Strafford RPC - Cost detail for initial submission to the Ten Year Plan for NHDOT review November 8, 2022

Municipality	Project Score	Location/Road	Scope		22 SRPC Total	22 NHDOT st Estimate	-	oE NHDOT otal Cost	Local I Estin		Tota	al Allocation Cost
Somersworth A*	5.5	Main St	Complete Streets improvements	\$ 4	,030,000	\$ 4,150,000	\$	5,750,293	\$ 1,1	09,427	\$	4,437,708
Newmarket A	4.9	NH152/NH108/Gerry Ave	Safety Improvements	\$	769,000	\$ 1,310,000	\$	2,006,994	N	A	\$	2,006,994
Lee A1	4.6	NH155/George Bennett/Lee Hook Rd (option 1)	Eliminate the West Mill Pond Road Connection	\$	214,000	\$ 955,000	\$	1,241,835	N	Α	\$	1,241,835
Lee B	4.4	NH155	Shared Use Path along NH 155	\$	579,000	\$ 1,275,000	\$	1,750,724	\$ 3	50,144	\$	1,400,579
Somersworth B1	4.3	West High St/Maple St/Sunset Dr (option 1)	Traffic Calming and Pedestrian Crossing	\$	567,000	\$ 827,000	\$	1,125,730	\$ 2	25,146	\$	900,584
Durham A	3.7	NH155/Main St	Roundabout with slip lanes	\$ 1	.,422,000	\$ 2,550,000	\$	3,927,747	N	А	\$	3,927,747

Total Allocation Impact \$13,915,447

Regional Allocation \$5,846,797

^{*} City did not use same method as others for inflation

Analysis of possible funding scenarios for candidate Ten Year Plan projects.

Town	YoE	Cost	Project Location and Description
SOM A	\$	4,437,708	Main St Complete Streets
NKT	\$	2,006,994	NH152/NH108/Gerry Ave - traffic flow and safety improvements
LEE A	\$	1,241,835	NH155/George Bennett/Lee Hook Rd (option 1) - Eliminate the West Mill Pond Road Connection
LEE B	\$	1,400,579	Shared Use Path along NH 155 - connecting elementary school to town hall
SOM B	\$	900,584	West High St/Maple St/Sunset Dr (option 1) - Traffic Calming and Pedestrian Crossing Improvements
DUR	\$	3,927,747	NH155A/Main St/Mast Rd - Convert to roundabout with slip lanes

NOTE: Year of expenditure (YoE) costs are from recent NHDOT project reviews. Costs shown here are for impacts to the regional allocation and do not include estimated local match.

Town	YoE	Cost	Scenario 1*	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7	Scenario 8	Scenario 9
SOM A	\$	4,437,708	Fund	Fund	Fund	Fund					
NKT	\$	2,006,994	Fund				Fund	Fund			
LEE A	\$	1,241,835		Fund			Fund		Fund		
LEE B	\$	1,400,579			Fund		Fund			Fund	
SOM B	\$	900,584				Fund	Fund				Fund
DUR	\$	3,927,747						Fund	Fund	Fund	Fund
Tota	\$	13,915,447	\$ 6,444,702	\$ 5,679,543	\$ 5,838,287	\$ 5,338,292	\$ 5,549,992	\$ 5,934,741	\$ 5,169,582	\$ 5,328,326	\$ 4,828,331
Remainde	\$	(8,068,650)	\$ (597,905)	\$ 167,254	\$ 8,510	\$ 508,505	\$ 296,805	\$ (87,944)	\$ 677,215	\$ 518,471	\$ 1,018,466

^{*} see note in memo - will require concessions

\$ 5,846,797 Regional Allocation

SRPC TRANSPORTATION PROJECT PROPOSAL FORM

CONTACT INFORMATION - REQUIRED Full Name Michelle Mears Municipality Somersworth Affiliation **Email** mmears@somersworth.com TAC **Title Position Phone Number** (603) 692-9516 **Director of Planning and Community** Development TRANSPORTATION PROJECT INFORMATION - REQUIRED Name/Title of Project Main Street Complete Streets Please select the project type(s): **Highway Improvements** (operational Planning Studies (road diets, corridor studies, improvements, access management, intelligent network studies, pedestrian/cyclist safety transportation systems, widening, technology studies) operation improvements) **Asset Management** (bridge rehabilitation, bridge **Infrastructure-related Travel Demand** replacement, pavement repair/replacement) Management (park & ride lots, transit or HOV lanes, priority signalization, bus shelters, intermodal transportation centers) **Bicycle and Pedestrian Improvements** (sidewalks, bike trails, multi-use paths, traffic calming improvements) Please provide a reference photo of the project location. (e.g. Google Maps/Earth) See attached estimate Where is this project located? (road names, nearby facilities/landmarks) City/Town Somersworth Road Main St From Parson's Dr Indigo Hill Rd To What is the size of this project? (please provide approximate measurements in 10th of a mile; you can use Google Maps measuring tool to estimate distances)

February 2022 1

.7 miles

Where can support for this project be found? (Plan titles/names and the applicable section(s), who would provide letters of support, people involved in this project, etc.)

Project is in City's approved CIP and in the Strafford MPO Metro Plan

Please provide any additional information about this project. (local knowledge/insight, relevant studies/data, infrastructure needs, etc.)

https://www.somersworth.com/sites/g/files/vyhlif1226/f/uploads/cip_2023-2028 complete document for website.pdf

The construction cost estimate was developed by Wright-Pierce. Includes a 30% contingency factor to account for design unknowns and an additional 10% contingency due to construction cost increases during COVID. Costs inflated 10% per year to FY2024.

-Road, Drainage, Sidewalk \$\$4,030,000

-Water System Improvements:

\$1,408,660

-Sewer Line Replacement: \$1,972,190

Total \$7,403,41

PURPOSE, NEED, AND SCOPE - REQUIRED

Please provide the Purpose Statement for this project. What problem(s) is the proposal addressing? ex: "The purpose of this project is to support increased non-motorized activity by addressing safety issues resulting from unsafe vehicle speeds and inadequate protections for pedestrians on Main Street between 1st and 2nd Street."

The purpose of this project is to support increased non-motorized activity by addressing safety issues resulting from unsafe vehicle speeds and inadequate protections for pedestrians on Main Street. Improvements will result in reducing or eliminating water or sewer line breaks, improved access for all transportation modes, and address stormwater treatment and flow issues. This project is part of ongoing redevelopment efforts within the downtown. This project connects Main Street to High Street over the bridge to Berwick, Maine which is undergoing a revitalization project. The City of Somersworth recently adopted Form-Based codes to spur development within the downtown. There are a number of potential large and small multifamily development projects that will be located off Main Street which could add hundreds of housing units.

Please provide the Need Statement for this project.

ex: "The section of Main St between 1st Street and 2nd Street is unsafe for pedestrians. This section is in the center of the city's commercial district concentrated with jobs and small businesses. In the past 5 years there have 15 crashes in this section of Main St: two resulted in serious injuries to pedestrians and one resulted in a pedestrian fatality. Continued local economic development depends on increased walkability and safety for pedestrians."

As part of the City of Somersworth's on-going efforts to revitalize and improve its historic downtown area, the City is underway reconstructing roadways for Main Street. This project will address the City's aging roadway, water, sewer, and stormwater infrastructure. Considering the age and condition of the other municipal infrastructure, the roadway surfaces and adjacent properties along the project corridors, we believe a full replacement of the water, sewer and stormwater system within the project area is needed. As part of the project, an overall assessment of the drainage system components will be conducted. System components will be reviewed for ability to perform as designed, issues that may be impeding the performance, the structural integrity of each system feature, the location, overall condition and anticipated design life to act as a baseline for system improvements. Opportunities for incorporating stormwater treatment practices will be evaluated and incorporated into the project design where feasible.

Please outline the project scope.

ex: "Install pedestrian crossings on Main Street at 1st and 2nd street intersections and at mid-block, including pedestrian refuge medians, other streetscaping and traffic calming infrastructure."

Project involves the replacement water and sewer lines, storm drainage improvements, new sidewalks, bike lanes and new surface pavement on Main Street from Indigo Hill Road to John Parsons Drive. This is being designed to compliment planning outcomes for the redevelopment of the Somersworth Plaza site. This segment was resurfaced with a mill-and-overlay treatment in fall 2018. Wright Pierce is working preliminary engineering which is 75% complete.

SUBMISSION - REQUIRED

Please return this form to Colin Lentz at Strafford Regional Planning Commission, clentz@strafford.org. Please attach relevant EXCERPTS of any supporting documents, maps, cost estimates, and data along with this form.

Please check what supporting documents that you have attached:

\boxtimes	Local Plans/Master Plans	Maps		Bike/Pedestrian Surveys
\boxtimes	Cost Estimate	Transit Operator Data		Project Scope
\boxtimes	Local Police Crash Data	Development Studies	\boxtimes	Conceptual Designs
	Corridor Study	Regional Planning Study		
	Special Studies (Road Safety	Turning Movement or Traffic		
	Audit, Warrant Analysis, Safe	Volume Data		
	Routes to School Plan, etc.)			

SUPPLEMENTARY INFORMATION - OPTIONAL

Please note that these questions are not required to make an initial submission to Strafford Regional Planning Commission (SRPC). Please try to answer these questions now as they will still need to be answered as part of the final proposal submission. However, if you are unable to answer them on your own at this time, staff at SRPC will assist you.

What alternative options or methods have been considered to address this problem and what makes this project proposal the best option?

This project is the best option.

