



Upper Valley Lake Sunapee
Regional Planning Commission

April, 30 2019

Ms. Victoria Sheehan, Commissioner
New Hampshire Department of Transportation
7 Hazen Drive
Concord, NH 03302-0483

RE: UVLSRPC Project Proposals for 2021-2030 Ten-Year Transportation Improvement Plan

Dear Commissioner Sheehan:

The Upper Valley Lake Sunapee Regional Planning Commission (UVLSRPC) Transportation Advisory Committee (TAC) has completed its solicitation for the 2021-2030 Ten-Year Transportation Improvement Plan and has unanimously approved a recommended project list for NHDOT review. Per the Ten-Year Plan Process, the TAC:

- 1) Scored projects according to the statewide project evaluation criteria;
- 2) Utilized the new Project Information Form for all existing and proposed Ten-Year Plan projects; and
- 3) Developed a fiscally-constrained Ten-Year Plan program based on the NHDOT-identified regional budget target. UVLSRPC's proposed 2021-2030 Ten-Year Plan program of non-programmatic projects is fiscally-constrained to our regional budget target of \$3.77 Million for years 2029 and 2030.

This correspondence details UVLSRPC's proposed Ten-Year Plan program of projects (a summary of new projects is included in Appendix A).

Overview of Needs and Strategic Priorities in the UVLSRPC Region

During the course of UVLSRPC's 2021-2030 Ten-Year Plan solicitation, the TAC received 18 projects from our region's 27 municipalities, NHDOT District II, NHDOT District IV, and the NHDOT Bureau of Bridge Design. The UVLSRPC TAC conducted a scoring process and review to determine five priority projects. The total cost estimate to complete these projects in 2029 and 2030 is \$32.5 million. This number significantly exceeds the region's allocation of \$3.77 million dollars.

With these funding constraints, our TAC remains focused on the region's strategic priorities of improving safety for all modes. While maintaining current infrastructure is a concern, the TAC is focused on upgrades to current infrastructure to improve the conditions as well as increase safety for all road users.

Existing Projects to be Completed Prior to the 2021-2030 Ten-Year Plan

Per NHDOT guidance, "all projects that are currently in the approved STIP can be considered as funded for TYP purposes based on their progress to date." The UVLSRPC TAC identified the following projects to be completed prior to the 2021-2030 Ten-Year Transportation Improvement Plan as they are considered "funded" in the approved 2017-2020 STIP. It is assumed that these projects will be completed according to their current schedule (i.e. before the start of the next Ten-Year Plan).

Community	Project	Total Cost	Construction Year
Claremont (41748)	Washington Street: link ten traffic signals on a two mile stretch of Washington Street	\$667,589	2020
Claremont (25621)	NH 11 & 103/ Bowen St: Improve access management at existing signalized intersection	\$503,000	2019
Cornish, NH – Windsor, VT (25067)	Cornish Windsor Covered Bridge Scour Mitigation	\$2,789,668	2019
Lebanon (25821)	Mascoma Street: Bridge Rehabilitation for Redlist bridge carrying Mascoma Street over I-89 (Br No 103/116)	\$4,132,047	2020
Lebanon (40794)	US 4/Mechanic St: Reconstruct Mechanic St/High St/Mascoma St Intersection	\$2,800,000	2020
Lebanon (41191)	Rehab of I89 NB & SB over US 4 & NH 10 Bridges and preservation efforts for Mascoma River	\$8,505,500	2019
Springfield (20509)	Georges Mills Road over Star Lake outles at intersection of Fisher Corner Rd: Replace twin 5' diameter culverts	\$1,002,733	2020
Walpole-Charlestown (14747)	Reconstruction of NH Route 12 from Main Street in Walpole to NH 12A in Charlestown, Remove Concrete Base, Add Shoulders and Improve Drainage	\$692,000	2017-2020

Existing Projects to be Considered “Funded” in the 2021-2030 Ten-Year Plan

Projects listed here are currently in the 2019-2028 Ten - Year Plan with construction years starting after 2020. The TAC supports these projects remaining in the 2021-2030 Ten-Year Plan as they are still considered regional priorities. This list does not include pavement maintenance or TAP projects.

Community	Project	Total Cost	Construction Year
Canaan (41406)	Grist Mill Hill Road over Indian River: Bridge Rehabilitation- #172/070	\$567,085	2023
Charlestown (40667)	NH 12: Reconstruct or rehabilitate from NH 12A in Southern Charlestown to Almar Street (approx. 2.4 miles)	\$8,187,339	2026-2027
Claremont, NH – Weathersfield, VT (41467)	Bridge Rehab, Bridge carrying NH 12 & 103 over Connecticut River	\$4,067,335	2026-2027
Claremont (13248)	NH 12 and North Street intersection relocation	\$4,240,129	2021
Claremont (27691)	NH 12A: Bridge rehabilitation carrying NH 12A over Sugar River BR NO 072/127	\$6,925,516	2022-2023

Enfield (13592)	Shaker Boulevard over Knox River	\$366,950	2026
Lebanon (29612)	Exit 18 Improvements	\$9,000,000	2023
Enfield (40526)	Add Shoulders, Improve Horizontal Curves, Remove Clear Zone Obstructions along U.S. Route 4 from Maple/Main Street to the Lebanon City Line	\$6,990,383	2024
Lebanon, NH – Hartford, VT (16148)	I-89 : Superstructure Replace and Widening, I-89 NB and SB over Connecticut River (Br No 044/103 & 044/104)	\$21, 289,870	2019-2020
Lebanon (13558A)	NH 12A Bridge Replacement over B&M RR Bridge #062/117	\$7,493,932	2020-2021
Lebanon (24221)	Trues Brook Road over Bloods Brook: Bridge Replacement BR.NO 066/059	\$1,559,415	2022
Lebanon (24222)	NH 120 Parking Lot Ped over NHRR (ABD) – Bridge rehabilitation #121/117	\$697,515	2023
Lyme, NH – Thetford, VT (14460)	East Thetford Rd: Bridge Rehab for Red List Bridge over Connecticut River BR NO 053/112	\$5,424,774	2021-2022
Orford (40366)	Bridge Replacement for Bridge carrying NH Route 25A over Brackett Brook (217/112)	\$2,536,436	2021
Orford (41151)	Archertown Road: Bridge replacement over Jacobs Brook (080/120)	\$1,337,299	2021
Orford (41390)	NH Route 25A Bridge Rehab or Replacement over Baker Pond Brook (219/112)	\$1,726,618	2026

Project Priorities for years 2029-2030 of the 2021-2030 Ten-Year Plan

UVLSRPC received 11 project submissions from the region to compete for the \$.3.77 million allocation for 2029-2030. The top five projects were submitted to NHDOT for review and comment.

UVLSRPC project priorities are summarized on the following page.

Priority (TAC Score out of 100)	Community	Project	Total Cost	Proposed Construction Year
1 (83.45)	Lebanon*	Mechanic St and Slayton Hill Intersection Roundabout with pedestrian bridge: Increase Capacity and safety, improve aesthetics, ped/bike accessibilities, address operational deficiencies	\$5,174,600	2029
2 (74.30)	Claremont*	Reconstruction, Improve Drainage, and Improve Sidewalks on Charlestown Road (NH Route 12) from Buena Vista to Grissom Lane and Grissom Lane to railroad tracks	\$18,925,015	2030
3 (63.40)	Claremont*	Reconstruct and improve drainage of Main Street (NH 103/12) from Elm Street to Citizens Street, reconstruction to include pedestrian amenities/sidewalks.	\$14,469,128	2030
4 (43.00)	Enfield	Retaining Walls on US 4: Replace 2 retaining walls to prevent failure	\$839,622	2029
5 (42.65)	Canaan	Route 4 and Roberts Road: Safety Improvements, widening road, turning lane	\$1,713,494	2030

**Project within Urban Compact assumes 80% TYP funded and 20% municipal funded.*

Priority #1- Lebanon: Mechanic Street (US 4) and Slayton Hill Intersection Roundabout and Pedestrian Bridge

- **Project Synopsis:** This project has been on Ten Year Plan lists in the past included in one larger Mechanic Street project. This phase of the greater project focuses on intersection capacity and safety as well as multimodal connectivity. The Project calls for a roundabout at the intersection, relocation of the Advance Transit bus stop, and upgrade to pedestrian and bicycle facilities. The Pedestrian Bridge portion of the project calls for a widening of the underpass under the pedestrian bridge of the Mascoma River Greenway. The underpass will be widened to account for emergency vehicles, trucks and transit buses as well as sidewalks to connect to the Mascoma River Greenway.

- Proposed Construction Year: The UVLSRPC TAC recommends that this project be constructed in 2029.
- Fiscal Constraint Assumptions: This project exceeds UVLSRPC regional allocation.

Priority #2- Claremont: Reconstruction and Sidewalks on NH 12 Charlestown Rd

- Project Synopsis: Full depth reconstruction of Charlestown Rd/ NH 11/NH 12 from Buena Vista Road to Grissom Lane and then west on Grissom Lane to railroad tracks. The project will include storm drains, culverts, sewer, water lines, landscaping, new sidewalks and granite curb. This project is a higher priority than in the past due to an increase in pedestrian fatalities along this corridor.
- Proposed Construction Year: The UVLSRPC TAC recommends that this project be constructed in 2030.
- Fiscal Constraint Assumptions: This project exceeds UVLSRPC regional allocation.

Priority #3- Claremont: Reconstruction of NH 12/Main St.

- Project Synopsis: The project will improve safety, the state of good repair, and the economic competitiveness along one of the most important thruways in the City of Claremont. This project would connect road and sidewalk improvements to Main St. (Claremont 23677) and North St and Main St (Claremont 13248).
- Proposed Construction Year: The UVLSRPC TAC recommends that this project be constructed in 2030.
- Fiscal Constraint Assumptions: This project exceeds UVLSRPC regional allocation.

Priority #4- Enfield: Replace/Repair Retaining Walls on US 4

- Project Synopsis: This project suggests replacing two old and corroded retaining walls on US Route 4 just east of Baltic Street intersection. Failure could cause extensive property damage, traffic flow disruption, and possible injuries.
- Proposed Construction Year: The UVLSRPC TAC recommends that this project be constructed in 2029.
- Fiscal Constraint Assumptions: This project could fit within the regional allocation.

Priority #5- Canaan: US 4 and Roberts Road Intersection Improvements

- Project Synopsis: This project suggests intersection improvements to address sight line concerns, high speed, and an increase number of left turns onto Roberts Road. The project suggests a left turning lane be added to Route 4.
- Proposed Construction Year: The UVLSRPC TAC recommends that the construction of this project be advanced to 2030.
- Fiscal Constraint Assumptions: This project could fit within the regional allocation.

UVLSRPC TAC and UVLSRPC Commissioners recommend funding Priority Project #1 Lebanon: Mechanic Street (US 4) and Slayton Hill Intersection Roundabout and Pedestrian Bridge with the regional allocation of \$3.77 million with the remainder of the project being funded by the City of Lebanon. (see Appendix B for more details on the project).

Additional (Unfunded) Needs in the UVLSRPC Region

Limited available funding to address deficiencies in our state's transportation system necessitates difficult choices. This reality is no different at the regional level as was just shown above with the regional allocation going to one project but it could not fully fund the 80% match typically seen in Urban Impact projects. Three out of the top five projects listed above exceed the regional allocation but scored significantly higher than all other project submissions.

The UVLSRPC TAC has directed me to present their unfunded needs to you in prioritized order to explicitly demonstrate how the region would recommend utilizing additional funding should it become available. Additional project needs in the UVLSRPC Region are listed in prioritized order below. ("AN" stands for "Additional Need".) These projects do not include TAP project additional needs.

Priority	Community	Project	Total Cost
AN -1	Claremont	Reconstruction, Improve Drainage, and Improve Sidewalks on Charlestown Road (NH Route 12) from Buena Vista to Grissom Lane and Grissom Lane to railroad tracks	\$18,925,015
AN -2	Claremont	Reconstruct and improve drainage of Main Street (NH 103/12) from Elm Street to Citizens Street, reconstruction to include pedestrian amenities/sidewalks.	\$14,469,128
AN -3	Enfield	Retaining Walls on US 4: Replace 2 retaining walls to prevent failure	\$839,622
AN -4	Canaan	Route 4 and Roberts Road: Safety Improvements, widening road, turning lane	\$1,713,494
AN -5	Lebanon	US 4/ Mechanic St Bridge over Mascoma River: Replace Red list bridge	Unknown
AN -6	Lebanon	Packard Hill Covered Bridge Riverside Drive: replace red list bridge	Unknown
AN-7	Enfield	Box Culvert on US 4: Repair/Replace to deter failure	Unknown
AN -8	Enfield	US 4 widening from Baltic Street to Canaan Townline: add shoulders	Unknown
AN -9	Lebanon	Slayton Hill Bridge Over Mascoma River: Repair or Replace Bridge expected to be on Red List	Unknown

The UVLSRPC TAC recommends that the Department review options for funding these projects programmatically. The TAC encourages NHDOT to review all of the projects listed as additional needs in the UVLSRPC Region, and where feasible, consider options for addressing the most acute needs on the list.

Next Steps

Per NHDOT guidance, UVLSRPC will submit our scoring/evaluation of each project to the NHDOT Bureau of Planning and Community Assistance and we will provide your staff with supporting documentation for the projects on our proposed Ten-Year Plan program. We look forward to working collaboratively with you and your staff as you work through the process and develop the draft 2021-2030 Ten-Year Plan for consideration by the Governor's Advisory Commission on Intermodal Transportation (GACIT).

Please feel free to contact me at (603) 448-1680 or mbutts@uvlsrpc.org if you have any questions about this correspondence.

Respectfully Submitted,



Meghan Butts
GIS Coordinator/ Assistant Planner

Cc: Bill Watson, NHDOT Bureau of Planning and Community Assistance
Bill Oldenburg, NHDOT Front Office
Bill Lambert, NHDOT Bureau of Traffic
Mark Richardson, NHDOT Bureau of Bridge Design
Doug King, NHDOT District II
John Kallfelz, NHDOT District IV
Leigh Levine, FHWA NH Division
Martin Calawa, FHWA NH Division
Hon. Mike Cryans, NH Executive Council
Hon. Andru Volinsky, NH Executive Council
NH Representatives in the UVLSRPC Region
NH Senators in the UVLSRPC Region
UVLSRPC TAC Members
UVLSRPC Commissioners

APPENDIX A

SUMMARY OF UVLSRPC 2021-2030 TEN-YEAR PLAN PROJECT PRIORITIES FOR NEW PROJECTS

			State of Good Repair						Safety						Significance						Mobility									Support			Resiliency						
Community	Project	Project Length	Extend Asset Life			Current Asset Condition			Safety Measures			Safety Performance			Traffic Volume			Facility Importance			Alternative Modes			Reduce Congestion			Freight Mobility			Support			Resiliency						
			Raw Score	Weighting	Weighted Score	Raw Score	Weighting	Weighted Score	Raw Score	Weighting	Weighted Score	Raw Score	Weighting	Weighted Score	Raw Score	Weighting	Weighted Score	Raw Score	Weighting	Weighted Score	Raw Score	Weighting	Weighted Score	Raw Score	Weighting	Weighted Score	Raw Score	Weighting	Weighted Score	Raw Score	Weighting	Weighted Score	Raw Score	Weighting	Weighted Score	TOTAL SCORE	NORMALIZED SCORE		
Lebanon	Mechanic St and Slayton Hill Intersection: Increase Capacity, improve aesthetics, ped/bike accessibilities, safety, address operational deficiencies	.25 miles	8.00	12.50%	1.00	7.00	12.50%	0.88	9.00	14.00%	1.26	9.00	13.00%	1.17	9.00	6.00%	0.54	9.00	8.00%	0.72	10.00	9.00%	0.90	8.00	11.00%	0.88	8.00	7.00%	0.56	8.00	5.00%	0.40	2.00	2.00%	0.04	8.35	83.45		
Claremont	Reconstruction, Improve Drainage, and Improve Sidewalks on Charlestown Road (NH Route 12) from Buena Vista to Grissom Lane and Grissom Lane from Charlestown Road to New England Rail Tracks.	2.1 Miles	9.00	12.50%	1.13	5.00	12.50%	0.63	10.00	14.00%	1.40	9.00	13.00%	1.17	8.00	6.00%	0.48	8.00	8.00%	0.64	5.00	9.00%	0.45	4.00	11.00%	0.44	7.00	7.00%	0.49	9.00	5.00%	0.45	8.00	2.00%	0.16	7.43	74.30		
Claremont	Reconstruct and Improve drainage of Main Street (NH 103/12) from Elm Street to Citizens Street, reconstruction to include pedestrian amenities/sidewalks.	.8 miles	9.00	12.50%	1.13	7.00	12.50%	0.88	8.00	14.00%	1.12	5.00	13.00%	0.65	6.00	6.00%	0.36	5.00	8.00%	0.40	5.00	9.00%	0.45	3.00	11.00%	0.33	6.00	7.00%	0.42	9.00	5.00%	0.45	8.00	2.00%	0.16	6.34	63.40		
Enfield	Retaining Walls on US 4: Replace 2 retaining walls to prevent failure		8.00	12.50%	1.00	8.00	12.50%	1.00	5.00	14.00%	0.70	2.00	13.00%	0.26	7.00	6.00%	0.42	8.00	8.00%	0.64	0.00	9.00%	0.00	0.00	11.00%	0.00	1.00	7.00%	0.07	3.00	5.00%	0.15	3.00	2.00%	0.06	4.30	43.00		
Canaan	Route 4 and Roberts Road: Safety Improvements, widening road, turning lane	0.25 miles	5.00	12.50%	0.63	2.00	12.50%	0.25	7.00	14.00%	0.98	4.00	13.00%	0.52	6.00	6.00%	0.36	8.00	8.00%	0.64	0.00	9.00%	0.00	5.00	11.00%	0.55	2.00	7.00%	0.14	4.00	5.00%	0.20	0.00	2.00%	0.00	4.27	42.65		
Lebanon	US 4/ Mechanic St Bridge over Mascoma River: Replace Red list bridge		7.00	12.50%	0.88	7.00	12.50%	0.88	0.00	14.00%	0.00	0.00	13.00%	0.00	9.00	6.00%	0.54	9.00	8.00%	0.72	7.00	9.00%	0.63	0.00	11.00%	0.00	0.00	7.00%	0.00	7.00	5.00%	0.35	0.00	2.00%	0.00	3.99	39.90		
Lebanon	Packard Hill Covered Bridge Riverside Drive: replace red list bridge		7.00	12.50%	0.88	7.00	12.50%	0.88	0.00	14.00%	0.00	0.00	13.00%	0.00	3.00	6.00%	0.18	4.00	8.00%	0.32	6.00	9.00%	0.54	4.00	11.00%	0.44	2.00	7.00%	0.14	7.00	5.00%	0.35	0.00	2.00%	0.00	3.72	37.20		
Enfield	Box Culvert on US 4: Repair/Replace to deter failure		8.00	12.50%	1.00	8.00	12.50%	1.00	1.00	14.00%	0.14	0.00	13.00%	0.00	7.00	6.00%	0.42	8.00	8.00%	0.64	0.00	9.00%	0.00	0.00	11.00%	0.00	0.00	7.00%	0.00	3.00	5.00%	0.15	7.00	2.00%	0.14	3.49	34.90		
Enfield	US 4 widening from Baltic Street to Canaan Townline: add shoulders	1.23 miles	5.00	12.50%	0.63	2.00	12.50%	0.25	2.00	14.00%	0.28	2.00	13.00%	0.26	7.00	6.00%	0.42	8.00	8.00%	0.64	1.00	9.00%	0.09	3.00	11.00%	0.33	3.00	7.00%	0.21	1.00	5.00%	0.05	0.00	2.00%	0.00	3.16	31.55		
Lebanon	Slayton Hill Bridge Over Mascoma River: Repair or Replace Bridge expected to be on Red List		3.00	12.50%	0.38	3.00	12.50%	0.38	0.00	14.00%	0.00	0.00	13.00%	0.00	3.00	6.00%	0.18	3.00	8.00%	0.24	6.00	9.00%	0.54	0.00	11.00%	0.00	0.00	7.00%	0.00	4.00	5.00%	0.20	1.00	2.00%	0.02	1.93	19.30		

APPENDIX B

2029-2030 Priority Project #1:

***Lebanon: Mechanic Street (US 4) and Slayton Hill Intersection Roundabout
and Pedestrian Bridge***

RPC Project Proposal Form

REVISED 3.11.19

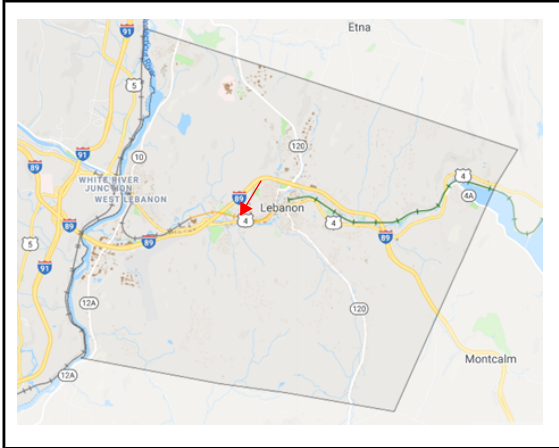
Intersection improvement at Slayton Hill Road/Mechanic St.

☒ City/Town of: City of Lebanon
☐ Rockingham Planning Commission
☐ NH DOT
☐ Transit Agency: _____
☐ Other (Specify): _____

Contact Person

Name: Bruce Temple
Address: 51 N. Park Street, Lebanon NH
Phone: 603-448-3112
e-mail: bruce.temple@lebanonnh.gov

Road(s): Intersection of US4 Mechanic St/Slayton Hill From/To: _____
Length: _____ City/Town: City of Lebanon



Description of Proposal Location

Intersection improvement at Slayton Hill Road / Mechanic Street.

The Purpose and Need Statement attempts to distill the intent of the proposal, and the appropriateness of any proposed solutions in solving the transportation problem and meeting any other listed goals and objectives.

What problem(s) is the proposal addressing (Purpose)?

Slayton Hill Road/Mechanic Street intersection project is a subcomponent of a larger 1.3 mile roadway corridor project which was programmed in the ten-year plan for many years before being substantially scaled down into phases in recent years. The purpose of this project is to increase traffic flow, improve corridor aesthetics, provide safe pedestrian and bicycle accessibility and address operational deficiencies along this stretch of Mechanic Street.

Is evidence available to support the need for the proposed project (Need)? For example crash history, turning movement counts, signal warrant analysis, etc.

Attached draft engineering study for full corridor (Pertinent pages)
Attached accidents reports

Beyond those mentioned in the Purpose statement, what other issues will be addressed by the proposed project (Goals and Objectives)?

This will serve as traffic calming, allow for less curbs along the corridor. This project will provide much needed access to hospital for emergency vehicles and larger vehicles under the overpass. This will align with our complete street policy and will provide connectivity for all modes of transportation.

RPC Project Proposal Form

Describe the project proposal and identified scope of work

What alternatives to the proposal described above have been considered?

See attached study (Section 5)

3 alternatives are listed.

The preferred alternative included a pedestrian bridge to rail trail and it is preferred to keep this in as part of the project because it provides the best connectivity and safety improvements for the corridor.

Describe the extent of public outreach and involvement efforts to date and anticipated future efforts for the proposal.

The out reach was done as an entire corridor

See attached Study (Section 9)

Is the proposal identified as a priority in a local or regional plan (e.g. local master plan, local bicycle/pedestrian plan, corridor study, etc). If yes, provide a link to the pertinent section of the plan(s).

Lebanon Master Plan Chapter 9

RPC Project Proposal Form

Cost Estimate

Engineering:	<input checked="" type="checkbox"/>	\$871,792.01
Right-of-Way:	<input checked="" type="checkbox"/>	\$391,743.12
Construction:	<input checked="" type="checkbox"/>	\$3,717,920.11
Structures:		
Capital:		
Operating		\$193,050.00(Non-Par)

Total: \$5,174,600.00

What is the source of the above cost estimate?

Engineer estimate is attached that breaks down the cost for the intersection with numbers escalated out to the 2029 construction year at 3% per year.

Supporting Evidence and Documentation (Check if attached)

- ☒ Corridor Study (Attach excerpt)
- ☐ Local Transportation Study/Plan (attach excerpt)
- ☐ Regional Planning Study/Plan (attach excerpt)
- ☒ Crash Reports
- ☐ Turning Movement/Traffic Volume Data
- ☐ Special Studies (Road Safety Audit, Warrant Analysis, etc.)
- ☐ Ridership Estimates
- ☐ Safe Routes To School Travel Plan

Attach a detailed map showing the proposal location and surroundings. Include the information listed below where there are potential impacts within or adjacent to the proposed project area.

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <input type="checkbox"/> Park/Recreation areas <input type="checkbox"/> Scenic/historic/cultural resources <input type="checkbox"/> Bike lanes/sidewalks/crosswalks <input checked="" type="checkbox"/> Recreational/multi-use trails <input checked="" type="checkbox"/> Transit service/public transportation routes <input type="checkbox"/> Park and Ride facilities <input type="checkbox"/> Culverts/bridges <input type="checkbox"/> Signalized intersections <input type="checkbox"/> Active railroads <input type="checkbox"/> Other active or proposed transportation improvements | <ul style="list-style-type: none"> <input type="checkbox"/> Water resources, aquifers, wetlands <input type="checkbox"/> Flood zones <input type="checkbox"/> Wildlife habitats <input type="checkbox"/> Commuter sheds <input type="checkbox"/> Freight corridors <input type="checkbox"/> Low income, minority, elderly housing <input type="checkbox"/> Retail/tourism destinations <input type="checkbox"/> Employment centers <input type="checkbox"/> Municipal services/schools |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

RPC Project Proposal Form



Applicant Information:

Provide information regarding the community/agency making the proposal and the contact person for the proposal.

Proposal Location:

Provide the location of the project in terms of the road or roads that it is located on (or near), communities that it includes, and distance the work will cover.

