			72.2	19.3	60.1		31.9	123.3	1.3
Queue Delay			0.0	0.0	0.0		0.0	0.0	0.0
Total Delay			72.2	19.3	60.1		31.9	123.3	1.3
LOS			E	B	E		C	F	A
Approach Delay				53.1	41.5			78.2	
Approach LOS				D	D			E	
Queue Length 50th (ft)			354	157	391		~67	~862	0
Queue Length 95th (ft)			#445	197	473		#331	#1001	0
Internal Link Dist (ft)	970			533	934			894	
Turn Bay Length (ft)			470				450		
Base Capacity (vph)			1089	1773	1035		1538	1235	1583
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			0.94	0.32	0.79		1.02	1.16	0.53

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 147			
Natural Cycle: 140			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.16			
Intersection Signal Delay: 57.8		Intersection LOS: E	
Intersection Capacity Utilization 95.4%		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: 2: Circumferential Hwy/Sagamore Br & Lowell Rd/3A



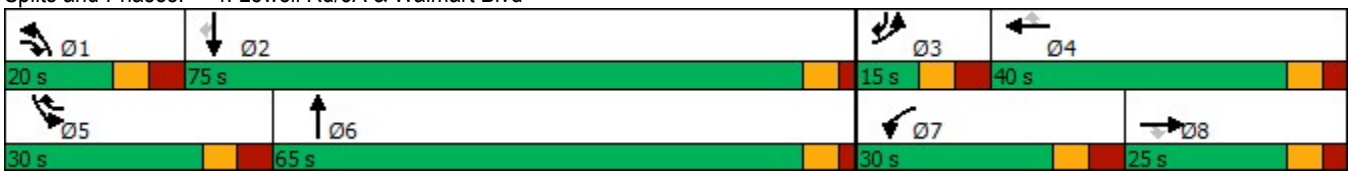
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	167	23	70	73	17	196	76	985	55	200	965	176
Future Volume (vph)	167	23	70	73	17	196	76	985	55	200	965	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	425		0	400		0
Storage Lanes	2		1	2		1	3		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	0.97	1.00	1.00	0.97	0.91	0.91	0.97	0.91	1.00
Frt			0.850			0.850		0.992				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	1863	1583	3433	1863	1583	3433	5045	0	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	1863	1583	3433	1863	1583	3433	5045	0	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			196			80		7				191
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		304			245			982			569	
Travel Time (s)		6.9			5.6			22.3			12.9	
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
Heavy Vehicles (%)	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	182	25	76	79	18	213	83	1071	60	217	1049	191
Shared Lane Traffic (%)												
Lane Group Flow (vph)	182	25	76	79	18	213	83	1131	0	217	1049	191
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
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	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6		5	2	3
Permitted Phases			8			4						2
Detector Phase	3	8	1	7	4	5	1	6		5	2	3
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0		5.0	10.0	5.0
Minimum Split (s)	13.0	12.0	13.0	13.0	12.0	13.0	13.0	16.0		13.0	16.0	13.0
Total Split (s)	15.0	25.0	20.0	30.0	40.0	30.0	20.0	65.0		30.0	75.0	15.0
Total Split (%)	10.0%	16.7%	13.3%	20.0%	26.7%	20.0%	13.3%	43.3%		20.0%	50.0%	10.0%
Maximum Green (s)	7.0	18.0	12.0	22.0	33.0	22.0	12.0	59.0		22.0	69.0	7.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	4.0	3.0	4.0	4.0	3.0	4.0	4.0	2.0		4.0	2.0	4.0
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)	8.0	7.0	8.0	8.0	7.0	8.0	8.0	6.0		8.0	6.0	8.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0		4.0	6.0	4.0
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	None

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	10.8	8.8	22.0	9.2	9.4	21.0	9.4	45.5		14.4	50.5	67.6
Actuated g/C Ratio	0.11	0.09	0.22	0.09	0.09	0.21	0.09	0.45		0.14	0.50	0.67
v/c Ratio	0.51	0.15	0.15	0.25	0.10	0.54	0.26	0.50		0.44	0.41	0.17
Control Delay	52.8	53.9	0.6	51.4	50.6	27.2	51.3	21.0		46.3	16.8	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	52.8	53.9	0.6	51.4	50.6	27.2	51.3	21.0		46.3	16.8	1.8
LOS	D	D	A	D	D	C	D	C		D	B	A
Approach Delay		38.9			34.8			23.1			19.2	
Approach LOS		D			C			C			B	
Queue Length 50th (ft)	55	17	0	27	12	89	28	209		72	165	0
Queue Length 95th (ft)	#159	50	0	58	38	155	60	275		126	224	28
Internal Link Dist (ft)		224			165			902			489	
Turn Bay Length (ft)							425			400		
Base Capacity (vph)	357	353	545	797	648	527	434	3143		797	3690	1126
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.51	0.07	0.14	0.10	0.03	0.40	0.19	0.36		0.27	0.28	0.17

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 100.6
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 23.8 Intersection LOS: C
Intersection Capacity Utilization 54.9% 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: 4: Lowell Rd/3A & Walmart Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	1	24	3	1	16	23	1033	10	30	1072	9
Future Volume (vph)	92	1	24	3	1	16	23	1033	10	30	1072	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	200		200	0		0	350		0	425		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.91	0.91
Frt		0.856			0.891			0.999			0.999	
Flt Protected	0.950				0.993		0.950			0.950		
Satd. Flow (prot)	3335	1595	0	0	1868	0	1770	3536	0	1770	5039	0
Flt Permitted	0.950				0.993		0.950			0.950		
Satd. Flow (perm)	3335	1595	0	0	1868	0	1770	3536	0	1770	5039	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		26						1			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		301			325			1749			982	
Travel Time (s)		6.8			7.4			39.8			22.3	
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
Heavy Vehicles (%)	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	100%
Adj. Flow (vph)	100	1	26	3	1	17	25	1123	11	33	1165	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	27	0	0	21	0	25	1134	0	33	1175	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			36			36	
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	0.85	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	Split	NA		Split	NA		Prot	NA		Prot	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases												
Detector Phase	3	3		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	12.0	12.0		12.0	12.0		13.0	16.0		13.0	16.0	
Total Split (s)	35.0	35.0		15.0	15.0		20.0	80.0		20.0	80.0	
Total Split (%)	23.3%	23.3%		10.0%	10.0%		13.3%	53.3%		13.3%	53.3%	
Maximum Green (s)	28.0	28.0		8.0	8.0		12.0	74.0		12.0	74.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		4.0	2.0		4.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0			7.0		8.0	6.0		8.0	6.0	
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	10.0	10.0			7.9		8.5	46.4		8.9	46.7	
Actuated g/C Ratio	0.12	0.12			0.09		0.10	0.55		0.11	0.56	
v/c Ratio	0.25	0.13			0.12		0.14	0.58		0.18	0.42	
Control Delay	42.8	20.0			48.4		47.0	16.9		46.3	13.7	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	42.8	20.0			48.4		47.0	16.9		46.3	13.7	
LOS	D	B			D		D	B		D	B	
Approach Delay		37.9			48.4			17.6			14.6	
Approach LOS		D			D			B			B	
Queue Length 50th (ft)	24	0			10		12	200		16	126	
Queue Length 95th (ft)	65	30			43		47	402		58	245	
Internal Link Dist (ft)		221			245			1669			902	
Turn Bay Length (ft)	200						350			425		
Base Capacity (vph)	1222	601			195		277	2986		277	4256	
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	0.08	0.04			0.11		0.09	0.38		0.12	0.28	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 84.1			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 17.4		Intersection LOS: B	
Intersection Capacity Utilization 49.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 5: Lowell Rd/3A & Rena Ave

Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBL2	SBL	SBT	SBR	NWL2	NWL
Lane Configurations												
Traffic Volume (vph)	4	0	1	0	0	541	1	197	395	2	5	2
Future Volume (vph)	4	0	1	0	0	541	1	197	395	2	5	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0		240			820		0		120
Storage Lanes	1		0		2			0		0		1
Taper Length (ft)	25				25			25				25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00
Frt		0.850							0.999			
Flt Protected	0.950							0.950				0.950
Satd. Flow (prot)	1770	1583	0	1863	1863	3438	0	3433	1808	0	0	1770
Flt Permitted								0.070				0.950
Satd. Flow (perm)	1863	1583	0	1863	1863	3438	0	253	1808	0	0	1770
Right Turn on Red										Yes		
Satd. Flow (RTOR)												
Link Speed (mph)		30		30		30			30			30
Link Distance (ft)		386		220		910			1749			960
Travel Time (s)		8.8		5.0		20.7			39.8			21.8
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	5%	2%	2%	5%	2%	2%	2%
Adj. Flow (vph)	4	0	1	0	0	588	1	214	429	2	5	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	1	0	0	0	588	0	215	431	0	0	7
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Left	Left	Left	Left	Right	Left	Left
Median Width(ft)		12		12		36			36			12
Link Offset(ft)		0		0		0			0			0
Crosswalk Width(ft)		16		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		15	15		9	15	15
Turn Type	Perm	NA			Prot	NA	custom	Prot	NA		Perm	Prot
Protected Phases		4		4	1	6		5	2			3
Permitted Phases	4						5				3	
Detector Phase	4	4		4	1	6	5	5	2		3	3
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	10.0	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)	11.0	11.0		11.0	13.0	16.0	18.0	18.0	16.0		17.0	17.0
Total Split (s)	15.0	15.0		15.0	15.0	35.0	65.0	65.0	81.0		35.0	35.0
Total Split (%)	10.0%	10.0%		10.0%	10.0%	23.3%	43.3%	43.3%	54.0%		23.3%	23.3%
Maximum Green (s)	9.0	9.0		9.0	7.0	29.0	57.0	57.0	75.0		28.0	28.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	4.0	2.0	4.0	4.0	2.0		3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0			0.0
Total Lost Time (s)	6.0	6.0		6.0	8.0	6.0		8.0	6.0			7.0
Lead/Lag	Lag	Lag		Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	4.0	4.0	4.0	4.0		4.0	4.0
Recall Mode	None	None		None	None	Min	None	None	Min		None	None

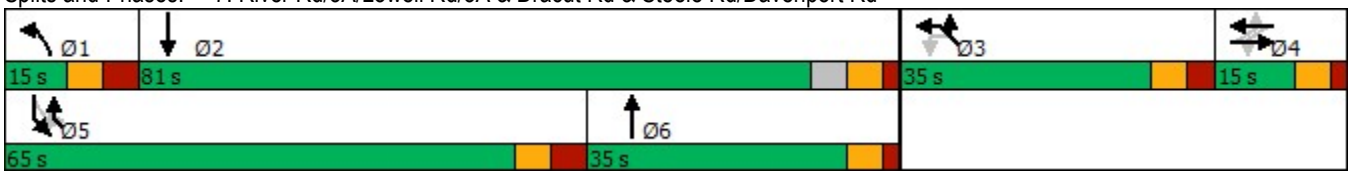
Lane Group	NWR
Lane Configurations	
Traffic Volume (vph)	634
Future Volume (vph)	634
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Heavy Vehicles (%)	2%
Adj. Flow (vph)	689
Shared Lane Traffic (%)	
Lane Group Flow (vph)	689
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Turn Type	pt+ov
Protected Phases	3 5
Permitted Phases	
Detector Phase	3 5
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	

Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBL2	SBL	SBT	SBR	NWL2	NWL
Act Effct Green (s)	6.0	6.0				27.8		57.1	93.0			27.6
Actuated g/C Ratio	0.04	0.04				0.20		0.42	0.68			0.20
v/c Ratio	0.05	0.01				0.84		2.03	0.35			0.02
Control Delay	66.2	65.0				63.7		522.0	10.5			46.3
Queue Delay	0.0	0.0				0.0		0.0	0.0			0.0
Total Delay	66.2	65.0				63.7		522.0	10.5			46.3
LOS	E	E				E		F	B			D
Approach Delay		66.0				63.7			180.7			16.8
Approach LOS		E				E			F			B
Queue Length 50th (ft)	3	1				259		~151	138			5
Queue Length 95th (ft)	17	8				#391		#215	257			20
Internal Link Dist (ft)		306		140		830			1669			880
Turn Bay Length (ft)	50							820				120
Base Capacity (vph)	123	105				734		106	1235			365
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	0.03	0.01				0.80		2.03	0.35			0.02

Intersection Summary

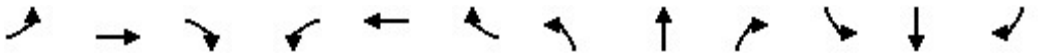
Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 136
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 2.03
Intersection Signal Delay: 85.9 Intersection LOS: F
Intersection Capacity Utilization 89.2% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, 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.

Splits and Phases: 7: River Rd/3A/Lowell Rd/3A & Dracut Rd & Steele Rd/Davenport Rd



Lane Group	NWR
Act Effct Green (s)	91.4
Actuated g/C Ratio	0.67
v/c Ratio	0.65
Control Delay	16.5
Queue Delay	0.0
Total Delay	16.5
LOS	B
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	306
Queue Length 95th (ft)	418
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	1052
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.65

Intersection Summary

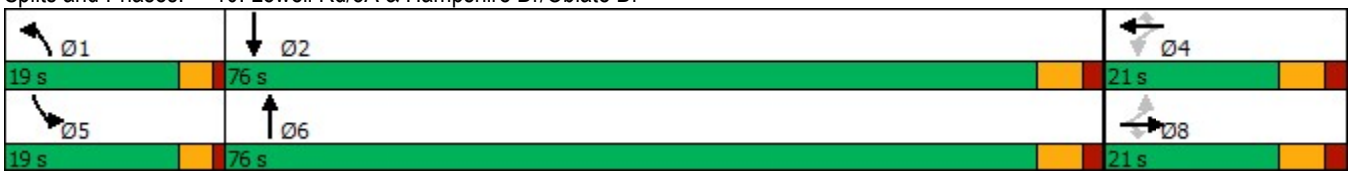


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	1	69	6	0	2	25	1004	11	3	1088	32
Future Volume (vph)	55	1	69	6	0	2	25	1004	11	3	1088	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	16	12	12	12	12	12	12
Storage Length (ft)	0		150	0		120	270		0	250		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	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
Frt			0.850			0.850		0.998			0.996	
Flt Protected		0.953			0.950		0.950			0.950		
Satd. Flow (prot)	0	1775	1794	0	1770	1794	1770	3532	0	1770	3525	0
Flt Permitted		0.725			0.717		0.950			0.950		
Satd. Flow (perm)	0	1350	1794	0	1336	1794	1770	3532	0	1770	3525	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			75			66		2			5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		412			436			437			1173	
Travel Time (s)		9.4			9.9			9.9			26.7	
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)	60	1	75	7	0	2	27	1091	12	3	1183	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	61	75	0	7	2	27	1103	0	3	1218	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		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	0.85	1.00	1.00	0.85	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	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						
Detector Phase	8	8	8	4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	15.0		4.0	15.0	
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	16.0	8.0	28.0		8.0	28.0	
Total Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	19.0	76.0		19.0	76.0	
Total Split (%)	18.1%	18.1%	18.1%	18.1%	18.1%	18.1%	16.4%	65.5%		16.4%	65.5%	
Maximum Green (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	70.0		15.0	70.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.0	6.0		4.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.0	3.0		2.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	