How involved has the public been in this project proposal so far?

Please describe the extent of public outreach and involvement efforts to date.

The Planning Board endorsed and provided recommendation the Capital Improvement Plan FY 2023-2028 on October 20, 2021. This project is listed on the Plan. The City Council approved the plan on December 12, 2021.

What is the anticipated level of further public involvement over the life of this project?

Please describe anticipated public outreach and involvement efforts to be conducted in the future for this project.

This project would require City Council approval.

How much of a priority is this in the local plan, regional plan, or recent corridor study?

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).

This project is a local priority and is funded in the Capital Improvement Proram

Will the project be managed locally?

Yes

Please provide evidence supporting this project.

Please provide any evidence of the project need. For example crash history, turning movement counts, signal warrant analysis, etc. (review list of documents, data sources, plans, guidance, maps, etc. that will serve as a prompt for possible sources of information to bolster the application; please note what and where you are referencing from)

Crash data analysis attached with estimate

Cost Estimate

Please provide any cost estimates that you have at this time for the project. SRPC can assist with developing a cost estimate if one doesn't exist or the town does not have an existing basis from which to prepare an estimate.

	2022 \$	2024 \$ (Project cos	ts include inflation at 10%) Requires follow-up
Engineering	NA		
Right-of-Way	NA		
Construction	NA	\$4,030,000	
Structures	NA		
Capital	NA		
Operating	NA		
Total	\$ 0.00	\$4,030,000	

What is the source of the above cost estimate?

Wright-Pierce hired by the City of Somersworth. See attached estimate.
Will the town be providing any matching funds? (NHDOT will expect matching funds for certain types of projects; is
the town prepared to provide those funds?)
City has dedicated funding for this project in an approved CIP

PROJECT IMPACTS - TO BE COMPLETED BY SRPC

Please review the following list of potential impacts a project might have. Indicate whether the project might present an adverse impact or potential benefit to each resource.

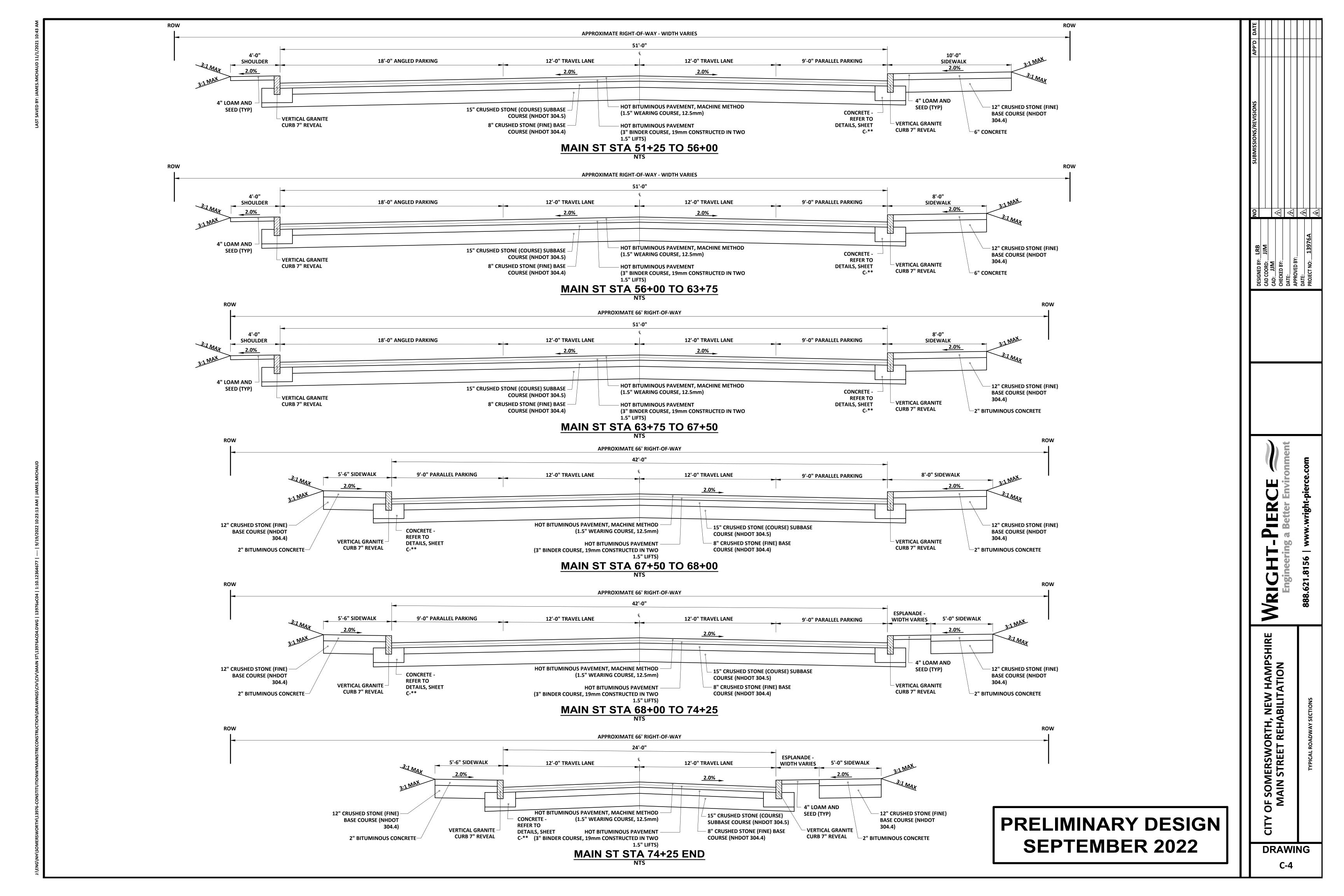
Impact	Benefit	NA	Community Facilities and Resources
	\boxtimes		Parks and recreation areas
	\boxtimes		Scenic, historic, and cultural resources
	\boxtimes		Municipal services and schools
	\boxtimes		Employment Centers
Impact	Benefit	NA	Transportation Infrastructure
		\boxtimes	Transit or public transportation routes or stops
		\boxtimes	Park and Ride facilities
		\boxtimes	Culverts or bridges
		\boxtimes	Signalized intersections
	\boxtimes		Active railroads
	\boxtimes		Freight Corridors
		\boxtimes	Other active or planned transportation improvements
Impact	Benefit	NA	Environmental Characteristics
			Aquifers/groundwater resources
			Wetlands
			Surface water bodies
			Flood zones
			Prime farmland
		\boxtimes	Wildlife habitats

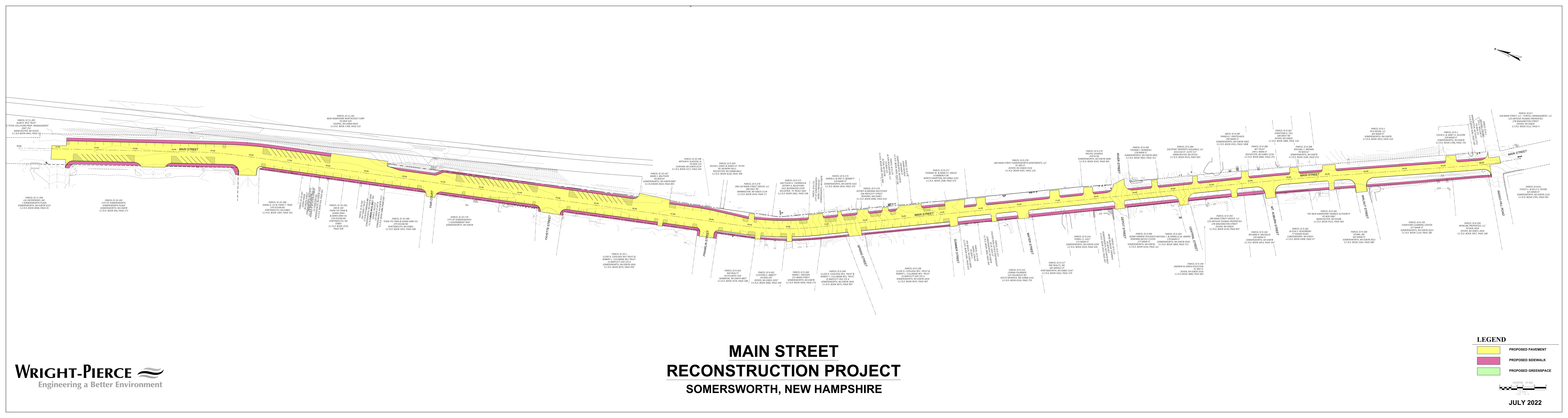
		\boxtimes	Riparian habitats
		\boxtimes	Air quality
		\boxtimes	Noise
Impact	Benefit	NA	Title VI and Underserved Population Centers
			Low-income
	\boxtimes		Minority population
		\boxtimes	Senior (65+) population
		\boxtimes	Less than a high school diploma
		\boxtimes	Children under 18
		\boxtimes	Children under 5
		\boxtimes	Language isolation
		\boxtimes	Households without access to a vehicle
		\boxtimes	Disability status
			Single parent households

 \boxtimes

Species of special concern

Attach a detailed map showing the proposal location and surroundings. Include any pertinent data for identified impacts or benefits.