Area Map

The area map should simply show the proposal location within the community or communities. This can be a web url or set of coordinates from Google Maps or other internet mapping service that includes a marker to show the general location of the project. For instance, if you right click on a location in Google maps and select “What’s here”, it will place a marker and provide a set of coordinates for the location. This can be copied and pasted into the form and will provide RPC with the necessary location information.

Purpose and Need:

A Purpose and Need statement is a succinct description of the “what” and the “why” of a project. A project’s “Need” is the identified transportation deficiency or problem to be addressed and this should be defined first. The statement should help to

- Establish evidence of the current or expected transportation problem,
- Identify a problem that is solvable, establish justifiable project boundaries,
- Be factual and quantifiable
- Justify the commitment of limited resources and potential impacts on the environment.

A project’s “Purpose” is the set of objectives that will be met to address the transportation deficiency as defined in the “Need”. The purpose component of the statement should:

- Present objectives to address the need
- Be used to develop and evaluate potential solutions
- Be achievable
- Be unbiased and focused on a positive outcome
- Be comprehensive enough to allow for a reasonable range of alternatives, and specific enough to limit the range of feasible alternatives
- Allows for a range of alternatives that are in context with the setting
- Focuses on multi-modal transportation system.

Why is a Purpose and Need Statement important?

A well-defined purpose and need statement is important because it helps to avoid developing a project that does not solve the problem or is not right for the setting. It also ensures that all parties involved have a similar understanding of the transportation problem to be solved, what the objectives are, and potential solutions. Finally, it helps to streamline the process by identifying a scope and

RPC Transportation Needs Proposal Form Instructions and Guidance

possible alternatives early, shaping the public involvement process, and helps to both better understand the costs of a project as well as justify the project for programming of limited funding.

When should a Purpose and Need Statement be developed?

A purpose and need statement is developed in an ongoing process that becomes increasingly detailed as the project moves from the initial proposal towards a solution.

Who should be developing the Purpose and Need Statement?

Purpose and need statement should be initially developed by the sponsoring community/agency with input from the MPO/RPC, involved communities, transit agencies, and NH DOT. It is also important to include the general public in the development of the purpose and Need statement as well as this can bolster local support for the project, and identify specific issues of abutters and users of the facility.

Proposal Description

Proposal Description - The Regional Planning Commissions will review this description to determine the needs and benefits of the proposed transportation improvements. The Proposal Description should include the following:

- A. **Problem Statement.** Describe the transportation concerns to be solved, which exist, or will exist, that require corrections as relating to the key areas below:
 - Creating a safe and secure transportation system
 - Improving the mobility of people and freight
 - Improving the accessibility of the transportation system
 - Transportation and land use connections
 - Preservation of existing infrastructure
 - Addressing congestion
- B. **Background** - Describe the background in the areas below:
 - **General Characteristics.** Describe circumstance that may have lead to the transportation concerns above, if applicable.
 - **Previous Attempts to Solve Problem.** Describe past and current efforts to resolve the problem and outcomes.
- C. **Proposal Goals and Objectives** - State the primary goals of the proposal and the objectives which you believe will help accomplish the goals.
- D. **Significant** - Describe any state, regional or local transportation significance that could influence the selection of this proposal.
- E. **Description of Alternatives** - Describe any alternative proposals that would potentially help resolve the concerns above. Alternative proposals may include short-term solution to address immediate key issues as described above.

Supporting Documentation and Evidence

Provide supporting documentation as necessary to quantify existing conditions in the project area, summarize any planning work completed to date that justifies the proposed project, identify public involvement efforts related to the proposed project, and demonstrate community support for the proposed project. Supporting documentation may include, but not be limited to:

RPC Transportation Needs Proposal Form Instructions and Guidance

- A. **Crash Reports:** Provide crash records for the project area for the most recent five-year period. These records are maintained by the local police department.
- B. **Traffic Volume Data:** Provide the most current traffic volume data available for the project area. If traffic volume is not available for the project area, contact your local Regional Planning Commission for data collection assistance.
- C. **Turning Movement Data:** If the proposed project involves improvements to an intersection, provide the most recent available peak: hour turning movement data for the intersection. If turning movement data is not available for the project area, contact your local Regional Planning Commission for data collection assistance.
- D. **Local/Regional/State Planning Justification:** If the proposed project was identified in a local, regional, or state transportation plan, please provide a copy of the pertinent section(s) of that plan. Local plans may include, but not be limited to, a community Master Plan or Neighborhood Development Plan. Regional plans may include, but not be limited to, a Regional Planning Commission Regional Plan or Corridor Study. State plans may include, but not be limited to the NHDOT Long: Range Transportation Plan, State Rail Plan, or State Trails Plan.
- E. **Special Studies:** If the proposed project was identified in a special study, please provide a copy of that study. Special Studies may include, but not be limited to, Road Safety Audits or signalized intersection warrant analyses.
- F. **Public Outreach:** Provide a summary of public outreach efforts completed to date related to the development of the proposed project, and summarize public input received to date related to the proposed project. If no public outreach has been conducted for the project, please summarize your proposed public involvement process and describe how you will provide opportunities for public input during the course of project development.
- G. **Letters of Support:** Please provide letters of support for the proposed project from the governing body (i.e. Selectboard, City Council) of each municipality directly affected by the project. If there are community organizations that have committed to assisting with the implementation of the proposed project (e.g. through donations of time, expertise, or funding), please include letters of support from those organizations that document their commitment.
- H. **Multi-Modal Considerations:** If the proposed project benefits multiple modes of travel (e.g. bicycling, walking, public transportation, air, rail, or marine), please provide a summary of these multi: modal benefits. If there are pertinent plans or studies that document these benefits, including but not limited to, a Safe Routes to School Travel Plan or a local transit agency's Transit Development Plan, please provide a copy of the plan(s) or study/studies.

Implementation Considerations

- A. Cost – estimate the cost of the proposal including its construction, engineering, and right of way acquisition
 - 1. Typical unit costs - construction
 - Road resurfacing: \$100,000 / lane mile (assumes 16' wide x 1 ½" overlay)
 - Road rehabilitation: \$500,000 / lane mile (assumes 16' wide x \$50/sy)
 - New construction / reconstruction: \$1.5 million / lane mile (assumes 16' wide x \$150/sy)

RPC Transportation Needs Proposal Form Instructions and Guidance

- Widen shoulder: \$250,000 / mile (assumes 4' wide x \$100/sy)
 - Install signals: \$250,000 (includes modest road work)
 - Install roundabout: \$750,000 (1 lane); \$1.5 million (2 lanes)
2. Typical unit cost - engineering
 - Assume 20% for construction \leq \$1 million
 - Assume 15% for construction $>$ \$1 million
 3. Typical unit cost - right of way: Accurate estimates of right of way costs at this early stage of project development are not possible; make an order of magnitude estimate based on the nature of the impacts. The _____ often uses 10% of construction costs as a starting point for this
 4. The construction cost estimate should also consider the complexity of the construction. In more challenging settings (e.g., confined working area, high traffic volumes, difficult traffic control measures, etc.) the construction cost should be increased by 10% to 25%, as appropriate.
- B. Local priority / urgency – Is the proposed project a higher priority in your community than an existing project currently in the Ten-Year Transportation Improvement Plan?
- C. Environmental impacts – Are there notable natural resources (wetlands, water bodies, prominent trees, wildlife habitat, etc.) that could be affected by the proposed project?
- D. Cultural impacts – Are there any historic resources (historic buildings or districts, archeological sites, cemeteries, etc.) nearby that could be affected by the proposed project?
- E. Social impacts – Describe the extent of impacts upon private property. Will the proposed project impact land only or both land and buildings? What is the estimated effect of the property impacts on the local tax base?

Project Detail Map

The second map will be created by RPC utilizing Geographic Information System data. This map will show more detail regarding the project location and extent in the context of the surrounding area. In addition to the extent of the project, traffic volume and crash information will be shown as well as other nearby projects. Applicants should check off the boxes at the bottom of page 3 (and listed below) that they believe should be included on the map due to proximity or impacts/benefits related to the proposal.

- | | |
|-------------------------------------------------------------------------------|----------------------------------------------------------------|
| <input type="checkbox"/> Park/Recreation areas | <input type="checkbox"/> Water resources, aquifers, wetlands |
| <input type="checkbox"/> Scenic/historic/cultural resources | <input type="checkbox"/> Flood zones |
| <input type="checkbox"/> Bike lanes/sidewalks/crosswalks | <input type="checkbox"/> Wildlife habitats |
| <input type="checkbox"/> Recreational/multi-use trails | <input type="checkbox"/> Commuter sheds |
| <input type="checkbox"/> Transit service/public transportation routes | <input type="checkbox"/> Freight corridors |
| <input type="checkbox"/> Park and Ride facilities | |
| <input type="checkbox"/> Culverts/bridges | <input type="checkbox"/> Low income, minority, elderly housing |
| <input type="checkbox"/> Signalized intersections | <input type="checkbox"/> Retail/tourism destinations |
| <input type="checkbox"/> Active railroads | <input type="checkbox"/> Employment centers |
| <input type="checkbox"/> Other active or proposed transportation improvements | <input type="checkbox"/> Municipal services/schools |

Please contact Bruce Temple **at** Lebanon DPW **with any questions**

Phone: (603) 448-3112

e-mail bruce.temple@lebanonnh.gov



STANTEC
288 South River Road, Bldg. C
Bedford, NH 03110
Phone: (603) 669-2000 Fax: (603) 668-2670

Project Number: 195350023
City of Lebanon, NH
Mechanic St

COMPUTED BY: TAT
CHECKED BY: DEM
DATE: 03/07/19

MECHANIC STREET CONSTRUCTION - CONCEPTUAL OPINION OF PROBABLE COST - SLAYTON HILL RD ROUNDABOUT

Item No.	Description	Unit	Estimated Total	Unit Price	Cost 2017	Cost 2029 (@ 3%/YR)
201.21	REMOVING SMALL TREES	EA	3	\$600.00	\$1,800.00	\$2,574.00
202.41	REMOVAL OF EXISTING PIPE 0" TO 24" IN DIAMETER	LF	950	\$30.00	\$28,500.00	\$40,755.00
202.5	REMOVAL OF CATCH BASINS, DROP INLETS, MANHOLES	EA	15	\$500.00	\$7,500.00	\$10,725.00
203.1	COMMON EXCAVATION	CY	3,100	\$6.00	\$18,600.00	\$26,598.00
203.6	EMBANKMENT-IN-PLACE	CY	600	\$8.00	\$4,800.00	\$6,864.00
206.19	COMMON STRUCTURE EXCAVATION EXPLORATORY	CY	40	\$60.00	\$2,400.00	\$3,432.00
209.1	GRANULAR BACKFILL	CY	95	\$45.00	\$4,275.00	\$6,113.25
211.11	VIBRATION MONITORING SERVICES	HR	40	\$85.00	\$3,400.00	\$4,862.00
214	FINE GRADING	UNIT	1	\$20,000.00	\$20,000.00	\$28,600.00
304.1	SAND	CY	1,000	\$25.00	\$25,000.00	\$35,750.00
304.35	CRUSHED GRAVEL FOR DRIVES	CY	15	\$45.00	\$675.00	\$965.25
304.4	CRUSHED STONE (FINE GRADATION)	CY	1,000	\$39.00	\$39,000.00	\$55,770.00
304.5	CRUSHED STONE (COARSE GRADATION)	CY	1,000	\$38.00	\$38,000.00	\$54,340.00
403.11	HOT BITUMINOUS PAVEMENT, MACHINE METHOD	TON	2,100	\$85.00	\$178,500.00	\$255,255.00
403.12	HOT BITUMINOUS PAVEMENT, HAND METHOD	TON	30	\$135.00	\$4,050.00	\$5,791.50
403.6	PAVEMENT JOINT ADHESIVE	LF	8,100	\$0.75	\$6,075.00	\$8,687.25
417.	COLD PLANING BITUMINOUS SURFACES	SY	800	\$10.00	\$8,000.00	\$11,440.00
520.0001	PRECAST CONCRETE TRAIL BRIDGE	U	1	\$597,300.00	\$597,300.00	\$854,139.00
592.9	PRECAST CONCRETE BLOCK RETAINING WALL	SF	1,000	\$45.00	\$45,000.00	\$64,350.00
603.0001	VIDEO INSPECTION	LF	900	\$3.00	\$2,700.00	\$3,861.00
603.00315	15" R.C. PIPE, 3000D	LF	400	\$75.00	\$30,000.00	\$42,900.00
603.00318	18" R.C. PIPE, 3000D	LF	300	\$80.00	\$24,000.00	\$34,320.00
603.00324	24" R.C. PIPE, 3000D	LF	200	\$95.00	\$19,000.00	\$27,170.00
604.0007	POLYETHYLENE LINERS	EA	20	\$175.00	\$3,500.00	\$5,005.00
604.12	CATCH BASINS TYPE B	U	20	\$2,500.00	\$50,000.00	\$71,500.00
604.32	DRAINAGE MANHOLES	U	6	\$2,500.00	\$15,000.00	\$21,450.00
604.51	ADJUSTING SEWER MANHOLES	LF	5	\$500.00	\$2,500.00	\$3,575.00
605.79	UNDERDRAIN FLUSHING BASIN	EA	6	\$1,000.00	\$6,000.00	\$8,580.00
605.82452	36" AGGREGATE UNDERDRAIN, TYPE 2 WITH 12" CORR. POLYETHYLENE PIPE	LF	1,350	\$32.00	\$43,200.00	\$61,776.00
608.24	4" CONCRETE SIDEWALK	SY	570	\$90.00	\$51,300.00	\$73,359.00
608.26	6" CONCRETE SIDEWALK	SY	140	\$100.00	\$14,000.00	\$20,020.00
609.01	STRAIGHT GRANITE CURB	LF	1,870	\$22.00	\$41,140.00	\$58,830.20
609.02	CURVED GRANITE CURB	LF	150	\$40.00	\$6,000.00	\$8,580.00
611.811	ADJUSTING/RELOCATING HYDRANTS	EA	2	\$3,000.00	\$6,000.00	\$8,580.00
611.90001	ADJUSTING WATER GATES AND SHUTOFFS SET BY OTHERS	EA	11	\$175.00	\$1,925.00	\$2,752.75
618.7	FLAGGERS	HR	2,000	\$24.00	\$48,000.00	\$68,640.00
619.1	MAINTENANCE OF TRAFFIC	U	1	\$200,000.00	\$200,000.00	\$286,000.00
619.253	VARIABLE MESSAGE BOARD (UWK)	UWK	20	\$300.00	\$6,000.00	\$8,580.00
622.52	RESETTING BOUNDS	EA	8	\$300.00	\$2,400.00	\$3,432.00
628.2	SAWED BITUMINOUS PAVEMENT	LF	160	\$5.00	\$800.00	\$1,144.00
641.	LOAM	CY	125	\$50.00	\$6,250.00	\$8,937.50



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DATE: 03/07/19

MECHANIC STREET CONSTRUCTION - CONCEPTUAL OPINION OF PROBABLE COST - SLAYTON HILL RD ROUNDABOUT

Item No.	Description	Unit	Estimated Total	Unit Price	Cost 2017	Cost 2029 (@ 3%/YR)
643.22	FERTILIZER FOR REFERTILIZATION	LB	5	\$0.60	\$3.00	\$4.29
644.15	PARK SEED TYPE 15	LB	30	\$15.00	\$450.00	\$643.50
645.3	EROSION STONE	TON	45	\$45.00	\$2,025.00	\$2,895.75
645.512	COMPOST SOCK FOR PERIMETER BERM	LF	1,500	\$4.00	\$6,000.00	\$8,580.00
645.531	SILT FENCE	LF	2,250	\$4.00	\$9,000.00	\$12,870.00
645.7	STORMWATER POLLUTION PREVENTION PLAN	U	1	\$7,500.00	\$7,500.00	\$10,725.00
645.71	MONITORING SWPPP AND EROSION AND SEDIMENT CONTROLS	HR	100	\$75.00	\$7,500.00	\$10,725.00
646.3	TURF ESTABLISHMENT WITH MULCH AND TACKIFIERS	AC	0.25	\$3,600.00	\$900.00	\$1,287.00
692.	MOBILIZATION	UNIT	1	\$164,596.80	\$164,596.80	\$235,373.42
697.41	CRITICAL PATH METHOD (CPM) ELECTRONIC SCHEDULE	UNIT	1	\$2,000.00	\$2,000.00	\$2,860.00
1010.15	FUEL ADJUSTMENT	UNIT	1	\$40,000.00	\$20,000.00	\$28,600.00
1010.2	ASPHALT CEMENT ADJUSTMENT	UNIT	1	\$25,000.00	\$10,000.00	\$14,300.00
01720	PROJECT RECORD DOCUMENTS AND AS-BUILT SURVEY	UNIT	1	\$10,000.00	\$10,000.00	\$14,300.00
Base Bid SubTotal					\$1,852,564.80	\$2,649,167.66
	Sidewalk and Curb to American Legion (750')					\$123,852.30
	SWM TREATMENT (1 AC)				\$40,000.00	\$57,200.00
	MISC. EROSION AND SEDIMENT CONTROL @ 1%				\$18,525.65	\$26,491.68
	MISC. LANDSCAPING AND RESTORATION @ 1%				\$18,525.65	\$26,491.68
	PAVEMENT MARKING AND SIGNAGE @ 2%:				\$37,051.30	\$52,983.35
	AT&T Relocation & Greenway Repairs:				\$350,000.00	\$500,500.00
	CONTINGENCY @ 10%:				\$196,666.74	\$281,233.44
CONSTRUCTION TOTAL:					\$2,513,334.13	\$3,717,920.11
	FINAL DESIGN:				\$251,333.41	\$500,000.00
	CONSTRUCTION PHASE ENGINEERING @ 10%:				\$251,333.41	\$371,792.01
SubTotal					\$502,666.83	\$871,792.01
	WATER				\$50,000.00	\$71,500.00
	SEWER				\$62,500.00	\$89,375.00
	FINAL DESIGN @ 10%:				\$11,250.00	\$16,087.50
	CONSTRUCTION PHASE ENGINEERING @ 10%:				\$11,250.00	\$16,087.50
SubTotal Non Participating					\$135,000.00	\$193,050.00
	ROW - ACQUISITION				\$251,250.00	\$359,287.50
	ROW - TEMPORARY EASEMENT				\$10,740.00	\$15,358.20
	ROW - PERMANENT EASEMENT				\$11,956.24	\$17,097.42
SubTotal ROW					\$273,946.24	\$391,743.12
TOTAL BASE BID ESTIMATE - SAY					\$3,425,000.00	\$5,174,600.00



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MECHANIC STREET CONSTRUCTION - CONCEPTUAL OPINION OF PROBABLE COST - SLAYTON HILL RD ROUNDABOUT

Item No.	Description	Unit	Estimated Total	Unit Price	Cost 2017	Cost 2029 (@ 3%/YR)
201.21	REMOVING SMALL TREES	EA	3	\$600.00	\$1,800.00	\$2,574.00
202.41	REMOVAL OF EXISTING PIPE 0" TO 24" IN DIAMETER	LF	950	\$30.00	\$28,500.00	\$40,755.00
202.5	REMOVAL OF CATCH BASINS, DROP INLETS, MANHOLES	EA	15	\$500.00	\$7,500.00	\$10,725.00
203.1	COMMON EXCAVATION	CY	3,100	\$6.00	\$18,600.00	\$26,598.00
203.6	EMBANKMENT-IN-PLACE	CY	600	\$8.00	\$4,800.00	\$6,864.00
206.19	COMMON STRUCTURE EXCAVATION EXPLORATORY	CY	40	\$60.00	\$2,400.00	\$3,432.00
209.1	GRANULAR BACKFILL	CY	95	\$45.00	\$4,275.00	\$6,113.25
211.11	VIBRATION MONITORING SERVICES	HR	40	\$85.00	\$3,400.00	\$4,862.00
214	FINE GRADING	UNIT	1	\$20,000.00	\$20,000.00	\$28,600.00
304.1	SAND	CY	1,000	\$25.00	\$25,000.00	\$35,750.00
304.35	CRUSHED GRAVEL FOR DRIVES	CY	15	\$45.00	\$675.00	\$965.25
304.4	CRUSHED STONE (FINE GRADATION)	CY	1,000	\$39.00	\$39,000.00	\$55,770.00
304.5	CRUSHED STONE (COARSE GRADATION)	CY	1,000	\$38.00	\$38,000.00	\$54,340.00
403.11	HOT BITUMINOUS PAVEMENT, MACHINE METHOD	TON	2,100	\$85.00	\$178,500.00	\$255,255.00
403.12	HOT BITUMINOUS PAVEMENT, HAND METHOD	TON	30	\$135.00	\$4,050.00	\$5,791.50
403.6	PAVEMENT JOINT ADHESIVE	LF	8,100	\$0.75	\$6,075.00	\$8,687.25
417.	COLD PLANING BITUMINOUS SURFACES	SY	800	\$10.00	\$8,000.00	\$11,440.00
592.9	PRECAST CONCRETE BLOCK RETAINING WALL	SF	1,000	\$45.00	\$45,000.00	\$64,350.00
603.0001	VIDEO INSPECTION	LF	900	\$3.00	\$2,700.00	\$3,861.00
603.00315	15" R.C. PIPE, 3000D	LF	400	\$75.00	\$30,000.00	\$42,900.00
603.00318	18" R.C. PIPE, 3000D	LF	300	\$80.00	\$24,000.00	\$34,320.00
603.00324	24" R.C. PIPE, 3000D	LF	200	\$95.00	\$19,000.00	\$27,170.00
604.0007	POLYETHYLENE LINERS	EA	20	\$175.00	\$3,500.00	\$5,005.00
604.12	CATCH BASINS TYPE B	U	20	\$2,500.00	\$50,000.00	\$71,500.00
604.32	DRAINAGE MANHOLES	U	6	\$2,500.00	\$15,000.00	\$21,450.00
604.51	ADJUSTING SEWER MANHOLES	LF	5	\$500.00	\$2,500.00	\$3,575.00
605.79	UNDERDRAIN FLUSHING BASIN	EA	6	\$1,000.00	\$6,000.00	\$8,580.00
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608.24	4" CONCRETE SIDEWALK	SY	570	\$90.00	\$51,300.00	\$73,359.00
608.26	6" CONCRETE SIDEWALK	SY	140	\$100.00	\$14,000.00	\$20,020.00
609.01	STRAIGHT GRANITE CURB	LF	1,870	\$22.00	\$41,140.00	\$58,830.20
609.02	CURVED GRANITE CURB	LF	150	\$40.00	\$6,000.00	\$8,580.00
611.811	ADJUSTING/RELOCATING HYDRANTS	EA	2	\$3,000.00	\$6,000.00	\$8,580.00
611.90001	ADJUSTING WATER GATES AND SHUTOFFS SET BY OTHERS	EA	11	\$175.00	\$1,925.00	\$2,752.75
618.7	FLAGGERS	HR	2,000	\$24.00	\$48,000.00	\$68,640.00
619.1	MAINTENANCE OF TRAFFIC	U	1	\$200,000.00	\$200,000.00	\$286,000.00
619.253	VARIABLE MESSAGE BOARD (UWK)	UWK	20	\$300.00	\$6,000.00	\$8,580.00
622.52	RESETTING BOUNDS	EA	8	\$300.00	\$2,400.00	\$3,432.00
628.2	SAWED BITUMINOUS PAVEMENT	LF	160	\$5.00	\$800.00	\$1,144.00
641.	LOAM	CY	125	\$50.00	\$6,250.00	\$8,937.50
643.22	FERTILIZER FOR REFERTILIZATION	LB	5	\$0.60	\$3.00	\$4.29



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MECHANIC STREET CONSTRUCTION - CONCEPTUAL OPINION OF PROBABLE COST - SLAYTON HILL RD ROUNDABOUT

Item No.	Description	Unit	Estimated Total	Unit Price	Cost 2017	Cost 2029 (@ 3%/YR)
644.15	PARK SEED TYPE 15	LB	30	\$15.00	\$450.00	\$643.50
645.3	EROSION STONE	TON	45	\$45.00	\$2,025.00	\$2,895.75
645.512	COMPOST SOCK FOR PERIMETER BERM	LF	1,500	\$4.00	\$6,000.00	\$8,580.00
645.531	SILT FENCE	LF	2,250	\$4.00	\$9,000.00	\$12,870.00
645.7	STORMWATER POLLUTION PREVENTION PLAN	U	1	\$7,500.00	\$7,500.00	\$10,725.00
645.71	MONITORING SWPPP AND EROSION AND SEDIMENT CONTROLS	HR	100	\$75.00	\$7,500.00	\$10,725.00
646.3	TURF ESTABLISHMENT WITH MULCH AND TACKIFIERS	AC	0.25	\$3,600.00	\$900.00	\$1,287.00
692.	MOBILIZATION	UNIT	1	\$104,866.80	\$104,866.80	\$149,959.52
697.41	CRITICAL PATH METHOD (CPM) ELECTRONIC SCHEDULE	UNIT	1	\$2,000.00	\$2,000.00	\$2,860.00
1010.15	FUEL ADJUSTMENT	UNIT	1	\$40,000.00	\$20,000.00	\$28,600.00
1010.2	ASPHALT CEMENT ADJUSTMENT	UNIT	1	\$25,000.00	\$10,000.00	\$14,300.00
01720	PROJECT RECORD DOCUMENTS AND AS-BUILT SURVEY	UNIT	1	\$10,000.00	\$10,000.00	\$14,300.00
Base Bid SubTotal					\$1,195,534.80	\$1,709,614.76
	Sidewalk and Curb to American Legion (750')					\$123,852.30
	SWM TREATMENT (1 AC)				\$40,000.00	\$57,200.00
	MISC. EROSION AND SEDIMENT CONTROL @ 1%				\$11,955.35	\$17,096.15
	MISC. LANDSCAPING AND RESTORATION @ 1%				\$11,955.35	\$17,096.15
	PAVEMENT MARKING AND SIGNAGE @ 2%				\$23,910.70	\$34,192.30
	CONTINGENCY @ 10%:				\$128,335.62	\$183,519.94
CONSTRUCTION TOTAL:					\$1,411,691.81	\$2,142,571.59
	FINAL DESIGN:				\$141,169.18	\$500,000.00
	CONSTRUCTION PHASE ENGINEERING @ 10%:				\$141,169.18	\$214,257.16
SubTotal					\$282,338.36	\$714,257.16
	WATER				\$50,000.00	\$71,500.00
	SEWER				\$62,500.00	\$89,375.00
	FINAL DESIGN @ 10%:				\$11,250.00	\$16,087.50
	CONSTRUCTION PHASE ENGINEERING @ 10%:				\$11,250.00	\$16,087.50
SubTotal Non Participating					\$135,000.00	\$193,050.00
	ROW - ACQUISITION				\$251,250.00	\$359,287.50
	ROW - TEMPORARY EASEMENT				\$10,740.00	\$15,358.20
	ROW - PERMAMENT EASEMENT				\$11,956.24	\$17,097.42
SubTotal ROW					\$273,946.24	\$391,743.12
TOTAL BASE BID ESTIMATE - SAY					\$2,103,000.00	\$3,441,700.00