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)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0			0	
Act Effct Green (s)		9.1	9.1		7.4	7.4	6.1	44.2		5.2	42.1	
Actuated g/C Ratio		0.15	0.15		0.12	0.12	0.10	0.71		0.08	0.68	
v/c Ratio		0.31	0.23		0.04	0.01	0.16	0.44		0.02	0.51	
Control Delay		34.1	10.8		32.7	0.0	36.1	6.5		37.7	8.9	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		34.1	10.8		32.7	0.0	36.1	6.5		37.7	8.9	
LOS		C	B		C	A	D	A		D	A	
Approach Delay		21.3			25.4			7.2			8.9	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)		19	0		2	0	9	85		1	99	
Queue Length 95th (ft)		71	39		16	0	41	217		11	273	
Internal Link Dist (ft)		332			356			357			1093	
Turn Bay Length (ft)			150			120	270			250		
Base Capacity (vph)		362	536		358	530	475	3304		475	3298	
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		0.17	0.14		0.02	0.00	0.06	0.33		0.01	0.37	

Intersection Summary			
Area Type:	Other		
Cycle Length: 116			
Actuated Cycle Length: 62			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay: 8.9		Intersection LOS: A	
Intersection Capacity Utilization 53.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 10: Lowell Rd/3A & Hampshire Dr/Oblate Dr

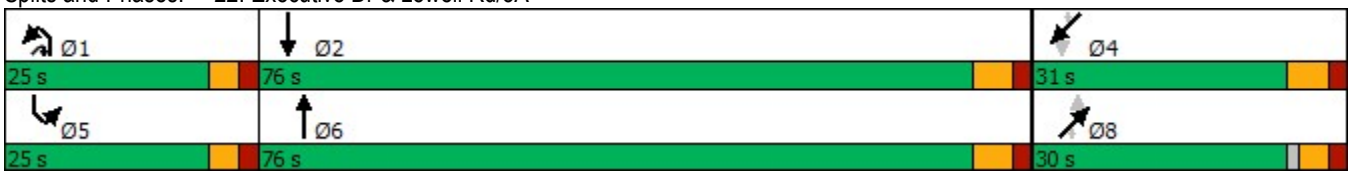


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	63	834	132	80	722	105	128	8	274	276	8	142
Future Volume (vph)	63	834	132	80	722	105	128	8	274	276	8	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	16	12	12	14
Storage Length (ft)	400		0	180		300	0		0	0		0
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.980			0.981				0.850			0.850
Flt Protected	0.950			0.950				0.955			0.954	
Satd. Flow (prot)	1570	3076	0	1770	3472	0	0	1779	1794	0	1777	1689
Flt Permitted	0.950			0.950				0.380			0.605	
Satd. Flow (perm)	1570	3076	0	1770	3472	0	0	708	1794	0	1127	1689
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			18				156			154
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		669			399			262			149	
Travel Time (s)		15.2			9.1			6.0			3.4	
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
Heavy Vehicles (%)	15%	15%	15%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	68	907	143	87	785	114	139	9	298	300	9	154
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	1050	0	87	899	0	0	148	298	0	309	154
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	0.85	1.00	1.00	0.92
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases	1	6		5	2			8	1		4	
Permitted Phases							8		8	4		4
Detector Phase	1	6		5	2		8	8	1	4	4	4
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	3.0	3.0	4.0	4.0	4.0
Minimum Split (s)	8.0	31.0		8.0	31.0		30.0	30.0	8.0	31.0	31.0	31.0
Total Split (s)	25.0	76.0		25.0	76.0		30.0	30.0	25.0	31.0	31.0	31.0
Total Split (%)	18.9%	57.6%		18.9%	57.6%		22.7%	22.7%	18.9%	23.5%	23.5%	23.5%
Maximum Green (s)	20.0	70.0		20.0	70.0		25.0	25.0	20.0	25.0	25.0	25.0
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	6.0		5.0	6.0			5.0	5.0		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	2.0	2.0	2.0	2.0	2.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		18.0			18.0		18.0	18.0		18.0	18.0	18.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	8.7	42.8		9.3	40.5			26.8	40.7		25.8	25.8
Actuated g/C Ratio	0.09	0.46		0.10	0.44			0.29	0.44		0.28	0.28
v/c Ratio	0.46	0.73		0.49	0.59			0.72	0.34		0.98	0.27
Control Delay	54.0	23.6		53.0	20.3			56.9	11.0		85.8	7.2
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	54.0	23.6		53.0	20.3			56.9	11.0		85.8	7.2
LOS	D	C		D	C			E	B		F	A
Approach Delay		25.5			23.2			26.2			59.7	
Approach LOS		C			C			C			E	
Queue Length 50th (ft)	38	257		49	193			79	50		~186	0
Queue Length 95th (ft)	95	361		113	270			#240	141		#468	54
Internal Link Dist (ft)		589			319			182			69	
Turn Bay Length (ft)	400			180								
Base Capacity (vph)	350	2385		394	2691			205	1087		314	581
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	0.19	0.44		0.22	0.33			0.72	0.27		0.98	0.27

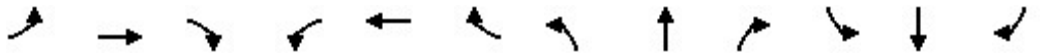
Intersection Summary			
Area Type:	Other		
Cycle Length: 132			
Actuated Cycle Length: 92.6			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 30.1		Intersection LOS: C	
Intersection Capacity Utilization 70.1%		ICU Level of Service C	
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: 22: Executive Dr & Lowell Rd/3A



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	1455	1134	0
Future Volume (vph)	0	0	0	1455	1134	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12
Storage Length (ft)	0	0	0			400
Storage Lanes	0	1	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Fl						
Sa						
Fl						
Sa						
Li						
Li						
Tr						
Pe						
Ad						
Sh						
La						
En						
La						
M						
Li						
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 79.9%		ICU Level of Service D	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	3	58	7	2	11	234	761	3	12	1069	7
Future Volume (vph)	56	3	58	7	2	11	234	761	3	12	1069	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	14	14	12	12	12	12	12	12
Storage Length (ft)	0		120	0		0	250		400	220		0
Storage Lanes	0		1	0		1	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	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.999	
Flt Protected		0.955			0.962		0.950			0.950		
Satd. Flow (prot)	0	1779	1583	0	1560	1325	1719	1810	1538	1719	1808	0
Flt Permitted		0.729			0.726		0.114			0.318		
Satd. Flow (perm)	0	1358	1583	0	1177	1325	206	1810	1538	575	1808	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			63			21			62		1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		271			227			1282			634	
Travel Time (s)		6.2			5.2			29.1			14.4	
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
Heavy Vehicles (%)	2%	2%	2%	30%	5%	30%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	61	3	63	8	2	12	254	827	3	13	1162	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	64	63	0	10	12	254	827	3	13	1170	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	0.92	0.92	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	NA	Perm	Perm	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8	1	5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	8	8	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	31.0	31.0	11.0	31.0	
Total Split (s)	16.0	16.0	16.0	16.0	16.0	16.0	16.0	116.0	116.0	16.0	126.0	
Total Split (%)	10.1%	10.1%	10.1%	10.1%	10.1%	10.1%	10.1%	73.4%	73.4%	10.1%	79.7%	
Maximum Green (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	110.0	110.0	10.0	120.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	1.5	1.5	1.5	1.5	1.0	1.5	1.5	1.5	1.0	1.5	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	
Walk Time (s)								7.0	7.0		7.0	
Flash Dont Walk (s)								18.0	18.0		18.0	
Pedestrian Calls (#/hr)								0	0		0	
Act Effct Green (s)		9.4	9.4		9.4	20.4	136.0	130.0	130.0	125.3	120.3	
Actuated g/C Ratio		0.06	0.06		0.06	0.13	0.86	0.82	0.82	0.79	0.76	
v/c Ratio		0.80	0.41		0.14	0.06	0.92	0.56	0.00	0.03	0.85	
Control Delay		128.6	23.6		74.9	11.1	54.6	6.9	0.0	2.1	20.7	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	31.0	
Total Delay		128.6	23.6		74.9	11.1	54.6	6.9	0.0	2.1	51.7	
LOS		F	C		E	B	D	A	A	A	D	
Approach Delay		76.5			40.1			18.0			51.1	
Approach LOS		E			D			B			D	
Queue Length 50th (ft)		66	0		10	0	84	286	0	2	738	
Queue Length 95th (ft)		#152	51		32	13	#148	374	0	4	1015	
Internal Link Dist (ft)		191			147			1202			554	
Turn Bay Length (ft)			120				250		400	220		
Base Capacity (vph)		85	159		74	230	276	1489	1276	546	1380	
Starvation Cap Reductn		0	0		0	0	0	0	0	0	274	
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		0.75	0.40		0.14	0.05	0.92	0.56	0.00	0.02	1.06	

Intersection Summary

Area Type: Other
Cycle Length: 158
Actuated Cycle Length: 158
Offset: 45 (28%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 37.5 Intersection LOS: D
Intersection Capacity Utilization 94.6% 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.

Splits and Phases: 24: Lowell Rd/3A & Fox Hollow Dr

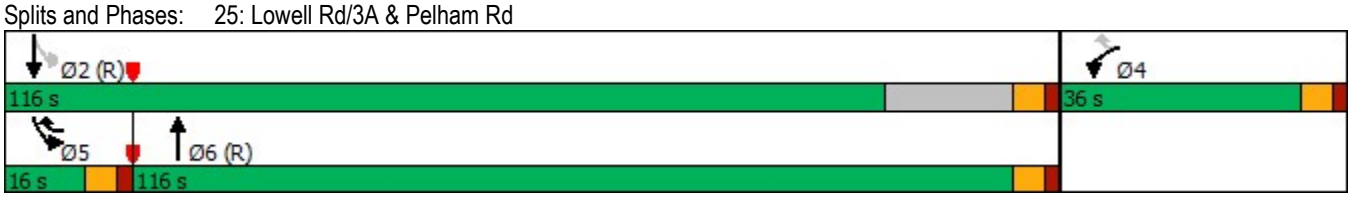
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	130	186	1036	167	94	802
Future Volume (vph)	130	186	1036	167	94	802
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12
Storage Length (ft)	0	100		0	160	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.981			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1719	1743	1827	0	1388	1462
Flt Permitted	0.950				0.032	
Satd. Flow (perm)	1719	1743	1827	0	47	1462
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		112	10			
Link Speed (mph)	30		30			30
Link Distance (ft)	345		634			526
Travel Time (s)	7.8		14.4			12.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	2%	2%	30%	30%
Adj. Flow (vph)	141	202	1126	182	102	872
Shared Lane Traffic (%)						
Lane Group Flow (vph)	141	202	1308	0	102	872
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA		pm+pt	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4			2	
Detector Phase	4	5	6		5	2
Switch Phase						
Minimum Initial (s)	5.0	3.0	10.0		3.0	10.0
Minimum Split (s)	11.0	9.0	31.0		9.0	16.0
Total Split (s)	36.0	16.0	116.0		16.0	116.0
Total Split (%)	21.4%	9.5%	69.0%		9.5%	69.0%
Maximum Green (s)	30.0	10.0	110.0		10.0	110.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	1.5	1.5		1.5	1.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Recall Mode	None	None	C-Min		None	C-Min
Walk Time (s)			7.0			
Flash Dont Walk (s)			18.0			
Pedestrian Calls (#/hr)			0			
Act Effct Green (s)	17.7	36.4	119.6		138.3	138.3
Actuated g/C Ratio	0.11	0.22	0.71		0.82	0.82
v/c Ratio	0.78	0.43	1.00		0.73	0.72
Control Delay	100.1	26.0	50.3		71.2	11.7
Queue Delay	0.0	0.0	35.3		0.0	0.0
Total Delay	100.1	26.0	85.5		71.2	11.7
LOS	F	C	F		E	B
Approach Delay	56.5		85.5			18.0
Approach LOS	E		F			B
Queue Length 50th (ft)	154	83	~1506		69	356
Queue Length 95th (ft)	226	155	#1882		#143	645
Internal Link Dist (ft)	265		554			446
Turn Bay Length (ft)		100			160	
Base Capacity (vph)	306	470	1303		144	1203
Starvation Cap Reductn	0	0	194		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.46	0.43	1.18		0.71	0.72

Intersection Summary			
Area Type:	Other		
Cycle Length: 168			
Actuated Cycle Length: 168			
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 56.7		Intersection LOS: E	
Intersection Capacity Utilization 92.1%		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: 25: Lowell Rd/3A & Pelham Rd

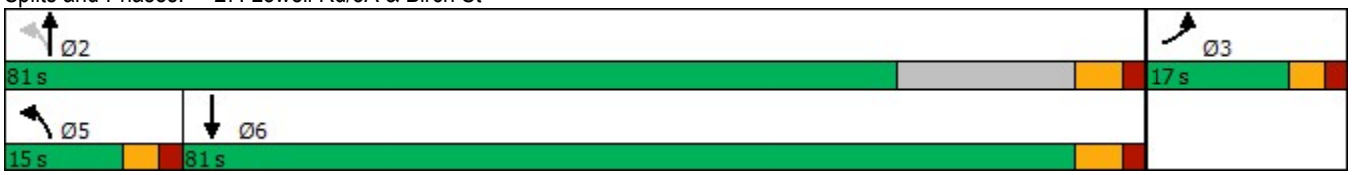


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	58	32	91	598	678	11
Future Volume (vph)	58	32	91	598	678	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	12	12	12	12
Storage Length (ft)	0	0	150			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.952				0.998	
Flt Protected	0.969		0.950			
Satd. Flow (prot)	1892	0	1570	1652	1806	0
Flt Permitted	0.969		0.202			
Satd. Flow (perm)	1892	0	334	1652	1806	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	20				2	
Link Speed (mph)	30			30	30	
Link Distance (ft)	442			1237	1199	
Travel Time (s)	10.0			28.1	27.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	15%	15%	5%	5%
Adj. Flow (vph)	63	35	99	650	737	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	98	0	99	650	749	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	16			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot		pm+pt	NA	NA	
Protected Phases	3		5	2	6	
Permitted Phases			2			
Detector Phase	3		5	2	6	
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	
Minimum Split (s)	17.0		10.0	11.0	11.0	
Total Split (s)	17.0		15.0	81.0	81.0	
Total Split (%)	15.0%		13.3%	71.7%	71.7%	
Maximum Green (s)	12.0		10.0	75.0	75.0	
Yellow Time (s)	3.0		3.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	5.0		5.0	6.0	6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.0	2.0	2.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Recall Mode	None		None	Min	Min	
Walk Time (s)	7.0					
Flash Dont Walk (s)	5.0					
Pedestrian Calls (#/hr)	0					
Act Effct Green (s)	7.5		45.9	46.7	37.0	
Actuated g/C Ratio	0.12		0.75	0.77	0.61	
v/c Ratio	0.39		0.24	0.51	0.68	
Control Delay	29.3		4.2	5.9	16.4	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	29.3		4.2	5.9	16.4	
LOS	C		A	A	B	
Approach Delay	29.3			5.7	16.4	
Approach LOS	C			A	B	
Queue Length 50th (ft)	26		8	89	216	
Queue Length 95th (ft)	85		22	187	421	
Internal Link Dist (ft)	362			1157	1119	
Turn Bay Length (ft)			150			
Base Capacity (vph)	416		470	1652	1764	
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		0.21	0.39	0.42	

Intersection Summary			
Area Type:	Other		
Cycle Length: 113			
Actuated Cycle Length: 60.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 12.2		Intersection LOS: B	
Intersection Capacity Utilization 59.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 27: Lowell Rd/3A & Birch St