Project Title:	Main Street Construction - John Parsons Drive to Indigo Hill Road							
Department:	Submitted By:	Date:	Priority:	Project Cost:				
Complete Streets	Michael Bobinsky	November 4, 2022	II	\$7,747,751				

1. General Project Description:

Project involves the replacement water and sewer lines, storm drainage improvements, new sidewalks, bike lanes and new surface pavement on Main Street from Indigo Hill Road to John Parsons Drive. Design to compliment planning outcomes for the redevelopment of the Somersworth Plaza site. This segment was resurfaced with a mill-and-overlay treatment in fall 2018.

2. How will this expenditure improve service, productivity, or lower operating cost to the City of Somersworth?

Improvements will result in reducing or eliminating water or sewer line breaks, improved access for all transportation modes, address drainage issues.

3. Is this a replacement item? Yes. New water and sewer lines, storm drainage, sidewalks and new surface pavement.

4. List name of Firm and price of quotes received.

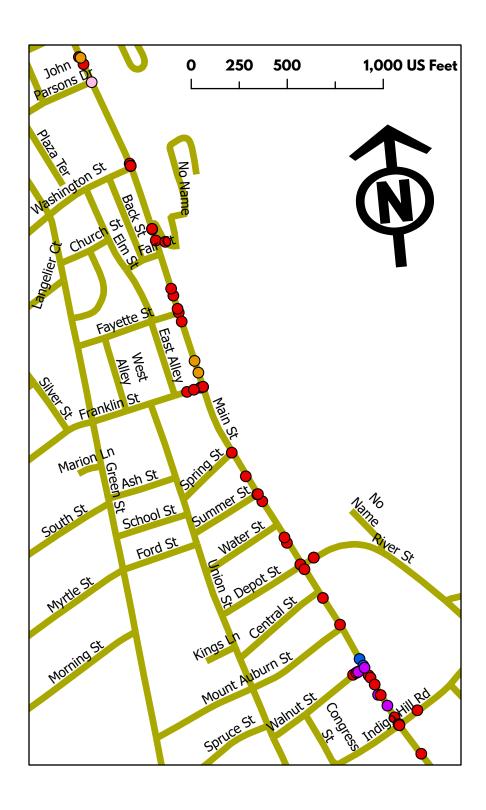
Opinion of construction cost developed by Wright-Pierce in 2018. Includes a 30% contingency factor to account for design unknowns and an additional 10% contingency due to construction cost increases during COVID. Costs inflated 10% per year to FY2024.

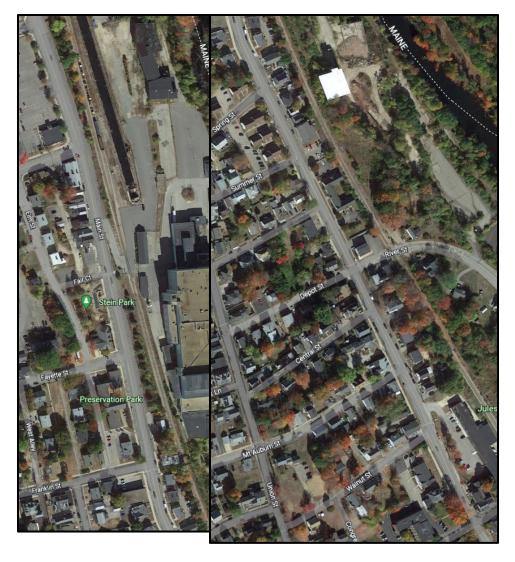
-Road, Drainage, Sidewalk -Water System Improvements: \$1,549,526 -Sewer Line Replacement: \$2,169,409 Total \$7,747,751

Note: The City may consider a phased approach to this project, for example complete an initial phase of the project from John Parsons to Fayette, and then completing the balance of the project in a subsequent year.



Total Project Funds:		FY24	FY25	FY26	FY27	FY28	FY29	Total
Sources:								\$0
General Fund				\$4,028,816				\$4,028,816
Bonds/Lease								\$0
Grant								\$0
Enterprise Fund				\$3,718,935				\$3,718,935
Other								\$0
	Totals	\$0	\$0	\$7,747,751	\$0	\$0	\$0	\$7,747,751
Commence FY:	Quarter:					Prior Ye	ears' Funding	
							Total Project	\$7,747,751



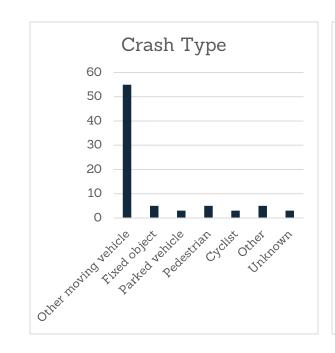


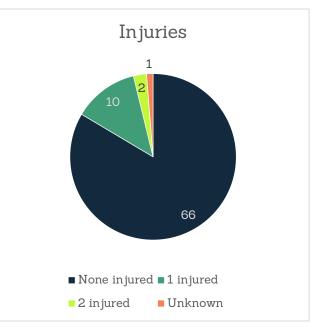
Somersworth Priority Project: Main Street

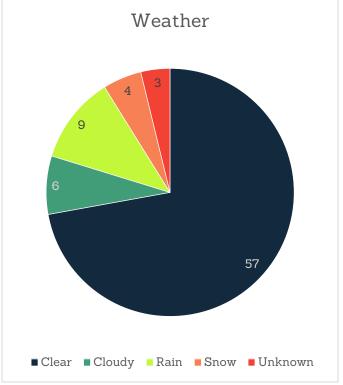
John Parsons Drive to Indigo Hill Road (and assoc. roadways)

Incidents 2010-2020

- Possible serious injury
- No apparent injury
- Unknown
- Non-incapacitating
- O Incident type not reported



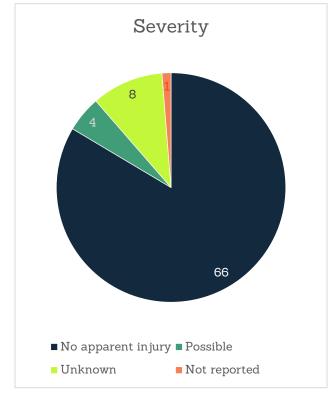


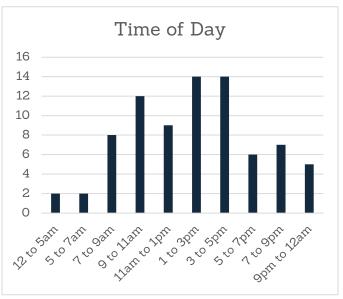


Reported number of incidents 2010 - 2020 70

Jan	4
Feb	9
Mar	8
Apr	3
May	7
Jun	6
Jul	7
Aug	8
Sep	8
Oct	6
Nov	6
Dec	7

Mon	14
Tues	12
Wed	12
Thurs	9
Fri	12
Sat	10
Sun	10





SRPC TRANSPORTATION PROJECT PROPOSAL FORM

CONTACT INFORMATION - REQUIRED Full Name Municipality Newmarket Bart McDonough **Email** bmcdonough@newmarketnh.gov Affiliation Town Staff **Phone Number** (603) 659 8501 **Title Position** Town Planner TRANSPORTATION PROJECT INFORMATION - REQUIRED Name/Title of Project Newmarket NH108 and NH152 Intersection Improvements Please select the project type(s): **Highway Improvements** (operational Planning Studies (road diets, corridor studies, improvements, access management, intelligent network studies, pedestrian/cyclist safety transportation systems, widening, technology studies) operation improvements) **Asset Management** (bridge rehabilitation, bridge Infrastructure-related Travel Demand replacement, pavement repair/replacement) Management (park & ride lots, transit or HOV lanes, priority signalization, bus shelters, intermodal transportation centers) **Bicycle and Pedestrian Improvements** (sidewalks, bike trails, multi-use paths, traffic calming improvements) Please provide a reference photo of the project location. (e.g. Google Maps/Earth) See attached estimate Where is this project located? (road names, nearby facilities/landmarks) City/Town Newmarket NH108 (Exeter Rd)/NH152/Gerry Ave Road From To What is the size of this project? (please provide approximate measurements in 10th of a mile; you can use Google Maps measuring tool to estimate distances) 0.3 miles

February 2022

Where can support for this project be found? (Plan titles/names and the applicable section(s), who would provide letters of support, people involved in this project, etc.)

Crash data analysis attached with estimates and design

Please provide any additional information about this project. (local knowledge/insight, relevant studies/data, infrastructure needs, etc.)

This proposed project was reviewed and approved by NHDOT and municipal staff and was selected from several alternatives.

PURPOSE, NEED, AND SCOPE - REQUIRED

Please provide the Purpose Statement for this project. What problem(s) is the proposal addressing? ex: "The purpose of this project is to support increased non-motorized activity by addressing safety issues resulting from unsafe vehicle speeds and inadequate protections for pedestrians on Main Street between 1st and 2nd Street."

The purpose of this project is to improve safety at the intersection of NH108/NH152.

Please provide the Need Statement for this project.

ex: "The section of Main St between 1st Street and 2nd Street is unsafe for pedestrians. This section is in the center of the city's commercial district concentrated with jobs and small businesses. In the past 5 years there have 15 crashes in this section of Main St: two resulted in serious injuries to pedestrians and one resulted in a pedestrian fatality. Continued local economic development depends on increased walkability and safety for pedestrians."

Central intersection has a history of crashes and near misses. This intersection is at the southern end of the core downtown and development will be extending south. Improved safety and circulation will be essential for sustainable development and transportation safety.

Please outline the project scope.

ex: "Install pedestrian crossings on Main Street at 1st and 2nd street intersections and at mid-block, including pedestrian refuge medians, other streetscaping and traffic calming infrastructure."