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MECHANIC STREET CONSTRUCTION - CONCEPTUAL OPINION OF PROBABLE COST - SLAYTON HILL RD ROUNDABOUT

Item No.	Description	Unit	Estimated Total	Unit Price	Cost 2017	Cost 2029 (@ 3%/YR)
201.21	REMOVING SMALL TREES	EA	3	\$600.00	\$1,800.00	\$2,574.00
202.41	REMOVAL OF EXISTING PIPE 0" TO 24" IN DIAMETER	LF	950	\$30.00	\$28,500.00	\$40,755.00
202.5	REMOVAL OF CATCH BASINS, DROP INLETS, MANHOLES	EA	15	\$500.00	\$7,500.00	\$10,725.00
203.1	COMMON EXCAVATION	CY	3,100	\$6.00	\$18,600.00	\$26,598.00
203.6	EMBANKMENT-IN-PLACE	CY	600	\$8.00	\$4,800.00	\$6,864.00
206.19	COMMON STRUCTURE EXCAVATION EXPLORATORY	CY	40	\$60.00	\$2,400.00	\$3,432.00
209.1	GRANULAR BACKFILL	CY	95	\$45.00	\$4,275.00	\$6,113.25
211.11	VIBRATION MONITORING SERVICES	HR	40	\$85.00	\$3,400.00	\$4,862.00
214	FINE GRADING	UNIT	1	\$20,000.00	\$20,000.00	\$28,600.00
304.1	SAND	CY	1,000	\$25.00	\$25,000.00	\$35,750.00
304.35	CRUSHED GRAVEL FOR DRIVES	CY	15	\$45.00	\$675.00	\$965.25
304.4	CRUSHED STONE (FINE GRADATION)	CY	1,000	\$39.00	\$39,000.00	\$55,770.00
304.5	CRUSHED STONE (COARSE GRADATION)	CY	1,000	\$38.00	\$38,000.00	\$54,340.00
403.11	HOT BITUMINOUS PAVEMENT, MACHINE METHOD	TON	2,100	\$85.00	\$178,500.00	\$255,255.00
403.12	HOT BITUMINOUS PAVEMENT, HAND METHOD	TON	30	\$135.00	\$4,050.00	\$5,791.50
403.6	PAVEMENT JOINT ADHESIVE	LF	8,100	\$0.75	\$6,075.00	\$8,687.25
417.	COLD PLANING BITUMINOUS SURFACES	SY	800	\$10.00	\$8,000.00	\$11,440.00
592.9	PRECAST CONCRETE BLOCK RETAINING WALL	SF	1,000	\$45.00	\$45,000.00	\$64,350.00
603.0001	VIDEO INSPECTION	LF	900	\$3.00	\$2,700.00	\$3,861.00
603.00315	15" R.C. PIPE, 3000D	LF	400	\$75.00	\$30,000.00	\$42,900.00
603.00318	18" R.C. PIPE, 3000D	LF	300	\$80.00	\$24,000.00	\$34,320.00
603.00324	24" R.C. PIPE, 3000D	LF	200	\$95.00	\$19,000.00	\$27,170.00
604.0007	POLYETHYLENE LINERS	EA	20	\$175.00	\$3,500.00	\$5,005.00
604.12	CATCH BASINS TYPE B	U	20	\$2,500.00	\$50,000.00	\$71,500.00
604.32	DRAINAGE MANHOLES	U	6	\$2,500.00	\$15,000.00	\$21,450.00
604.51	ADJUSTING SEWER MANHOLES	LF	5	\$500.00	\$2,500.00	\$3,575.00
605.79	UNDERDRAIN FLUSHING BASIN	EA	6	\$1,000.00	\$6,000.00	\$8,580.00
605.82452	36" AGGREGATE UNDERDRAIN, TYPE 2 WITH 12" CORR. POLYETHYLENE PIPE	LF	1,350	\$32.00	\$43,200.00	\$61,776.00
608.24	4" CONCRETE SIDEWALK	SY	570	\$90.00	\$51,300.00	\$73,359.00
608.26	6" CONCRETE SIDEWALK	SY	140	\$100.00	\$14,000.00	\$20,020.00
609.01	STRAIGHT GRANITE CURB	LF	1,870	\$22.00	\$41,140.00	\$58,830.20
609.02	CURVED GRANITE CURB	LF	150	\$40.00	\$6,000.00	\$8,580.00
611.811	ADJUSTING/RELOCATING HYDRANTS	EA	2	\$3,000.00	\$6,000.00	\$8,580.00
611.90001	ADJUSTING WATER GATES AND SHUTOFFS SET BY OTHERS	EA	11	\$175.00	\$1,925.00	\$2,752.75
618.7	FLAGGERS	HR	2,000	\$24.00	\$48,000.00	\$68,640.00
619.1	MAINTENANCE OF TRAFFIC	U	1	\$200,000.00	\$200,000.00	\$286,000.00
619.253	VARIABLE MESSAGE BOARD (UWK)	UWK	20	\$300.00	\$6,000.00	\$8,580.00
622.52	RESETTING BOUNDS	EA	8	\$300.00	\$2,400.00	\$3,432.00
628.2	SAWED BITUMINOUS PAVEMENT	LF	160	\$5.00	\$800.00	\$1,144.00
641.	LOAM	CY	125	\$50.00	\$6,250.00	\$8,937.50
643.22	FERTILIZER FOR REFERTILIZATION	LB	5	\$0.60	\$3.00	\$4.29



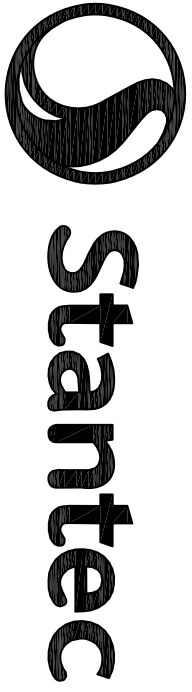
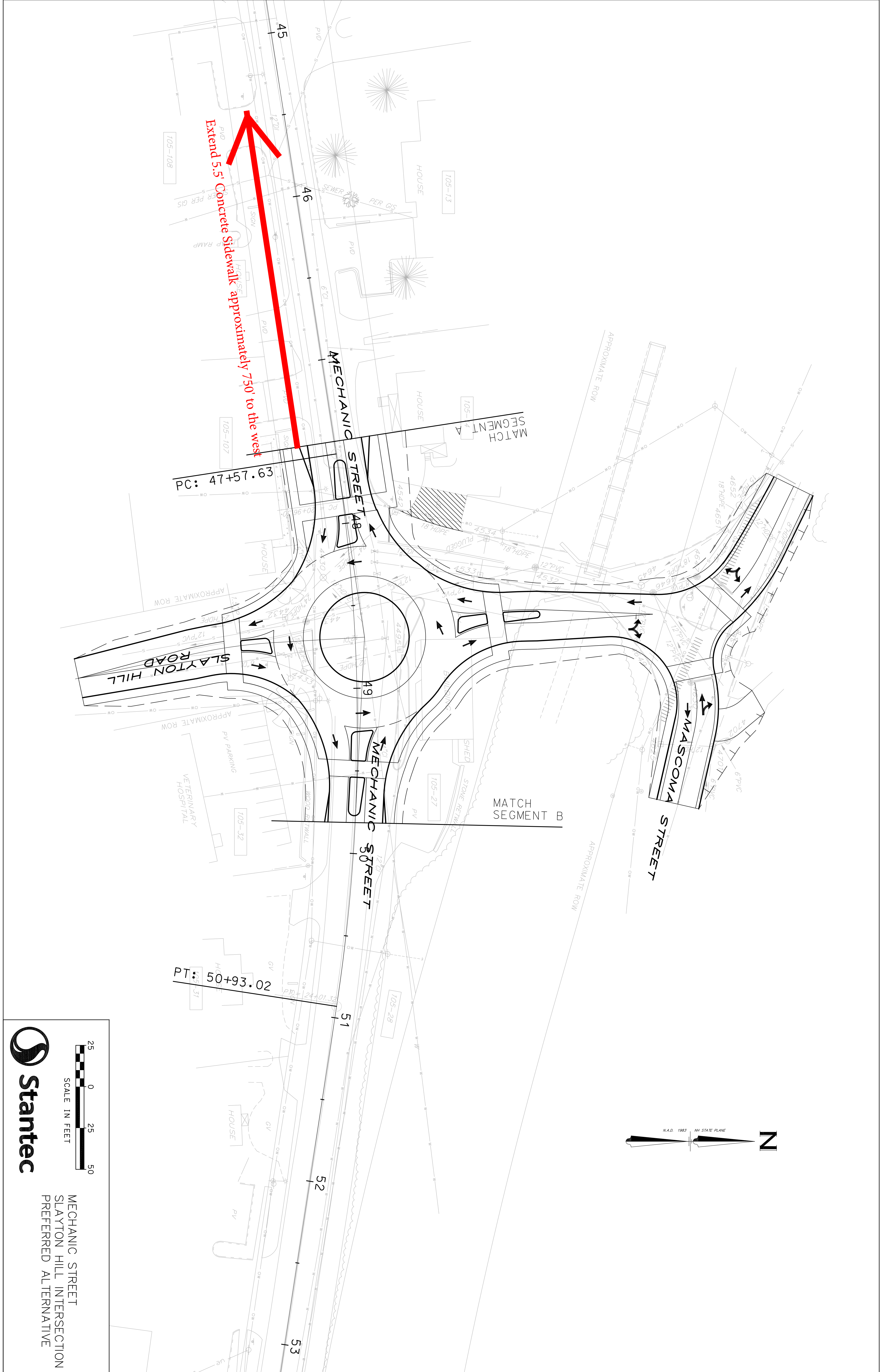
STANTEC
288 South River Road, Bldg. C
Bedford, NH 03110
Phone: (603) 669-2000 Fax: (603) 668-2670

Project Number: 195350023
City of Lebanon, NH
Mechanic St

COMPUTED BY: TAT
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DATE: 03/07/19

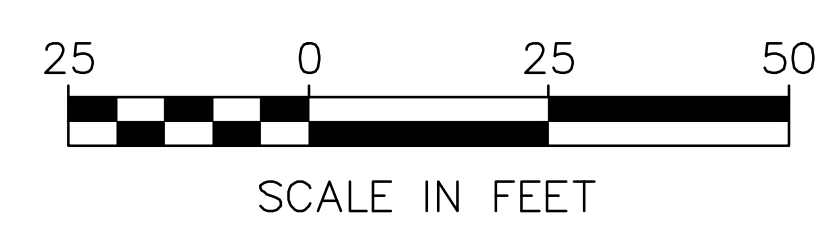
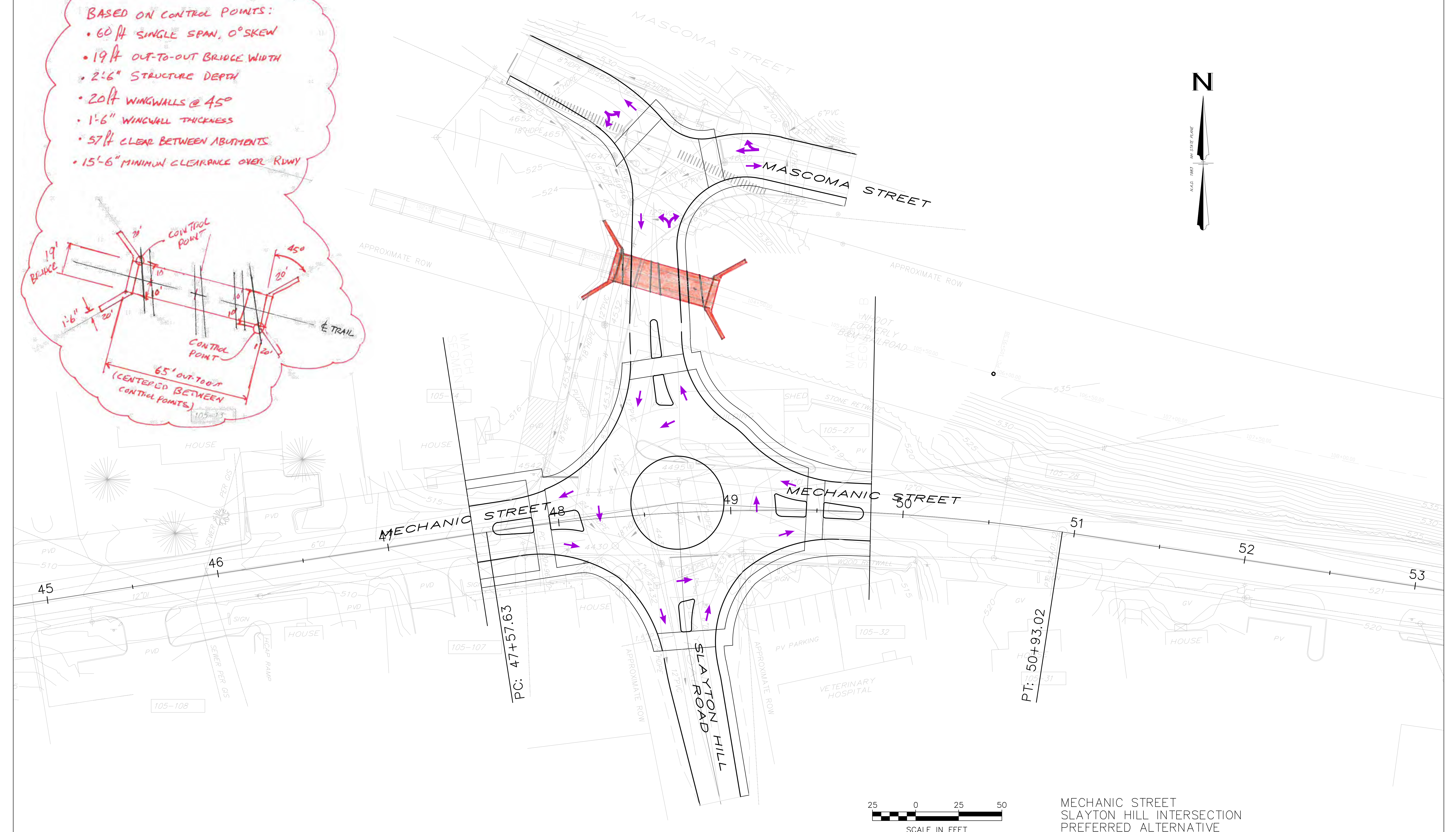
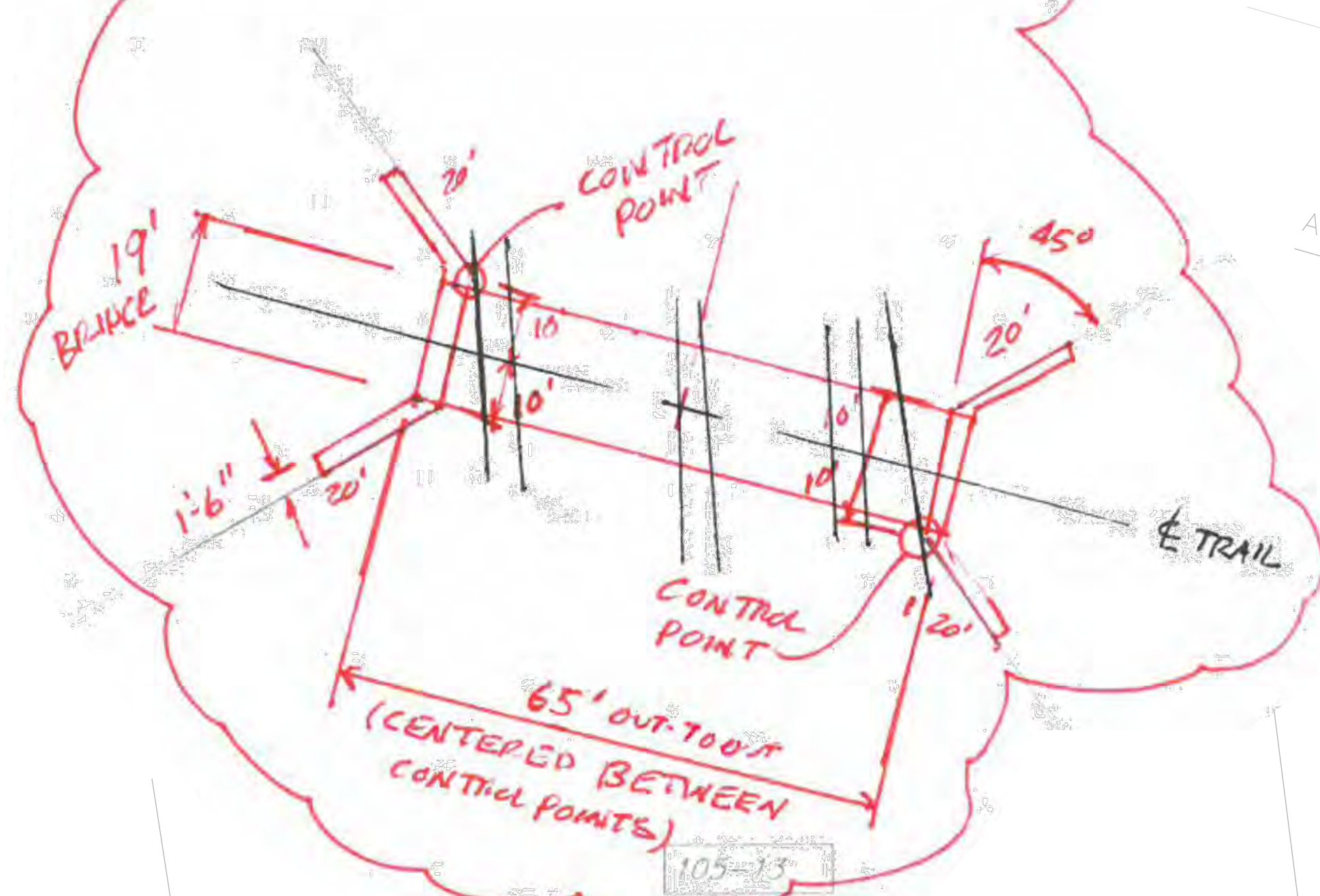
MECHANIC STREET CONSTRUCTION - CONCEPTUAL OPINION OF PROBABLE COST - SLAYTON HILL RD ROUNDABOUT

Item No.	Description	Unit	Estimated Total	Unit Price	Cost 2017	Cost 2029 (@ 3%/YR)
644.15	PARK SEED TYPE 15	LB	30	\$15.00	\$450.00	\$643.50
645.3	EROSION STONE	TON	45	\$45.00	\$2,025.00	\$2,895.75
645.512	COMPOST SOCK FOR PERIMETER BERM	LF	1,500	\$4.00	\$6,000.00	\$8,580.00
645.531	SILT FENCE	LF	2,250	\$4.00	\$9,000.00	\$12,870.00
645.7	STORMWATER POLLUTION PREVENTION PLAN	U	1	\$7,500.00	\$7,500.00	\$10,725.00
645.71	MONITORING SWPPP AND EROSION AND SEDIMENT CONTROLS	HR	100	\$75.00	\$7,500.00	\$10,725.00
646.3	TURF ESTABLISHMENT WITH MULCH AND TACKIFIERS	AC	0.25	\$3,600.00	\$900.00	\$1,287.00
692.	MOBILIZATION	UNIT	1	\$104,866.80	\$104,866.80	\$149,959.52
697.41	CRITICAL PATH METHOD (CPM) ELECTRONIC SCHEDULE	UNIT	1	\$2,000.00	\$2,000.00	\$2,860.00
1010.15	FUEL ADJUSTMENT	UNIT	1	\$40,000.00	\$20,000.00	\$28,600.00
1010.2	ASPHALT CEMENT ADJUSTMENT	UNIT	1	\$25,000.00	\$10,000.00	\$14,300.00
01720	PROJECT RECORD DOCUMENTS AND AS-BUILT SURVEY	UNIT	1	\$10,000.00	\$10,000.00	\$14,300.00
Base Bid SubTotal					\$1,195,534.80	\$1,709,614.76
	Sidewalk and Curb to American Legion (750')					\$123,852.30
	SWM TREATMENT (1 AC)				\$40,000.00	\$57,200.00
	MISC. EROSION AND SEDIMENT CONTROL @ 1%				\$11,955.35	\$17,096.15
	MISC. LANDSCAPING AND RESTORATION @ 1%				\$11,955.35	\$17,096.15
	PAVEMENT MARKING AND SIGNAGE @ 2%				\$23,910.70	\$34,192.30
	CONTINGENCY @ 10%:				\$128,335.62	\$183,519.94
CONSTRUCTION TOTAL:					\$1,411,691.81	\$2,142,571.59
	FINAL DESIGN:				\$141,169.18	\$500,000.00
	CONSTRUCTION PHASE ENGINEERING @ 10%:				\$141,169.18	\$214,257.16
SubTotal					\$282,338.36	\$714,257.16
	WATER				\$50,000.00	\$71,500.00
	SEWER				\$62,500.00	\$89,375.00
	FINAL DESIGN @ 10%:				\$11,250.00	\$16,087.50
	CONSTRUCTION PHASE ENGINEERING @ 10%:				\$11,250.00	\$16,087.50
SubTotal Non Participating					\$135,000.00	\$193,050.00
	ROW - ACQUISITION				\$251,250.00	\$359,287.50
	ROW - TEMPORARY EASEMENT				\$10,740.00	\$15,358.20
	ROW - PERMAMENT EASEMENT				\$11,956.24	\$17,097.42
SubTotal ROW					\$273,946.24	\$391,743.12
TOTAL BASE BID ESTIMATE - SAY					\$2,103,000.00	\$3,441,700.00



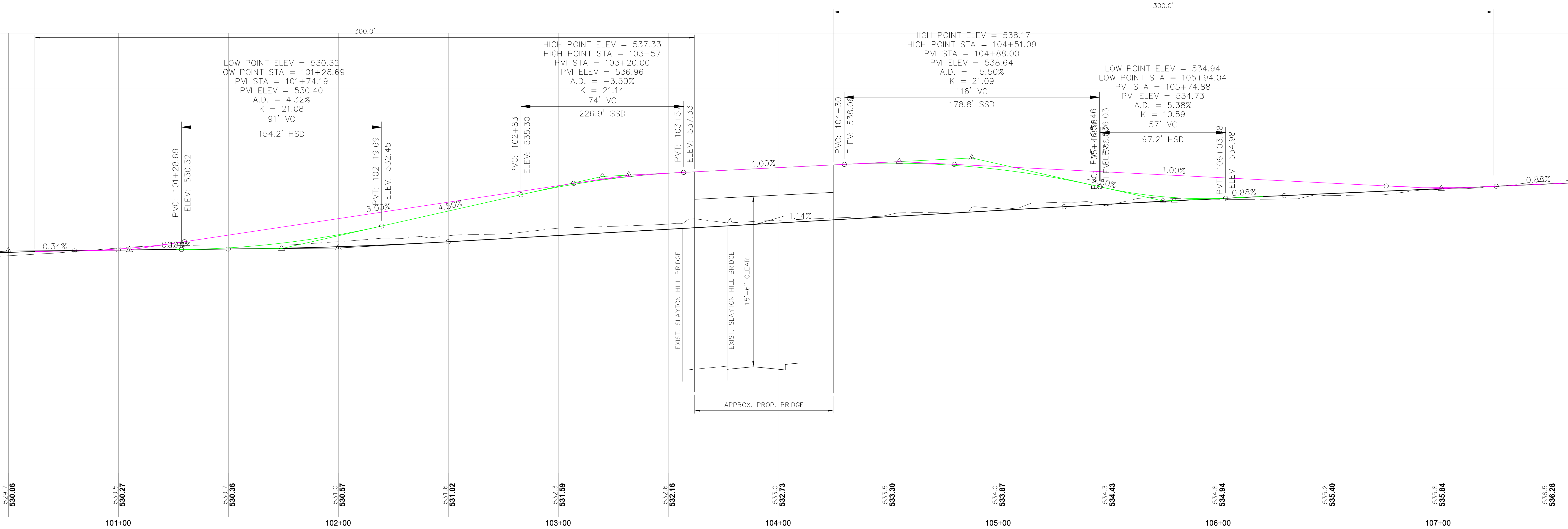
MECHANIC STREET
SLAYTON HILL INTERSECTION
PREFERRED ALTERNATIVE

- BASED ON CONTROL POINTS:
- 60 ft SINGLE SPAN, 0° SKEW
 - 19 ft OUT-TO-OUT BRIDGE WIDTH
 - 2'-6" STRUCTURE DEPTH
 - 20 ft WINGWALLS @ 45°
 - 1'-6" WINGWALL THICKNESS
 - 57 ft CLEAR BETWEEN ABUTMENTS
 - 15'-6" MINIMUM CLEARANCE OVER RDWY



MECHANIC STREET
SLAYTON HILL INTERSECTION
PREFERRED ALTERNATIVE

MASCOMA RIVER GREENWAY



3.7 Traffic

Mechanic Street is classified as an Urban Minor Arterial and is a significant east-west roadway connecting downtown Lebanon to West Lebanon and Interchange 19 of I-89. Besides being a transportation corridor, this section of Mechanic Street provides access to a variety of abutting land uses that include commercial office, residential, retail and industrial properties. Key intersections along the corridor include the intersection of Mechanic Street at Slayton Hill Road and Mechanic Street at Mascoma Street/High Street.