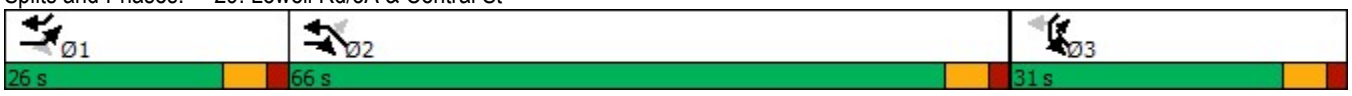
Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	117	645	745	86	184	94
Future Volume (vph)	117	645	745	86	184	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	11	11
Storage Length (ft)	300	0	0	80	0	120
Storage Lanes	1	1	1	1	1	1
Taper Length (ft)	25		25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		0.850
Flt Protected	0.950		0.950		0.950	
Satd. Flow (prot)	1770	1583	1770	1689	1711	1531
Flt Permitted	0.950		0.950		0.950	
Satd. Flow (perm)	1770	1583	1770	1689	1711	1531
Right Turn on Red		Yes		Yes		Yes
Satd. Flow (RTOR)		303		54		102
Link Speed (mph)	30		30		30	
Link Distance (ft)	636		905		654	
Travel Time (s)	14.5		20.6		14.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	127	701	810	93	200	102
Shared Lane Traffic (%)						
Lane Group Flow (vph)	127	701	810	93	200	102
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Right
Median Width(ft)	12		12		11	
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	0.92	1.04	1.04
Turning Speed (mph)	15	9	15	9	15	9
Turn Type	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov
Protected Phases	1	2	2	3	3	1
Permitted Phases		1		2		3
Detector Phase	1	2	2	3	3	1
Switch Phase						
Minimum Initial (s)	8.0	10.0	10.0	8.0	8.0	8.0
Minimum Split (s)	14.0	31.0	31.0	31.0	31.0	14.0
Total Split (s)	26.0	66.0	66.0	31.0	31.0	26.0
Total Split (%)	21.1%	53.7%	53.7%	25.2%	25.2%	21.1%
Maximum Green (s)	20.0	60.0	60.0	25.0	25.0	20.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	2.5	2.5	2.0	2.0	1.5
Recall Mode	None	Min	Min	None	None	None

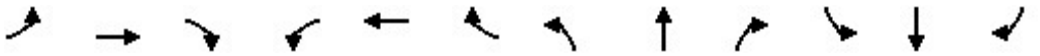
Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0	18.0	18.0	18.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	11.9	73.4	55.3	78.1	16.6	34.7
Actuated g/C Ratio	0.12	0.72	0.54	0.76	0.16	0.34
v/c Ratio	0.62	0.57	0.85	0.07	0.72	0.17
Control Delay	59.2	6.0	31.4	1.8	57.4	5.4
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.0
Total Delay	59.2	6.4	31.4	1.8	57.4	5.4
LOS	E	A	C	A	E	A
Approach Delay	14.5		28.4		39.8	
Approach LOS	B		C		D	
Queue Length 50th (ft)	84	90	417	5	131	0
Queue Length 95th (ft)	156	223	#843	19	221	35
Internal Link Dist (ft)	556		825		574	
Turn Bay Length (ft)	300			80		120
Base Capacity (vph)	355	1299	1065	1445	429	707
Starvation Cap Reductn	0	217	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	0.36	0.65	0.76	0.06	0.47	0.14

Intersection Summary			
Area Type:	Other		
Cycle Length: 123			
Actuated Cycle Length: 102.3			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 24.4		Intersection LOS: C	
Intersection Capacity Utilization 73.1%		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: 29: Lowell Rd/3A & Central St





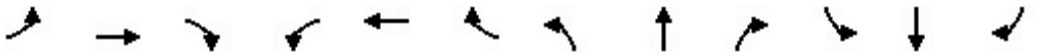
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	259	0	4	501	295	1	0	1	298	1	3
Future Volume (vph)	1	259	0	4	501	295	1	0	1	298	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	16	12
Storage Length (ft)	0		0	0		200	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850		0.932			0.999	
Flt Protected								0.976			0.953	
Satd. Flow (prot)	0	1810	0	0	1863	1583	0	1694	0	0	2010	0
Flt Permitted		0.999			0.998						0.728	
Satd. Flow (perm)	0	1808	0	0	1859	1583	0	1736	0	0	1535	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						243		80				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		888			636			108			794	
Travel Time (s)		20.2			14.5			2.5			18.0	
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
Heavy Vehicles (%)	2%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1	282	0	4	545	321	1	0	1	324	1	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	283	0	0	549	321	0	2	0	0	328	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	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			3			4	
Permitted Phases	2			6		6	3			4		
Detector Phase	2	2		6	6	6	3	3		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	5.0		10.0	10.0	
Minimum Split (s)	31.0	31.0		16.0	16.0	16.0	21.0	21.0		31.0	31.0	
Total Split (s)	51.0	51.0		51.0	51.0	51.0	21.0	21.0		51.0	51.0	
Total Split (%)	41.5%	41.5%		41.5%	41.5%	41.5%	17.1%	17.1%		41.5%	41.5%	
Maximum Green (s)	45.0	45.0		45.0	45.0	45.0	15.0	15.0		45.0	45.0	
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)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0			6.0	
Lead/Lag							Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0		3.0	3.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Walk Time (s)	7.0	7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	8.0	8.0					8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0					0	0		0	0	
Act Effct Green (s)		28.7			28.7	28.7		5.5			21.8	
Actuated g/C Ratio		0.44			0.44	0.44		0.08			0.33	
v/c Ratio		0.36			0.67	0.39		0.01			0.64	
Control Delay		15.1			20.7	5.6		0.0			27.3	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		15.1			20.7	5.6		0.0			27.3	
LOS		B			C	A		A			C	
Approach Delay		15.1			15.2						27.3	
Approach LOS		B			B						C	
Queue Length 50th (ft)		64			148	16		0			98	
Queue Length 95th (ft)		187			406	88		0			278	
Internal Link Dist (ft)		808			556			28			714	
Turn Bay Length (ft)						200						
Base Capacity (vph)		1331			1369	1230		502			1130	
Starvation Cap Reductn		0			9	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.21			0.40	0.26		0.00			0.29	

Intersection Summary

Area Type: Other
Cycle Length: 123
Actuated Cycle Length: 65.2
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 17.8 Intersection LOS: B
Intersection Capacity Utilization 62.6% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 33: Central St & Library St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	482	5	7	15	237	0	9	4	61	6	5
Future Volume (vph)	209	482	5	7	15	237	0	9	4	61	6	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	16	12	16	12	12	16	12
Storage Length (ft)	0		0	0		250	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.961			0.991	
Flt Protected		0.985			0.984						0.959	
Satd. Flow (prot)	0	2036	0	0	2036	1759	0	2029	0	0	1958	0
Flt Permitted		0.985			0.984						0.959	
Satd. Flow (perm)	0	2036	0	0	2036	1759	0	2029	0	0	1958	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		439			888			261			628	
Travel Time (s)		10.0			20.2			5.9			14.3	
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
Heavy Vehicles (%)	2%	5%	2%	2%	2%	2%	2%	2%	2%	5%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	5	5	0	0	0	0	0	0
Adj. Flow (vph)	227	524	5	8	16	258	0	10	4	66	7	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	756	0	0	24	258	0	14	0	0	78	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	0.85	1.00	1.00	0.87	0.87	1.00	0.85	1.00	1.00	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.2%		ICU Level of Service C	
Analysis Period (min) 15			

Lane Group	EBL	EBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	0	0	0	905	0	1483
Future Volume (vph)	0	0	0	905	0	1483
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.88
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	3539	0	2787
Flt						
Sa						
Lir						
Lir						
Tr						
Pe						
Ac						
Sh						
La						
Er						
La						
Mc						
Lir						
Cr						
Tv						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Free			Free	Free	

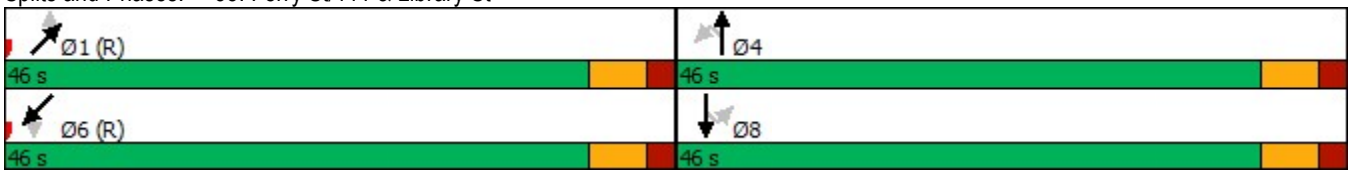
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.2%		ICU Level of Service B	
Analysis Period (min) 15			

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	138	350	11	38	244	4	72	450	32	2	523	6
Future Volume (vph)	138	350	11	38	244	4	72	450	32	2	523	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	175		0	0		0	200		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.998			0.992			0.998	
Flt Protected	0.950			0.950				0.994		0.950		
Satd. Flow (prot)	1770	1853	0	1770	1859	0	0	1837	0	1770	1859	0
Flt Permitted	0.472			0.288				0.801		0.405		
Satd. Flow (perm)	879	1853	0	536	1859	0	0	1480	0	754	1859	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			1			4			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		342			444			371			1247	
Travel Time (s)		7.8			10.1			8.4			28.3	
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)	150	380	12	41	265	4	78	489	35	2	568	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	150	392	0	41	269	0	0	602	0	2	575	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	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			1			6	
Permitted Phases	4			8			1			6		
Detector Phase	4	4		8	8		1	1		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	31.0	31.0		31.0	31.0		31.0	31.0		31.0	31.0	
Total Split (s)	46.0	46.0		46.0	46.0		46.0	46.0		46.0	46.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	40.0	40.0		40.0	40.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0		6.0	6.0	
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	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Flash Dont Walk (s)	18.0	18.0		18.0	18.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	26.7	26.7		26.7	26.7			53.3		53.3	53.3	
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.58		0.58	0.58	
v/c Ratio	0.59	0.73		0.26	0.50			0.70		0.00	0.53	
Control Delay	36.2	36.6		26.8	29.0			21.6		11.5	15.7	
Queue Delay	0.0	0.0		0.0	0.0			7.0		0.0	0.0	
Total Delay	36.2	36.6		26.8	29.0			28.6		11.5	15.7	
LOS	D	D		C	C			C		B	B	
Approach Delay		36.5			28.7			28.6			15.7	
Approach LOS		D			C			C			B	
Queue Length 50th (ft)	74	203		18	129			230		0	189	
Queue Length 95th (ft)	120	260		40	172			#509		4	360	
Internal Link Dist (ft)		262			364			291			1167	
Turn Bay Length (ft)				175						200		
Base Capacity (vph)	382	806		233	808			859		437	1077	
Starvation Cap Reductn	0	0		0	0			210		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	0.49		0.18	0.33			0.93		0.00	0.53	

Intersection Summary	
Area Type:	Other
Cycle Length: 92	
Actuated Cycle Length: 92	
Offset: 0 (0%), Referenced to phase 1:NETL and 6:SWTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 27.1	Intersection LOS: C
Intersection Capacity Utilization 104.9%	ICU Level of Service G
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 38: Ferry St/111 & Library St



Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NWR	NWR2	NET	NER
Lane Configurations												
Traffic Volume (vph)	28	14	21	17	1	1	11	27	449	10	586	8
Future Volume (vph)	28	14	21	17	1	1	11	27	449	10	586	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12	16	12	12	12	12	12
Storage Length (ft)	0		0			0		0	0			0
Storage Lanes	0		0			0		0	1			0
Taper Length (ft)	25					25						
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.936					0.909		0.865		0.998	
Flt Protected		0.983					0.998					
Satd. Flow (prot)	0	1887	0	0	0	0	1860	0	1611	0	1859	0
Flt Permitted		0.867					0.987					
Satd. Flow (perm)	0	1664	0	0	0	0	1840	0	1611	0	1859	0
Right Turn on Red				Yes				Yes		Yes		
Satd. Flow (RTOR)		8					29		86			
Link Speed (mph)		30					30				30	
Link Distance (ft)		286					634				617	
Travel Time (s)		6.5					14.4				14.0	
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
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%
Adj. Flow (vph)	30	15	23	18	1	1	12	29	488	11	637	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	86	0	0	0	0	43	0	499	0	646	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Left	Left	Right	Right	Right	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	0.85	1.00	1.00	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	9	15	15		9	9	9		9
Turn Type	Perm	NA			Perm	Perm	NA		Over		NA	
Protected Phases		8					4		1		2	
Permitted Phases	8				4	4						
Detector Phase	8	8			4	4	4		1		2	
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0	5.0	5.0		10.0		10.0	
Minimum Split (s)	22.0	22.0			12.0	12.0	12.0		16.0		17.0	
Total Split (s)	22.0	22.0			27.0	27.0	27.0		56.0		57.0	
Total Split (%)	15.7%	15.7%			19.3%	19.3%	19.3%		40.0%		40.7%	
Maximum Green (s)	15.0	15.0			20.0	20.0	20.0		50.0		50.0	
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0		4.0	
All-Red Time (s)	3.0	3.0			3.0	3.0	3.0		2.0		3.0	
Lost Time Adjust (s)		0.0					0.0		0.0		0.0	
Total Lost Time (s)		7.0					7.0		6.0		7.0	
Lead/Lag									Lead		Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		4.0	

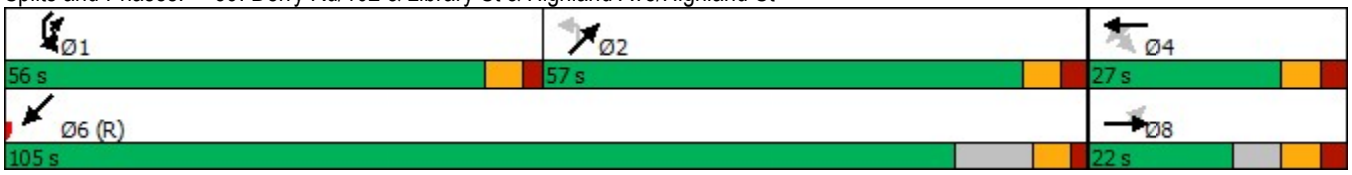
Lane Group	SWL	SWT
Lane Configurations		
Traffic Volume (vph)	287	403
Future Volume (vph)	287	403
Ideal Flow (vphpl)	1900	1900
Lane Width (ft)	12	12
Storage Length (ft)	0	
Storage Lanes	1	
Taper Length (ft)	25	
Lane Util. Factor	1.00	1.00
Frt		
Flt Protected	0.950	
Satd. Flow (prot)	1770	1810
Flt Permitted	0.950	
Satd. Flow (perm)	1770	1810
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		30
Link Distance (ft)		845
Travel Time (s)		19.2
Peak Hour Factor	0.92	0.92
Heavy Vehicles (%)	2%	5%
Adj. Flow (vph)	312	438
Shared Lane Traffic (%)		
Lane Group Flow (vph)	312	438
Enter Blocked Intersection	No	No
Lane Alignment	Left	Left
Median Width(ft)		12
Link Offset(ft)		0
Crosswalk Width(ft)		16
Two way Left Turn Lane		
Headway Factor	1.00	1.00
Turning Speed (mph)	15	
Turn Type	Prot	NA
Protected Phases	1	6
Permitted Phases		
Detector Phase	1	6
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	16.0	16.0
Total Split (s)	56.0	105.0
Total Split (%)	40.0%	75.0%
Maximum Green (s)	50.0	99.0
Yellow Time (s)	4.0	4.0
All-Red Time (s)	2.0	2.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	6.0	6.0
Lead/Lag	Lead	
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	3.0

Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NWR	NWR2	NET	NER
Recall Mode	None	None			None	None	None		None		Min	
Walk Time (s)	7.0	7.0										
Flash Dont Walk (s)	8.0	8.0										
Pedestrian Calls (#/hr)	0	0										
Act Effct Green (s)		11.9					11.9		44.3		63.8	
Actuated g/C Ratio		0.08					0.08		0.32		0.46	
v/c Ratio		0.58					0.24		0.88		0.76	
Control Delay		70.7					30.1		53.9		41.2	
Queue Delay		0.0					0.0		13.6		5.7	
Total Delay		70.7					30.1		67.5		46.9	
LOS		E					C		E		D	
Approach Delay		70.7					30.1				46.9	
Approach LOS		E					C				D	
Queue Length 50th (ft)		69					12		361		493	
Queue Length 95th (ft)		124					50		477		#832	
Internal Link Dist (ft)		206					554				537	
Turn Bay Length (ft)												
Base Capacity (vph)		244					287		639		847	
Starvation Cap Reductn		0					0		127		148	
Spillback Cap Reductn		0					0		0		0	
Storage Cap Reductn		0					0		0		0	
Reduced v/c Ratio		0.35					0.15		0.97		0.92	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 6:SWT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 42.6 Intersection LOS: D
Intersection Capacity Utilization 87.7% 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.