- Close eastbound lane of South Main St (NH152) between South St and NH108 intersection;
- Re-route eastbound NH152 traffic onto Gerry Ave
- Intersection and traffic control improvements at adjacent intersections
 - o Gerry Ave & NH108 (Exeter St): needs consideration for trucks turning left onto NH108 from Gerry Ave
- o Gerry Ave & NH152 (South Main St): signage to alert drivers of closure; consider any intersection improvements for traffic flow and safety
- Speed management improvements for remaining westbound lane of NH152 (NH108 southbound) to mitigate "slingshot" effect on curve.

SUBMISSION - REQUIRED

relevant EXCERPTS of any supporting documents, maps, cost estimates, and data along with this form.						
Please cl	neck what supporting documents t	hat yo	ou have attached:			
	Local Plans/Master Plans Cost Estimate Local Police Crash Data Corridor Study Special Studies (Road Safety Audit, Warrant Analysis, Safe Routes to School Plan, etc.)		Maps Transit Operator Data Development Studies Regional Planning Study Turning Movement or Traffic Volume Data		Bike/Pedestrian Surveys Project Scope Conceptual Designs	
SUPPL	EMENTARY INFORMATI	ON ·	- OPTIONAL			
Please note that these questions are not required to make an initial submission to Strafford Regional Planning Commission (SRPC). Please try to answer these questions now as they will still need to be answered as part of the final proposal submission. However, if you are unable to answer them on your own at this time, staff at SRPC will assist you. What alternative options or methods have been considered to address this problem and what makes this project proposal the best option? Several alternatives were considered by NHDOT and town staff. ROW is extremely limited at the intersection site; this was determined to be the most effective alternative.						
	volved has the public been in this describe the extent of public outre		• •			
Project	is a priority from the local list of Nand municipal staff and was selec	1etro	Plan projects. This proposed proje	ect was	reviewed and approved by	
What is the anticipated level of further public involvement over the life of this project? Please describe anticipated public outreach and involvement efforts to be conducted in the future for this project. Additional local public review will follow engineering assessment, scope refinement, and cost estimate development.						
How much of a priority is this in the local plan, regional plan, or recent corridor study? 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).						
Improv	ing safety at the NH152/NH108 int	ersec	tion is a local priority			
Will the project be managed locally?						
To be d	letermined					

Please return this form to Colin Lentz at Strafford Regional Planning Commission, clentz@strafford.org. Please attach

Please provide evidence supporting this project.

Please provide any evidence of the project need. For example crash history, turning movement counts, signal warrant analysis, etc. (review list of documents, data sources, plans, guidance, maps, etc. that will serve as a prompt for possible sources of information to bolster the application; please note what and where you are referencing from)

Crash data analysis attached with estimates and design

Cost Estimate

Please provide any cost estimates that you have at this time for the project. SRPC can assist with developing a cost estimate if one doesn't exist or the town does not have an existing basis from which to prepare an estimate.

	2022\$	2032 \$ (10 years inflation at 2.8% annually)
Engineering	\$100,000	\$131,805
Right-of-Way	\$10,000	\$13,180
Construction	\$659,000	\$868,593
Structures	0	0
Capital	0	0
Operating	0	0
Total	\$769,000.00	\$1,013,578.00

NOTE: This estimate includes proposed improvements on Gerry Ave, which is not federal aid eligible. Funding levels and segments will have to be negotiated prior to inclusion in the Ten Year Plan.

What is the source of the above cost estimate?

VHB was hired by SRPC to develop this cost estimate. See attached design and detailed estimate.

Will the town be providing any matching funds? (NHDOT will expect matching funds for certain types of projects; is the town prepared to provide those funds?)

If an LPA project the town would provide the required 20% match.

PROJECT IMPACTS – TO BE COMPLETED BY SRPC

Please review the following list of potential impacts a project might have. Indicate whether the project might present an adverse impact or potential benefit to each resource.

Impact	Benefit	NA	Community Facilities and Resources
			Parks and recreation areas
			Scenic, historic, and cultural resources
			Municipal services and schools

Please provide evidence supporting this project.

Please provide any evidence of the project need. For example crash history, turning movement counts, signal warrant analysis, etc. (review list of documents, data sources, plans, guidance, maps, etc. that will serve as a prompt for possible sources of information to bolster the application; please note what and where you are referencing from)

Crash data analysis attached with estimates and design

Cost Estimate

Please provide any cost estimates that you have at this time for the project. SRPC can assist with developing a cost estimate if one doesn't exist or the town does not have an existing basis from which to prepare an estimate.

	2022\$	2032 \$ (10 years inflation at 2.8% annually)
Engineering	\$100,000	\$131,805
Right-of-Way	\$10,000	\$13,180
Construction	\$659,000	\$868,593
Structures	0	0
Capital	0	0
Operating	0	0
Total	\$769,000.00	\$1,013,578.00

NOTE: This estimate includes proposed improvements on Gerry Ave, which is not federal aid eligible. Funding levels and segments will have to be negotiated prior to inclusion in the Ten Year Plan.

What is the source of the above cost estimate?

VHB was hired by SRPC to develop this cost estimate. See attached design and detailed estimate.

Will the town be providing any matching funds? (NHDOT will expect matching funds for certain types of projects; is the town prepared to provide those funds?)

If an LPA project the town would provide the required 20% match.

PROJECT IMPACTS – TO BE COMPLETED BY SRPC

Please review the following list of potential impacts a project might have. Indicate whether the project might present an adverse impact or potential benefit to each resource.

Impact	Benefit	NA	Community Facilities and Resources
		\boxtimes	Parks and recreation areas
		\boxtimes	Scenic, historic, and cultural resources
		\boxtimes	Municipal services and schools

			Employment Centers
Impact	Benefit	NA	Transportation Infrastructure
		\boxtimes	Transit or public transportation routes or stops
		\boxtimes	Park and Ride facilities
			Culverts or bridges
			Signalized intersections
		\boxtimes	Active railroads
\boxtimes			Freight Corridors
			Other active or planned transportation improvements
	D		
Impact	Benefit	NA	Environmental Characteristics
			Aquifers/groundwater resources Wetlands
			Surface water bodies
			Flood zones
			Prime farmland
			Wildlife habitats
			Species of special concern
			Riparian habitats
			Air quality
			Noise
			Noise
Impact	Benefit	NA	Title VI and Underserved Population Centers
		\boxtimes	Low-income
		\boxtimes	Minority population
		\boxtimes	Senior (65+) population
		\boxtimes	Less than a high school diploma
		\boxtimes	Children under 18
		\boxtimes	Children under 5
		\boxtimes	Language isolation
		\boxtimes	Households without access to a vehicle
		\boxtimes	Disability status
		\boxtimes	Single parent households



To: Colin Lentz – Sr. Transportation Planner Strafford Regional Planning Commission 150 Wakefield Street, Suite 12, Rochester, NH 03867

Project #: 52935.01

From: Gregory L. Bakos Re: On-Call Engineering

Task # 3 – Newmarket: NH Route 108 / NH Route 152 Intersection

As requested, VHB has estimated the cost for completing safety related improvements for the intersection of NH Route 108 (Exeter Road) at the intersection with NH Route 152 (South Main Street) in Newmarket, New Hampshire. The cost estimate is provided for the SRPC to consider the project for inclusion in the Ten-Year-Plan (TYP). VHB based the costs on the materials provided by the community as well as online data gathering, site review, conceptual designs, and engineering judgement.

Project Purpose and Need

The Town of Newmarket's stated purpose for this project is to improve safety at the intersection of NH Route 108 and NH Route 152 in the dense downtown core. This centralized intersection has a history of reported crashes and near misses. This intersection is at the southern end of the core downtown and future land development will be extending south. Improved safety and circulation will be essential for sustainable development and transportation safety.

Existing Conditions

VHB's observation is that the safety concerns at the NH Route 108 and NH Route 152 intersection are largely due to the influence of the horizontal and vertical roadway geometries that limit sight lines within the intersection. Sight lines are further impacted by the existing buildings on the western corner.

NH Route 108 is free flow (i.e., no traffic control) through the intersection and NH Route 152 is stop controlled. As NH Route 152 eastbound vehicles stop and look for gaps in the NH Route 108 traffic stream, motorists have to look hard right and down to see NH Route 108 eastbound approaching vehicles. They also need to wait for westbound NH Route 108 vehicles are remaining on NH Route 108 or turning into NH Route 152 westbound. This situating leads to longer delay on the NH Route 152 eastbound approach and likely results in minor street motorists taking risks (i.e., accepting less than desirable gaps) when pulling into the mainline traffic stream.

Gerry Avenue is a two-lane connector roadway between NH Route 108 and NH Route 152. The Garry Avenue approaches at both ends is under stop controlled and the southern end at NH Route 108 provides exclusive left- and right-turn lanes.

Traffic

SRPC provided VHB with October 2022 tuning movements for the weekday AM and PM peak periods (7-9 AM and 4-6 PM) at the following intersections:

- > NH Route 108 and NH Route 152
- > NH Route 152 and Gerry Avenue
- > NH Route 108 and Gerry Avenue

Ref: 52935.01 November 3, 2002

Page 2



VHB adjusted the traffic counts to reflect 2042 design year average-month, pre-pandemic traffic volumes. VHB then conducted a preliminary investigation into whether the NH Route 108 and NH Route 152 intersection should be placed under traffic signal control. Concerns were raised with respect to heavy vehicles and commuting traffic stopped at a red signal indication during the winter months due to the steep grade along NH Route 108 south of the intersection. Therefore, the following alternative was determined to be a viable option in accommodating traffic volumes and improving vehicle and pedestrian safety.