Under existing conditions, the roadway is currently a two-way, two lane roadway, with an approximate 600-foot two-way left. turn lane east of Buckingham Place. Eastbound and westbound traffic flows on Mechanic Street are divided by a double yellow line, with the exception of the segment of Mechanic Street at I-89 Interchange 19, where directional traffic flows are divided by a raised median island.

Several side streets and driveways intersect Mechanic Street along the project corridor. There are no traffic signals along the segment of Mechanic Street under evaluation. All side roads and driveways are under STOP control.

The current configuration of the intersection of Mechanic Street and Slayton Hill Road consists of Slayton Hill Road approaching Mechanic Street from the north and south (see image below). The southbound approach is offset approximately fifty feet west of the northbound approach. The northbound and southbound approaches each consist of a single general purpose lane. The Mechanic Street eastbound and westbound approaches each consist of a single general purpose lane. Traffic on



Slayton Hill Road is under STOP control, while traffic on Mechanic Street flows freely.

US 4 (Mechanic Street) Reconstruction - Engineering Study – 10034B
City of Lebanon

A summary of existing 2013 ATR traffic volumes is shown in the following table:

Table – Existing 2013 Traffic Volumes

<u>Location</u>	<u>Daily Volume</u> ^a	<u>AM Peak Hour</u>			<u>PM Peak Hour</u>		
		<u>Peak Hour Volume</u> ^b	<u>K</u> ^c	<u>Dir. Dist</u> ^d	<u>Peak Hour Volume</u>	<u>K</u>	<u>Dir. Dist</u>
Buckingham Place, South of Mechanic Street	811	89	11.0%	84.3% NB	112	13.8%	75.9% SB
Terrace View, North of Mechanic Street	192	20	10.4%	85.0% SB	16	8.3%	62.5% NB
Slayton Hill Road, North of Mechanic Street	3,906	264	6.7%	64.8% SB	380	9.7%	64.5% SB
Slayton Hill Road, South of Mechanic Street	1,381	105	7.6%	65.7% NB	123	8.9%	62.6% SB
Blacksmith Road, South of Mechanic Street	285	20	7.0%	80% SB	47	16.5%	60.0% NB
Mechanic Street, West of High Street	12,850	883	6.9%	54.2% WB	1072	8.3%	53.0% WB
High Street, North of Mechanic Street	4,618	343	7.4%	68.5% NB	394	8.5%	55.6% NB
a	daily traffic expressed in vehicles per day						
b	peak hour volumes expressed in vehicles per hour						
c	percent of daily traffic that occurs during the peak hour						
d	directional distribution of peak hour traffic						

TMCs were conducted manually at the following intersections on a typical weekday during the morning peak period (7 am to 9 am) and during the afternoon peak period (4 pm to 6 pm).

- Mechanic Street/Mascoma Street
- Mascoma Street/High Street
- Mechanic Street/Blacksmith Road
- Mechanic Street/Slayton Hill Road

INTERSECTIONS

The reconstruction of the Slayton Hill Road and High Street intersections are also included as part of the Preferred Alternative. The preferred improvements at each intersection are described below.

Slayton Hill Road Intersection

A single-lane roundabout is proposed at the Slayton Hill Road intersection as shown in the conceptual image below.

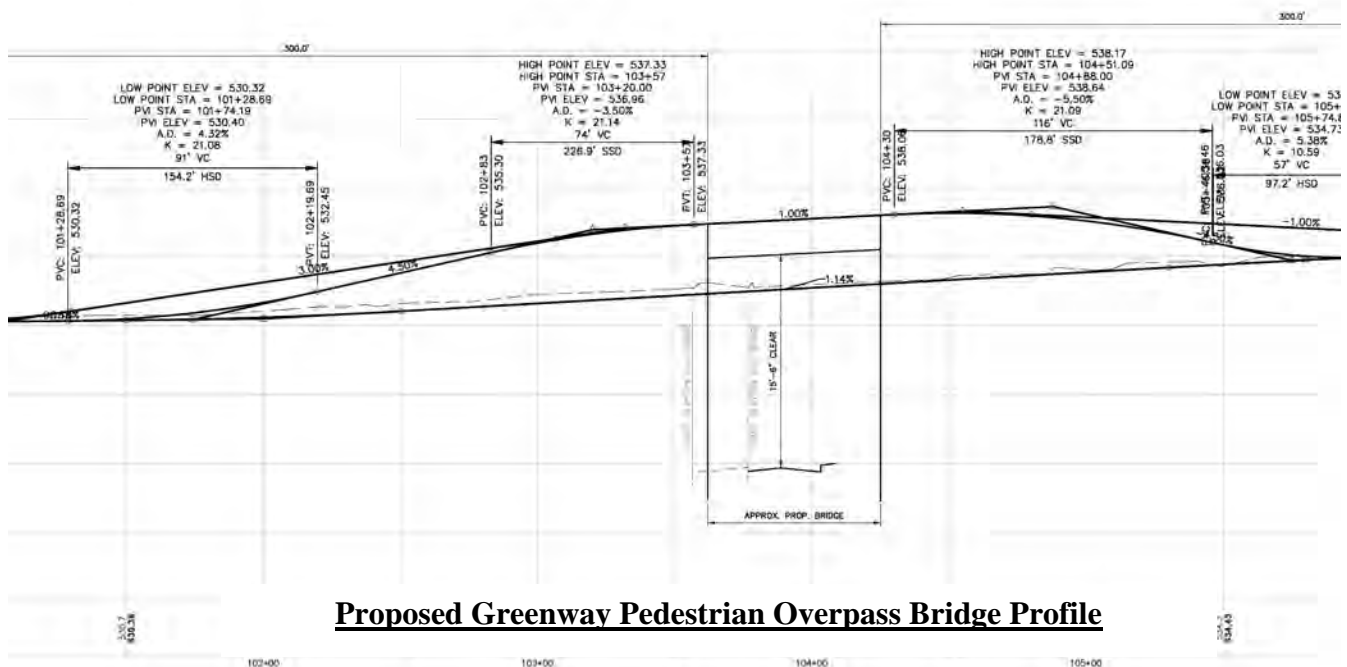
Each approach to the roundabout will have a yield condition, and both sides of Slayton Hill Road will be aligned. Slayton Hill Road north of Mechanic Street will be realigned, extending to its intersection with Mascoma Street. Mascoma Street will have a stop condition on both approaches, with Slayton Hill northbound traffic having free left, turning and through movements onto Mascoma Street, similar to the current configuration. The wider and relocated bridge will provide significantly improved sight lines for traffic approaching on Mascoma Street.



**Preferred Alternative Slayton Hill Rd. Intersection w/
Proposed Greenway Pedestrian Overpass Bridge Plan**

US 4 (Mechanic Street) Reconstruction - Engineering Study – 10034B
City of Lebanon

The realignment of the northern leg of the intersection will require the removal of the railroad bridge over Slayton Hill Road and relocation of a portion of the AT&T fiber optic line. This removal and relocation allows the northerly approach leg to be designed to a full width roadway as required to support the vehicular, pedestrian, and bicycle needs of the corridor. The existing bridge provides for an only 18 feet of width for Slayton Hill Road. This barely accommodates two lanes of traffic, with users generally yielding before crossing under the bridge. There are no safe bicycle or pedestrian facilities under the existing bridge, with sight lines on the approaches further reducing the ability to safely cross under the existing bridge. The bridge itself would be replaced with a 12-foot-wide precast structure to maintain access to the Greenway Trail crossing over Slayton Hill Road. The proposed bridge will be of adequate span to accommodate the travel lanes, shoulders and sidewalk of the proposed Slayton Hill roundabout approach. Due to the presence of the proposed pedestrian sidewalk, the proposed bridge clearance will be 15 feet - 6 inches. The existing clearance is just 8 feet – 10 inches therefore the preferred alternative includes a proposed raised profile along the greenway, with the Slayton Hill Road profile to generally match existing. Depending on the steepness of slopes used to tie back into existing grade (1% to 4.5%), the regrading work limits will be 200 feet to 300 feet from the bridge on both approaches. Refer to drawings above and in Appendix D for the proposed pedestrian bridge plan and profile. The relocation of the fiber optic line will require coordination with AT&T. An estimated cost



Proposed Greenway Pedestrian Overpass Bridge Profile

for this work is included in the estimate for this alternative.

This alternative requires the driveway to the house on the northwest corner of the intersection to be closed. Access will be provided from the secondary driveway entrance that exists on Mechanic Street. Full acquisition of the parcel (Country Woolens – 160 Mechanic Street, Parcel 105-27) on the northeast corner will be required as the realignment would eliminate Slayton Hill Road being offset in the crossing of Mechanic Street.

The Slayton Hill Road intersection provides three potential access/egress locations to the Greenway Trail, indicated by a colored star on the following graphic and described in the following paragraphs:



1. Parcel 105-15 located in the northwest quadrant of the Slayton/Greenway intersection (blue star on Greenway Trail Access image above). An existing drive provides access from Mascoma Street. This lot is in private ownership but appears largely unused and overgrown. It could be an ideal location for both public parking, and a relatively flat gradient access to the trail. The City has reached out to the owner about acquisition of the lot and discussions are ongoing.
2. Parcel 105-26 is located in the northeast quadrant of the Slayton/Greenway intersection (purple star on the Greenway Trail Access image above). This lot is currently owned by the City of Lebanon and offers an existing connection to the trail, but parking opportunity would be limited due to lack of land and proximity to the intersection (see Google Streetview below).



3. As mentioned previously, the potential full acquisition of Parcel 105-27 (red star on Greenway Trial Access image above) could provide another parking and trail access opportunity. ADA accessibility would be challenging due to the substantial grade differential between the location of the existing building/potential parking area and the trail itself (see Google Streetview below).



The City will continue to work throughout design phase to acquire the appropriate property rights and provide the best possible access option(s).



Proposed Greenway Pedestrian Overpass Bridge Looking South

Both Option 2 and Option 3 were analyzed under stop control and as signalized intersections.

Option 2 – Offset Legs

Option 2 (see concept below) keeps the Slayton Hill Road approaches offset at their current locations with improvements to turning movements, lane widths, and accommodation of pedestrians. This option assumes that the rail trail bridge, just to the north, will not be replaced.

Under stop control, the LOS at this intersection is an F in the year 2035. Signalization of this intersection results in an LOS of C in 2035.

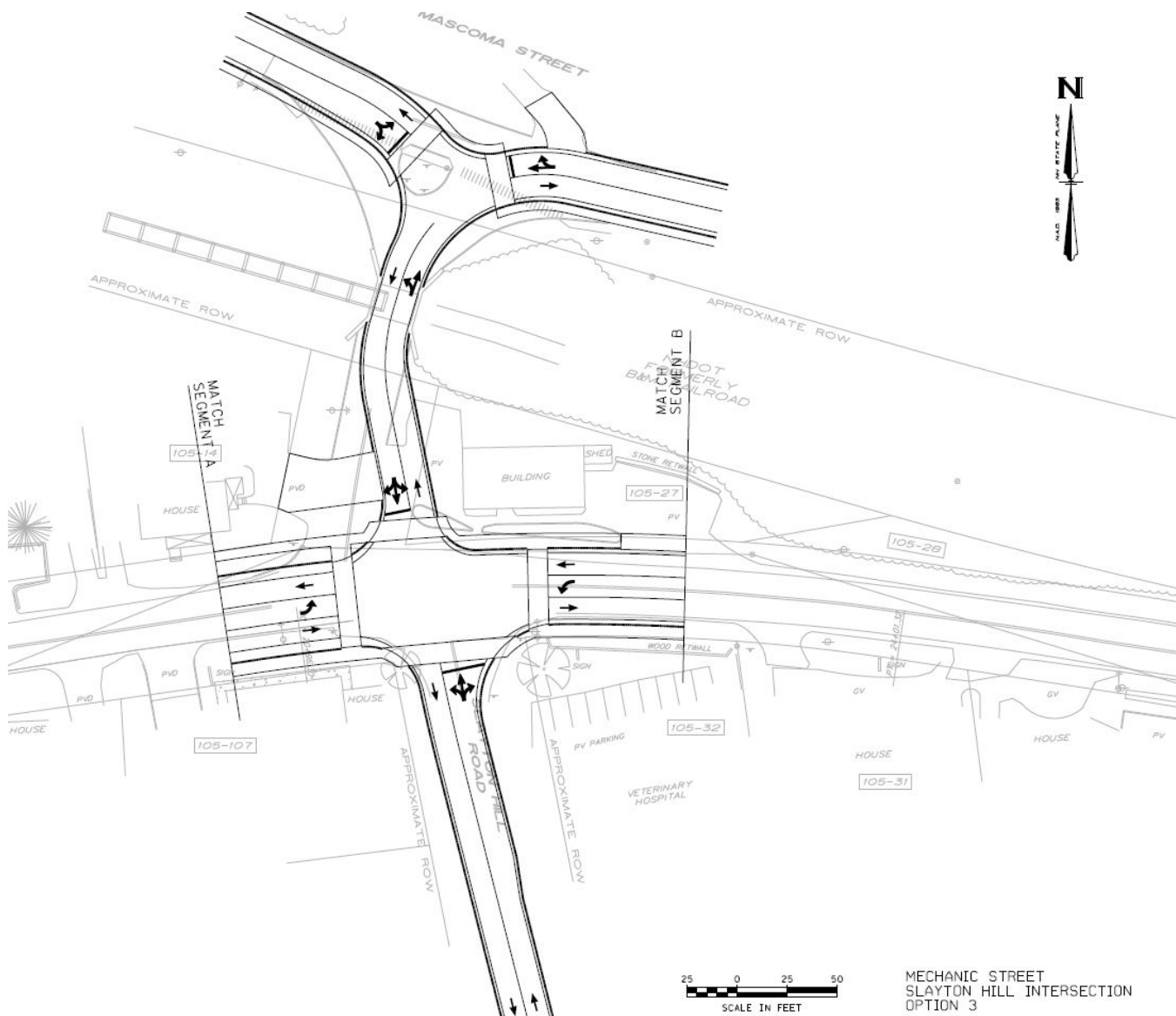
The stop control option does not meet the purpose and need, as it does not address the capacity of the intersection, nor provide physical improvements to the existing layout. While the signalization option does improve capacity and is acceptable in the 20 year time horizon, the overall benefits to safety, traffic calming component, and general aesthetics led to the preferred roundabout alternative.



Option 3 – Realigned Legs

Option 3 shifts the alignments of the Slayton Hill Road approaches to line up with each other while also improving turning movements, lane widths, site distance, and pedestrian access (see concept below). This option assumes that the rail trail bridge, just to the north, will not be replaced.

The 2035 LOS for stop control is still an F at this location, even with the realigned approach legs. Under signal control, that LOS increases to a B in 2035. The intersection realignment will reduce confusion and improve general safety over the offset alignment that exists today and was reviewed under Option 1. However, for the same reasons as discussed in Option 1, the roundabout option was determined to be the preferred alternative at this location.



6.4 Traffic

Traffic Volume Projections

Future traffic demand volumes were developed in order to evaluate intersection operations after the project has been constructed. Year 2035 was selected as the horizon year for the future build traffic analysis. The New Hampshire Department of Transportation (NHDOT) was consulted to determine future traffic growth in the corridor. NHDOT had indicated that a 1% per year general background traffic growth for traffic would be appropriate.

The City of Lebanon's Planning Department was also consulted to determine if there were specific development projects that could contribute to future traffic growth. The Department indicated that two permitted development projects may impact Mechanic Street traffic volumes in the future – the Iron Horse project near Glen Road and the River Park project located along Route 10.

Therefore, 2035 traffic volumes were developed using an annual growth rate for traffic volumes, between 2013 and 2035, of one percent and through the addition of traffic volumes associated with the specific development projects that were identified by the City.

Corridor Improvements

The recommended design for the corridor is a two-way, two lane (11-foot lane width) roadway with 5 foot shoulders in each direction and an 11-foot two-way center turn lane to be provided along the entire length of the corridor.

Due to the number of commercial and private driveways and side streets, a two-way center turn lane is proposed for the project corridor. The two-way center turn lane will assist in improving capacity, as left-turning vehicles currently block traffic while waiting for a gap in opposing traffic flow to make the left-turning movement. The two-way center turn lane will provide a space in the roadway cross-section for left-turning vehicles to queue, allowing for through traffic to flow freely. A two-way left-turn lane is proposed, as opposed to a series of left-turn pockets, due to the number and spacing of commercial and residential driveways and side streets. In segments of areas where left-turns are only feasible on one side, the center turn lane is proposed to become a center one-way left-turn lane.

Improvements at Mechanic Street at Slayton Hill Road

The recommended design consists of a single lane roundabout with single lane approaches on the eastbound and westbound Mechanic Street approaches and on the northbound and southbound Slayton Hill Road approaches. Crosswalks are proposed across each of the approaches to the roundabout. Approach and departure lanes on each approach are separated by a proposed raised splitter island.

Other alternatives evaluated include retaining the existing location of the offset legs for Slayton Hill Road and providing a single share multi-purpose lane on each approach (Option 2). Under this option, the Mechanic Street eastbound and westbound approaches would consist of an exclusive left-turn lane and shared thru/right-turn lane.

Under Option 3, the southbound Slayton Hill Road approach to Mechanic Street is proposed to be realigned to the east to form a four-way intersection with the northbound leg of Slayton Hill Road (removing the offset between the north and south legs). The northbound and southbound would each consist of a single shared multi-purpose turn lane. Under this option, the Mechanic Street eastbound and westbound approaches would consist of an exclusive left-turn lane and shared thru/right-turn lane.

Both Option 2 and Option 3 were evaluated under two traffic control scenarios - as a two-way stop controlled intersection (with stops on Slayton Hill Road) and under full traffic signal control. Note that under traffic signal control, the Slayton Hill Road approaches would operate under “split” phasing for Option 2, as the northbound and southbound approaches are offset from one another. “Split” phasing would consist of the northbound and southbound approaches operating in distinct phases from one another (as opposed to concurrent operation of the northbound and southbound approaches) due to the offset geometry of the approach legs. “Split” phasing often results in reduced traffic capacity at an intersection but the expectation is that it also often results in safer operations.

The intersection capacity analysis was conducted with the Synchro 8 capacity analysis software, which is based upon the methodologies contained in the Highway Capacity Manual (HCM). Roundabout capacity analysis was conducted with the SIDRA Intersection 5.1 capacity analysis software. The analysis was conducted for anticipated year 2035 traffic volumes, during the worse-case peak hour of traffic. Under existing traffic volumes and traffic control, the intersection operates at LOS F.

The following table presents the overall Level-of-Service.

**Table - 2035 Traffic Volumes - Overall LOS at
Mechanic Street/Slayton Hill Road**

Roundabout	
Preferred Alternative (Roundabout)	LOS D
Under STOP Control	
Option 2	LOS F
Option 3	LOS F
Under Traffic Signal Control	
Option 2	LOS C
Option 3	LOS B

The following table presents the expected operations for the preferred alternative (roundabout), by movement

**Table - 2035 Weekday Peak Hour Roundabout Level of Service by Movement at
Mechanic Street/Slayton Hill Road**

	AM Peak				PM Peak			
				Queue ³				Queue ³
Intersection Movement	Delay ¹	LOS	v/c ²	95%	Delay ¹	LOS	v/c ²	95%
<u>Mechanic Street/Slayton Hill Road</u>								
Slayton Hill Rd NB	14.8	B	0.35	53.4	36.5	D	0.52	100.0
Mechanic St WB	16.7	B	0.87	426.1	69.4	E	1.10	1410.9
Slayton Hill Rd SB	16.5	B	0.48	89.7	59.4	E	0.97	409.6
Mechanic St EB	5.4	A	0.59	163.3	11.8	B	0.99	1116.7
OVERALL	11.9	B	0.87		39.7	D	1.10	

1. Delay in seconds per vehicle.

2. Volume to capacity ratio.

3. Queue per lane, in feet (25 feet per vehicle).

Improvements at the Mechanic Street/Mascoma Street/High Street Intersection

The recommended design consists of a single lane roundabout with single lane approaches on the eastbound and northbound Mechanic Street and Mascoma Street approaches, respectively, and single lane approaches on the southbound Mascoma Street and westbound High Street approaches. The design consolidates the two closely spaced intersections of Mascoma Street at High Street and Mechanic Street at Mascoma Street into a single roundabout with four legs. Crosswalks are proposed across each of the approaches to the roundabout. Approach and departure lanes on each approach are separated by a proposed raised splitter island.

Other options considered for this intersection include consolidating the two closely spaced intersections of Mascoma Street/High Street and Mechanic Street/Mascoma Street into a single four legged intersection. Under this option (Option 2), the High Street westbound approach consists of a shared left./thru/right-turn lane. The Mechanic Street eastbound approach consists of a shared left.-turn/thru lane and a channelized exclusive right-turn lane. The Mascoma Street southbound approach consists of an exclusive left.-turn lane and shared thru/right-turn lane. The Mascoma Street northbound approach consists of two exclusive left.-turn lanes, and a shared through/right turn pocket.

A second non-roundabout option (Option 3) for this intersection was also evaluated. Option 3 is similar to Option 2, with the primary difference being that only one left. turn lane is provided for Mascoma Street northbound.

Both Option 2 and Option 3 were evaluated under two traffic control scenarios - as a four-way stop controlled intersection and under full traffic signal control.

The capacity analysis was conducted for anticipated year 2035 traffic volumes, during the worse-case peak hour of traffic. Under existing traffic volumes and traffic control, the intersection operates at LOS D. The following table presents the overall Level-of-Service.

Table - 2035 Traffic Volumes - Overall LOS at Mechanic Street/Mascoma Street/High Street

Roundabout	
Preferred Alternative (Roundabout)	LOS C
Option 1 – Roundabout	LOS C
Under STOP Control	
Option 2 – Double Left.	LOS F
Option 3 - Single Left.	LOS F
Under Traffic Signal Control	
Option 2 – Double Left.	LOS B
Option 3 – Single Left.	LOS D

The following table presents the expected operations for the preferred alternative (roundabout), by movement.

**Table - 2035 Weekday Peak Hour Roundabout Level of Service by Movement at
Mechanic Street/Mascoma Street/High Street**

	AM Peak				PM Peak			
				Queue ³				Queue ³
Intersection Movement	Delay ¹	LOS	v/c ²	95%	Delay ¹	LOS	v/c ²	95%
<u>Mechanic Street/Mascoma Street/High Street</u>								
Mechanic St NB	6.2	A	0.55	122.1	18.6	B	0.94	696.1
Mechanic St WB	14.7	B	0.77	271.4	21.6	C	0.87	420.6
High St SB	18.1	B	0.69	179.5	31.7	C	0.88	334.4
Mascoma St EB	16.4	B	0.44	80.1	18.7	B	0.49	93.2
OVERALL	13.1	B	0.77		21.9	C	0.94	

1. Delay in seconds per vehicle.

2. Volume to capacity ratio.

3. Queue per lane, in feet (25 feet per vehicle).

6.5 Parking

It is anticipated that the existing parking areas at 57 and 113 Mechanic Street will be impacted by the proposed roadway reconstruction and widening. On street parking is not proposed as part of the project.

6.6 Wetlands

The proposed improvements are anticipated to impact approximately a couple hundred square feet of the emergent wetland located near the western project limits. No impacts are anticipated to the Mascoma River or its bank since no work to the existing Mechanic Street bridge over the Mascoma River is proposed.

6.7 Hazardous Materials

Given the close proximity of the NHDES sites to the project corridor, the Construction Contract shall require the Contractor to develop and implement a Soils and Materials Management Plan in the event hazardous materials are encountered during construction.

6.8 Right-of-Way

Temporary construction easements will be required along the corridor for the proposed roadway reconstruction. Proposed drainage easements may be required for maintenance of stormwater structures or Best Management Practices (BMPs). It is anticipated that three property acquisitions will be required to construct the roundabouts at the Slayton Hill Road (160 Mechanic Street) and the High Street (1 Mechanic Street and 1 High Street) intersections. In addition, permanent right-of-way partial takings may be necessary at both intersections. In several locations along Segment B and the High Street intersection, permanent easements may also be required to maintain retaining walls.

All standards and requirements outlined in the Uniform Relocation Act shall be followed during the right-of-way acquisition process for the proposed project. Given the tight site constraints of abutting properties along the corridor, close coordination with the business and property owners shall take place during Final Design to minimize any detrimental impacts to these properties.

7. Environmental Review and Documentation

The following is a list of the agencies/contacts that were consulted with during Preliminary Design. Note that contacts at the City agencies reflect current (2018) contacts.

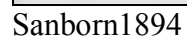
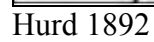
<u>Agency/Organization</u>	<u>Contact</u>
City of Lebanon, City Manager	Shaun Mulholland
City of Lebanon, Public Works Department	Director - Mike Lavalla, PE City Engineer - Christina Hall, PE
City of Lebanon, Police Department	Chief - Richard Mello Captain – Tim Cohen
City of Lebanon, Fire Department	Chief - Chris Christopoulos
City of Lebanon, Conservation Commission	Don Lacey
City of Lebanon, Planning Department	David Brooks
City of Lebanon, Recreation Department	Paul Coates
Land & Community Heritage Investment Program	Paula Bellmore
National Marine Fisheries Service, Northeast Region Habitat Conservation Division (EFH)	Mike Johnson
NHDHR	Laura Black
NHDRED, NH Natural Heritage Bureau	Melissa Coppola
NHDRED, LWCF	Bill Gegas
NHDOT	Jill Edelman
NHDOT	John Ankenbrock
USFWS	IPaC Website
NH Office of Energy & Planning, CLS	Steve Walker
NH Office of Energy & Planning, FMP	Jennifer Gilbert

9. Public Participation

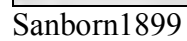
Input from the public has been sought at several occasions and in a variety of formats throughout the Engineering Study Phase. The process has included three Public Informational Meetings (PIM), and a series of four walkabouts of the corridor.