Splits and Phases: 39: Derry Rd/102 & Library St & Highland Ave/Highland St



Lane Group	SWL	SWT
Recall Mode	None	C-Min
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)	44.3	115.1
Actuated g/C Ratio	0.32	0.82
v/c Ratio	0.56	0.29
Control Delay	42.6	3.7
Queue Delay	0.0	0.0
Total Delay	42.6	3.7
LOS	D	A
Approach Delay		19.9
Approach LOS		B
Queue Length 50th (ft)	232	76
Queue Length 95th (ft)	302	131
Internal Link Dist (ft)		765
Turn Bay Length (ft)		
Base Capacity (vph)	642	1488
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.49	0.29

Intersection Summary

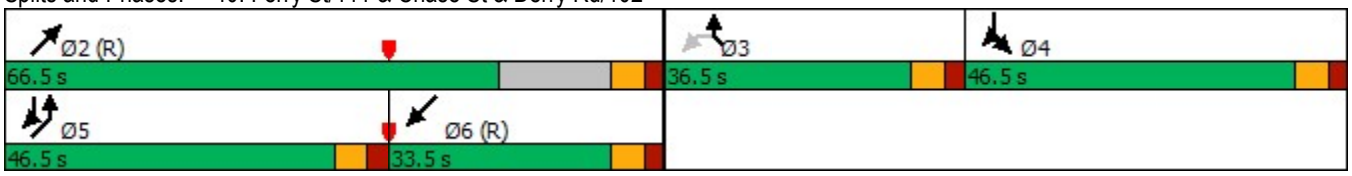
Lane Group	SBL	SBR	NWL	NWR	NWR2	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	63	514	364	29	128	234	660	11	0	605	0
Future Volume (vph)	63	514	364	29	128	234	660	11	0	605	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	13	12	12	12	12	12
Storage Length (ft)	150	300	0	0		0		0	0		0
Storage Lanes	1	1	1	1		1		0	0		0
Taper Length (ft)	25		25			25			25		
Lane Util. Factor	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt		0.850		0.850			0.998				
Flt Protected	0.950		0.950			0.950					
Satd. Flow (prot)	1719	2707	1719	1641	0	1829	1859	0	0	3539	0
Flt Permitted	0.950		0.133			0.950					
Satd. Flow (perm)	1719	2707	241	1641	0	1829	1859	0	0	3539	0
Right Turn on Red		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		67		118			1				
Link Speed (mph)	30		30				30			30	
Link Distance (ft)	617		345				426			371	
Travel Time (s)	14.0		7.8				9.7			8.4	
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
Heavy Vehicles (%)	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	68	559	396	32	139	254	717	12	0	658	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	68	559	396	171	0	254	729	0	0	658	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12		12				13			13	
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	0.92	1.00	0.96	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9	9	15		9	15		9
Turn Type	Prot	pt+ov	Perm	Prot		Prot	NA			NA	
Protected Phases	4	4 5		3		5	2			6	
Permitted Phases			3								
Detector Phase	4	4 5	3	3		5	2			6	
Switch Phase											
Minimum Initial (s)	8.0		5.0	5.0		10.0	10.0			10.0	
Minimum Split (s)	24.5		24.5	24.5		24.5	24.5			24.5	
Total Split (s)	46.5		36.5	36.5		46.5	66.5			33.5	
Total Split (%)	28.5%		22.4%	22.4%		28.5%	40.8%			20.6%	
Maximum Green (s)	40.0		30.0	30.0		40.0	60.0			27.0	
Yellow Time (s)	4.0		4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)	2.5		2.5	2.5		2.5	2.5			2.5	
Lost Time Adjust (s)	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.5		6.5	6.5		6.5	6.5			6.5	
Lead/Lag	Lag		Lead	Lead		Lead				Lag	
Lead-Lag Optimize?											
Vehicle Extension (s)	1.5		1.5	1.5		1.5	1.5			1.5	

Lane Group	SBL	SBR	NWL	NWR	NWR2	NEL	NET	NER	SWL	SWT	SWR
Recall Mode	None		None	None		Min	C-Min			C-Min	
Walk Time (s)	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	11.0		11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0		0	0		0	0			0	
Act Effct Green (s)	29.6	65.9	30.0	30.0		29.8	83.9			47.6	
Actuated g/C Ratio	0.18	0.40	0.18	0.18		0.18	0.51			0.29	
v/c Ratio	0.22	0.49	9.00	0.43		0.76	0.76			0.64	
Control Delay	57.4	31.9	3652.2	23.1		77.3	38.9			55.0	
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0			9.9	
Total Delay	57.4	31.9	3652.2	23.1		77.3	38.9			64.9	
LOS	E	C	F	C		E	D			E	
Approach Delay	34.6		2557.7				48.8			64.9	
Approach LOS	C		F				D			E	
Queue Length 50th (ft)	63	219	~792	48		260	612			325	
Queue Length 95th (ft)	109	237	#1013	126		339	840			#485	
Internal Link Dist (ft)	537		265				346			291	
Turn Bay Length (ft)	150	300									
Base Capacity (vph)	421	1295	44	398		448	957			1034	
Starvation Cap Reductn	0	0	0	0		0	0			345	
Spillback Cap Reductn	0	0	0	0		0	0			0	
Storage Cap Reductn	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.16	0.43	9.00	0.43		0.57	0.76			0.96	

Intersection Summary

Area Type: Other
Cycle Length: 163
Actuated Cycle Length: 163
Offset: 0 (0%), Referenced to phase 2:NET and 6:SWT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 9.00
Intersection Signal Delay: 551.2 Intersection LOS: F
Intersection Capacity Utilization 78.5% 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: 40: Ferry St/111 & Chase St & Derry Rd/102



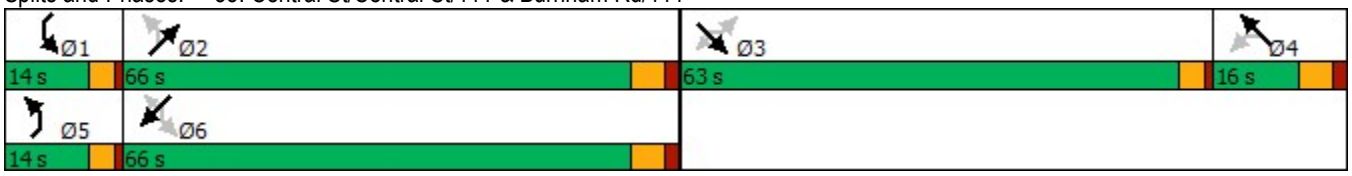
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	376	9	45	27	5	16	27	504	18	23	378	466
Future Volume (vph)	376	9	45	27	5	16	27	504	18	23	378	466
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	16	12	12	12	12	12	12	14
Storage Length (ft)	0		200	0		0	120		0	280		280
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.955			0.995				0.850
Flt Protected		0.953			0.972		0.950			0.950		
Satd. Flow (prot)	0	1775	1794	0	1960	0	1770	1853	0	1770	1863	1689
Flt Permitted		0.575			0.611		0.279			0.094		
Satd. Flow (perm)	0	1071	1794	0	1232	0	520	1853	0	175	1863	1689
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89		12			1				507
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		882			126			314			2248	
Travel Time (s)		20.0			2.9			7.1			51.1	
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)	409	10	49	29	5	17	29	548	20	25	411	507
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	419	49	0	51	0	29	568	0	25	411	507
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	0.85	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	0.92
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		6
Detector Phase	3	3	3	4	4		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	4.0	4.0		4.0	10.0		4.0	10.0	10.0
Minimum Split (s)	14.0	14.0	14.0	10.0	10.0		8.0	16.0		8.0	16.0	16.0
Total Split (s)	63.0	63.0	63.0	16.0	16.0		14.0	66.0		14.0	66.0	66.0
Total Split (%)	39.6%	39.6%	39.6%	10.1%	10.1%		8.8%	41.5%		8.8%	41.5%	41.5%
Maximum Green (s)	59.0	59.0	59.0	10.0	10.0		10.0	60.0		10.0	60.0	60.0
Yellow Time (s)	3.0	3.0	3.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	2.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		6.0		4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		2.0	3.0		2.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Act Effct Green (s)		61.0	61.0		8.6		51.3	45.7		51.0	45.6	45.6
Actuated g/C Ratio		0.45	0.45		0.06		0.38	0.34		0.38	0.34	0.34
v/c Ratio		0.86	0.06		0.57		0.11	0.90		0.19	0.65	0.56
Control Delay		56.5	0.5		78.0		24.6	60.8		26.6	43.2	5.1
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		56.5	0.5		78.0		24.6	60.8		26.6	43.2	5.1
LOS		E	A		E		C	E		C	D	A
Approach Delay		50.7			78.0			59.0			22.3	
Approach LOS		D			E			E			C	
Queue Length 50th (ft)		379	0		36		16	503		14	326	0
Queue Length 95th (ft)		#678	3		#96		36	672		32	446	76
Internal Link Dist (ft)		802			46			234			2168	
Turn Bay Length (ft)			200				120			280		280
Base Capacity (vph)		486	864		106		302	857		191	861	1053
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		0.86	0.06		0.48		0.10	0.66		0.13	0.48	0.48

Intersection Summary

Area Type: Other
Cycle Length: 159
Actuated Cycle Length: 134.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 40.8 Intersection LOS: D
Intersection Capacity Utilization 63.9% 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: 55: Central St/Central St/111 & Burnham Rd/111



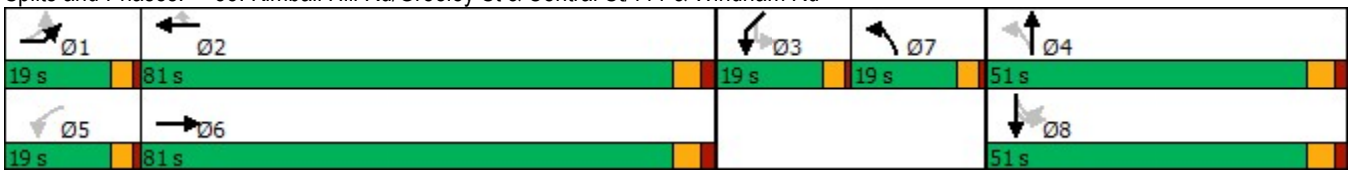
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations												
Traffic Volume (vph)	67	25	769	85	171	295	90	26	219	264	25	32
Future Volume (vph)	67	25	769	85	171	295	90	26	219	264	25	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	12	16	12	12	16	12
Storage Length (ft)		300		300	300		300		140		300	
Storage Lanes		1		1	1		2		1		0	
Taper Length (ft)		25			25				25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850	0.850		0.973		
Flt Protected		0.950			0.950				0.950			
Satd. Flow (prot)	0	1770	1810	1689	1719	1810	1538	1794	1570	1765	0	0
Flt Permitted		0.267			0.267				0.427			
Satd. Flow (perm)	0	497	1810	1689	483	1810	1538	1794	705	1765	0	0
Right Turn on Red				Yes				Yes				Yes
Satd. Flow (RTOR)				121				121		3		
Link Speed (mph)			30			30				30		
Link Distance (ft)			2248			4120				755		
Travel Time (s)			51.1			93.6				17.2		
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
Heavy Vehicles (%)	2%	2%	5%	2%	5%	5%	5%	2%	15%	5%	2%	5%
Adj. Flow (vph)	73	27	836	92	186	321	98	28	238	287	27	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	100	836	92	186	321	98	28	238	349	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Right	Left	Left	Right	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	0.92	1.00	1.00	1.00	0.85	1.00	1.00	0.85	1.00
Turning Speed (mph)	15	15		9	15		9	9	15		9	9
Turn Type	custom	Prot	NA	Free	custom	NA	Perm	Free	pm+pt	NA		
Protected Phases		1	6			2			7	4		
Permitted Phases	1			Free	5		2	Free	4			
Detector Phase	1	1	6		5	2	2		7	4		
Switch Phase												
Minimum Initial (s)	4.0	4.0	15.0		4.0	15.0	15.0		4.0	10.0		
Minimum Split (s)	8.0	8.0	21.0		8.0	21.0	21.0		8.0	16.0		
Total Split (s)	19.0	19.0	81.0		19.0	81.0	81.0		19.0	51.0		
Total Split (%)	10.1%	10.1%	42.9%		10.1%	42.9%	42.9%		10.1%	27.0%		
Maximum Green (s)	15.0	15.0	75.0		15.0	75.0	75.0		15.0	45.0		
Yellow Time (s)	3.0	3.0	4.0		3.0	4.0	4.0		3.0	4.0		
All-Red Time (s)	1.0	1.0	2.0		1.0	2.0	2.0		1.0	2.0		
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0		0.0	0.0		
Total Lost Time (s)		4.0	6.0		4.0	6.0	6.0		4.0	6.0		
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag		Lag			
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	3.0		2.0	3.0	3.0		2.0	3.0		

Lane Group	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations								
Traffic Volume (vph)	4	75	135	59	33	19	53	43
Future Volume (vph)	4	75	135	59	33	19	53	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	12	12	12
Storage Length (ft)		0		0		0	0	
Storage Lanes		0		0		1	0	
Taper Length (ft)		25				25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.971			0.912		
Flt Protected			0.986			0.983		
Satd. Flow (prot)	0	0	1963	0	0	1670	0	0
Flt Permitted			0.283			0.983		
Satd. Flow (perm)	0	0	564	0	0	1670	0	0
Right Turn on Red				No				No
Satd. Flow (RTOR)								
Link Speed (mph)			30			30		
Link Distance (ft)			869			736		
Travel Time (s)			19.8			16.7		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	5%	5%	2%	2%	2%	2%
Adj. Flow (vph)	4	82	147	64	36	21	58	47
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	0	297	0	0	162	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)			12			12		
Link Offset(ft)			0			0		
Crosswalk Width(ft)			16			16		
Two way Left Turn Lane								
Headway Factor	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15		9	15	15	9	9
Turn Type	Perm	Perm	NA		Perm	Prot		
Protected Phases			8			3		
Permitted Phases	8	8			3			
Detector Phase	8	8	8		3	3		
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0		4.0	4.0		
Minimum Split (s)	16.0	16.0	16.0		8.0	8.0		
Total Split (s)	51.0	51.0	51.0		19.0	19.0		
Total Split (%)	27.0%	27.0%	27.0%		10.1%	10.1%		
Maximum Green (s)	45.0	45.0	45.0		15.0	15.0		
Yellow Time (s)	4.0	4.0	4.0		3.0	3.0		
All-Red Time (s)	2.0	2.0	2.0		1.0	1.0		
Lost Time Adjust (s)			0.0			0.0		
Total Lost Time (s)			6.0			4.0		
Lead/Lag					Lead	Lead		
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0		2.0	2.0		

Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Recall Mode	None	None	Min		None	Min	Min		None	None		
Act Effct Green (s)		15.0	75.0	189.0	15.0	75.0	75.0	189.0	62.0	45.0		
Actuated g/C Ratio		0.08	0.40	1.00	0.08	0.40	0.40	1.00	0.33	0.24		
v/c Ratio		2.56	1.16	0.05	4.89	0.45	0.16	0.02	0.80	0.83		
Control Delay		800.2	137.8	0.1	1823.6	44.3	37.7	0.0	70.7	84.6		
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay		800.2	137.8	0.1	1823.6	44.3	37.7	0.0	70.7	84.6		
LOS		F	F	A	F	D	D	A	E	F		
Approach Delay			189.9			564.1				79.0		
Approach LOS			F			F				E		
Queue Length 50th (ft)		~206	~1226	0	~429	293	79	0	228	413		
Queue Length 95th (ft)		#348	#1493	0	#609	391	127	0	#341	#572		
Internal Link Dist (ft)			2168			4040				675		
Turn Bay Length (ft)		300		300	300		300	300	140			
Base Capacity (vph)		39	718	1689	38	718	610	1794	299	422		
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		2.56	1.16	0.05	4.89	0.45	0.16	0.02	0.80	0.83		

Intersection Summary			
Area Type:	Other		
Cycle Length: 189			
Actuated Cycle Length: 189			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 4.89			
Intersection Signal Delay: 300.0		Intersection LOS: F	
Intersection Capacity Utilization 112.8%		ICU Level of Service H	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 58: Kimball Hill Rd/Greeley St & Central St/111 & Windham Rd



Lane Group	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Recall Mode	None	None	None		None	None		
Act Effct Green (s)			45.0			15.0		
Actuated g/C Ratio			0.24			0.08		
v/c Ratio			2.22			1.23		
Control Delay			600.4			217.3		
Queue Delay			0.0			0.0		
Total Delay			600.4			217.3		
LOS			F			F		
Approach Delay			600.4			217.3		
Approach LOS			F			F		
Queue Length 50th (ft)			~591			~246		
Queue Length 95th (ft)			#802			#416		
Internal Link Dist (ft)			789			656		
Turn Bay Length (ft)								
Base Capacity (vph)			134			132		
Starvation Cap Reductn			0			0		
Spillback Cap Reductn			0			0		
Storage Cap Reductn			0			0		
Reduced v/c Ratio			2.22			1.23		

Intersection Summary

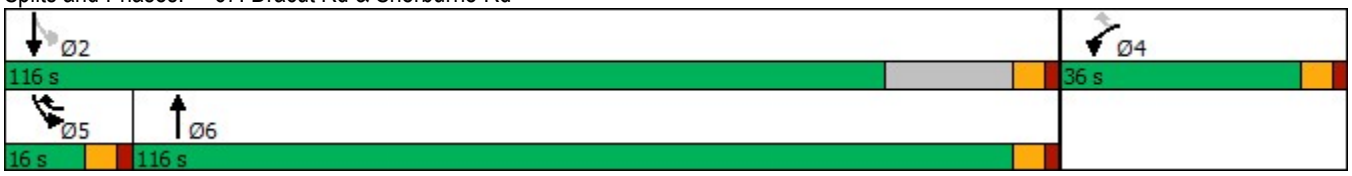
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	81	295	312	100	404	528
Future Volume (vph)	81	295	312	100	404	528
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	150	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.967			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1538	1762	0	1770	1863
Flt Permitted	0.950				0.277	
Satd. Flow (perm)	1770	1538	1762	0	516	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		321	20			
Link Speed (mph)	30		30			30
Link Distance (ft)	832		787			870
Travel Time (s)	18.9		17.9			19.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	5%	2%	2%	2%
Adj. Flow (vph)	88	321	339	109	439	574
Shared Lane Traffic (%)						
Lane Group Flow (vph)	88	321	448	0	439	574
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA		pm+pt	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4			2	
Detector Phase	4	5	6		5	2
Switch Phase						
Minimum Initial (s)	5.0	3.0	10.0		3.0	10.0
Minimum Split (s)	11.0	9.0	16.0		9.0	16.0
Total Split (s)	36.0	16.0	116.0		16.0	116.0
Total Split (%)	21.4%	9.5%	69.0%		9.5%	69.0%
Maximum Green (s)	30.0	10.0	110.0		10.0	110.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	1.5	1.5		1.5	1.5
Recall Mode	None	None	Min		None	Min

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Act Effct Green (s)	7.1	20.5	18.7		35.5	37.3
Actuated g/C Ratio	0.14	0.40	0.36		0.69	0.72
v/c Ratio	0.37	0.40	0.69		0.72	0.43
Control Delay	27.9	3.5	20.5		14.6	5.8
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	27.9	3.5	20.5		14.6	5.8
LOS	C	A	C		B	A
Approach Delay	8.8		20.5			9.6
Approach LOS	A		C			A
Queue Length 50th (ft)	26	0	114		52	74
Queue Length 95th (ft)	70	43	211		#152	146
Internal Link Dist (ft)	752		707			790
Turn Bay Length (ft)		150			150	
Base Capacity (vph)	1078	803	1762		608	1863
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	0.08	0.40	0.25		0.72	0.31

Intersection Summary			
Area Type:	Other		
Cycle Length: 168			
Actuated Cycle Length: 51.8			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 12.0		Intersection LOS: B	
Intersection Capacity Utilization 64.4%		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: 67: Dracut Rd & Sherburne Rd

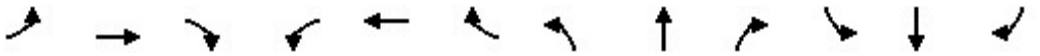


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	148	126	40	156	330	39
Future Volume (vph)	148	126	40	156	330	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12
Storage Length (ft)		0	180		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.938				0.986	
Flt Protected			0.950		0.957	
Satd. Flow (prot)	1462	0	1770	1652	1743	0
Flt Permitted			0.950		0.957	
Satd. Flow (perm)	1462	0	1770	1652	1743	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1417			420	606	
Travel Time (s)	32.2			9.5	13.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	15%	30%	2%	15%	15%	30%
Adj. Flow (vph)	161	137	43	170	359	42
Shared Lane Traffic (%)						
Lane Group Flow (vph)	298	0	43	170	401	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	16	
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	0.85	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 49.5%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	239	1	133	252	9	338
Future Volume (vph)	239	1	133	252	9	338
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	16	16	12
Storage Length (ft)		0	80		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.869	
Flt Protected			0.950		0.999	
Satd. Flow (prot)	1861	0	1770	2111	1833	0
Flt Permitted			0.950		0.999	
Satd. Flow (perm)	1861	0	1770	2111	1833	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	2748			314	1025	
Travel Time (s)	62.5			7.1	23.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	260	1	145	274	10	367
Shared Lane Traffic (%)						
Lane Group Flow (vph)	261	0	145	274	377	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	16	
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	0.85	0.85	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	0	223	0	0	0	291	703	0	0	637	13
Future Volume (vph)	66	0	223	0	0	0	291	703	0	0	637	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	12	12	12	12	12	12	15	12
Storage Length (ft)	130		0	0		0	465		0	0		0
Storage Lanes	1		1	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850								0.997	
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1770	0	1583	0	1863	0	1770	1863	0	0	2043	0
Flt Permitted	0.950						0.199					
Satd. Flow (perm)	1770	0	1583	0	1863	0	371	1863	0	0	2043	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			242								1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		468			79			2433			1216	
Travel Time (s)		10.6			1.8			55.3			27.6	
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)	72	0	242	0	0	0	316	764	0	0	692	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	72	0	242	0	0	0	316	764	0	0	706	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	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot		pt+ov				pm+pt	NA			NA	
Protected Phases	4		4 1	8	8		1	6			2	
Permitted Phases	4						6			2		
Detector Phase	4		4 1	8	8		1	6		2	2	
Switch Phase												
Minimum Initial (s)	3.0			5.0	5.0		3.0	10.0		10.0	10.0	
Minimum Split (s)	9.0			11.0	11.0		7.0	16.0		16.0	16.0	
Total Split (s)	21.0			16.0	16.0		19.0	101.0		101.0	101.0	
Total Split (%)	13.4%			10.2%	10.2%		12.1%	64.3%		64.3%	64.3%	
Maximum Green (s)	15.0			10.0	10.0		15.0	95.0		95.0	95.0	
Yellow Time (s)	4.0			4.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	2.0			2.0	2.0		1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0				0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0				6.0		4.0	6.0			6.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5			0.4	0.4		2.0	5.0		5.0	5.0	
Recall Mode	None			None	None		None	Min		Min	Min	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	8.5		22.3				51.6	49.5			35.8	
Actuated g/C Ratio	0.12		0.32				0.73	0.70			0.51	
v/c Ratio	0.34		0.36				0.69	0.58			0.68	
Control Delay	37.0		5.0				13.5	7.3			17.1	
Queue Delay	0.0		0.0				0.0	0.0			0.0	
Total Delay	37.0		5.0				13.5	7.3			17.1	
LOS	D		A				B	A			B	
Approach Delay		12.4						9.1			17.1	
Approach LOS		B						A			B	
Queue Length 50th (ft)	28		0				33	129			205	
Queue Length 95th (ft)	81		52				109	243			382	
Internal Link Dist (ft)		388			1			2353			1136	
Turn Bay Length (ft)	130						465					
Base Capacity (vph)	392		769				581	1863			2043	
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	0.18		0.31				0.54	0.41			0.35	

Intersection Summary			
Area Type:	Other		
Cycle Length: 157			
Actuated Cycle Length: 70.6			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 12.3		Intersection LOS: B	
Intersection Capacity Utilization 88.3%		ICU Level of Service E	
Analysis Period (min) 15			

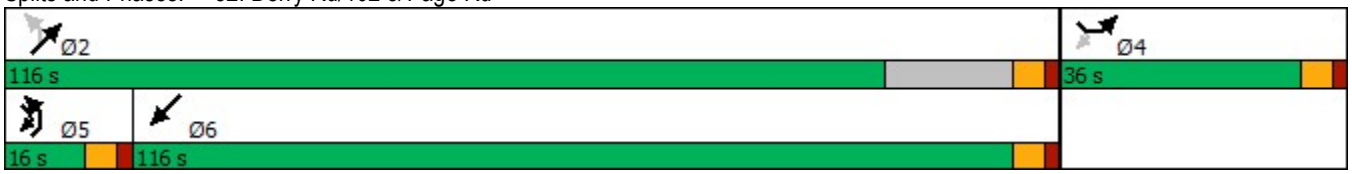
Splits and Phases: 76: Derry Rd/102 & Elm Ave

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	79	41	46	328	422	103
Future Volume (vph)	79	41	46	328	422	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.974	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1719	1583	1770	1810	1762	0
Flt Permitted	0.950		0.274			
Satd. Flow (perm)	1719	1583	510	1810	1762	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		45			15	
Link Speed (mph)	30			30	30	
Link Distance (ft)	420			2236	3657	
Travel Time (s)	9.5			50.8	83.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	2%	2%	5%	5%	5%
Adj. Flow (vph)	86	45	50	357	459	112
Shared Lane Traffic (%)						
Lane Group Flow (vph)	86	45	50	357	571	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
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	pm+pt	NA	NA	
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	3.0	3.0	10.0	10.0	
Minimum Split (s)	11.0	9.0	9.0	16.0	16.0	
Total Split (s)	36.0	16.0	16.0	116.0	116.0	
Total Split (%)	21.4%	9.5%	9.5%	69.0%	69.0%	
Maximum Green (s)	30.0	10.0	10.0	110.0	110.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	1.5	1.5	1.5	1.5	
Recall Mode	None	None	None	Min	Min	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Act Effct Green (s)	7.4	16.2	36.6	38.6	29.6	
Actuated g/C Ratio	0.14	0.30	0.69	0.72	0.56	
v/c Ratio	0.36	0.09	0.10	0.27	0.58	
Control Delay	29.2	6.0	4.0	4.7	15.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	29.2	6.0	4.0	4.7	15.0	
LOS	C	A	A	A	B	
Approach Delay	21.3			4.6	15.0	
Approach LOS	C			A	B	
Queue Length 50th (ft)	26	0	5	41	141	
Queue Length 95th (ft)	76	20	15	84	280	
Internal Link Dist (ft)	340			2156	3577	
Turn Bay Length (ft)		150	150			
Base Capacity (vph)	1039	650	604	1810	1762	
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	0.08	0.07	0.08	0.20	0.32	

Intersection Summary			
Area Type:	Other		
Cycle Length: 168			
Actuated Cycle Length: 53.3			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 11.9		Intersection LOS: B	
Intersection Capacity Utilization 51.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 82: Derry Rd/102 & Page Rd



Appendix B – Traffic Count Data

B.1 Existing (2022) Intersection Turning Movement Counts

B.2 Future 2030 Projected Intersection Turning Movement Counts

B.3 Future 2045 Projected Intersection Turning Movement Counts

B.4 Segment Traffic Counts – Existing and Projected

B.1 Existing (2022) Intersection Turning Movement Counts

HUD#	Intersection	Traffic Count Date	Turning Movement Count (AM PEAK)											
			NR	NT	NL	ER	ET	EL	SR	ST	SL	WR	WT	WL
1	111-102-3A (Ferry & Chase)	05/04/22 & 05/10/22	17	13	243	9	480	403	697	73	0	0	480	0
2	Library & Ferry	05/04/22 & 05/10/22	8	277	10	13	410	0	3	378	25	12	373	2
3	Library and Highland	05/04/22 & 05/10/22	**See Special Intersection Table**											
4	Burnham and Central	05/04/22 & 05/10/22	14	6	16	14	269	13	34	4	390	513	368	17
5	Central-Kimball-Greeley (Rt.111 & Greeley)	8/9/2022	**See Special Intersection Table**											
6	Derry and 102 (Route 102 & Elm Ave)	05/04/22 & 05/10/22	0	660	133	268	0	44	11	800	0	0	0	1
7	NH 102/Page Rd	08/09/22	0	435	34	68	0	95	47	504	0	0	0	0
8	NH 3A Central St/Chase St	08/18/22	3	2	0	1	259	18	4	2	62	227	8	3
9	Central and Library	05/04/22 & 05/10/22	1	1	1	0	290	1	1	9	408	239	347	2
10	Lowell and Central	05/04/22 & 05/10/22	0	0	0	0	607	128	125	0	199	109	463	0
11	Lowell and Pelham	05/04/22 & 05/10/22	85	555	0	0	0	0	0	868	72	74	0	202
12	Lowell and Executive	05/04/22 & 05/10/22	74	442	110	84	4	31	142	786	83	106	19	158
13	Lowell-Hampshire-Oblate	05/04/22 & 05/10/22	3	750	86	13	0	6	36	989	2	2	0	4
14	Lowell & Wason	05/04/22 & 05/10/22	178	716	171	208	24	36	28	848	22	45	59	432
[15N]	NH 3A Lowell Rd/Sagamore Bridge Rd - Northern Section	08/16/22	0	948	0	0	0	0	1103	285	0	0	0	0
[15M]	NH 3A Lowell Rd/Sagamore Bridge Rd - Middle Section	08/30/22	0	189	689	0	0	735	0	0	0	0	0	0
[15S]	NH 3A Lowell Rd/Sagamore Bridge Rd - Southern Section	08/16/22	0	854	0	638	0	0	0	277	0	0	0	0
15	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined	-	**See Special Intersection Table**											
16	NH 3A Lowell Rd/Walmart Blvd	08/02/22	23	766	59	44	11	90	84	697	94	91	9	21
17	NH 3A Lowell Rd/Rena Ave	08/04/22	3	821	17	1	0	5	55	655	7	23	0	6
18	NH 3A Lowell Rd/Dracut Rd/Steele Rd	08/10/22	**See Special Intersection Table**											
19	Dracut Rd/Sherburne Rd	07/21/22	49	237	0	0	0	0	0	178	214	285	0	88
20	Kimball Hill Rd/Bush Hill Rd	08/03/22	23	0	87	133	164	0	0	0	0	0	170	54
21	Central St/Belknap Rd	09/01/22	201	0	9	2	142	0	0	0	0	0	226	174
22	Lowell and Fox (11/21 & 11/23)	11/21/22 &11/23/22	6	930	39	31	1	35	3	644	17	25	4	17
23	Lowell and Birch (11/21 & 11/23)	11/21/22 &11/23/22	0	534	32	32	0	38	12	736	0	0	0	0