- > Maintain the two-way vehicle flow along NH Route 152 between Gerry Avenue and South Street.
- > Convert NH Route 152 between South Street and NH Route 108 into one-way westbound flow (i.e., departing the NH Route 108 intersection).
- > At the NH Route 152 and Gerry Avenue intersection:
 - The Gerry Avenue northbound approach would remain under STOP-sign control.
 - The NH Route 152 eastbound and westbound movements would operate without traffic control (i.e., free-flow).
 - Directional signage would be posted on the NH Route 152 eastbound approach to direct motorists to use Gerry Avenue for access on NH Route 108.
- > At the NH 152 and South Street intersection:
 - NH Route 152 eastbound vehicles would only be able to turn left onto South Street (no through movements to connect with NH Route 108).
 - NH Route 152 westbound vehicles would continue through to the Gerry Avenue intersection or turn right onto South Street.
 - South Street southbound vehicles would only turn right onto NH Route 152 westbound.
 - Traffic control signs would be posted on the NH Route 152 eastbound and South Street approaches to reinforce the one-way directional travel east of the intersection.
- > At the NH Route 152, NH Route 108, and Creighton Street intersection:
 - The NH Route 152 leg and the Creighton Street leg would be one-way roadways departing the intersection.
 - The NH Route 108 northbound and southbound approaches would operate without traffic control (i.e., freeflow).
- > At the NH Route 108 and Gerry Avenue intersection:
 - The intersection would be placed under traffic signal control.
 - Due to the close proximity, the new signal would be connected with the railroad crossing signal to help control vehicles traveling southbound toward that location.
 - The Gerry Avenue southbound approach would be widened to provide an exclusive left-turn lane and an exclusive right-turn lane.
 - The NH Route 108 northbound approach would maintain the two-lane approach (exclusive left-turn lane and through lane), and the left-turn lane would need be extended to accommodate the vehicle demand when faced with a red traffic signal indication.
 - The driveways across from Gerry Avenue (33 Exeter Road) would be placed under signal control since they are
 within the influence area of the new traffic signal.
 - The southern driveway would be signed as an entrance (departing the intersection)

Ref: 52935.01 November 3, 2002

Page 3



• The northern driveway would be signed as an exit (entering the intersection).

Based on the Highway Capacity Manual (HCM) results, the Gerry Avenue northbound approach to NH Route 152 is projected to operate at LOS D or better during the weekday AM and PM peak hours. In addition, this preliminary assessment shows that the NH Route 108 and Gerry Avenue signalized intersection would operate at LOS B with all lane groups at LOS C or better during the weekday AM and PM peak hours.

Proposed Improvements

Following is a description of the proposed improvements that are the basis for the included cost estimate. Also see the attached schematic plan.

The primary alteration is that NH Route 152 will be converted to one-way from NH Route 108 to South Street. This change will reroute all eastbound traffic on NH Route 152 to NH Route 108 by way of Gerry Avenue. This change will greatly uncomplicate the NH Route 108/NH Route 152 intersection and will alleviate the primary sight line related safety concern.

Moving traffic onto Gerry Avenue will require expansion of the Gerry Avenue approach to NH Route 108 to provide longer turn lanes than currently exist. A traffic signal is proposed to control that intersection due to the additional traffic demand from the redistribution of vehicles.

The proposed one-way section of NH Route 152 will provide an opportunity to add curbed sidewalk and on-street parallel parking. There would also be bumpouts for crosswalks and to constrain the travel way and calm incoming traffic from NH Route 108. These changes would aim to improve the South Main Street pedestrian accommodations and appearance.

Other Considerations

The following information is provided for context and to help assess the challenges and readiness of this proposed project.

Right-of-Way

Minor property impacts may result from widening Gerry Avenue to accommodate the extended left-turn lane at NH Route 108.

Natural Resources

The environmental considerations within this project are expected to be minimal since the area appears to be free of regulated natural resource areas. Cultural resources may be a concern since the adjacent properties may be considered historic and there is a possibility that the Gerry Avenue widening will impact property.

If federal funds are used, the project will still need to complete National Environmental Policy Act (NEPA) documentation which will include a wide range of natural and cultural resource documentation.

Ref: 52935.01 November 3, 2002

Page 4



Estimated Project Costs

Based on the above discussions and the attached concept plans, VHB developed a program level estimate of probable cost broken out by primary components as shown on the attached spreadsheets.

Estimated Costs

The construction for this project is relatively minor in nature, consisting of roadway widening and sidewalk reconstruction on Gerry Avenue and adding curbing and sidewalks and bumpouts on NH Route 152 in the new one-way section. A major cost item will be the new traffic signal at the NH Route 108 and Gerry Avenue intersection, including coordination with the nearby railroad signals. See the attached conceptual cost estimates for a detailed list of items and quantities.

Design and Permitting Costs

The project will be assumed to advance as a Local Public Agency (LPA) project administered locally and following the prescribed LPA project development process with NHDOT oversight. This process is significant since there are cost implications. In determining the design phase costs, VHB applied 'rule-of-thumb' percentages adjusted for the anticipated permitting or other complexities as well as the scale of the project. Smaller projects such as this typically have much higher design costs as a percentage of the construction costs.

Proposed Improvements:	PE	ROW	Construction	<u>Totals</u>
NH108/NH152/Gerry Ave	\$100,000	\$10,000	\$659,000	\$769,000

CONSTRUCTION COST ESTIMATE

PROJECT : Strafford Regional Planning Commission TYP Project Candidates

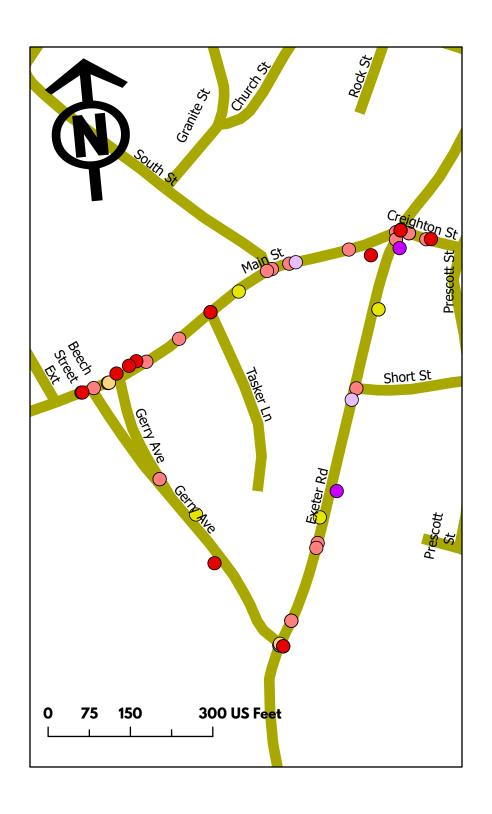
LOCATION: NEWMARKET NH 108 / NH 152 INTERSECTION