- PIM 1 – The first Public Informational Meeting was held on September 10, 2013. It was a blank slate meeting, held along the corridor at the Carter Country Club. Residents were invited to meet with City Staff and the Design Team to express their concerns and desires for the corridor.
- Walkabouts – Following the blank slate PIM, the City hosted a series of four walkabouts along the project corridor. They were held on four separate evenings between October 29 and November 5, 2013. Residents were welcome to walk the predetermined segment of the corridor each night, or meet the team at their respective property.
- PIM 2 – A more traditional Public Informational Meeting was held on May 27, 2014 at the Community College. Concept level plans, incorporating discussions from the blank slate PIM and walkabouts were shown along tables. Following a brief presentation by Stantec, residents were encouraged to view the plans and discuss their thoughts with members of City Staff and the Design Team. The evening ended with a recap of those discussions in a group setting.
- PIM 3 – A third public informational meeting was held at the Senior Center in Lebanon, NH on October 26, 2015 to provide a project update and solicit public input. Dennis Luttrell (City Manager) opened the meeting, followed by Christina Hall (City Engineer) who provided the project introduction. David McNamara of Stantec then outlined the purpose of the meeting, highlighting such items as project history, project status, the Federally Funded project process, proposed corridor improvements and intersection alternatives. Following the presentation, there were individual discussions between the City/Stantec Team and abutters regarding the plan layouts and intersection alternatives. The meeting concluded with an overview of the comments received during the plan review breakout session.
- City Council Meetings – The project was presented to the City Council on April 22, 2016 and February 21, 2018. These meetings were held to update the Council on the project status, findings and next steps in the process. These meetings are publicly noticed and open to the public.

MECHANIC STREET, LEBANON – PROJECT AREA

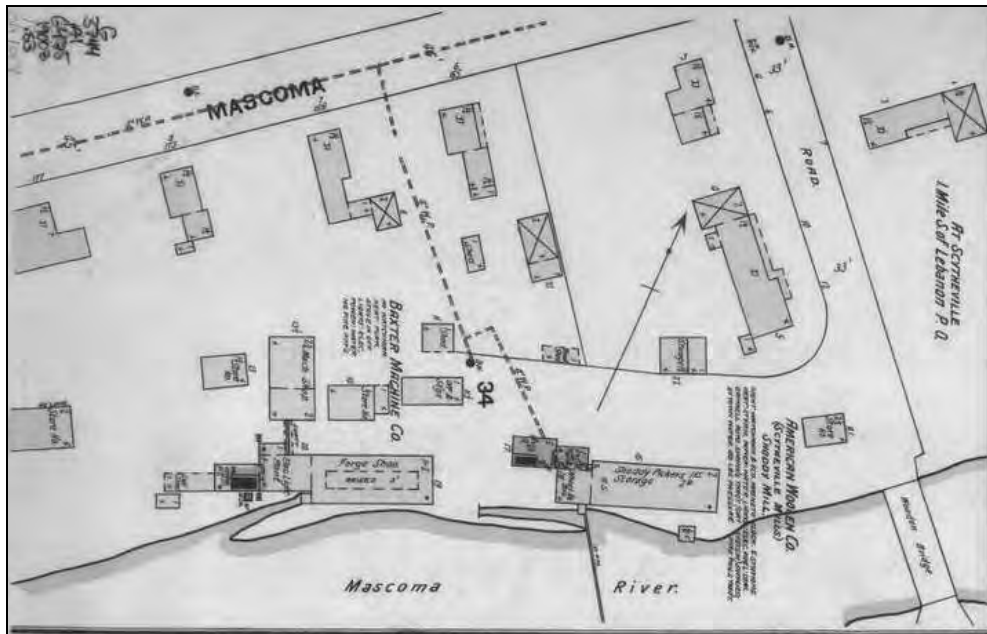


MECHANIC STREET, LEBANON – PROJECT AREA

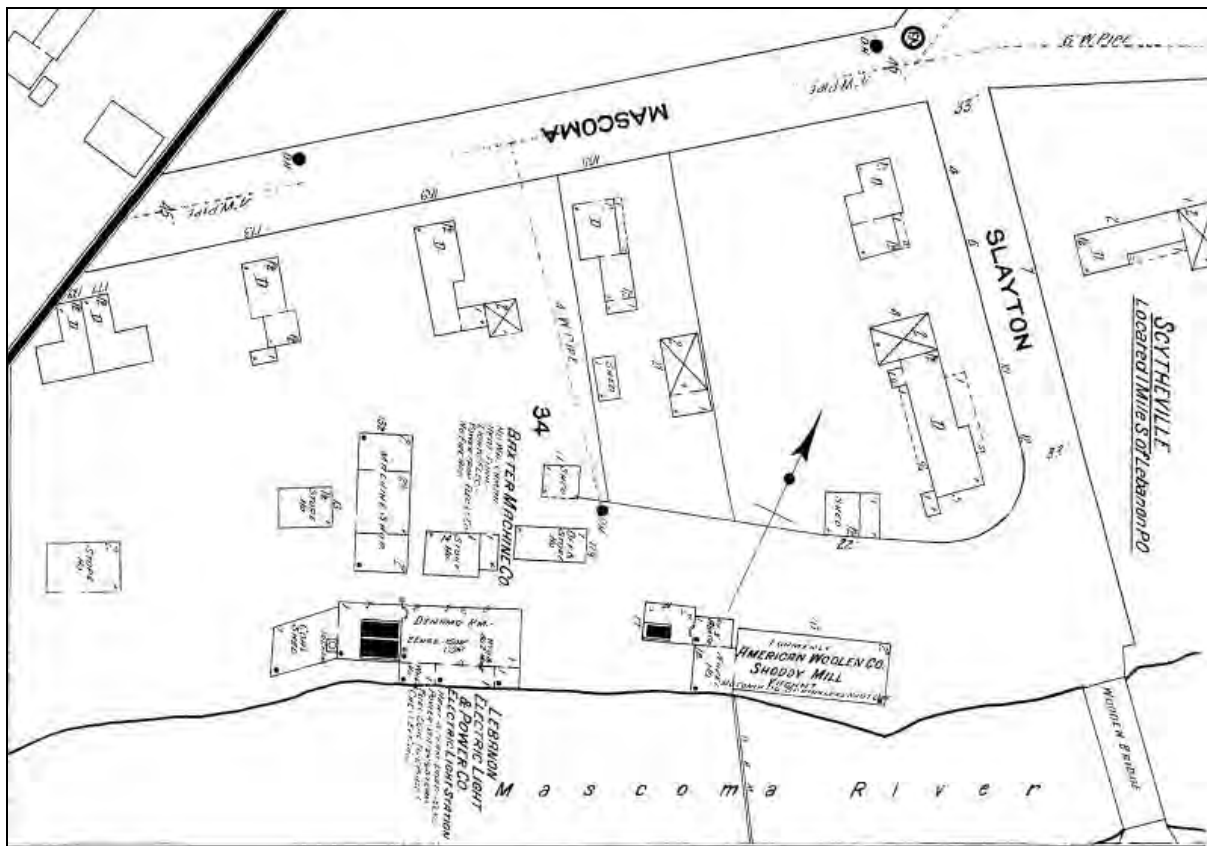


AREA FORM

MECHANIC STREET, LEBANON – PROJECT AREA



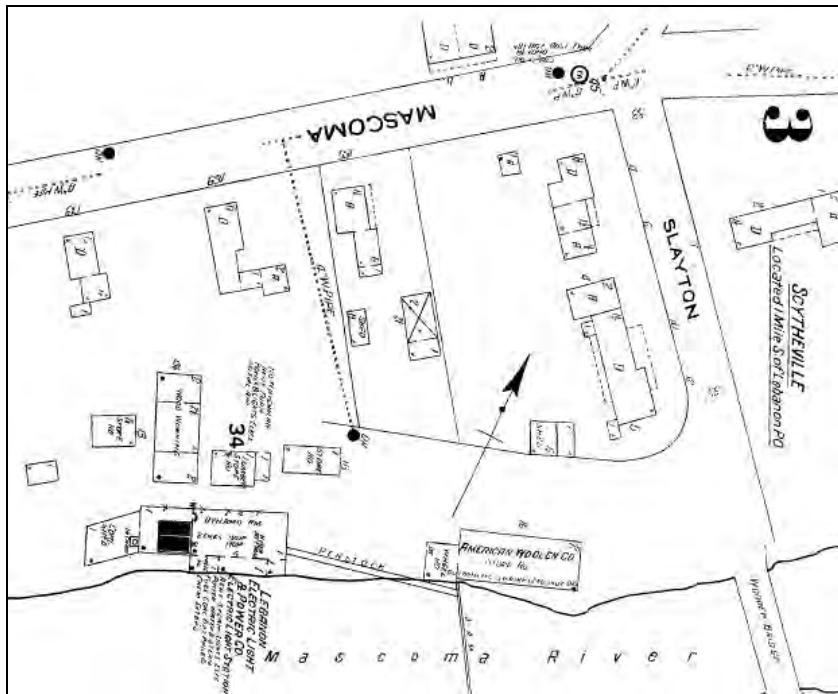
Sanborn 1904



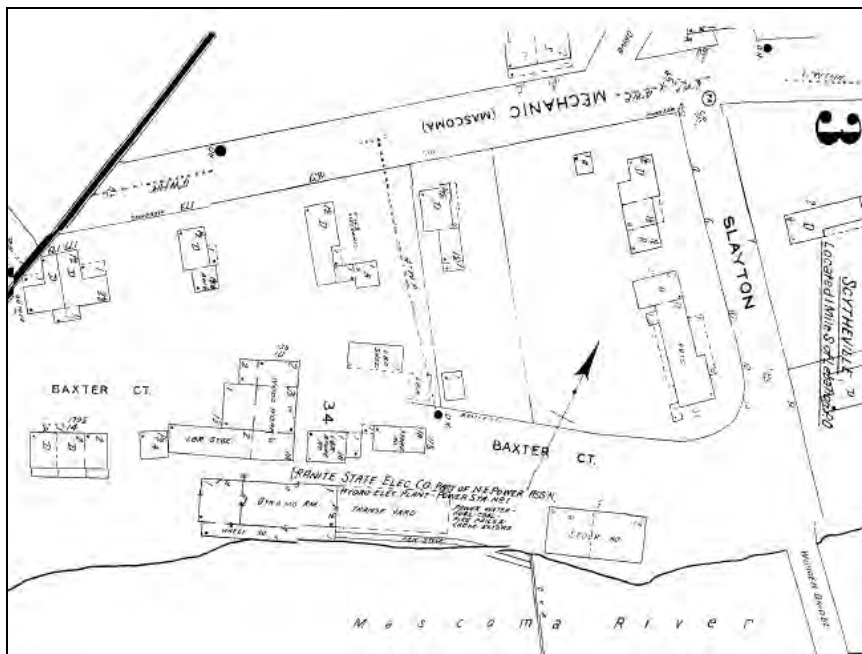
Sanborn 1912

AREA FORM

MECHANIC STREET, LEBANON – PROJECT AREA



Sanborn 1924



Sanborn 1924-49

AREA FORM

MECHANIC STREET, LEBANON – PROJECT AREA

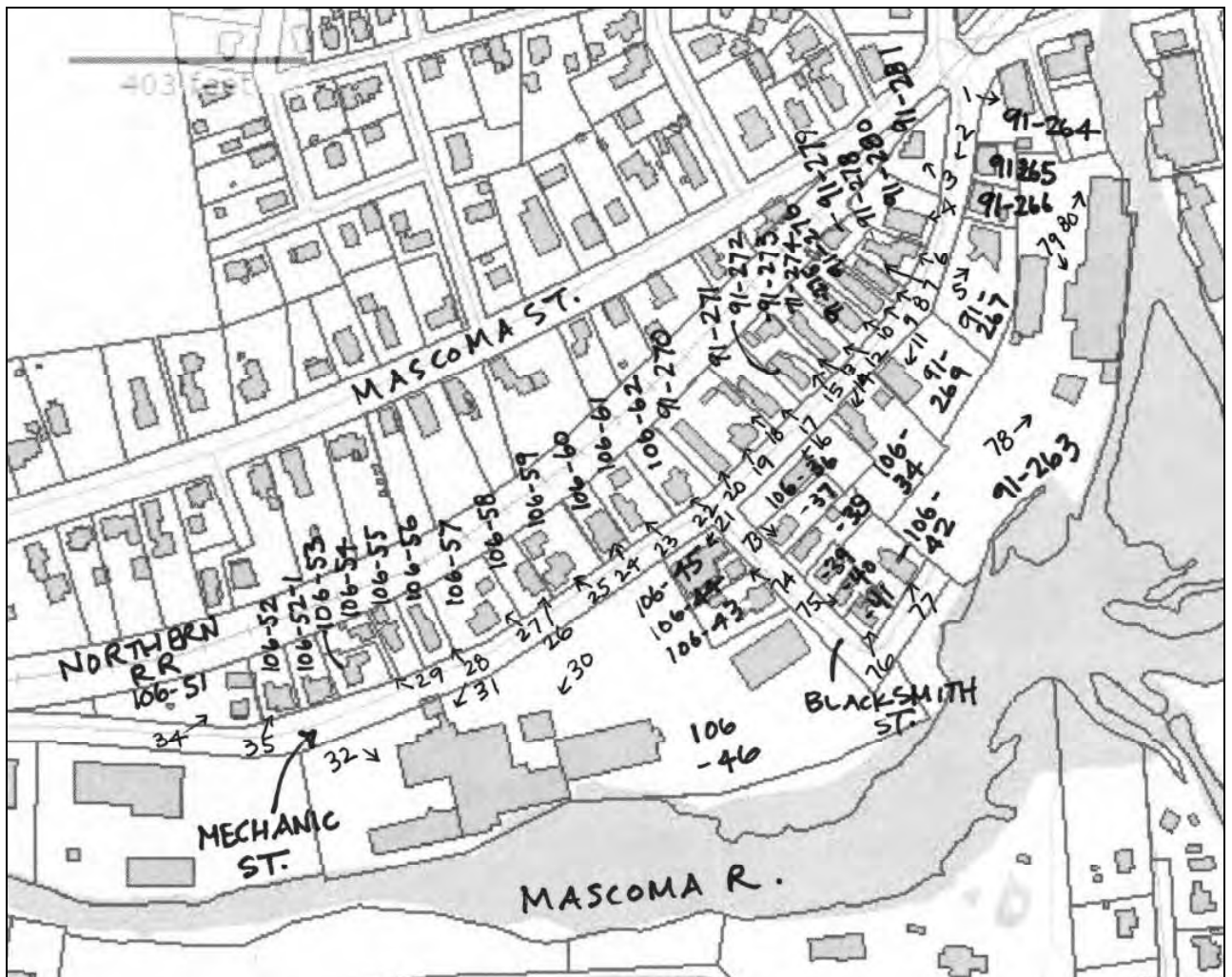
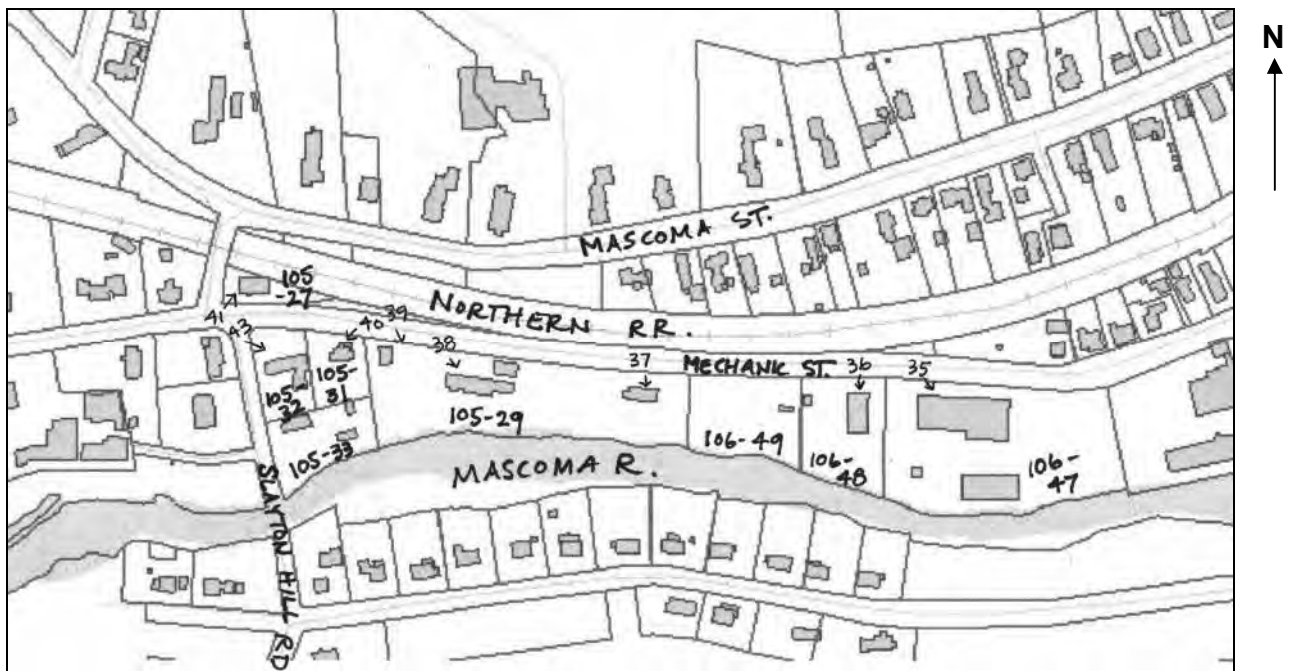




Photo 41) 160 Mechanic Street, former Underpass Cash Market/American Legion

Direction: NW



Photo 42) Railroad overpass, north side of Mechanic Street at Slayton Hill Road

Direction: N



Photo 43) 7 Slayton Hill Road at Mechanic Street, at Slayton Hill

Direction: S



Photo 44) 4 Slayton Hill Road, Mechanic Street at Slayton Hill

Direction: S



Photo 45) 162/4 Mechanic Street

Direction: NE



Photo 46) 165 Mechanic Street

Direction: S

ACCURATE COUNTS

978-664-2565

Page 1

Location : Slayton Hill Road
Location : North of Mechanic Street
City/State: Lebanon, NH

QL014003
Site Code: QL014003

Start Time	20-Nov-13 Wed	NB		Hour Totals		SB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		0	23			2	51				
12:15		1	34			0	40				
12:30		1	21			0	36				
12:45		1	33	3	111	3	27	5	154	8	265
01:00		2	34			2	31				
01:15		1	23			2	11				
01:30		1	25			2	28				
01:45		1	29	5	111	2	32	8	102	13	213
02:00		0	26			2	45				
02:15		4	37			1	26				
02:30		2	35			0	50				
02:45		0	29	6	127	0	50	3	171	9	298
03:00		0	33			0	58				
03:15		2	16			1	65				
03:30		0	37			1	60				
03:45		0	39	2	125	1	53	3	236	5	361
04:00		0	28			3	60				
04:15		0	32			0	62				
04:30		0	37			3	64				
04:45		1	38	1	135	2	59	8	245	9	380
05:00		7	41			5	51				
05:15		3	44			2	44				
05:30		2	27			10	40				
05:45		10	21	22	133	18	46	35	181	57	314
06:00		4	23			15	40				
06:15		14	17			26	46				
06:30		29	13			17	41				
06:45		23	11	70	64	19	36	77	163	147	227
07:00		17	11			36	39				
07:15		14	10			33	19				
07:30		30	15			39	16				
07:45		32	9	93	45	63	33	171	107	264	152
08:00		23	13			40	28				
08:15		27	13			40	18				
08:30		21	15			35	13				
08:45		24	13	95	54	31	11	146	70	241	124
09:00		23	4			43	11				
09:15		18	11			21	12				
09:30		22	6			29	3				
09:45		27	15	90	36	44	6	137	32	227	68
10:00		18	8			25	3				
10:15		25	5			31	2				
10:30		18	4			44	1				
10:45		23	2	84	19	34	0	134	6	218	25
11:00		31	4			35	5				
11:15		23	8			43	5				
11:30		23	5			43	5				
11:45		19	0	96	17	26	6	147	21	243	38
Total		567	977			874	1488			1441	2465
Percent		36.7%	63.3%			37.0%	63.0%			36.9%	63.1%
Grand Total		567	977			874	1488			1441	2465
Percent		36.7%	63.3%			37.0%	63.0%			36.9%	63.1%
ADT		ADT 3,906		AADT 3,906							

Accurate Counts

978-664-2565

N/S Street : Slayton Hill Road
 E/W Street : Mechanic Street
 City/State : Lebanon, NH
 Weather : Cloudy

File Name : QL014002
 Site Code : QL014002
 Start Date : 11/20/2013
 Page No : 1

Groups Printed- Cars - Trucks

	Slayton Hill Rd From North			Mechanic St From East			Slayton Hill Rd From South			Mechanic St From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	3	0	14	1	55	5	9	0	2	13	64	5	171
07:15 AM	0	0	15	8	98	2	13	0	8	19	80	6	249
07:30 AM	1	0	26	8	88	1	9	2	8	32	95	3	273
07:45 AM	2	0	27	5	97	0	24	0	7	29	101	3	295
Total	6	0	82	22	338	8	55	2	25	93	340	17	988
08:00 AM	1	0	9	3	70	1	2	1	4	23	79	6	199
08:15 AM	1	1	11	1	64	2	9	0	6	22	93	7	217
08:30 AM	2	0	27	9	77	1	6	3	9	24	103	3	264
08:45 AM	6	2	10	6	70	3	2	1	3	23	119	6	251
Total	10	3	57	19	281	7	19	5	22	92	394	22	931
Grand Total	16	3	139	41	619	15	74	7	47	185	734	39	1919
Apprch %	10.1	1.9	88	6.1	91.7	2.2	57.8	5.5	36.7	19.3	76.6	4.1	
Total %	0.8	0.2	7.2	2.1	32.3	0.8	3.9	0.4	2.4	9.6	38.2	2	
Cars	16	3	139	34	598	15	69	7	43	185	698	33	1840
% Cars	100	100	100	82.9	96.6	100	93.2	100	91.5	100	95.1	84.6	95.9
Trucks	0	0	0	7	21	0	5	0	4	0	36	6	79
% Trucks	0	0	0	17.1	3.4	0	6.8	0	8.5	0	4.9	15.4	4.1

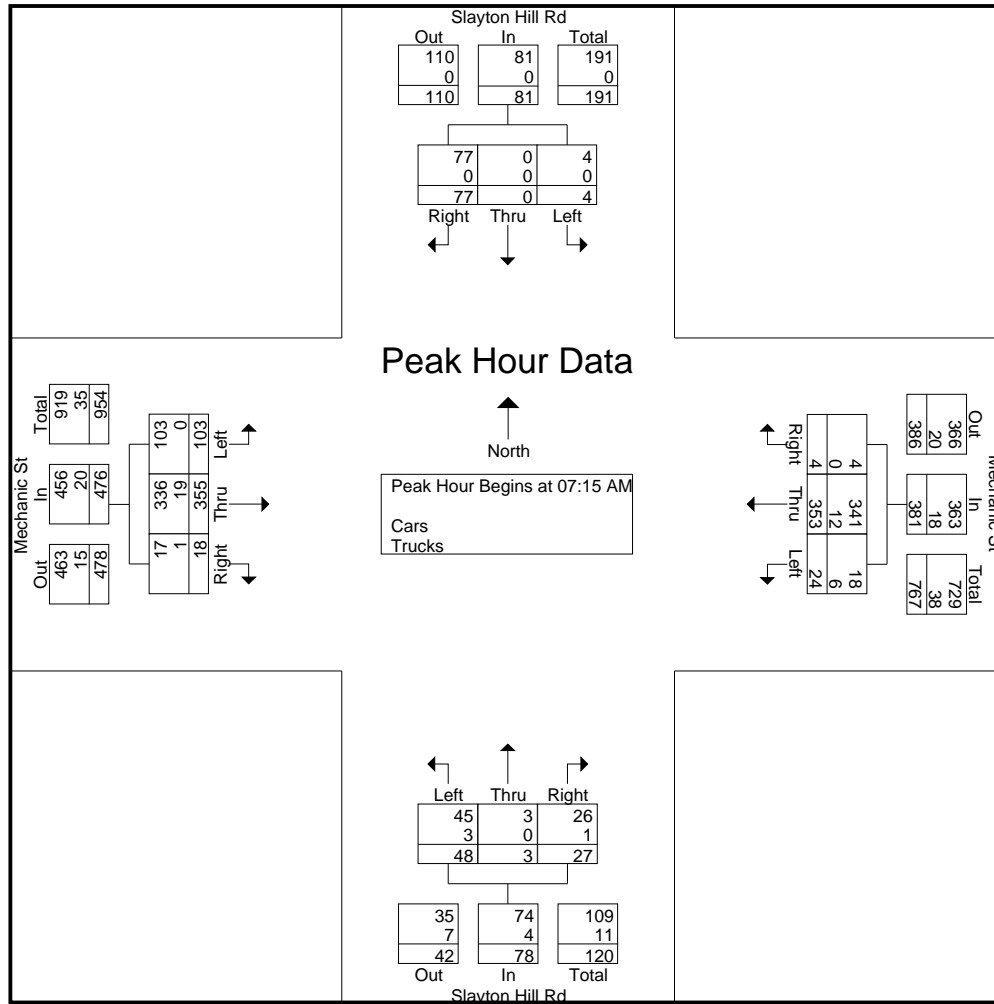
	Slayton Hill Rd From North				Mechanic St From East				Slayton Hill Rd From South				Mechanic St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	15	15	8	98	2	108	13	0	8	21	19	80	6	105	249
07:30 AM	1	0	26	27	8	88	1	97	9	2	8	19	32	95	3	130	273
07:45 AM	2	0	27	29	5	97	0	102	24	0	7	31	29	101	3	133	295
08:00 AM	1	0	9	10	3	70	1	74	2	1	4	7	23	79	6	108	199
Total Volume	4	0	77	81	24	353	4	381	48	3	27	78	103	355	18	476	1016
% App. Total	4.9	0	95.1		6.3	92.7	1		61.5	3.8	34.6		21.6	74.6	3.8		
PHF	.500	.000	.713	.698	.750	.901	.500	.882	.500	.375	.844	.629	.805	.879	.750	.895	.861
Cars	4	0	77	81	18	341	4	363	45	3	26	74	103	336	17	456	974
% Cars	100	0	100	100	75.0	96.6	100	95.3	93.8	100	96.3	94.9	100	94.6	94.4	95.8	95.9
Trucks	0	0	0	0	6	12	0	18	3	0	1	4	0	19	1	20	42
% Trucks	0	0	0	0	25.0	3.4	0	4.7	6.3	0	3.7	5.1	0	5.4	5.6	4.2	4.1