Red font = Adjustment made

HUD#	Intersection	Traffic Count Date	Truck TMC (AM PEAK)											
			NR	NT	NL	ER	ET	EL	SR	ST	SL	WR	WT	WL
1	111-102-3A (Ferry & Chase)	5/10/22	0.6	0.4	9	0.3	17	14	32	3.1	0	0	17	0
2	Library & Ferry	5/10/22	0.1	4.3	0.1	0.2	6.3	0	0	0.9	0.1	0.2	6.3	0
3	Library and Highland	5/10/22	See Special Intersection Table											
4	Burnham and Central	5/10/22	0.2	0.1	0.2	0.2	4.6	0.2	0.7	0.1	6.8	10	7.3	0.5
5	Central-Kimball-Greeley (Rt.111 & Greeley)	8/9/2022	See Special Intersection Table											
6	Derry and 102 (Route 102 & Elm Ave)	5/10/22	0	14	2.6	7.7	0	1.3	0.2	17	0	0	0	0
7	NH 102/Page Rd	08/09/22	0	34	0	0	0	4	7	28	0	0	0	0
8	NH 3A Central St/Chase St	08/18/22	1	0	0	0	0	13	0	0	9	9	0	0
9	Central and Library	5/10/22	0	0	0	0	3.5	0	0	0.1	3.4	0	4.5	0
10	Lowell and Central	5/10/22	-	-	-	0	8.6	1.9	2.3	0	3.7	2.4	10	0
11	Lowell and Pelham	5/10/22	2.1	14	0	-	-	-	0	376	32	4.1	0	10
12	Lowell and Executive	5/10/22	4.8	30	6.5	0	0.2	1.8	2	11	1.1	0.4	0.1	0.5
13	Lowell-Hampshire-Oblate	5/10/22	0	29	3.3	0	0	0	0.3	8.7	0	0	0	0
14	Lowell & Wason	5/10/22	4.9	18	4.3	66	5.9	9.8	3.3	92	2.2	2.1	2.9	21
[15N]	NH 3A Lowell Rd/Sagamore Bridge Rd - Northern Section	08/16/22	0	55	0	0	0	0	35	14	0	0	0	0
[15M]	NH 3A Lowell Rd/Sagamore Bridge Rd - Middle Section	08/30/22	0	22	27	0	0	30	0	23	0	0	0	0
[15S]	NH 3A Lowell Rd/Sagamore Bridge Rd - Southern Section	08/16/22	0	30	0	25	0	0	0	12	0	0	0	0
15	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined	-	See Special Intersection Table											
16	NH 3A Lowell Rd/Walmart Blvd	08/02/22	0	27	1	0	0	6	3	21	2	3	0	1
17	NH 3A Lowell Rd/Rena Ave	08/04/22	0	29	0	0	0	1	1	28	1	1	0	0
18	NH 3A Lowell Rd/Dracut Rd/Steele Rd	08/10/22	See Special Intersection Table											
19	Dracut Rd/Sherburne Rd	07/21/22	2	5	0	0	0	0	0	2	20	8	0	12
20	Kimball Hill Rd/Bush Hill Rd	08/03/22	4	0	8	10	6	0	0	0	0	0	9	0
21	Central St/Belknap Rd	09/01/22	9	0	1	2	15	0	0	0	0	0	17	4
22	Lowell and Fox (11/21 & 11/23)	11/21/22 &11/23/22	0	13	1	2.1	0	2.4	0.1	38	0.6	0.5	0.1	0.4
23	Lowell and Birch (11/21 & 11/23)	11/21/22 &11/23/22	0	24	1.6	1	0	1.5	0.8	32	0	-	-	-

Red font = Adjustment made

HUD#	Intersection	Traffic Count Date	Turning Movement Count (AM PEAK - Special Intersections)																			
3	Library and Highland	05/04/22 & 05/10/22	D-NR	D-NT	D-NL	L-NR	L-NT	L-NL	ER-D	ER-L	ET	EL	SR	ST-D	ST-L	SL	WR	WT	WL-D	WL-L		
	D = Derry St; L = Library St		10	570	1	6	357	0	6	4	10	10	0	576	361	0	52	13	2	2		
5	Central-Kimball-Greeley (Rt.111 & Greeley)	08/09/22	H->111E	NR-Win	NT-G	NL-111W	ER-K	ET-111W	EL-Win	EL-G	SR-111W	ST-K	SL-111E	SL-Win	Win-R->G	Win-T->111W	Win-L->K	Win-L->111E	Bypass->Win	111W-R->G	111W-T	111W-L->K
	111E/W = Route 111 Eastbound or Westbound; H = Hamblett Ave; G = Greeley St; K = Kimball Hill Rd; Win = Windham Rd		11	3	102	149	26	478	28	26	72	63	94	10	15	32	16	40	28	124	267	137
15	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined	08/16/22 & 08/30/22	NR	NT	NL-Hwy	ER(no sig)	ET	EL-L	EL-Hwy	SR-Hwy(no sig)	ST	SL	WR	WT	WL							
	L = Lowell Rd; Hwy = Circumferential Highway Ramp; no sig = movement not signalized		-	189	689	638	-	735	0	1103	285	-	-	-	-							
18	NH 3A Lowell Rd/Dracut Rd/ Steele Rd	08/10/22	NR-Dav	NR-Dra	NT-3A/N	NL-Ste	ER-3A/S	ER-Dra	ET-Dav	EL-3A/N	SR-Ste	ST-3A/S	SL-Dra	SL-Dav	WR-Dav	WT-3A/N	WL-3A/S	WL-Ste	DavR-3A/N	DavT-Ste	DavL-Dra	DavL-3A/S
	Dav = Davenport Rd; Dra = Dracut Rd; Ste = Steele Rd; 3A/N = Lowell Rd/3A NB; 3A/S = Lowell Rd/3A SB; Direction Assignment = NB from 3A/S, EB from Steele Rd, SB from 3A/N, WB from Dracut Rd, Davenport Rd as "Dra"		-	-	222	0	2	2	0	7	24	352	346	0	0	572	8	0	1	0	1	0

Red font = Adjustment made

HUD#	Intersection	Traffic Count Date	Truck TMC (AM PEAK - Special Intersections)																		
3	Library and Highland	5/10/22	D-NR	D-NT	D-NL	L-NR	L-NT	L-NL	ER-D	ER-L	ET	EL	SR	ST-D	ST-L	SL	WR	WT	WL-D	WL-L	
	D = Derry St; L = Library St		0.3	9.9	0.0	0.2	6.2	0.0	2.9	1.8	6.1	4.7	0.0	11.7	7.3	0.0	7.3	1.8	0.2	0.2	
5	Central-Kimball-Greeley (Rt.111 & Greeley)	5/10/22	H->111E	NR-Win	NT-G	NL-111W	ER-K	ET-111W	EL-Win	EL-G	SR-111W	ST-K	SL-111E	SL-Win	Win-R->G	Win-T->111W	Win-L->K	Win-L->111E	Bypass->Win	111W-R->G	111W-T	111W-L->K
	111E/W = Route 111 Eastbound or Westbound; H = Hamblett Ave; G = Greeley St; K = Kimball Hill Rd; Win = Windham Rd		0.3	0.0	2.3	5.0	0.9	36.0	1.1	0.9	2.2	2.3	3.7	0.4	0.1	0.2	0.1	0.2	0.6	5.5	18.0	0.5
15	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined	08/16/22 & 08/30/22	NR	NT	NL-Hwy	ER(no sig)	ET	EL-L	EL-Hwy	SR-Hwy(no sig)	ST	SL	WR	WT	WL							
	L = Lowell Rd; Hwy = Circumferential Highway Ramp; no sig = movement not signalized		-	21.5	27	25	-	30	0	34.5	13.5	-	-	-	-							
18	NH 3A Lowell Rd/Dracut Rd/ Steele Rd	08/10/22	NR-Dav	NR-Dra	NT-3A/N	NL-Ste	ER-3A/S	ER-Dra	ET-Dav	EL-3A/N	SR-Ste	ST-3A/S	SL-Dra	SL-Dav	WR-Dav	WT-3A/N	WL-3A/S	WL-Ste	DavR-3A/N	DavT-Ste	DavL-Dra	DavL-3A/S
	Dav = Davenport Rd; Dra = Dracut Rd; Ste = Steele Rd; 3A/N = Lowell Rd/3A NB; 3A/S = Lowell Rd/3A SB; Direction Assignment = NB from 3A/S, EB from Steele Rd, SB from 3A/N, WB from Dracut Rd, Davenport Rd as "Dra"		-	-	11	0	0	0	0	0	0	15	22	0	0	21	0	0	0	0	0	0

Red font = Adjustment made

HUD#	Intersection	Traffic Count Date	Turning Movement Count (PM PEAK)											
			NR	NT	NL	ER	ET	EL	SR	ST	SL	WR	WT	WL
1	111-102-3A (Ferry & Chase)	05/04/22 & 05/10/22	128	35	349	11	547	368	541	65	0	0	547	0
2	Library & Ferry	05/04/22 & 05/10/22	15	384	20	32	386	0	4	289	39	8	571	6
3	Library and Highland	05/04/22 & 05/10/22	**See Special Intersection Table**											
4	Burnham and Central	05/04/22 & 05/10/22	16	5	27	18	401	25	44	9	447	513	350	23
5	Central-Kimball-Greeley (Rt.111 & Greeley)	8/9/2022	**See Special Intersection Table**											
6	Derry and 102 (Route 102 & Elm Ave)	05/04/22 & 05/10/22	0	728	251	186	0	63	14	644	0	0	0	0
7	NH 102/Page Rd	08/09/22	0	365	47	49	0	74	92	469	0	0	0	0
8	NH 3A Central St/Chase St	08/18/22	4	10	0	5	503	209	5	6	61	265	15	7
9	Central and Library	05/04/22 & 05/10/22	1	0	1	0	320	1	3	1	340	227	563	4
10	Lowell and Central	05/04/22 & 05/10/22	0	0	0	0	650	199	76	0	190	145	718	0
11	Lowell and Pelham	05/04/22 & 05/10/22	94	1036	0	0	0	0	0	802	94	119	0	118
12	Lowell and Executive	05/04/22 & 05/10/22	32	834	63	140	3	128	105	722	36	49	3	74
13	Lowell-Hampshire-Oblate	05/04/22 & 05/10/22	11	1004	23	67	1	19	18	915	3	2	0	6
14	Lowell & Wason	05/04/22 & 05/10/22	529	875	143	292	72	47	32	836	60	38	32	314
[15N]	NH 3A Lowell Rd/Sagamore Bridge Rd - Northern Section	08/16/22	0	1832	0	0	0	0	1117	472	0	0	0	0
[15M]	NH 3A Lowell Rd/Sagamore Bridge Rd - Middle Section	08/30/22	0	520	941	0	0	1316	0	456	0	0	0	0
[15S]	NH 3A Lowell Rd/Sagamore Bridge Rd - Southern Section	08/16/22	0	1365	0	962	0	0	0	445	0	0	0	0
15	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined	-	**See Special Intersection Table**											
16	NH 3A Lowell Rd/Walmart Blvd	08/02/22	54	1013	76	74	23	184	179	1000	199	195	17	72
17	NH 3A Lowell Rd/Rena Ave	08/04/22	14	1034	22	22	1	85	5	1077	64	32	1	7
18	NH 3A Lowell Rd/Dracut Rd/Steele Rd	08/10/22	**See Special Intersection Table**											
19	Dracut Rd/Sherburne Rd	07/21/22	103	358	0	0	0	0	0	452	332	299	0	85
20	Kimball Hill Rd/Bush Hill Rd	08/03/22	41	0	289	114	183	0	0	0	0	0	221	40
21	Central St/Belknap Rd	09/01/22	231	0	8	1	185	0	0	0	0	0	190	141
22	Lowell and Fox (11/21 & 11/23)	11/21/22 &11/23/22	6	796	71	71	4	50	16	1049	23	22	3	13
23	Lowell and Birch (11/21 & 11/23)	11/21/22 &11/23/22	0	790	97	45	0	58	14	722	0	0	0	0

Red font = Adjustment made

HUD#	Intersection	Traffic Count Date	Truck TMC (PM PEAK)											
			NR	NT	NL	ER	ET	EL	SR	ST	SL	WR	WT	WL
1	111-102-3A (Ferry & Chase)	5/10/22	6.3	2.7	16	0.2	6.9	3.7	34	4.1	0	0	6.9	0
2	Library & Ferry	5/10/22	0.1	1.4	0.1	0.1	0.9	0	0	0	0	0	0.5	0
3	Library and Highland	5/10/22	See Special Intersection Table											
4	Burnham and Central	5/10/22	0.1	0.1	0.3	0.1	2.2	0.2	0.5	0.1	4.9	7.6	6	0.4
5	Central-Kimball-Greeley (Rt.111 & Greeley)	8/9/2022	See Special Intersection Table											
6	Derry and 102 (Route 102 & Elm Ave)	5/10/22	0	6.4	2.1	3.2	0	1.3	0.3	12	0	0	0	0
7	NH 102/Page Rd	08/09/22	0	25	0	0	0	2.9	5.1	21	0	0	0	0
8	NH 3A Central St/Chase St	08/18/22	0	0	0	0	11	4	0	0	2	15	1	0
9	Central and Library	5/10/22	0	0	0	0	11	0	0	0	1	0	1.5	0
10	Lowell and Central	5/10/22	-	-	-	0	3.8	1.2	1.6	0	3.4	1.2	6.3	0
11	Lowell and Pelham	5/10/22	1	11	0	-	-	-	0	211	19	2.9	0	3.1
12	Lowell and Executive	5/10/22	1.6	81	5.7	0	0.1	2.4	1	7.3	0.2	0.1	0	0.4
13	Lowell-Hampshire-Oblate	5/10/22	0.2	16	0.4	0	0	0	0.2	7.3	0	0	0	0
14	Lowell & Wason	5/10/22	14	24	4.3	41	9.7	6.4	2.9	84	7.2	2.9	3.4	26
[15N]	NH 3A Lowell Rd/Sagamore Bridge Rd - Northern Section	08/16/22	0	56	0	0	0	0	23	9	0	0	0	0
[15M]	NH 3A Lowell Rd/Sagamore Bridge Rd - Middle Section	08/30/22	0	22	32	0	0	66	0	15	0	0	0	0
[15S]	NH 3A Lowell Rd/Sagamore Bridge Rd - Southern Section	08/16/22	0	27	0	10	0	0	0	8	0	0	0	0
15	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined	-	See Special Intersection Table											
16	NH 3A Lowell Rd/Walmart Blvd	08/02/22	1	17	1	1	0	4	2	10	2	3	0	0
17	NH 3A Lowell Rd/Rena Ave	08/04/22	0	17	0	0	0	2	1	8	0	0	0	0
18	NH 3A Lowell Rd/Dracut Rd/Steele Rd	08/10/22	See Special Intersection Table											
19	Dracut Rd/Sherburne Rd	07/21/22	5	4	0	0	0	0	0	1	4	10	0	1
20	Kimball Hill Rd/Bush Hill Rd	08/03/22	13	0	25	31	19	0	0	0	0	0	28	0
21	Central St/Belknap Rd	09/01/22	0	0	0	0	2	0	0	0	0	0	2	0
22	Lowell and Fox (11/21 & 11/23)	11/21/22 &11/23/22	0.1	20	2.2	0.8	0	0.6	0.2	27	0.7	11	1.9	7
23	Lowell and Birch (11/21 & 11/23)	11/21/22 &11/23/22	0	94	12	3.1	0	3.4	0.8	42	0	-	-	-