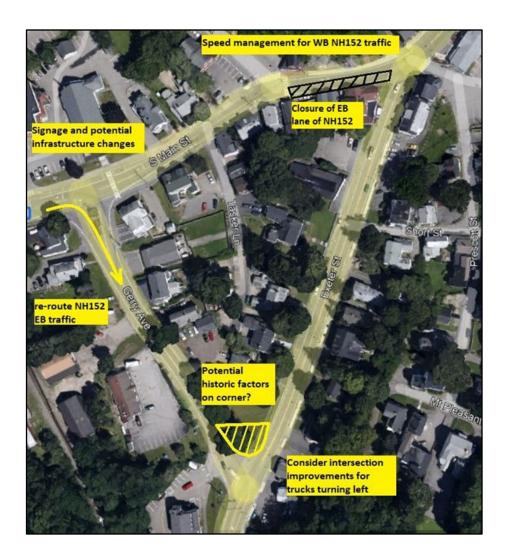
VHB PROJECT NO. 52935.01

TYPE: Program Level Conceptual Estimate

	ITEM DESCRIPTION	UNIT		UNIT	QUANTITY	TOTAL COST	
				PRICE			
203.1	COMMON EXCAVATION	CY	\$	18.00	64	\$1,152	
203.2	ROCK EXCAVATION	CY	\$	75.00	5	\$347	
304.4	CRUSHED STONE (FINE GRADATION) (F)	CY	\$	40.00	37	\$1,480	
304.5	CRUSHED STONE (COURSE GRADATION) (F)	CY	\$	40.00	27	\$1,080	
403.11	HOT BITUMINOUS PAVEMENT - MACHINE METHOD	TON	\$	120.00	65	\$7,800	
417	COLD PLANING BITUMINOUS SURFACES	SY	\$	5.00	600	\$3,000	
603.00215	15" R.C. PIPE, 2000D	LF	\$	80.00	155	\$12,400	
604.0007	POLYETHELENE LINER	EA	\$	350.00	2	\$700	
604.124	CATCH BASINS TYPE B, 4-FOOT DIAMETER	UNIT	\$	4,000.00	2	\$8,000	
608.13	3" BITUMINOUS SIDEWALK (F)	SY	\$	70.00	111	\$7,770	
608.36	6" REINFORCED CONCRETE SIDEWALK (F)	SY	\$	100.00	2	\$200	
608.54	DETECTABLE WARNING DEVICES, CAST IRON	SY	\$	500.00	1	\$500	
609.01	STRAIGHT GRANITE CURB	LF	\$	45.00	255	\$11,475	
615.0301	TRAFFIC SIGN TYPE C	SF	\$	90.00	50	\$4,500	
616.101	TRAFFIC SIGNAL	U	\$	250,000.00	1	\$250,000	
618.61	UNIFORMED OFFICERS W/ VEHICLE	HR	\$	75.00	128	\$9,600	
618.7	FLAGGERS	HR	\$	40.00	640	\$25,600	
619.1	MAINTENANCE OF TRAFFIC	UNIT	\$	50,000.00	1	\$50,000	
619.253	PORTABLE CHANGEABLE MESSAGE SIGN (UNIT WEEK)	UWK	\$	600.00	46	\$27,600	
628.2	SAWED BITUMINOUS PAVEMENT	LF	\$	4.00	255	\$1,020	
646.51	TURF ESTABLISHMENT WITH MULCH, TACKIFIERS AND LOAM	SY	\$	5.00	94	\$472	
692	MOBILIZATION	UNIT	\$	20,000.00	1	\$20,000	
698.13	FIELD OFFICE TYPE C	MON	\$	1,800.00	4	\$7,200	
699	MISCELLANEOUS TEMPORARY EROSION AND SEDIMENT CONTROL	\$	\$	1,000.00	1	\$1,000	
						• •	
	SUBTOTAL					\$452,897	
			MISC	CELLANEOUS	S ITEMS (10%)	\$45,290	
				CONTING	ENCIES (20%)	\$90,579	
					SUBTOTAL:	\$588,766	
		TOTAL EST	IMAT	ED CONSTR	UCTION COST	\$589,000	
	ENGINEERING (PE) ROW						
	CONSTRUCTI	ON ENGINEERI	NG, I	NSPECTION .	AND TESTING	\$10,000 \$70,000	
			EST	IMATED PRO	JECT TOTAL:	\$769,000	





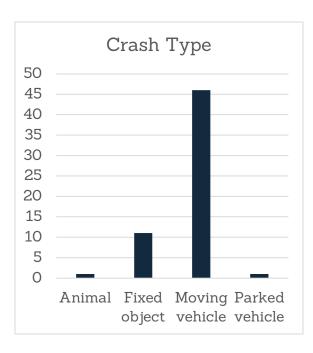


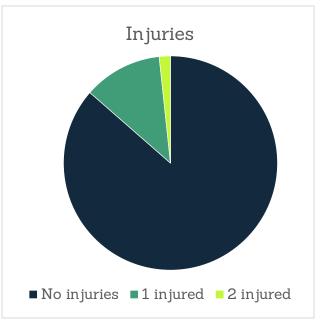
Newmarket Priority Project: NH 152 and NH 108

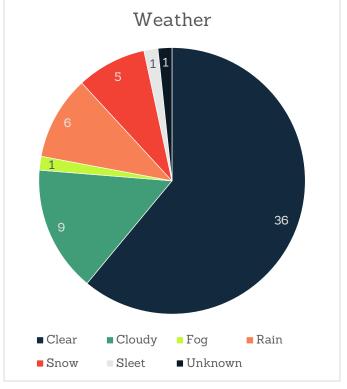
S. Main & Exeter Sts. (and assoc. roadways)

Incidents 2017-2020 Incidents 2010-2016

- No apparent injury
- No apparent injury
- Suspected minor injury
- Non-incapacitating
- Unknown
- Possible serious injury
- Unknown



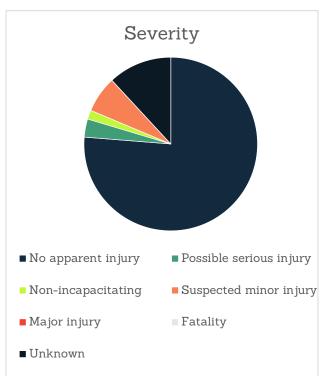


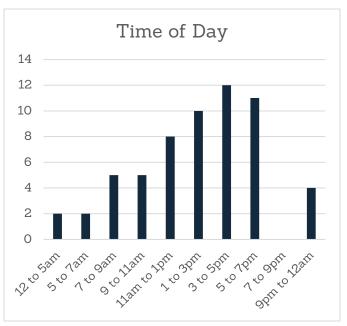




Jan	4
Feb	4
Mar	8
Apr	4
May	6
Jun	3
Jul	3
Aug	6
Sep	6
Oct	6
Nov	3
Dec	6

Mon	7
Tues	10
Wed	11
Thurs	5
Fri	10
Sat	9
Sun	7





SRPC TRANSPORTATION PROJECT PROPOSAL FORM

CONTACT INFORMATION - REQUIRED Full Name Municipality Katrin Kasper Lee **Email** kkasper@leenh.org Affiliation Select Board **Phone Number** (603) 659-5414 **Title Position** Select Board Member TRANSPORTATION PROJECT INFORMATION - REQUIRED Name/Title of Project Lee Center Triangle Please select the project type(s): **Highway Improvements** (operational Planning Studies (road diets, corridor studies, improvements, access management, intelligent network studies, pedestrian/cyclist safety transportation systems, widening, technology studies) operation improvements) **Asset Management** (bridge rehabilitation, bridge Infrastructure-related Travel Demand replacement, pavement repair/replacement) Management (park & ride lots, transit or HOV lanes, priority signalization, bus shelters, intermodal transportation centers) **Bicycle and Pedestrian Improvements** (sidewalks, bike trails, multi-use paths, traffic calming improvements) Please provide a reference photo of the project location. (e.g. Google Maps/Earth) See attached estimate Where is this project located? (road names, nearby facilities/landmarks) City/Town Lee NH155/GeorgeBennet Rd/Lee Hook Rd Road From To What is the size of this project? (please provide approximate measurements in 10th of a mile; you can use Google Maps measuring tool to estimate distances) Large intersection

February 2022

Where can support for this project be found? (Plan titles/names and the applicable section(s), who would provide letters of support, people involved in this project, etc.)

Project is supported by a vote of the town select board and is included in the Strafford MPO Metro Plan

Please provide any additional information about this project. (local knowledge/insight, relevant studies/data, infrastructure needs, etc.)

Town Select Board has approved development of a project at this location. Note that the town does not have the resources to invest in sidewalks but wishes to ensure they can be constructed easily in the future. Proposed scope has been developed using preliminary alternatives analysis conducted by a team of senior engineering students at UNH under the supervision of NHDOT staff. Results of that analysis will be provided to SRPC's consultant engineers to support development of official preliminary design and scoping. The two most viable alternatives from the UNH student team analysis are provided below. It is anticipated that a hybrid of the two alternatives ("T-junction" and "4-way intersection") will be incorporated into the final proposed design.

PURPOSE, NEED, AND SCOPE - REQUIRED

Please provide the Purpose Statement for this project. What problem(s) is the proposal addressing? ex: "The purpose of this project is to support increased non-motorized activity by addressing safety issues resulting from unsafe vehicle speeds and inadequate protections for pedestrians on Main Street between 1st and 2nd Street."

The purpose of this project is to increase safety at the intersection and consolidate redundant connections.

Please provide the Need Statement for this project.

ex: "The section of Main St between 1st Street and 2nd Street is unsafe for pedestrians. This section is in the center of the city's commercial district concentrated with jobs and small businesses. In the past 5 years there have 15 crashes in this section of Main St: two resulted in serious injuries to pedestrians and one resulted in a pedestrian fatality. Continued local economic development depends on increased walkability and safety for pedestrians." _

This intersection is outdated and overly complex, creating a significant safety hazard. Future town development and accessibility will be hindered without addressing the intersection.

Please outline the project scope.

ex: "Install pedestrian crossings on Main Street at 1st and 2nd street intersections and at mid-block, including pedestrian refuge medians, other streetscaping and traffic calming infrastructure."

Intersection realignment to reduce speed and improve safety. Eliminate redundant connector between George Bennett Rd and Lee Hill Rd. Incorporate right-of-way for future pedestrian accommodations.

SUBMISSION - REQUIRED

Please return this form to Colin Lentz at Strafford Regional Planning Commission, clentz@strafford.org. Please attach relevant EXCERPTS of any supporting documents, maps, cost estimates, and data along with this form.

Please c	heck what supporting documents t	hat yo	ou have attached:				
	Local Plans/Master Plans Cost Estimate Local Police Crash Data Corridor Study Special Studies (Road Safety Audit, Warrant Analysis, Safe Routes to School Plan, etc.)		Maps Transit Operator Data Development Studies Regional Planning Study Turning Movement or Traffic Volume Data		Bike/Pedestrian Surveys Project Scope Conceptual Designs		
SUPPI	LEMENTARY INFORMATION	ON -	OPTIONAL				
Commis proposa	note that these questions are not resion (SRPC). Please try to answer the lawer side of the lawer in the lawer the lawer the lawer options or methods have all the best option?	nese q nable	uestions now as they will still need to answer them on your own at th	l to be	e answered as part of the final e, staff at SRPC will assist you.		
	cudy includes multiple alternatives. pment.	most	appropriate alternatives were sele	cted f	or further review and		
How involved has the public been in this project proposal so far? Please describe the extent of public outreach and involvement efforts to date. Town Select Board has approved development of a project at this location.							
What is the anticipated level of further public involvement over the life of this project? Please describe anticipated public outreach and involvement efforts to be conducted in the future for this project. Project will need additional review by select board and NHDOT following engineering review and cost estimates.							
How much of a priority is this in the local plan, regional plan, or recent corridor study? 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).							
	Project is a priority for the town Will the project be managed locally?						
To be o	determined						

Please provide evidence supporting this project.