Accurate Counts

978-664-2565

N/S Street : Slayton Hill Road
 E/W Street : Mechanic Street
 City/State : Lebanon, NH
 Weather : Cloudy

File Name : QL014002
 Site Code : QL014002
 Start Date : 11/20/2013
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

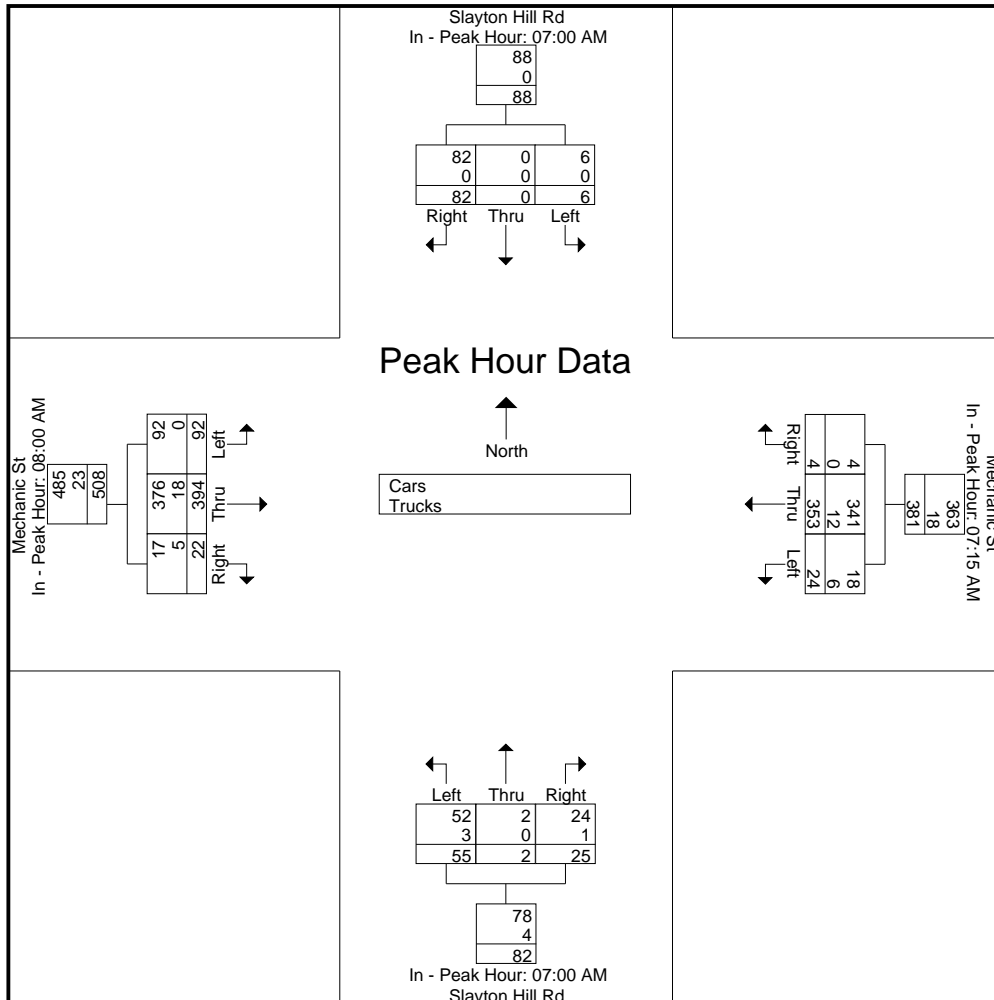
	07:00 AM				07:15 AM				07:00 AM				08:00 AM			
+0 mins.	3	0	14	17	8	98	2	108	9	0	2	11	23	79	6	108
+15 mins.	0	0	15	15	8	88	1	97	13	0	8	21	22	93	7	122
+30 mins.	1	0	26	27	5	97	0	102	9	2	8	19	24	103	3	130
+45 mins.	2	0	27	29	3	70	1	74	24	0	7	31	23	119	6	148
Total Volume	6	0	82	88	24	353	4	381	55	2	25	82	92	394	22	508
% App. Total	6.8	0	93.2		6.3	92.7	1		67.1	2.4	30.5		18.1	77.6	4.3	
PHF	.500	.000	.759	.759	.750	.901	.500	.882	.573	.250	.781	.661	.958	.828	.786	.858
Cars	6	0	82	88	18	341	4	363	52	2	24	78	92	376	17	485
% Cars	100	0	100	100	75	96.6	100	95.3	94.5	100	96	95.1	100	95.4	77.3	95.5
Trucks	0	0	0	0	6	12	0	18	3	0	1	4	0	18	5	23
% Trucks	0	0	0	0	25	3.4	0	4.7	5.5	0	4	4.9	0	4.6	22.7	4.5

Accurate Counts

978-664-2565

File Name : QL014002
 Site Code : QL014002
 Start Date : 11/20/2013
 Page No : 3

N/S Street : Slayton Hill Road
 E/W Street : Mechanic Street
 City/State : Lebanon, NH
 Weather : Cloudy



Accurate Counts

978-664-2565

N/S Street : Slayton Hill Road
 E/W Street : Mechanic Street
 City/State : Lebanon, NH
 Weather : Cloudy

File Name : QL014002
 Site Code : QL014002
 Start Date : 11/20/2013
 Page No : 1

Groups Printed- Cars

	Slayton Hill Rd From North			Mechanic St From East			Slayton Hill Rd From South			Mechanic St From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	3	0	14	1	55	5	9	0	2	13	59	5	166
07:15 AM	0	0	15	6	93	2	11	0	8	19	74	5	233
07:30 AM	1	0	26	6	86	1	8	2	7	32	91	3	263
07:45 AM	2	0	27	3	95	0	24	0	7	29	98	3	288
Total	6	0	82	16	329	8	52	2	24	93	322	16	950
08:00 AM	1	0	9	3	67	1	2	1	4	23	73	6	190
08:15 AM	1	1	11	1	61	2	8	0	4	22	91	5	207
08:30 AM	2	0	27	8	73	1	5	3	9	24	98	1	251
08:45 AM	6	2	10	6	68	3	2	1	2	23	114	5	242
Total	10	3	57	18	269	7	17	5	19	92	376	17	890
Grand Total	16	3	139	34	598	15	69	7	43	185	698	33	1840
Apprch %	10.1	1.9	88	5.3	92.4	2.3	58	5.9	36.1	20.2	76.2	3.6	
Total %	0.9	0.2	7.6	1.8	32.5	0.8	3.8	0.4	2.3	10.1	37.9	1.8	

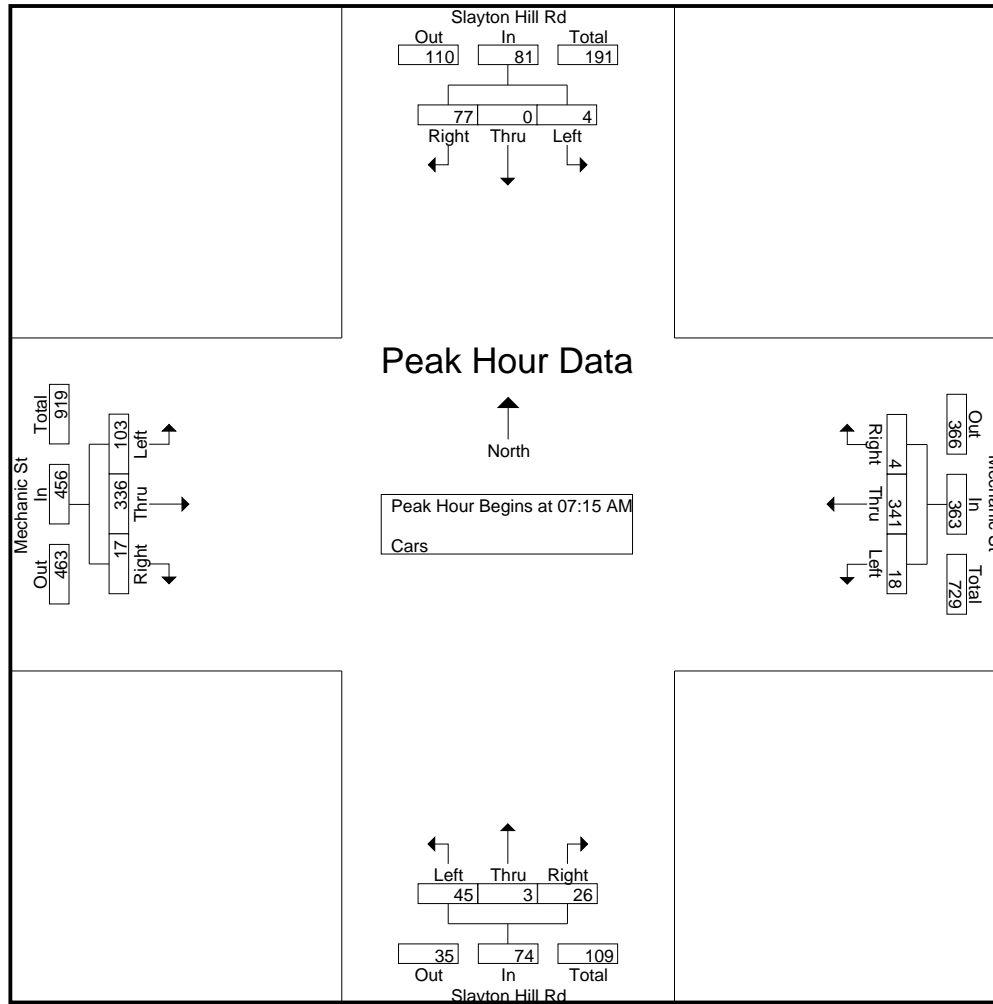
	Slayton Hill Rd From North				Mechanic St From East				Slayton Hill Rd From South				Mechanic St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	15	15	6	93	2	101	11	0	8	19	19	74	5	98	233
07:30 AM	1	0	26	27	6	86	1	93	8	2	7	17	32	91	3	126	263
07:45 AM	2	0	27	29	3	95	0	98	24	0	7	31	29	98	3	130	288
08:00 AM	1	0	9	10	3	67	1	71	2	1	4	7	23	73	6	102	190
Total Volume	4	0	77	81	18	341	4	363	45	3	26	74	103	336	17	456	974
% App. Total	4.9	0	95.1		5	93.9	1.1		60.8	4.1	35.1		22.6	73.7	3.7		
PHF	.500	.000	.713	.698	.750	.897	.500	.899	.469	.375	.813	.597	.805	.857	.708	.877	.845

Accurate Counts

978-664-2565

N/S Street : Slayton Hill Road
 E/W Street : Mechanic Street
 City/State : Lebanon, NH
 Weather : Cloudy

File Name : QL014002
 Site Code : QL014002
 Start Date : 11/20/2013
 Page No : 2



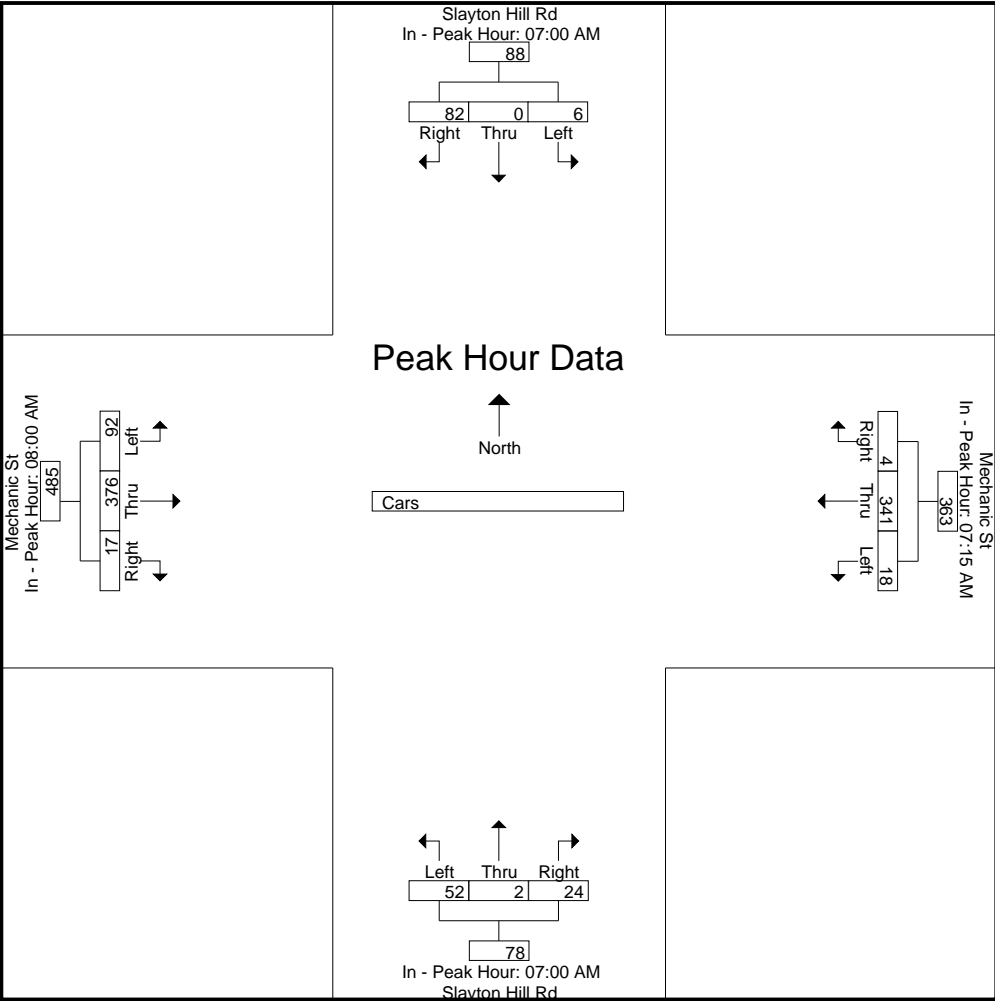
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:00 AM				07:15 AM				07:00 AM				08:00 AM			
+0 mins.	3	0	14	17	6	93	2	101	9	0	2	11	23	73	6	102
+15 mins.	0	0	15	15	6	86	1	93	11	0	8	19	22	91	5	118
+30 mins.	1	0	26	27	3	95	0	98	8	2	7	17	24	98	1	123
+45 mins.	2	0	27	29	3	67	1	71	24	0	7	31	23	114	5	142
Total Volume	6	0	82	88	18	341	4	363	52	2	24	78	92	376	17	485
% App. Total	6.8	0	93.2		5	93.9	1.1		66.7	2.6	30.8		19	77.5	3.5	
PHF	.500	.000	.759	.759	.750	.897	.500	.899	.542	.250	.750	.629	.958	.825	.708	.854

Accurate Counts
978-664-2565

N/S Street : Slayton Hill Road
E/W Street : Mechanic Street
City/State : Lebanon, NH
Weather : Cloudy

File Name : QL014002
Site Code : QL014002
Start Date : 11/20/2013
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Slayton Hill Road
 E/W Street : Mechanic Street
 City/State : Lebanon, NH
 Weather : Cloudy

File Name : QL014002
 Site Code : QL014002
 Start Date : 11/20/2013
 Page No : 1

Groups Printed- Trucks

	Slayton Hill Rd From North			Mechanic St From East			Slayton Hill Rd From South			Mechanic St From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	5	0	5
07:15 AM	0	0	0	2	5	0	2	0	0	0	6	1	16
07:30 AM	0	0	0	2	2	0	1	0	1	0	4	0	10
07:45 AM	0	0	0	2	2	0	0	0	0	0	3	0	7
Total	0	0	0	6	9	0	3	0	1	0	18	1	38
08:00 AM	0	0	0	0	3	0	0	0	0	0	6	0	9
08:15 AM	0	0	0	0	3	0	1	0	2	0	2	2	10
08:30 AM	0	0	0	1	4	0	1	0	0	0	5	2	13
08:45 AM	0	0	0	0	2	0	0	0	1	0	5	1	9
Total	0	0	0	1	12	0	2	0	3	0	18	5	41
Grand Total	0	0	0	7	21	0	5	0	4	0	36	6	79
Apprch %	0	0	0	25	75	0	55.6	0	44.4	0	85.7	14.3	
Total %	0	0	0	8.9	26.6	0	6.3	0	5.1	0	45.6	7.6	

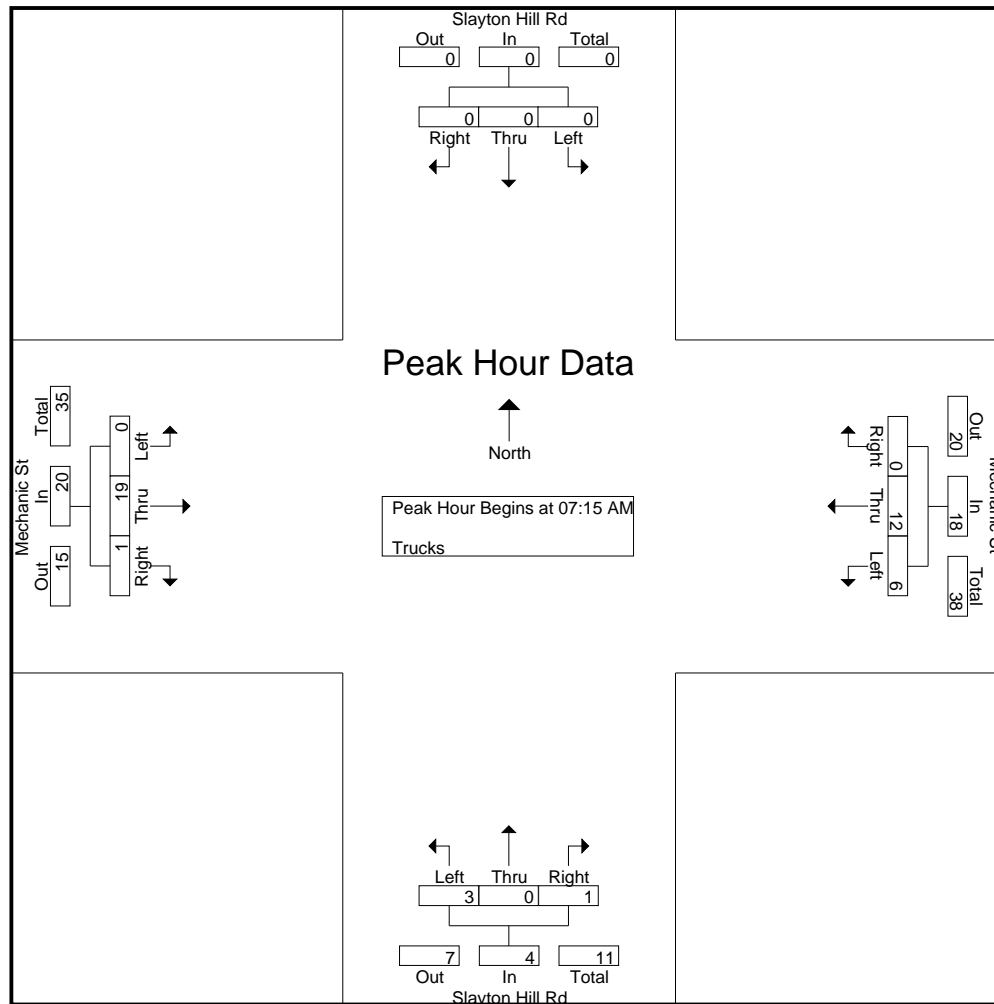
	Slayton Hill Rd From North				Mechanic St From East				Slayton Hill Rd From South				Mechanic St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	2	5	0	7	2	0	0	2	0	6	1	7	16
07:30 AM	0	0	0	0	2	2	0	4	1	0	1	2	0	4	0	4	10
07:45 AM	0	0	0	0	2	2	0	4	0	0	0	0	0	3	0	3	7
08:00 AM	0	0	0	0	0	3	0	3	0	0	0	0	0	6	0	6	9
Total Volume	0	0	0	0	6	12	0	18	3	0	1	4	0	19	1	20	42
% App. Total	0	0	0		33.3	66.7	0		75	0	25		0	95	5		
PHF	.000	.000	.000	.000	.750	.600	.000	.643	.375	.000	.250	.500	.000	.792	.250	.714	.656

Accurate Counts

978-664-2565

File Name : QL014002
 Site Code : QL014002
 Start Date : 11/20/2013
 Page No : 2

N/S Street : Slayton Hill Road
 E/W Street : Mechanic Street
 City/State : Lebanon, NH
 Weather : Cloudy



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

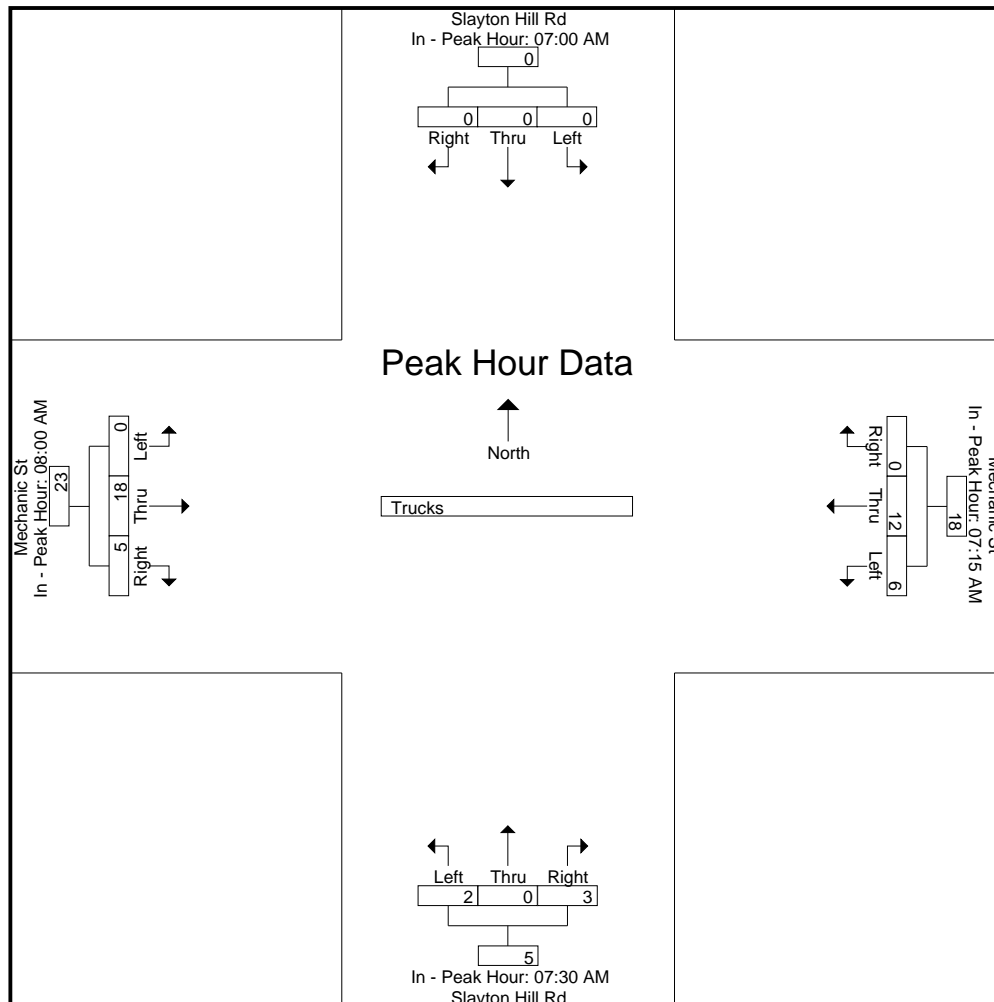
	07:00 AM				07:15 AM				07:30 AM				08:00 AM			
+0 mins.	0	0	0	0	2	5	0	7	1	0	1	2	0	6	0	6
+15 mins.	0	0	0	0	2	2	0	4	0	0	0	0	0	2	2	4
+30 mins.	0	0	0	0	2	2	0	4	0	0	0	0	0	5	2	7
+45 mins.	0	0	0	0	0	3	0	3	1	0	2	3	0	5	1	6
Total Volume	0	0	0	0	6	12	0	18	2	0	3	5	0	18	5	23
% App. Total	0	0	0	0	33.3	66.7	0		40	0	60		0	78.3	21.7	
PHF	.000	.000	.000	.000	.750	.600	.000	.643	.500	.000	.375	.417	.000	.750	.625	.821

Accurate Counts

978-664-2565

N/S Street : Slayton Hill Road
E/W Street : Mechanic Street
City/State : Lebanon, NH
Weather : Cloudy

File Name : QL014002
Site Code : QL014002
Start Date : 11/20/2013
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Slayton Hill Road
 E/W Street : Mechanic Street
 City/State : Lebanon, NH
 Weather : Cloudy