Red font = Adjustment made

HUD#	Intersection	Traffic Count Date	Turning Movement Count (PM PEAK - Special Intersections)																			
3	Library and Highland	05/04/22 & 05/10/22	D-NR	D-NT	D-NL	L-NR	L-NT	L-NL	ER-D	ER-L	ET	EL	SR	ST-D	ST-L	SL	WR	WT	WL-D	WL-L		
	D = Derry St; L = Library St		16	665	0	10	449	0	16	11	13	28	2	446	302	0	27	15	1	1		
5	Central-Kimball-Greeley (Rt.111 & Greeley)	08/09/22	H->111E	NR-Win	NT-G	NL-111W	ER-K	ET-111W	EL-Win	EL-G	SR-111W	ST-K	SL-111E	SL-Win	Win-R->G	Win-T->111W	Win-L->K	Win-L->111E	Bypass->Win	111W-R->G	111W-T	111W-L->K
	111E/W = Route 111 Eastbound or Westbound; H = Hamblett Ave; G = Greeley St; K = Kimball Hill Rd; Win = Windham Rd		63	25	146	190	60	613	26	77	50	49	59	3	7	32	19	33	26	65	295	171
15	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined	08/16/22 & 08/30/22	NR	NT	NL-Hwy	ER(no sig)	ET	EL-L	EL-Hwy	SR-Hwy(no sig)	ST	SL	WR	WT	WL							
	L = Lowell Rd; Hwy = Circumferential Highway Ramp; no sig = movement not signalized		-	520	941	962	-	1316	0	1117	472	-	-	-	-							
18	NH 3A Lowell Rd/Dracut Rd/ Steele Rd	08/10/22	NR-Dav	NR-Dra	NT-3A/N	NL-Ste	ER-3A/S	ER-Dra	ET-Dav	EL-3A/N	SR-Ste	ST-3A/S	SL-Dra	SL-Dav	WR-Dav	WT-3A/N	WL-3A/S	WL-Ste	DavR-3A/N	DavT-Ste	DavL-Dra	DavL-3A/S
	Dav = Davenport Rd; Dra = Dracut Rd; Ste = Steele Rd; 3A/N = Lowell Rd/3A NB; 3A/S = Lowell Rd/3A SB; Direction Assignment = NB from 3A/S, EB from Steele Rd, SB from 3A/N, WB from Dracut Rd, Davenport Rd as "Dra"		-	-	413	0	4	8	0	22	24	355	761	1	1	634	5	2	0	0	0	0

Red font = Adjustment made

HUD#	Intersection	Traffic Count Date	Truck TMC (PM PEAK - Special Intersections)																			
3	Library and Highland	5/10/22	D-NR	D-NT	D-NL	L-NR	L-NT	L-NL	ER-D	ER-L	ET	EL	SR	ST-D	ST-L	SL	WR	WT	WL-D	WL-L		
	D = Derry St; L = Library St		0.2	5.5	0.0	0.1	3.7	0.0	2.1	1.4	2.8	3.6	0.0	9.8	6.2	0.0	0.8	0.7	0.0	0.0		
5	Central-Kimball-Greeley (Rt.111 & Greeley)	5/10/22	H->111E	NR-Win	NT-G	NL-111W	ER-K	ET-111W	EL-Win	EL-G	SR-111W	ST-K	SL-111E	SL-Win	Win-R->G	Win-T->111W	Win-L->K	Win-L->111E	Bypass->Win	111W-R->G	111W-T	111W-L->K
	111E/W = Route 111 Eastbound or Westbound; H = Hamblett Ave; G = Greeley St; K = Kimball Hill Rd; Win = Windham Rd		2.0	0.5	5.5	17.5	0.6	25.5	0.3	0.7	2.1	2.0	1.7	0.2	0.1	0.5	0.3	0.5	0.4	2.0	19.5	8.0
15	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined	08/16/22 & 08/30/22	NR	NT	NL-Hwy	ER(no sig)	ET	EL-L	EL-Hwy	SR-Hwy(no sig)	ST	SL	WR	WT	WL							
	L = Lowell Rd; Hwy = Circumferential Highway Ramp; no sig = movement not signalized		-	22	32	10	-	66	0	23	9	-	-	-	-							
18	NH 3A Lowell Rd/Dracut Rd/ Steele Rd	08/10/22	NR-Dav	NR-Dra	NT-3A/N	NL-Ste	ER-3A/S	ER-Dra	ET-Dav	EL-3A/N	SR-Ste	ST-3A/S	SL-Dra	SL-Dav	WR-Dav	WT-3A/N	WL-3A/S	WL-Ste	DavR-3A/N	DavT-Ste	DavL-Dra	DavL-3A/S
	Dav = Davenport Rd; Dra = Dracut Rd; Ste = Steele Rd; 3A/N = Lowell Rd/3A NB; 3A/S = Lowell Rd/3A SB; Direction Assignment = NB from 3A/S, EB from Steele Rd, SB from 3A/N, WB from Dracut Rd, Davenport Rd as "Dra"		-	-	9	0	0	0	0	0	0	10	13	0	0	12	0	0	0	0	0	0

Red font = Adjustment made

B.2 Future 2030 Projected Intersection Turning Movement Counts

HUD#	Intersection	Projected for	Turning Movement Count (AM PEAK)											
			NR	NT	NL	ER	ET	EL	SR	ST	SL	WR	WT	WL
1	111-102-3A (Ferry & Chase)	2030	17	14	217	9	531	420	649	72	0	0	487	0
2	Library & Ferry	2030	5	268	53	13	457	0	3	361	24	11	318	0
3	Library and Highland	2030	**See Special Intersection Table**											
4	Burnham and Central	2030	14	6	16	14	233	13	36	4	435	462	408	17
5	Central-Kimball-Greeley (Rt.111 & Greeley)	2030	**See Special Intersection Table**											
6	Derry and 102 (Route 102 & Elm Ave)	2030	0	641	156	291	0	42	12	774	0	0	0	1
7	NH 102/Page Rd	2030	0	449	26	67	0	101	51	489	0	0	0	0
8	NH 3A Central St/Chase St	2030	3	2	0	0	294	18	4	2	61	194	8	3
9	Central and Library	2030	1	1	1	0	325	1	1	9	382	295	282	2
10	Lowell and Central	2030	0	0	0	0	697	69	92	0	150	128	495	0
11	Lowell and Pelham	2030	87	591	0	0	0	0	0	868	78	77	0	202
12	Lowell and Executive	2030	217	442	224	84	7	31	142	786	169	130	22	211
13	Lowell-Hampshire-Oblate	2030	3	911	89	15	0	17	64	989	2	2	0	4
14	Lowell & Wason	2030	178	859	186	246	24	36	29	848	22	45	64	432
[15N]	NH 3A Lowell Rd/Sagamore Bridge Rd - Northern Section	2030	0	1203	0	0	0	0	1120	279	0	0	0	0
[15M]	NH 3A Lowell Rd/Sagamore Bridge Rd - Middle Section	2030	0	234	689	10	0	830	0	0	0	0	0	0
[15S]	NH 3A Lowell Rd/Sagamore Bridge Rd - Southern Section	2030	0	843	0	603	0	0	0	323	0	0	0	0
15	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined	2030	**See Special Intersection Table**											
16	NH 3A Lowell Rd/Walmart Blvd	2030	25	744	55	45	11	94	71	718	99	96	9	23
17	NH 3A Lowell Rd/Rena Ave	2030	0	831	19	2	0	8	63	698	0	0	0	3
18	NH 3A Lowell Rd/Dracut Rd/Steele Rd	2030	**See Special Intersection Table**											
19	Dracut Rd/Sherburne Rd	2030	49	307	0	0	0	0	0	155	185	269	0	86
20	Kimball Hill Rd/Bush Hill Rd	2030	24	0	93	206	104	0	0	0	0	0	136	69
21	Central St/Belknap Rd	2030	196	0	8	2	96	0	0	0	0	0	233	218
22	Lowell and Fox (11/21 & 11/23)	2030	0	1011	32	38	0	34	3	813	0	0	4	0
23	Lowell and Birch (11/21 & 11/23)	2030	0	594	32	32	0	35	10	680	0	0	0	0

HUD#	Intersection	Projected for	Turning Movement Count (AM PEAK - Special Intersections)																			
3	Library and Highland	2030	D-NR	D-NT	D-NL	L-NR	L-NT	L-NL	ER-D	ER-L	ET	EL	SR	ST-D	ST-L	SL	WR	WT	WL-D	WL-L		
	D = Derry St; L = Library St		88	619	6	6	376	0	7	6	6	8	0	596	355	0	50	13	12	2		
5	Central-Kimball-Greeley (Rt.111 & Greeley)	2030	H->111E	NR-Win	NT-G	NL-111W	ER-K	ET-111W	EL-Win	EL-G	SR-111W	ST-K	SL-111E	SL-Win	Win-R->G	Win-T->111W	Win-L->K	Win-L->111E	Bypass->Win	111W-R->G	111W-T	111W-L->K
	111E/W = Route 111 Eastbound or Westbound; H = Hamblett Ave; G = Greeley St; K = Kimball Hill Rd; Win = Windham Rd		6	3	155	143	41	590	20	1	86	168	108	8	15	6	36	40	28	133	270	44
15	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined	2030	NR	NT	NL-Hwy	ER(no sig)	ET	EL-L	EL-Hwy	SR-Hwy(no sig)	ST	SL	WR	WT	WL							
	L = Lowell Rd; Hwy = Circumferential Highway Ramp; no sig = movement not signalized		-	234	689	603	-	830	0	1120	279	-	-	-	-							
18	NH 3A Lowell Rd/Dracut Rd/ Steele Rd	2030	NR-Dav	NR-Dra	NT-3A/N	NL-Ste	ER-3A/S	ER-Dra	ET-Dav	EL-3A/N	SR-Ste	ST-3A/S	SL-Dra	SL-Dav	WR-Dav	WT-3A/N	WL-3A/S	WL-Ste	DavR-3A/N	DavT-Ste	DavL-Dra	DavL-3A/S
	Dav = Davenport Rd; Dra = Dracut Rd; Ste = Steele Rd; 3A/N = Lowell Rd/3A NB; 3A/S = Lowell Rd/3A SB; Direction Assignment = NB from 3A/S, EB from Steele Rd, SB from 3A/N, WB from Dracut Rd, Davenport Rd as "Dra"		-	-	285	0	0	0	0	0	5	404	83	0	0	666	8	0	0	0	0	0

HUD#	Intersection	Projected for	Turning Movement Count (PM PEAK)											
			NR	NT	NL	ER	ET	EL	SR	ST	SL	WR	WT	WL
1	111-102-3A (Ferry & Chase)	2030	128	31	425	11	734	219	490	64	0	0	566	0
2	Library & Ferry	2030	12	352	20	32	451	131	8	232	38	7	568	2
3	Library and Highland	2030	**See Special Intersection Table**											
4	Burnham and Central	2030	16	5	27	18	473	26	45	9	380	494	339	23
5	Central-Kimball-Greeley (Rt.111 & Greeley)	2030	**See Special Intersection Table**											
6	Derry and 102 (Route 102 & Elm Ave)	2030	0	672	273	229	0	64	14	624	0	0	0	0
7	NH 102/Page Rd	2030	0	329	41	39	0	77	100	434	0	0	0	0
8	NH 3A Central St/Chase St	2030	4	8	0	5	514	208	5	6	61	269	15	7
9	Central and Library	2030	1	0	1	0	316	1	3	1	292	235	554	4
10	Lowell and Central	2030	0	0	0	0	633	177	64	0	200	83	757	0
11	Lowell and Pelham	2030	144	1036	0	0	0	0	0	808	94	156	0	122
12	Lowell and Executive	2030	108	834	63	242	7	128	105	722	72	121	7	235
13	Lowell-Hampshire-Oblate	2030	11	1004	25	70	1	50	34	1031	3	2	0	6
14	Lowell & Wason	2030	529	875	196	324	73	48	32	939	60	38	32	314
[15N]	NH 3A Lowell Rd/Sagamore Bridge Rd - Northern Section	2030	0	1517	0	0	0	0	1365	703	0	0	0	0
[15M]	NH 3A Lowell Rd/Sagamore Bridge Rd - Middle Section	2030	0	531	941	0	0	1316	0	494	0	0	0	0
[15S]	NH 3A Lowell Rd/Sagamore Bridge Rd - Southern Section	2030	0	1357	0	885	0	0	0	503	0	0	0	0
15	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined	2030	**See Special Intersection Table**											
16	NH 3A Lowell Rd/Walmart Blvd	2030	54	1013	76	74	23	184	179	1000	199	195	17	72
17	NH 3A Lowell Rd/Rena Ave	2030	14	1034	22	22	1	85	5	1077	64	32	1	7
18	NH 3A Lowell Rd/Dracut Rd/Steele Rd	2030	**See Special Intersection Table**											
19	Dracut Rd/Sherburne Rd	2030	102	327	0	0	0	0	0	523	440	293	0	82
20	Kimball Hill Rd/Bush Hill Rd	2030	50	0	327	125	146	0	0	0	0	0	174	45
21	Central St/Belknap Rd	2030	295	0	8	1	211	0	0	0	0	0	189	125
22	Lowell and Fox (11/21 & 11/23)	2030	3	833	167	60	3	50	17	1102	12	11	2	7
23	Lowell and Birch (11/21 & 11/23)	2030	0	711	91	35	0	58	12	697	0	0	0	0