Please provide any evidence of the project need. For example crash history, turning movement counts, signal warrant analysis, etc. (review list of documents, data sources, plans, guidance, maps, etc. that will serve as a prompt for possible sources of information to bolster the application; please note what and where you are referencing from)

Crash data analysis attached with estimates and design.

Cost Estimate

Please provide any cost estimates that you have at this time for the project. SRPC can assist with developing a cost estimate if one doesn't exist or the town does not have an existing basis from which to prepare an estimate.

	2022 \$	2032 \$ (10 years	inflation at 2.8% annually)
Engineering _	\$60,000	\$79,083	
Right-of-Way	0	0	
Construction	\$154,000	\$202,979	
Structures	0	0	
Capital	0	0	
Operating	0	0	
Total	\$214,000	\$282,062	

What is the source of the above cost estimate?

VHB was hired by SRPC to develop this cost estimate. See attached design and detailed estimate.

Will the town be providing any matching funds? (NHDOT will expect matching funds for certain types of projects; is the town prepared to provide those funds?)

If an LPA project the town would provide the required 20% match.

PROJECT IMPACTS – TO BE COMPLETED BY SRPC

Please review the following list of potential impacts a project might have. Indicate whether the project might present an adverse impact or potential benefit to each resource.

mpact	Benefit	NA	Community Facilities and Resources
		\boxtimes	Parks and recreation areas
			Scenic, historic, and cultural resources
			Municipal services and schools
		\boxtimes	Employment Centers

Impact	Benefit	NA	Transportation Infrastructure
			Transit or public transportation routes or stops
		\boxtimes	Park and Ride facilities
		\boxtimes	Culverts or bridges
		\boxtimes	Signalized intersections
		\boxtimes	Active railroads
		\boxtimes	Freight Corridors
			Other active or planned transportation improvements
Impact	Benefit	NA	Environmental Characteristics
		\boxtimes	Aquifers/groundwater resources
		\boxtimes	Wetlands
		\boxtimes	Surface water bodies
			Flood zones
			Prime farmland
		\boxtimes	Wildlife habitats
		\boxtimes	Species of special concern
		\boxtimes	Riparian habitats
		\boxtimes	Air quality
			Noise
Impact	Benefit	NA	Title VI and Underserved Population Centers
			Low-income
			Minority population
			Senior (65+) population
			Less than a high school diploma
			Children under 18
			Children under 5
			Language isolation
			Households without access to a vehicle
			Disability status
		\boxtimes	Single parent households



To: Colin Lentz – Sr. Transportation Planner Strafford Regional Planning Commission 150 Wakefield Street, Suite 12, Rochester, NH 03867

Project #: 52935.01

From: Gregory L. Bakos Re: On-Call Engineering

Task # 4 – Lee: NH Route 155 / George Bennett Road / Lee Hook Road

Intersections

As requested, VHB has estimated the cost for completing safety related improvements at three intersections within that generally create a triangular roadway system in Lee, New Hampshire. The northern location includes the NH Route 155 (Mast Road) intersection with West Mill Pond Road, the southeastern location includes the NH Route 155 (Mast Road and North River Road) intersection with George Bennett Road and Lee Hook Road and the southwestern location includes the George Bennett Road intersection with West Mill Pond Road and Lee Hill Road. The cost estimate is provided for the SRPC to consider the project for inclusion in the Ten-Year-Plan (TYP). VHB based the costs on the materials provided by the community as well as online data gathering, site review, conceptual designs, and engineering judgement.

Project Purpose and Need

The Town of Lee's stated purpose for this project is to increase safety at the intersection and consolidate redundant connections. This intersection is outdated and overly complex, creating a significant safety hazard. Future Town development and accessibility will be hindered without addressing the intersection.

Existing Conditions

In the area, NH Route 155 is the major traffic roadway and is generally aligned in a north-south direction. VHB observed that traffic on NH Route 155 at West Mill Pond Road and at George Bennett Road/Lee Hook Road is free flowing (no traffic control) and the side street approaches, being stop controlled, have to wait for gaps to enter the NH Route 155 traffic stream, which is the higher volume roadway. A similar condition exists on George Bennett Road which is free flow as it crosses West Mill Pond Road and Lee Hill Road. The safety concerns within the project limits are primarily related to the horizontal and vertical geometries in relation to the impacts on limiting sight distances. NH Route 155 passes through the project partially on a curve, and the George Bennett Road eastbound approach is on a severe skew. Similar conditions exist at the NH Route 155 and West Mill Pond Road intersection. There are currently no sidewalks within the project limits, but the Town of Lee is proposing a shared-use path along the west side of NH Route 155 that would extend almost to this intersection under a separate project.

The Bicycle Level of Traffic Stress (BLTS) within the project limits is moderate stress on NH Route 155 and low stress on the minor approaches according to the SRPC LTS inventory.

Traffic

SRPC provided VHB with preliminary alternatives developed by University of New Hampshire (UNH) students under the supervision of NHDOT officials. As a result of that preliminary evaluation, two alternatives were deemed to be the most viable: (1) three T-junction unsignalized intersections and (2) a four-way unsignalized intersection and a T-type unsignalized intersection. For the UNH three T-junction unsignalized intersections alternative:

Ref: 52935.01 November 3, 2002

Page 2



- > The West Pond Road connection between NH Route 155 and George Bennett Road would be eliminated, and
- > The following three unsignalized intersections would be created:
 - George Bennett Road and Lee Hill Road with the Lee Hill Road northbound approach under STOP-sign control,
 - George Bennett Road and NH Route 155 with the NH Route 155 southbound approach under STOP-sign control, and
 - NH Route 155 and Lee Hook Road with the Lee Hook Road westbound approach under STOP-sign control.

For the UNH four-way unsignalized intersection and a T-type unsignalized intersection:

- > The NH Route 155 connection between West Mill Pond Road and George Bennett Road/Lee Hook Road would be eliminated with vehicles redistributed to West Mill Pond Road,
- > The George Bennett Road intersection with West Mill Pond Road and Lee Hill Road would remain with the West Mill Pond Road southbound and Lee Hill Road northbound approaches staying under STOP-sign control, and
- > NH Route 155, George Bennett Road, and Lee Hook Road would meet at an All-Way Stop-Control (AWSC), T-type unsignalized intersection.

SRPC also provided VHB with October 2022 tuning movement counts in the area for the weekday AM and PM peak periods (7-9 AM and 3-5 PM). VHB adjusted the traffic counts to reflect 2042 design year average-month, prepandemic traffic volumes. VHB evaluated intersection analyses under these two UNH alternatives. The Highway Capacity Manual (HCM) operational results of these alternatives indicated the following:

- > The UNH three T-junction unsignalized intersections alternative would result in long delays along the NH Route 155 southbound approach to the George Bennett Road intersection (weekday AM peak hour = LOS E, weekday PM peak hour = LOS F),
- > The UNH a four-way unsignalized intersection and a T-type unsignalized intersection alternative would result in long delays on the NH Route 155 southbound approach to George Bennett Road and Lee Hook Road intersection (weekday AM and PM peak hours = LOS F)

These long delays are not unexpected as NH Route 155 is the major roadway in the area and carries a heavier vehicular demand than the other roadways. To help improve safety and vehicle progression, the following additional alternatives were evaluated for consideration:

- > Option 1: a three-way intersection at George Bennett Road and Lee Hill Rd and a four-way intersection at NH Route 155, George Bennett Road, and Lee Hook Road:
 - Since NH Route 155 is the major roadway, this alternative is similar to UNH three-way unsignalized intersection and a T-type unsignalized intersection alternative but removes the West Mill Pond Road connection between NH Route 155 and George Bennett Road/Lee Hill Road,
 - George Bennett Road and Lee Hill Road would meet at a T-type intersection with the Lee Hill Road northbound approach under STOP-sign control, and
 - NH Route 155, George Bennett Road, and Lee Hook Road would meet at a four-way unsignalized intersection.
- > Option 2: a roundabout constructed at the NH Route 155 and George Bennett Road intersection and two T-type unsignalized intersections:

Ref: 52935.01 November 3, 2002

Page 3



- Similar to the previous alternative, the West Mill Pond Road connection would be removed between NH Route 155 and George Bennett Road/Lee Hill Road,
- NH Route 155 and George Bennett Road would intersect at a single lane roundabout,
- George Bennett Road and Lee Hill Road would meet at a T-type intersection with the Lee Hill Road northbound approach under STOP-sign control and with left turns restricted from Lee Hill Road onto George Bennett Road westbound, and
- NH Route 155 and Lee Hook Road would meet at a T-type intersection with the Lee Hook Road westbound approach under STOP-sign control.

The HCM results suggest that Option 1 would result in LOS A/B operations during the weekday AM and PM peak hours with the NH Route 155, George Bennett Road, and Lee Hook Road intersection placed under AWSC (i.e., all approaches under STOP-sign control). Similarly, Option 2 would result in LOS A/B operations during the weekday AM and PM peak hours.

Proposed Improvements

Following is a description of the proposed improvements that are the basis for the included cost estimate. Also see the attached schematic plans. Two alternatives were considered as follows.

OPTION-1: Eliminate the West Mill Pond Road Connection

The proposed improvements include eliminating the West Mill Pond Road vehicular connection between NH Route 155 and George Bennett Road. Traffic that would use this connection would be diverted to the NH Route 155 / George Bennett Road / Lee Hook Road intersection, which would be converted to 4-way stop control.