File Name : QL014002
 Site Code : QL014002
 Start Date : 11/20/2013
 Page No : 1

Groups Printed- Bikes Peds

	Slayton Hill Rd From North				Mechanic St From East				Slayton Hill Rd From South				Mechanic St From West				Exclu. Total	Inclu. Total	Int. Total
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Total	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1	1	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	0	2
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
Total	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	1	3	1	4
Grand Total	0	0	0	0	0	0	0	2	0	0	0	1	1	1	0	1	4	2	6
Apprch %	0	0	0		0	0	0		0	0	0		50	50	0				
Total %	0	0	0		0	0	0		0	0	0		50	50	0		66.7	33.3	

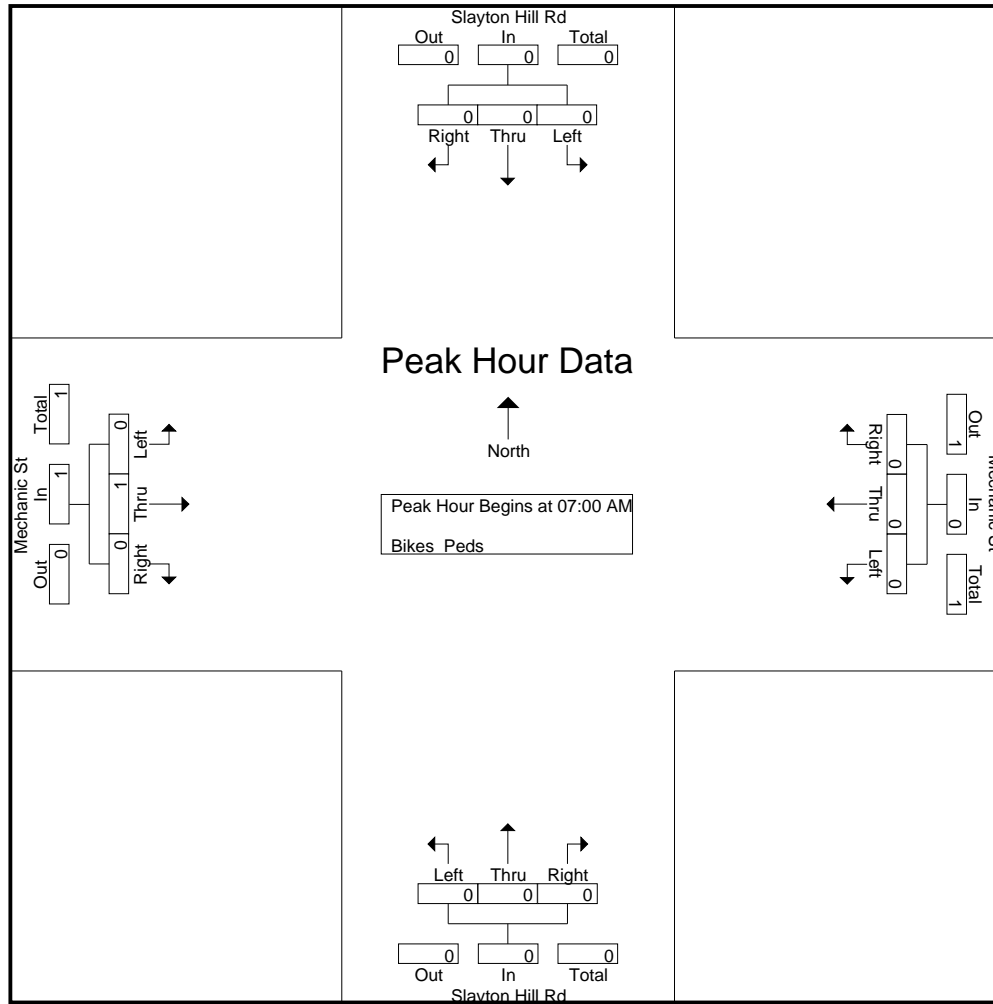
	Slayton Hill Rd From North				Mechanic St From East				Slayton Hill Rd From South				Mechanic St From West				Int. Total
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% App. Total	0	0	0		0	0	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.250

Accurate Counts

978-664-2565

File Name : QL014002
 Site Code : QL014002
 Start Date : 11/20/2013
 Page No : 2

N/S Street : Slayton Hill Road
 E/W Street : Mechanic Street
 City/State : Lebanon, NH
 Weather : Cloudy



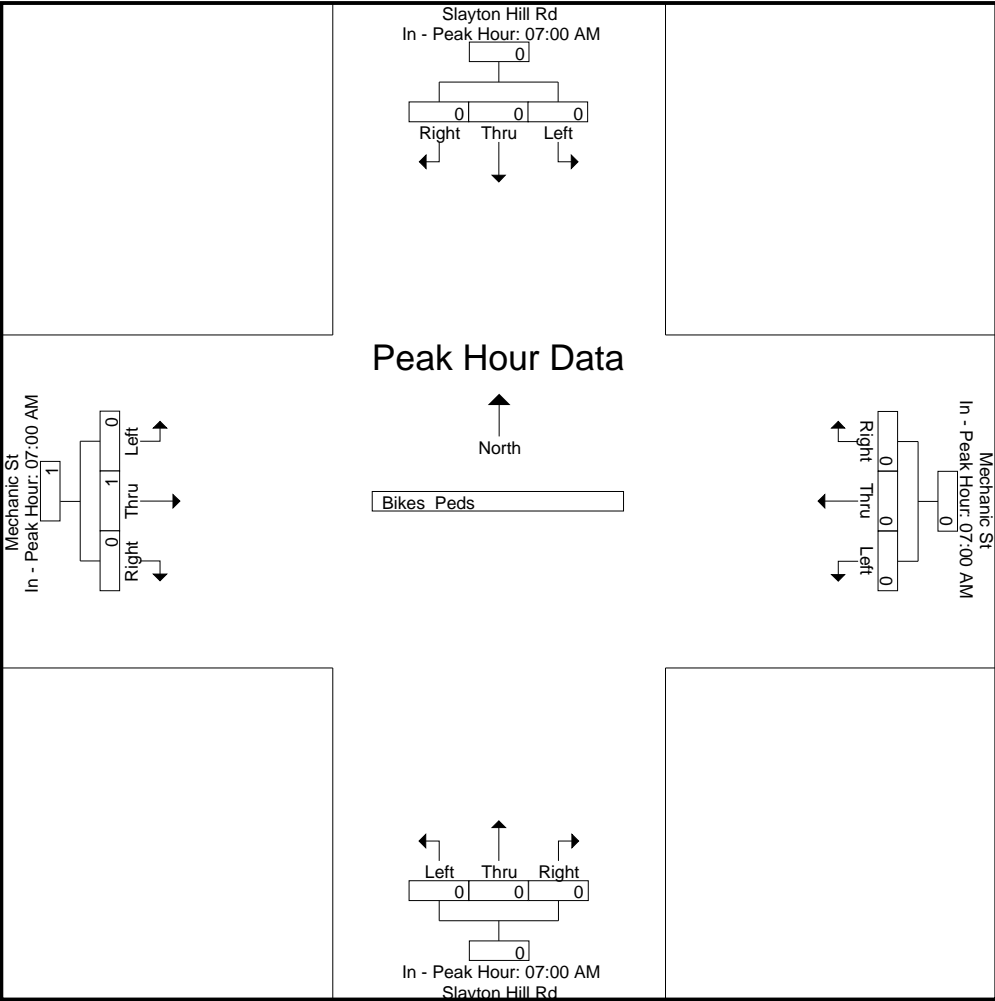
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250

Accurate Counts
978-664-2565

N/S Street : Slayton Hill Road
E/W Street : Mechanic Street
City/State : Lebanon, NH
Weather : Cloudy

File Name : QL014002
Site Code : QL014002
Start Date : 11/20/2013
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Slayton Hill Road
 E/W Street : Mechanic Street
 City/State : Lebanon, NH
 Weather : Cloudy

File Name : QL014002
 Site Code : QL014002
 Start Date : 11/20/2013
 Page No : 1

Groups Printed- Cars - Trucks

	Slayton Hill Rd From North			Mechanic St From East			Slayton Hill Rd From South			Mechanic St From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
04:00 PM	3	1	34	3	132	3	4	1	8	25	115	4	333
04:15 PM	0	1	26	7	105	4	3	0	5	25	122	9	307
04:30 PM	1	1	38	10	101	3	5	1	2	34	114	11	321
04:45 PM	0	1	43	11	118	2	11	0	0	28	137	11	362
Total	4	4	141	31	456	12	23	2	15	112	488	35	1323
05:00 PM	1	1	41	4	157	5	6	2	5	34	125	15	396
05:15 PM	8	1	20	9	121	1	4	2	4	26	139	13	348
05:30 PM	3	0	21	8	98	5	7	3	8	28	108	13	302
05:45 PM	5	2	19	6	79	1	5	0	6	22	89	6	240
Total	17	4	101	27	455	12	22	7	23	110	461	47	1286
Grand Total	21	8	242	58	911	24	45	9	38	222	949	82	2609
Apprch %	7.7	3	89.3	5.8	91.7	2.4	48.9	9.8	41.3	17.7	75.7	6.5	
Total %	0.8	0.3	9.3	2.2	34.9	0.9	1.7	0.3	1.5	8.5	36.4	3.1	
Cars	21	8	242	58	899	24	44	9	35	222	942	82	2586
% Cars	100	100	100	100	98.7	100	97.8	100	92.1	100	99.3	100	99.1
Trucks	0	0	0	0	12	0	1	0	3	0	7	0	23
% Trucks	0	0	0	0	1.3	0	2.2	0	7.9	0	0.7	0	0.9

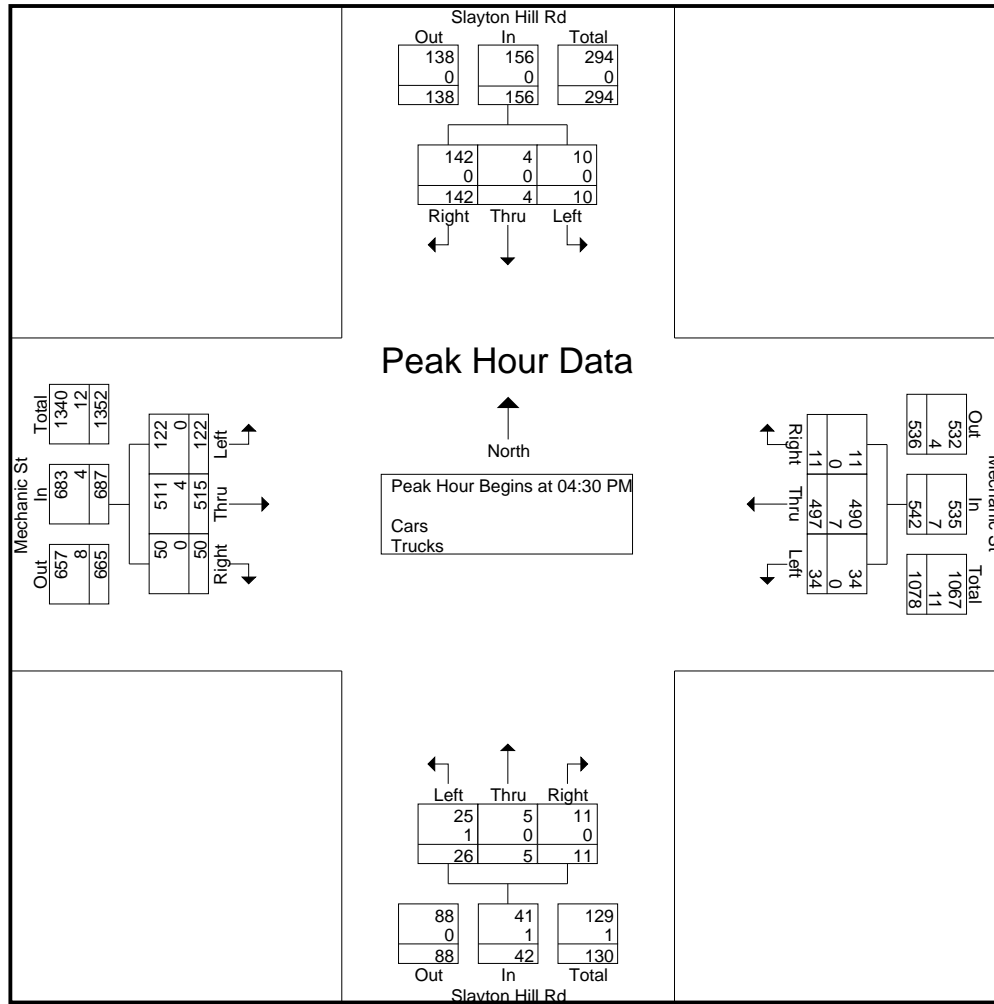
	Slayton Hill Rd From North				Mechanic St From East				Slayton Hill Rd From South				Mechanic St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	1	1	38	40	10	101	3	114	5	1	2	8	34	114	11	159	321
04:45 PM	0	1	43	44	11	118	2	131	11	0	0	11	28	137	11	176	362
05:00 PM	1	1	41	43	4	157	5	166	6	2	5	13	34	125	15	174	396
05:15 PM	8	1	20	29	9	121	1	131	4	2	4	10	26	139	13	178	348
Total Volume	10	4	142	156	34	497	11	542	26	5	11	42	122	515	50	687	1427
% App. Total	6.4	2.6	91		6.3	91.7	2		61.9	11.9	26.2		17.8	75	7.3		
PHF	.313	1.00	.826	.886	.773	.791	.550	.816	.591	.625	.550	.808	.897	.926	.833	.965	.901
Cars	10	4	142	156	34	490	11	535	25	5	11	41	122	511	50	683	1415
% Cars	100	100	100	100	100	98.6	100	98.7	96.2	100	100	97.6	100	99.2	100	99.4	99.2
Trucks	0	0	0	0	0	7	0	7	1	0	0	1	0	4	0	4	12
% Trucks	0	0	0	0	0	1.4	0	1.3	3.8	0	0	2.4	0	0.8	0	0.6	0.8

Accurate Counts

978-664-2565

N/S Street : Slayton Hill Road
 E/W Street : Mechanic Street
 City/State : Lebanon, NH
 Weather : Cloudy

File Name : QL014002
 Site Code : QL014002
 Start Date : 11/20/2013
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

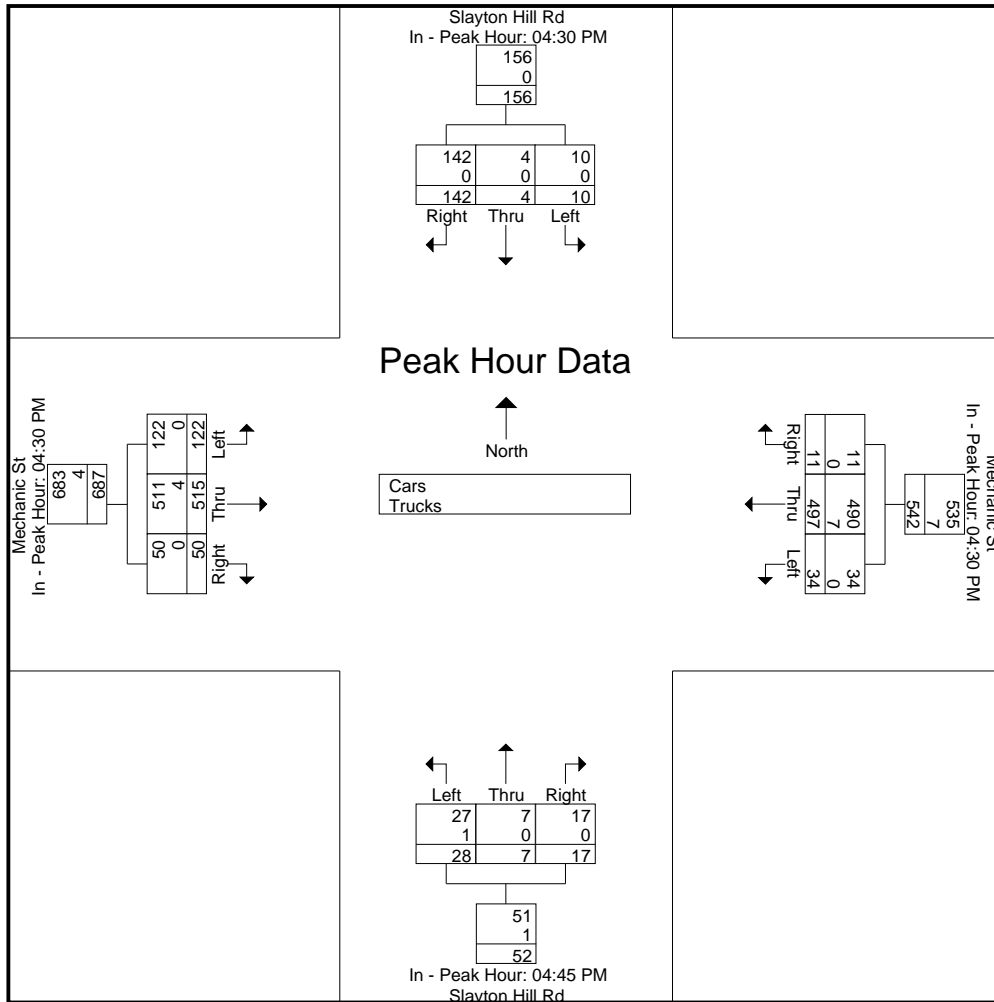
	04:30 PM				04:30 PM				04:45 PM				04:30 PM			
+0 mins.	1	1	38	40	10	101	3	114	11	0	0	11	34	114	11	159
+15 mins.	0	1	43	44	11	118	2	131	6	2	5	13	28	137	11	176
+30 mins.	1	1	41	43	4	157	5	166	4	2	4	10	34	125	15	174
+45 mins.	8	1	20	29	9	121	1	131	7	3	8	18	26	139	13	178
Total Volume	10	4	142	156	34	497	11	542	28	7	17	52	122	515	50	687
% App. Total	6.4	2.6	91		6.3	91.7	2		53.8	13.5	32.7		17.8	75	7.3	
PHF	.313	1.000	.826	.886	.773	.791	.550	.816	.636	.583	.531	.722	.897	.926	.833	.965
Cars	10	4	142	156	34	490	11	535	27	7	17	51	122	511	50	683
% Cars	100	100	100	100	100	98.6	100	98.7	96.4	100	100	98.1	100	99.2	100	99.4
Trucks	0	0	0	0	0	7	0	7	1	0	0	1	0	4	0	4
% Trucks	0	0	0	0	0	1.4	0	1.3	3.6	0	0	1.9	0	0.8	0	0.6

Accurate Counts

978-664-2565

File Name : QL014002
Site Code : QL014002
Start Date : 11/20/2013
Page No : 3

N/S Street : Slayton Hill Road
E/W Street : Mechanic Street
City/State : Lebanon, NH
Weather : Cloudy



Accurate Counts

978-664-2565

N/S Street : Slayton Hill Road
 E/W Street : Mechanic Street
 City/State : Lebanon, NH
 Weather : Cloudy

File Name : QL014002
 Site Code : QL014002
 Start Date : 11/20/2013
 Page No : 1

Groups Printed- Cars

	Slayton Hill Rd From North			Mechanic St From East			Slayton Hill Rd From South			Mechanic St From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
04:00 PM	3	1	34	3	131	3	4	1	7	25	114	4	330
04:15 PM	0	1	26	7	104	4	3	0	3	25	122	9	304
04:30 PM	1	1	38	10	100	3	5	1	2	34	113	11	319
04:45 PM	0	1	43	11	117	2	11	0	0	28	135	11	359
Total	4	4	141	31	452	12	23	2	12	112	484	35	1312
05:00 PM	1	1	41	4	155	5	5	2	5	34	124	15	392
05:15 PM	8	1	20	9	118	1	4	2	4	26	139	13	345
05:30 PM	3	0	21	8	98	5	7	3	8	28	106	13	300
05:45 PM	5	2	19	6	76	1	5	0	6	22	89	6	237
Total	17	4	101	27	447	12	21	7	23	110	458	47	1274
Grand Total	21	8	242	58	899	24	44	9	35	222	942	82	2586
Apprch %	7.7	3	89.3	5.9	91.6	2.4	50	10.2	39.8	17.8	75.6	6.6	
Total %	0.8	0.3	9.4	2.2	34.8	0.9	1.7	0.3	1.4	8.6	36.4	3.2	

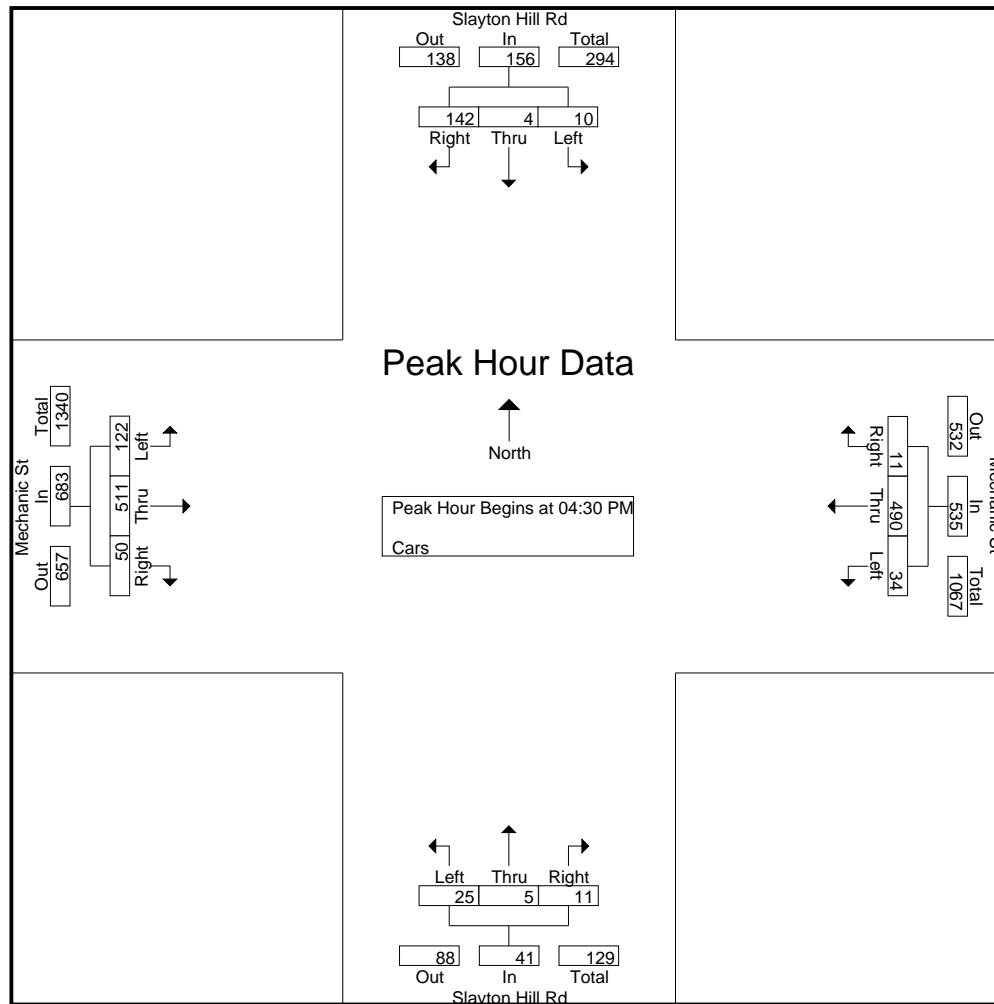
	Slayton Hill Rd From North				Mechanic St From East				Slayton Hill Rd From South				Mechanic St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	1	1	38	40	10	100	3	113	5	1	2	8	34	113	11	158	319
04:45 PM	0	1	43	44	11	117	2	130	11	0	0	11	28	135	11	174	359
05:00 PM	1	1	41	43	4	155	5	164	5	2	5	12	34	124	15	173	392
05:15 PM	8	1	20	29	9	118	1	128	4	2	4	10	26	139	13	178	345
Total Volume	10	4	142	156	34	490	11	535	25	5	11	41	122	511	50	683	1415
% App. Total	6.4	2.6	91		6.4	91.6	2.1		61	12.2	26.8		17.9	74.8	7.3		
PHF	.313	1.00	.826	.886	.773	.790	.550	.816	.568	.625	.550	.854	.897	.919	.833	.959	.902

Accurate Counts

978-664-2565

File Name : QL014002
 Site Code : QL014002
 Start Date : 11/20/2013
 Page No : 2

N/S Street : Slayton Hill Road
 E/W Street : Mechanic Street
 City/State : Lebanon, NH
 Weather : Cloudy