HUD#	Intersection	Projected for	Turning Movement Count (PM PEAK - Special Intersections)																		
3	Library and Highland	2030	**D-NR**	**D-NT**	**D-NL**	**L-NR**	**L-NT**	**L-NL**	**ER-D**	**ER-L**	**ET**	**EL**	**SR**	**ST-D**	**ST-L**	**SL**	**WR**	**WT**	**WL-D**	**WL-L**	
	D = Derry St; L = Library St		16	417	0	10	470	0	15	5	13	28	1	377	286	0	27	10	1	1	
5	Central-Kimball-Greeley (Rt.111 & Greeley)	2030	**H->111E**	**NR-Win**	**NT-G**	**NL-111W**	**ER-K**	**ET-111W**	**EL-Win**	**EL-G**	**SR-111W**	**ST-K**	**SL-111E**	**SL-Win**	**Win-R->G**	**Win-T->111W**	**Win-L->K**	**Win-L->111E**	**Bypass->Win**	**111W-R->G**	**111W-T**	**111W-L->K**
	111E/W = Route 111 Eastbound or Westbound; H = Hamblett Ave; G = Greeley St; K = Kimball Hill Rd; Win = Windham Rd		44	25	259	190	69	719	14	63	61	119	70	4	7	32	19	33	26	79	295	171
15	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined	2030	**NR**	**NT**	**NL-Hwy**	**ER(no sig)**	**ET**	**EL-L**	**EL-Hwy**	**SR-Hwy(no sig)**	**ST**	**SL**	**WR**	**WT**	**WL**							
	L = Lowell Rd; Hwy = Circumferential Highway Ramp; no sig = movement not signalized		-	531	941	885	-	1316	0	1365	703	-	-	-	-							
18	NH 3A Lowell Rd/Dracut Rd/ Steele Rd	2030	**NR-Dav**	**NR-Dra**	**NT-3A/N**	**NL-Ste**	**ER-3A/S**	**ER-Dra**	**ET-Dav**	**EL-3A/N**	**SR-Ste**	**ST-3A/S**	**SL-Dra**	**SL-Dav**	**WR-Dav**	**WT-3A/N**	**WL-3A/S**	**WL-Ste**	**DavR-3A/N**	**DavT-Ste**	**DavL-Dra**	**DavL-3A/S**
	Dav = Davenport Rd; Dra = Dracut Rd; Ste = Steele Rd; 3A/N = Lowell Rd/3A NB; 3A/S = Lowell Rd/3A SB; Direction Assignment = NB from 3A/S, EB from Steele Rd, SB from 3A/N, WB from Dracut Rd, Davenport Rd as "Dra"		-	-	422	0	0	0	0	5	2	315	144	0	0	653	5	2	0	0	0	0

B.3 Future 2045 Projected Intersection Turning Movement Counts

HUD#	Intersection	Projected for	Turning Movement Count (AM PEAK)											
			NR	NT	NL	ER	ET	EL	SR	ST	SL	WR	WT	WL
1	111-102-3A (Ferry & Chase)	2045	17	14	218	9	546	422	668	73	0	0	449	0
2	Library & Ferry	2045	4	254	63	13	489	0	3	371	24	11	283	1
3	Library and Highland	2045	**See Special Intersection Table**											
4	Burnham and Central	2045	14	6	16	14	186	13	37	4	470	452	429	17
5	Central-Kimball-Greeley (Rt.111 & Greeley)	2045	**See Special Intersection Table**											
6	Derry and 102 (Route 102 & Elm Ave)	2045	0	646	143	292	0	41	12	781	0	0	0	1
7	NH 102/Page Rd	2045	0	444	27	71	0	102	52	486	0	0	0	0
8	NH 3A Central St/Chase St	2045	3	3	0	1	299	18	4	2	61	191	8	3
9	Central and Library	2045	1	1	1	0	325	1	1	9	388	299	272	2
10	Lowell and Central	2045	0	0	0	0	716	67	101	0	139	123	485	0
11	Lowell and Pelham	2045	89	585	0	0	0	0	0	868	109	77	0	202
12	Lowell and Executive	2045	254	442	231	84	8	31	142	786	192	137	23	227
13	Lowell-Hampshire-Oblate	2045	3	950	88	15	0	18	70	989	2	2	0	4
14	Lowell & Wason	2045	178	879	181	253	24	36	29	848	22	45	67	432
[15N]	NH 3A Lowell Rd/Sagamore Bridge Rd - Northern Section	2045	0	1236	0	0	0	0	1113	244	0	0	0	0
[15M]	NH 3A Lowell Rd/Sagamore Bridge Rd - Middle Section	2045	0	235	689	49	0	825	0	0	0	0	0	0
[15S]	NH 3A Lowell Rd/Sagamore Bridge Rd - Southern Section	2045	0	848	0	566	0	0	0	355	0	0	0	0
15	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined	2045	**See Special Intersection Table**											
16	NH 3A Lowell Rd/Walmart Blvd	2045	24	757	54	45	11	92	68	720	95	92	9	22
17	NH 3A Lowell Rd/Rena Ave	2045	2	838	19	2	0	8	62	695	4	12	0	2
18	NH 3A Lowell Rd/Dracut Rd/Steele Rd	2045	**See Special Intersection Table**											
19	Dracut Rd/Sherburne Rd	2045	48	316	0	0	0	0	0	134	159	309	0	85
20	Kimball Hill Rd/Bush Hill Rd	2045	24	0	96	205	104	0	0	0	0	0	133	68
21	Central St/Belknap Rd	2045	187	0	8	2	59	0	0	0	0	0	236	261
22	Lowell and Fox (11/21 & 11/23)	2045	3	975	29	38	1	38	3	845	9	13	4	9
23	Lowell and Birch (11/21 & 11/23)	2045	0	559	31	32	0	35	10	717	0	0	0	0

HUD#	Intersection	Projected for	Turning Movement Count (AM PEAK - Special Intersections)																			
3	Library and Highland	2045	D-NR	D-NT	D-NL	L-NR	L-NT	L-NL	ER-D	ER-L	ET	EL	SR	ST-D	ST-L	SL	WR	WT	WL-D	WL-L		
	D = Derry St; L = Library St		111	653	1	6	365	0	7	8	6	8	0	573	355	0	50	13	24	2		
5	Central-Kimball-Greeley (Rt.111 & Greeley)	2045	H->111E	NR-Win	NT-G	NL-111W	ER-K	ET-111W	EL-Win	EL-G	SR-111W	ST-K	SL-111E	SL-Win	Win-R->G	Win-T->111W	Win-L->K	Win-L->111E	Bypass->Win	111W-R->G	111W-T	111W-L->K
	111E/W = Route 111 Eastbound or Westbound; H = Hamblett Ave; G = Greeley St; K = Kimball Hill Rd; Win = Windham Rd		6	3	165	164	35	607	22	15	78	178	110	8	15	14	39	40	28	134	268	11
15	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined	2045	NR	NT	NL-Hwy	ER(no sig)	ET	EL-L	EL-Hwy	SR-Hwy(no sig)	ST	SL	WR	WT	WL							
	L = Lowell Rd; Hwy = Circumferential Highway Ramp; no sig = movement not signalized		-	235	689	566	-	825	0	1113	244	-	-	-	-							
18	NH 3A Lowell Rd/Dracut Rd/ Steele Rd	2045	NR-Dav	NR-Dra	NT-3A/N	NL-Ste	ER-3A/S	ER-Dra	ET-Dav	EL-3A/N	SR-Ste	ST-3A/S	SL-Dra	SL-Dav	WR-Dav	WT-3A/N	WL-3A/S	WL-Ste	DavR-3A/N	DavT-Ste	DavL-Dra	DavL-3A/S
	Dav = Davenport Rd; Dra = Dracut Rd; Ste = Steele Rd; 3A/N = Lowell Rd/3A NB; 3A/S = Lowell Rd/3A SB; Direction Assignment = NB from 3A/S, EB from Steele Rd, SB from 3A/N, WB from Dracut Rd, Davenport Rd as "Dra"		-	-	391	0	2	0	0	8	6	572	63	0	0	699	8	0	0	0	0	0

HUD#	Intersection	Projected for	Turning Movement Count (PM PEAK)											
			NR	NT	NL	ER	ET	EL	SR	ST	SL	WR	WT	WL
1	111-102-3A (Ferry & Chase)	2045	128	29	364	11	660	234	514	63	0	0	605	0
2	Library & Ferry	2045	11	350	138	32	450	72	4	244	38	6	523	2
3	Library and Highland	2045	**See Special Intersection Table**											
4	Burnham and Central	2045	16	5	27	18	504	27	45	9	376	466	378	23
5	Central-Kimball-Greeley (Rt.111 & Greeley)	2045	**See Special Intersection Table**											
6	Derry and 102 (Route 102 & Elm Ave)	2045	0	703	291	223	0	66	13	637	0	0	0	0
7	NH 102/Page Rd	2045	0	328	46	41	0	79	103	422	0	0	0	0
8	NH 3A Central St/Chase St	2045	4	9	0	5	482	209	5	6	61	237	15	7
9	Central and Library	2045	1	0	1	0	259	1	3	1	298	295	501	4
10	Lowell and Central	2045	0	0	0	0	645	117	94	0	184	86	745	0
11	Lowell and Pelham	2045	167	1036	0	0	0	0	0	802	94	186	0	130
12	Lowell and Executive	2045	132	834	63	274	8	128	105	722	80	142	8	276
13	Lowell-Hampshire-Oblate	2045	11	1004	25	69	1	55	32	1088	3	2	0	6
14	Lowell & Wason	2045	529	875	209	297	76	48	32	942	60	38	34	314
[15N]	NH 3A Lowell Rd/Sagamore Bridge Rd - Northern Section	2045	0	1504	0	0	0	0	1445	751	0	0	0	0
[15M]	NH 3A Lowell Rd/Sagamore Bridge Rd - Middle Section	2045	0	530	941	48	0	1316	0	485	0	0	0	0
[15S]	NH 3A Lowell Rd/Sagamore Bridge Rd - Southern Section	2045	0	1324	0	771	0	0	0	602	0	0	0	0
15	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined	2045	**See Special Intersection Table**											
16	NH 3A Lowell Rd/Walmart Blvd	2045	55	985	76	70	23	167	176	965	200	196	17	73
17	NH 3A Lowell Rd/Rena Ave	2045	10	1033	23	24	1	92	9	1072	30	16	1	3
18	NH 3A Lowell Rd/Dracut Rd/Steele Rd	2045	**See Special Intersection Table**											
19	Dracut Rd/Sherburne Rd	2045	100	312	0	0	0	0	0	528	404	295	0	81
20	Kimball Hill Rd/Bush Hill Rd	2045	39	0	330	126	148	0	0	0	0	0	156	40
21	Central St/Belknap Rd	2045	338	0	9	1	239	0	0	0	0	0	252	133
22	Lowell and Fox (11/21 & 11/23)	2045	3	761	234	58	3	56	7	1069	12	11	2	7
23	Lowell and Birch (11/21 & 11/23)	2045	0	598	91	32	0	58	11	678	0	0	0	0

HUD#	Intersection	Projected for	Turning Movement Count (PM PEAK - Special Intersections)																		
3	Library and Highland	2045	**D-NR**	**D-NT**	**D-NL**	**L-NR**	**L-NT**	**L-NL**	**ER-D**	**ER-L**	**ET**	**EL**	**SR**	**ST-D**	**ST-L**	**SL**	**WR**	**WT**	**WL-D**	**WL-L**	
	D = Derry St; L = Library St		8	586	0	10	495	0	17	21	14	28	0	403	287	0	27	11	1	1	
5	Central-Kimball-Greeley (Rt.111 & Greeley)	2045	**H->111E**	**NR-Win**	**NT-G**	**NL-111W**	**ER-K**	**ET-111W**	**EL-Win**	**EL-G**	**SR-111W**	**ST-K**	**SL-111E**	**SL-Win**	**Win-R->G**	**Win-T->111W**	**Win-L->K**	**Win-L->111E**	**Bypass->Win**	**111W-R->G**	**111W-T**	**111W-L->K**
	111E/W = Route 111 Eastbound or Westbound; H = Hamblett Ave; G = Greeley St; K = Kimball Hill Rd; Win = Windham Rd		32	25	264	219	85	769	25	67	59	135	75	4	12	53	43	33	26	90	295	171
15	NH 3A Lowell Rd/Sagamore Bridge Rd - Combined	2045	**NR**	**NT**	**NL-Hwy**	**ER(no sig)**	**ET**	**EL-L**	**EL-Hwy**	**SR-Hwy(no sig)**	**ST**	**SL**	**WR**	**WT**	**WL**							
	L = Lowell Rd; Hwy = Circumferential Highway Ramp; no sig = movement not signalized		-	530	941	771	-	1316	0	1445	751	-	-	-	-							
18	NH 3A Lowell Rd/Dracut Rd/ Steele Rd	2045	**NR-Dav**	**NR-Dra**	**NT-3A/N**	**NL-Ste**	**ER-3A/S**	**ER-Dra**	**ET-Dav**	**EL-3A/N**	**SR-Ste**	**ST-3A/S**	**SL-Dra**	**SL-Dav**	**WR-Dav**	**WT-3A/N**	**WL-3A/S**	**WL-Ste**	**DavR-3A/N**	**DavT-Ste**	**DavL-Dra**	**DavL-3A/S**
	Dav = Davenport Rd; Dra = Dracut Rd; Ste = Steele Rd; 3A/N = Lowell Rd/3A NB; 3A/S = Lowell Rd/3A SB; Direction Assignment = NB from 3A/S, EB from Steele Rd, SB from 3A/N, WB from Dracut Rd, Davenport Rd as "Dra"		-	-	541	0	0	1	0	4	2	395	197	0	0	634	5	2	0	0	0	0

B.4 Segment Traffic Counts – Existing and Projected

Segment #	Description	2022 Traffic Count	Projected 2030 (Calibrated)	Projected 2040 (Calibrated)	Modeled Count 2020 (Not Used)	Modeled Count 2030 (Not Used)	Modeled Count 2045 (Not Used)
A	NH 3A (Central St) west of Library St	9,894	11,924	12,262	14,421	16,451	16,788
B	NH 3A (Central St) east of Library St	19,912	22,739	23,650	20,711	23,538	24,450
C	Lowell Road south of Central St	21,915	24,358	25,027	15,883	18,326	18,995
D	Lowell Road south of Pelham Road	24,233	26,669	26,878	18,865	21,301	21,509
E	Lowell Road south of Wason Road	39,160	49,695	52,284	34,754	45,288	47,877
F	Lowell Road south of Rena Avenue	25,864	32,550	34,867	30,189	36,875	39,191
G	River Road at Mass State Line	7,194	8,387	9,469	8,803	9,996	11,078
H	NH 102 at Litchfield Town Line	14,208	15,154	15,614	14,310	15,256	15,716
I	NH 102 north of Easy Street	16,733	17,215	17,712	15,083	15,565	16,062
J	NH 102/3A north of Ledge Road	24,648	25,370	26,045	18,176	18,897	19,573
K	NH 111 (Ferry Street) east of Library Street	13,534	14,492	14,737	14,702	15,659	15,904
L	NH 111 (Burnham Road) north of Central Street	11,720	11,996	12,408	14,694	14,970	15,382
M	NH 111 (Central Street) west of Kimball Hill Road	20,816	22,084	22,932	21,991	23,258	24,107
N	Belknap Road south of Central Street	4,879	5,582	5,844	5,620	6,323	6,585
O	Kimball Hill Road south of NH 111	7,299	8,421	8,822	9,396	10,519	10,919
P	Dracut Road at Mass State Line	9,578	9,749	9,834	9,023	9,194	9,279
Q	Wason Road east of NH 3A	8,744	9,032	9,214	8,634	8,922	9,104
R	Bush Hill Road north of Wason Road	6,579	8,249	8,788	8,665	10,335	10,874