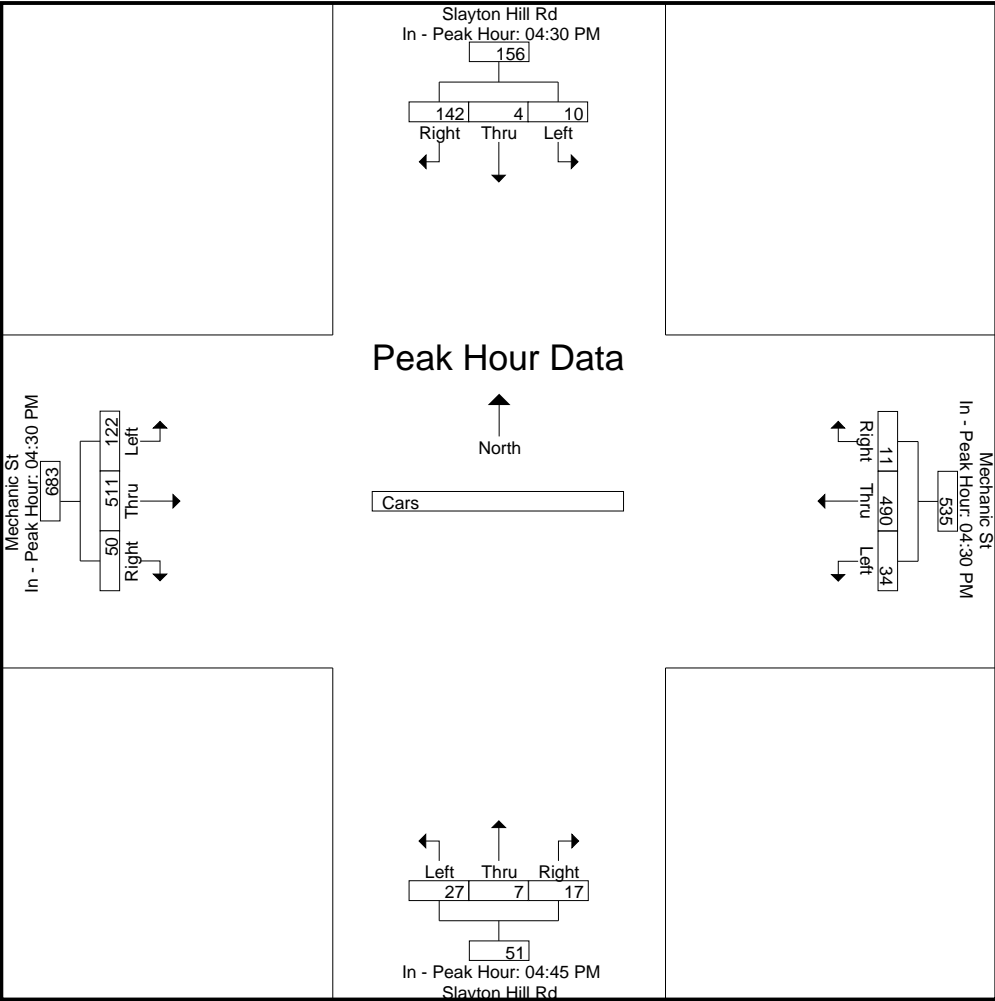
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:45 PM				04:30 PM			
+0 mins.	1	1	38	40	10	100	3	113	11	0	0	11	34	113	11	158
+15 mins.	0	1	43	44	11	117	2	130	5	2	5	12	28	135	11	174
+30 mins.	1	1	41	43	4	155	5	164	4	2	4	10	34	124	15	173
+45 mins.	8	1	20	29	9	118	1	128	7	3	8	18	26	139	13	178
Total Volume	10	4	142	156	34	490	11	535	27	7	17	51	122	511	50	683
% App. Total	6.4	2.6	91		6.4	91.6	2.1		52.9	13.7	33.3		17.9	74.8	7.3	
PHF	.313	1.000	.826	.886	.773	.790	.550	.816	.614	.583	.531	.708	.897	.919	.833	.959

Accurate Counts
978-664-2565

N/S Street : Slayton Hill Road
E/W Street : Mechanic Street
City/State : Lebanon, NH
Weather : Cloudy

File Name : QL014002
Site Code : QL014002
Start Date : 11/20/2013
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Slayton Hill Road
 E/W Street : Mechanic Street
 City/State : Lebanon, NH
 Weather : Cloudy

File Name : QL014002
 Site Code : QL014002
 Start Date : 11/20/2013
 Page No : 1

Groups Printed- Trucks

	Slayton Hill Rd From North			Mechanic St From East			Slayton Hill Rd From South			Mechanic St From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
04:00 PM	0	0	0	0	1	0	0	0	1	0	1	0	3
04:15 PM	0	0	0	0	1	0	0	0	2	0	0	0	3
04:30 PM	0	0	0	0	1	0	0	0	0	0	1	0	2
04:45 PM	0	0	0	0	1	0	0	0	0	0	2	0	3
Total	0	0	0	0	4	0	0	0	3	0	4	0	11
05:00 PM	0	0	0	0	2	0	1	0	0	0	1	0	4
05:15 PM	0	0	0	0	3	0	0	0	0	0	0	0	3
05:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
05:45 PM	0	0	0	0	3	0	0	0	0	0	0	0	3
Total	0	0	0	0	8	0	1	0	0	0	3	0	12
Grand Total	0	0	0	0	12	0	1	0	3	0	7	0	23
Apprch %	0	0	0	0	100	0	25	0	75	0	100	0	
Total %	0	0	0	0	52.2	0	4.3	0	13	0	30.4	0	

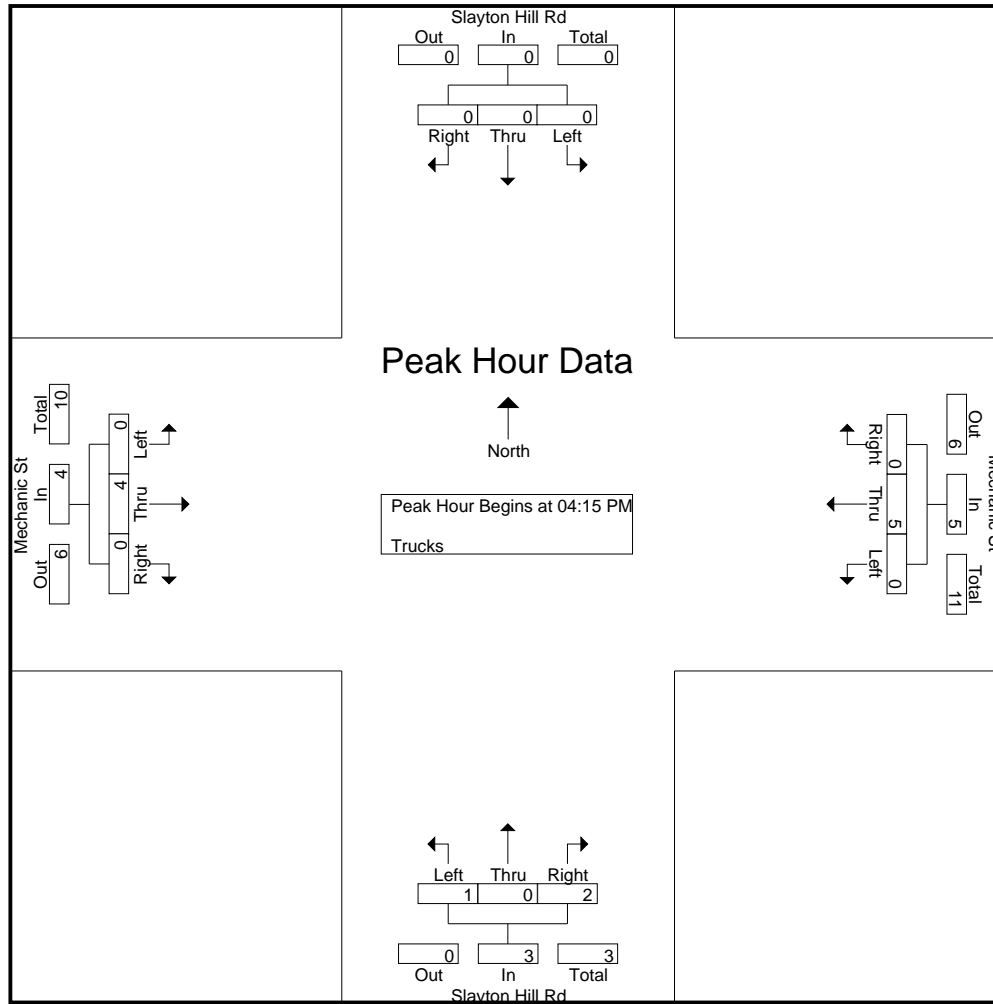
	Slayton Hill Rd From North				Mechanic St From East				Slayton Hill Rd From South				Mechanic St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	0	0	0	0	1	0	1	0	0	2	2	0	0	0	0	3
04:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
04:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	3
05:00 PM	0	0	0	0	0	2	0	2	1	0	0	1	0	1	0	1	4
Total Volume	0	0	0	0	0	5	0	5	1	0	2	3	0	4	0	4	12
% App. Total	0	0	0		0	100	0		33.3	0	66.7		0	100	0		
PHF	.000	.000	.000	.000	.000	.625	.000	.625	.250	.000	.250	.375	.000	.500	.000	.500	.750

Accurate Counts

978-664-2565

File Name : QL014002
 Site Code : QL014002
 Start Date : 11/20/2013
 Page No : 2

N/S Street : Slayton Hill Road
 E/W Street : Mechanic Street
 City/State : Lebanon, NH
 Weather : Cloudy



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

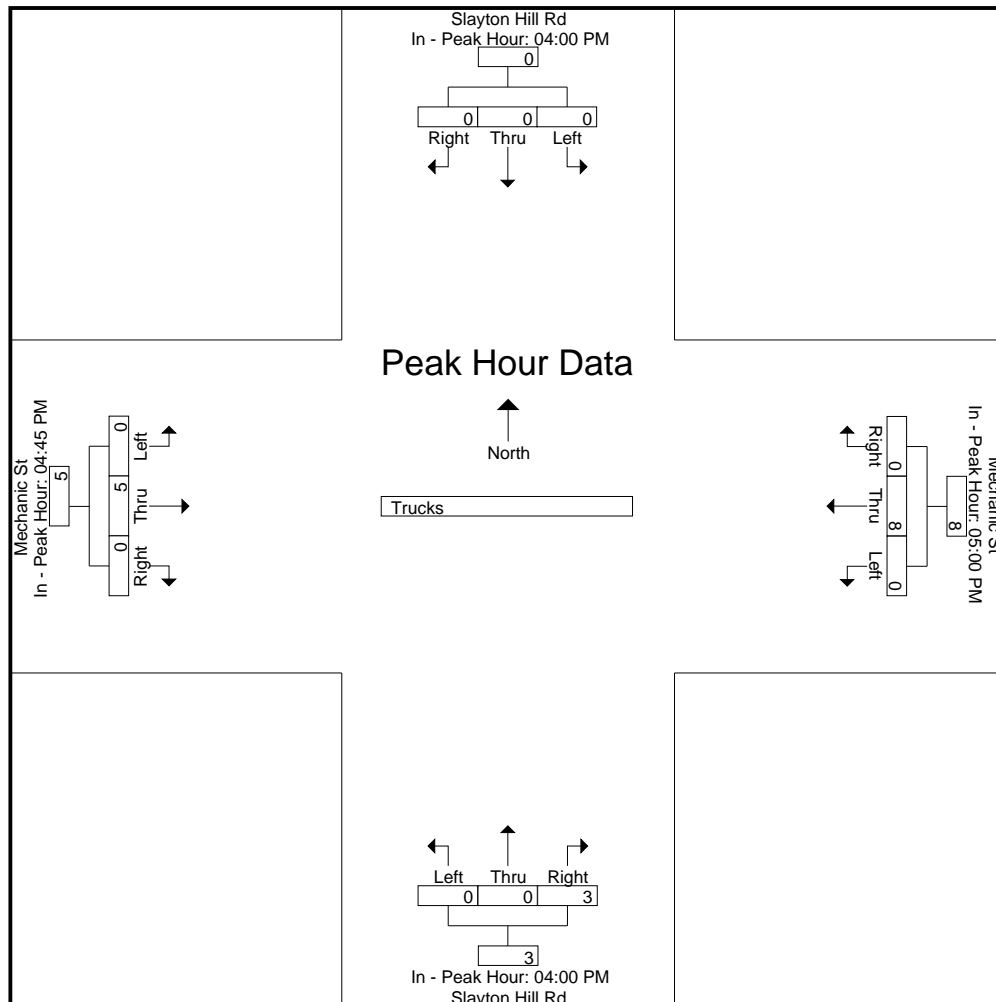
	04:00 PM				05:00 PM				04:00 PM				04:45 PM			
+0 mins.	0	0	0	0	0	2	0	2	0	0	1	1	0	2	0	2
+15 mins.	0	0	0	0	0	3	0	3	0	0	2	2	0	1	0	1
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	3	0	3	0	0	0	0	0	2	0	2
Total Volume	0	0	0	0	0	8	0	8	0	0	3	3	0	5	0	5
% App. Total	0	0	0	0	0	100	0	0	0	0	100	0	0	100	0	0
PHF	.000	.000	.000	.000	.000	.667	.000	.667	.000	.000	.375	.375	.000	.625	.000	.625

Accurate Counts

978-664-2565

N/S Street : Slayton Hill Road
E/W Street : Mechanic Street
City/State : Lebanon, NH
Weather : Cloudy

File Name : QL014002
Site Code : QL014002
Start Date : 11/20/2013
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Slayton Hill Road
E/W Street : Mechanic Street
City/State : Lebanon, NH
Weather : Cloudy

File Name : QL014002
Site Code : QL014002
Start Date : 11/20/2013
Page No : 1

Groups Printed- Bikes Peds

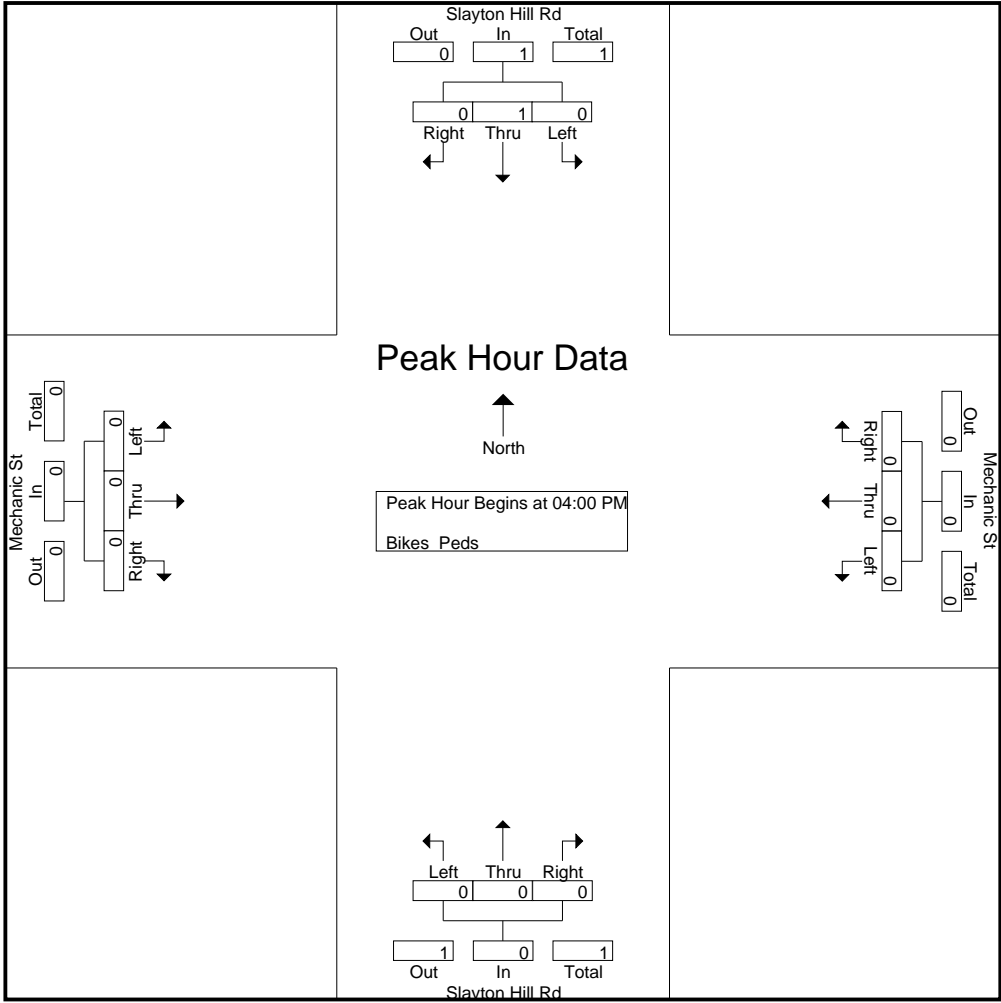
	Slayton Hill Rd From North				Mechanic St From East				Slayton Hill Rd From South				Mechanic St From West						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	2
04:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	1	3
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	4	0	4
05:45 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	2
Total	0	0	0	0	0	0	0	4	0	0	0	2	0	0	0	0	6	0	6
Grand Total	0	1	0	0	0	0	0	6	0	0	0	2	0	0	0	0	8	1	9
Apprch %	0	100	0		0	0	0		0	0	0		0	0	0				
Total %	0	100	0		0	0	0		0	0	0		0	0	0		88.9	11.1	

[illegible]

Accurate Counts
978-664-2565

N/S Street : Slayton Hill Road
E/W Street : Mechanic Street
City/State : Lebanon, NH
Weather : Cloudy

File Name : QL014002
Site Code : QL014002
Start Date : 11/20/2013
Page No : 2



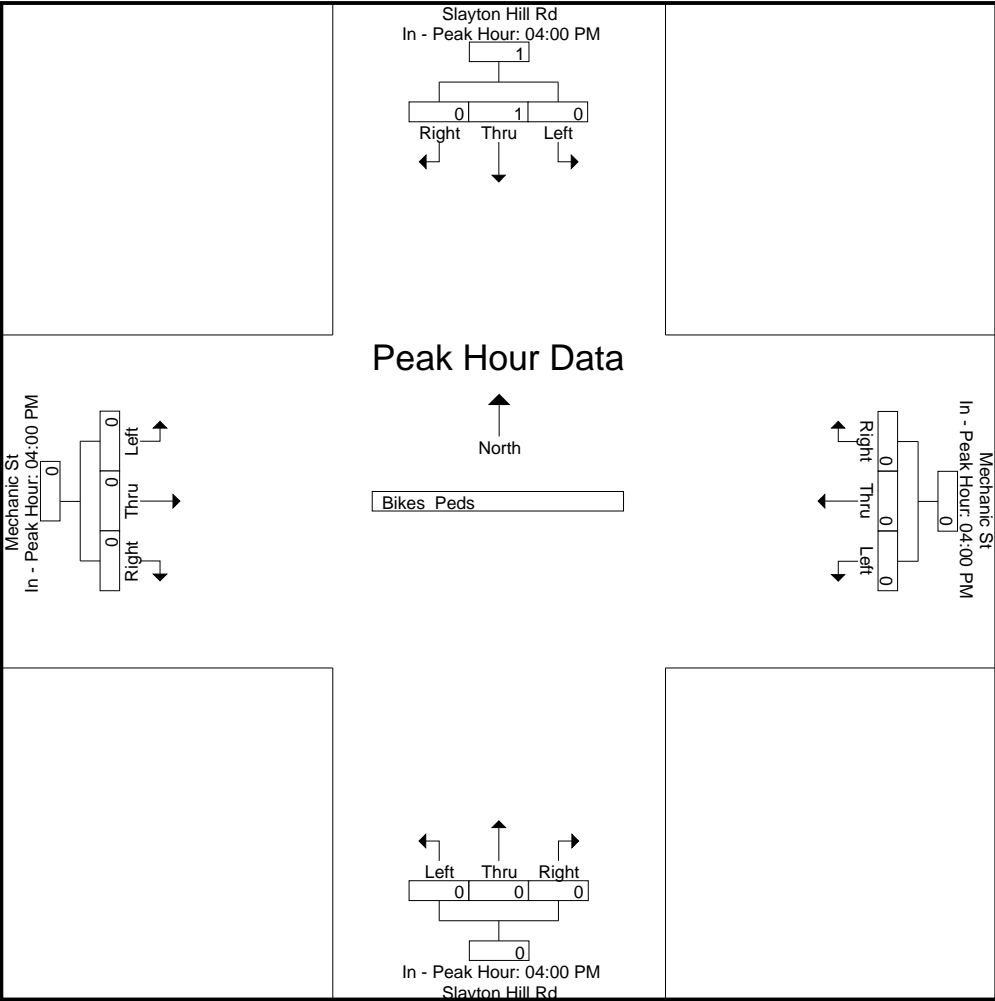
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

[illegible]

Accurate Counts
978-664-2565

N/S Street : Slayton Hill Road
E/W Street : Mechanic Street
City/State : Lebanon, NH
Weather : Cloudy

File Name : QL014002
Site Code : QL014002
Start Date : 11/20/2013
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Private Dr / Buckingham Pl
 E/W Street : Mechanic Street
 City/State : Lebanon, NH
 Weather : Cloudy

File Name : QL014003
 Site Code : QL014003
 Start Date : 11/20/2013
 Page No : 1

Groups Printed- Cars - Trucks

	Pirvate Dr From North			Mechanic St From East			Buckingham Pl From South			Mechanic St From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	1	0	7	3	140	1	8	0	1	4	151	10	326
07:15 AM	4	0	11	3	151	1	2	0	3	2	168	3	348
07:30 AM	0	0	4	4	168	0	2	0	0	0	155	12	345
07:45 AM	4	0	5	3	226	1	3	0	2	0	198	9	451
Total	9	0	27	13	685	3	15	0	6	6	672	34	1470
08:00 AM	0	0	3	0	154	0	1	0	1	1	167	14	341
08:15 AM	0	0	1	3	137	0	0	0	2	1	151	7	302
08:30 AM	0	0	2	4	103	0	8	0	3	0	121	12	253
08:45 AM	0	0	1	0	98	0	5	0	0	1	129	11	245
Total	0	0	7	7	492	0	14	0	6	3	568	44	1141
Grand Total	9	0	34	20	1177	3	29	0	12	9	1240	78	2611
Apprch %	20.9	0	79.1	1.7	98.1	0.2	70.7	0	29.3	0.7	93.4	5.9	
Total %	0.3	0	1.3	0.8	45.1	0.1	1.1	0	0.5	0.3	47.5	3	
Cars	9	0	34	19	1166	3	29	0	12	9	1233	78	2592
% Cars	100	0	100	95	99.1	100	100	0	100	100	99.4	100	99.3
Trucks	0	0	0	1	11	0	0	0	0	0	7	0	19
% Trucks	0	0	0	5	0.9	0	0	0	0	0	0.6	0	0.7

	Pirvate Dr From North				Mechanic St From East				Buckingham Pl From South				Mechanic St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	4	0	11	15	3	151	1	155	2	0	3	5	2	168	3	173	348
07:30 AM	0	0	4	4	4	168	0	172	2	0	0	2	0	155	12	167	345
07:45 AM	4	0	5	9	3	226	1	230	3	0	2	5	0	198	9	207	451
08:00 AM	0	0	3	3	0	154	0	154	1	0	1	2	1	167	14	182	341
Total Volume	8	0	23	31	10	699	2	711	8	0	6	14	3	688	38	729	1485
% App. Total	25.8	0	74.2		1.4	98.3	0.3		57.1	0	42.9		0.4	94.4	5.2		
PHF	.500	.000	.523	.517	.625	.773	.500	.773	.667	.000	.500	.700	.375	.869	.679	.880	.823
Cars	8	0	23	31	10	692	2	704	8	0	6	14	3	683	38	724	1473
% Cars	100	0	100	100	100	99.0	100	99.0	100	0	100	100	100	99.3	100	99.3	99.2
Trucks	0	0	0	0	0	7	0	7	0	0	0	0	0	5	0	5	12
% Trucks	0	0	0	0	0	1.0	0	1.0	0	0	0	0	0	0.7	0	0.7	0.8

Selective Search From: 11/02/2016 Thru: 11/02/2018 0000 - 2359 Printed: 11/02/2018

For Date: 12/02/2016 - Friday

<u>Call Number</u>	<u>Time</u>	<u>Call Reason</u>	<u>Action</u>	<u>Priority</u>	<u>Duplicate</u>
16-27935	1214	MVA Roadway No PI	Accident Report Taken	2	
Location/Address: 156 MECHANIC ST @ 4 SLAYTON HILL RD					
Refer To Accident: 16L-331-AC					

For Date: 12/29/2016 - Thursday

16-30098	1122	MVA Roadway No PI	Accident Report Taken	2	
Location/Address: 156 MECHANIC ST @ 4 SLAYTON HILL RD					
Refer To Accident: 16L-374-AC					

For Date: 01/28/2017 - Saturday

17-2269	1426	MVA Roadway No PI	Accident Report Taken	2	
Location/Address: UNDER THE TRUSSEL - 156 MECHANIC ST @ 4 SLAYTON HILL RD					
Refer To Accident: 17L-28-AC					

For Date: 04/11/2017 - Tuesday

17-7926	1503	MVA Roadway No PI	Accident Report Taken	2	
Location/Address: 156 MECHANIC ST @ 4 SLAYTON HILL RD					
Refer To Accident: 17L-135-AC					

For Date: 09/01/2017 - Friday

17-22246	2348	Assist Motorist	Arrest(s) Made	3	
Location/Address: [L CW1] COUNTRY WOOLENS - 160 MECHANIC ST					

For Date: 09/07/2017 - Thursday

17-22722	1041	Assist Motorist	Services Rendered	3	
Vicinity of: 156 MECHANIC ST @ 4 SLAYTON HILL RD					

For Date: 03/05/2018 - Monday

18-5504	0859	MVA Roadway W/PI	Accident Report Taken	1	
Location/Address: 156 MECHANIC ST @ 4 SLAYTON HILL RD					
Refer To Accident: 18L-81-AC					

For Date: 04/19/2018 - Thursday

18-9144	1047	Assist Motorist	Cancelled Prior to Arriv	3	
Location/Address: AT THE OVERPASS - 156 MECHANIC ST					

For Date: 07/17/2018 - Tuesday

18-16979	0941	MVA Roadway No PI	Accident Report Taken	2	
Vicinity of: 156 MECHANIC ST @ 4 SLAYTON HILL RD					
Refer To Accident: 18L-242-AC					

For Date: 07/20/2018 - Friday

18-17329	2116	MVA Roadway W/PI	Accident Report Taken	1	
Location/Address: 156 MECHANIC ST @ 4 SLAYTON HILL RD					
Refer To Accident: 18L-248-AC					

Selective Search From: 11/02/2016 Thru: 11/02/2018 0000 - 2359 Printed: 11/02/2018

For Date: 08/03/2018 - Friday

18-18586	1050	Assist Motorist	Gone on Arrival	3
Location/Address:		AT THE UNDERPASS - 156 MECHANIC ST		