The removal of the West Mill Pond Road connection would provide an opportunity to easily include a sidewalk in place of the roadway. This would help extend pedestrian access from the Town's future shred-use path that will end at the Library. The amount of construction required under this alternative is relatively minor.

OPTION-2: Single Lane Roundabout

The single lane roundabout alternative provides a higher level of safety improvement for motorists since the design would slow vehicle speeds and address existing sight line and skewed geometry concerns. The roundabout also has the potential to become a recognizable and easy to use landmark for the Town.

The single lane roundabout option would be considerably more costly than Option 1 and there are grading concerns that would need to be addressed during the design phase. Specifically, NH Route 155 is higher than George Bennett Road and the roundabout would therefore be tilted to one side. Roundabouts may be constructed on grades of up to 4 percent but the concern is identified here since there could be added cost to construct the roundabout within more desirable parameters.

Other Considerations

The following information is provided for context and to help assess the challenges and readiness of this proposed project.

Ref: 52935.01 November 3, 2002

Page 4



Right-of-Way

Neither option appears to result in permanent property impacts.

Natural Resources

The environmental considerations within this project are expected to be minimal since the area appears to be free of regulated natural resource areas. Cultural resources may be a concern since the adjacent properties may be considered historic and there is a possibility that the center of the existing triangle has historic significance, although there is no obvious evidence of such.

If federal funds are used, the project will still need to complete National Environmental Policy Act (NEPA) documentation which will include a wide range of natural and cultural resource documentation.

Estimated Project Costs

Based on the above discussions and the attached concept plans, VHB developed program level estimates of probable cost broken out by primary components as shown on the attached spreadsheets.

Estimated Costs

Major construction items are described as follows. The Option 2 roundabout construction will require full depth pavement construction, truck apron construction, granite curbing, landscaping, and earthwork. The pavement construction consisting of 6 inches of bituminous pavement over 24 inches of crushed stone base course. The medians include a 4-inch concrete walk surface and 12 inches of a crushed stone base. The truck apron includes an 8-inch concrete surface over 24 inches of a crushed stone base. Drainage system costs are estimated based on the number of catch basins and connecting pipe to connect to existing systems. See the attached conceptual cost estimates for a detailed list of items and quantities. Option 1 by contrast will primarily include pavement excavation, loam and seeding, and sidewalk construction.

Design and Permitting Costs

The project will be assumed to advance as a Local Public Agency (LPA) project administered locally and following the prescribed LPA project development process with NHDOT oversight. This process is significant since there are cost implications. In determining the design phase costs, VHB applied 'rule-of-thumb' percentages adjusted for the anticipated permitting or other complexities as well as the scale of the project. Smaller projects such as Option 1 typically have much higher design costs as a percentage of the construction costs.

Proposed Improvements:	PE	ROW	Construction	<u>Totals</u>
Option 1: Eliminate W. Mill Pond Rd	\$50,000	\$ 0	\$154,000	\$214,000
Option 2: Roundabout	\$180,000	\$20,000	\$909,000	\$1,109,000

This option was not selected

CONSTRUCTION COST ESTIMATE

PROJECT : Strafford Regional Planning Commission TYP Project Candidates

LOCATION: LEE NH 155A/MAIN STREET/MAST ROAD INTERSECTION - ALTERNATIVE 3B

VHB PROJECT NO. 52935.01

TYPE: Program Level Conceptual Estimate

	ITEM DESCRIPTION	UNIT		UNIT PRICE	QUANTITY	TOTAL COST
203.1	COMMON EXCAVATION	CY	\$	18.00	220	\$3,960
304.4	CRUSHED STONE (FINE GRADATION) (F)	CY	\$	40.00	70	\$2,806
403.11	HOT BITUMINOUS PAVEMENT - MACHINE METHOD	TON	\$	120.00	25	\$3,000
608.13	3" BITUMINOUS SIDEWALK (F)	SY	\$	70.00	210	\$14,731
609.01	STRAIGHT GRANITE CURB	LF	\$	45.00	50	\$2,250
615.0301	TRAFFIC SIGN TYPE C	SF	\$	90.00	40	\$3,600
618.61	UNIFORMED OFFICERS W/ VEHICLE	HR	\$	75.00	160	\$12,000
618.7	FLAGGERS	HR	\$	40.00	200	\$8,000
619.1	MAINTENANCE OF TRAFFIC	UNIT	\$	10,000.00	1	\$10,000
619.253	PORTABLE CHANGEABLE MESSAGE SIGN (UNIT WEEK)	UWK	\$	600.00	48	\$28,800
628.2	SAWED BITUMINOUS PAVEMENT	LF	\$	4.00	300	\$1,200
646.51	TURF ESTABLISHMENT WITH MULCH, TACKIFIERS AND LOAM	SY	\$	5.00	600	\$3,000
692	MOBILIZATION		\$	20,000.00	1	\$20,000
698.13	FIELD OFFICE TYPE C	MON	\$	1,800.00	0	\$0
699	MISCELLANEOUS TEMPORARY EROSION AND SEDIMENT CONTROL	\$	\$	1,000.00	1	\$1,000
	SUBTOTAL					\$114,347
			MISC	ELLANEOU	S ITEMS (15%)	\$17,152
				CONTING	ENCIES (20%)	\$22,869
					SUBTOTAL:	\$154,369
		TOTAL EST	IMAT	ED CONSTR	UCTION COST	\$154,000
				ENGI	NEERING (PE)	\$50,000
					ROW	\$0
	CONSTRUCT	ION ENGINEER	ING, II	NSPECTION	AND TESTING	\$10,000
			EST	IMATED PRO	DJECT TOTAL:	\$214,000

CONSTRUCTION COST ESTIMATE

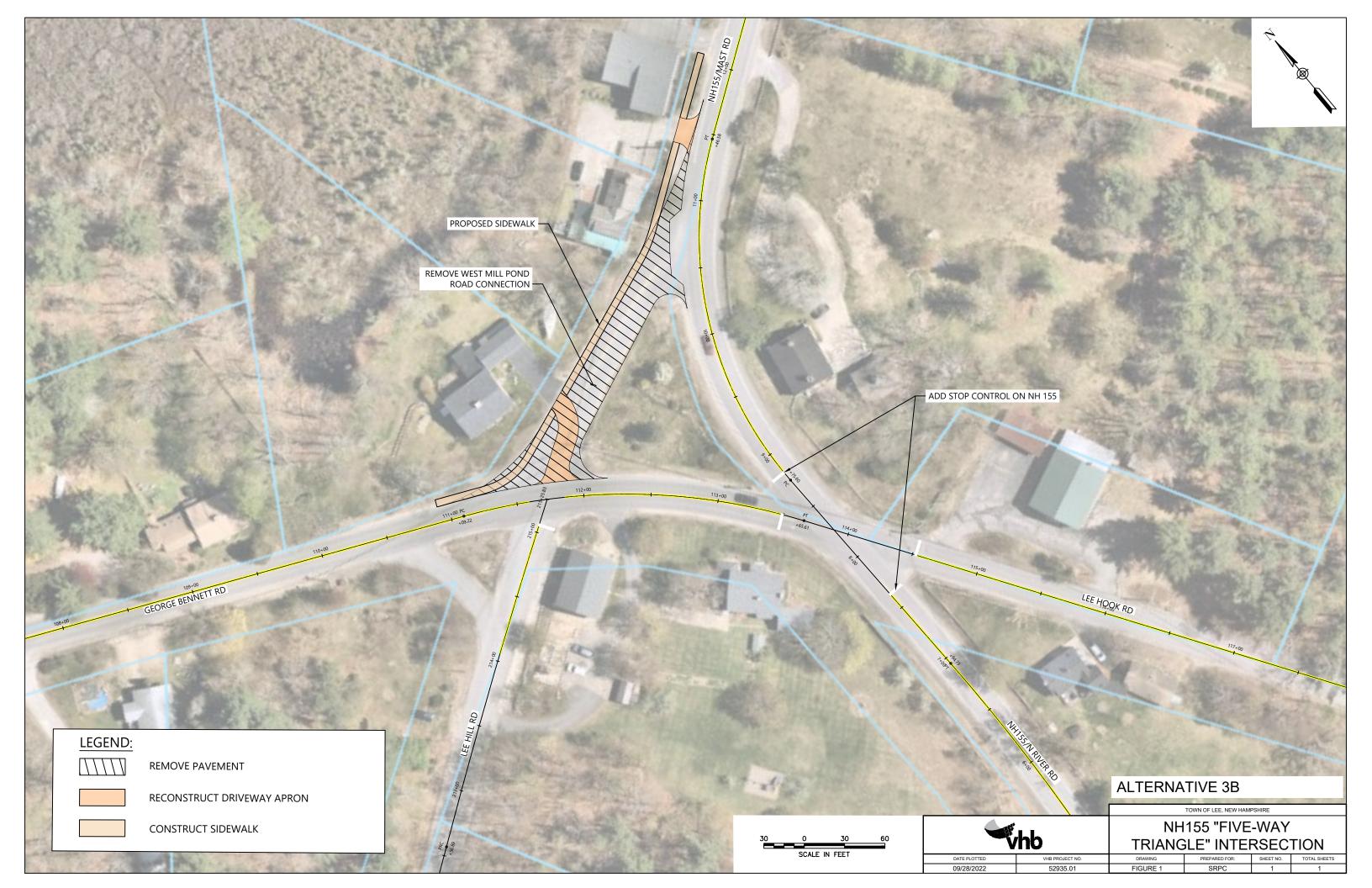
PROJECT : Strafford Regional Planning Commission TYP Project Candidates

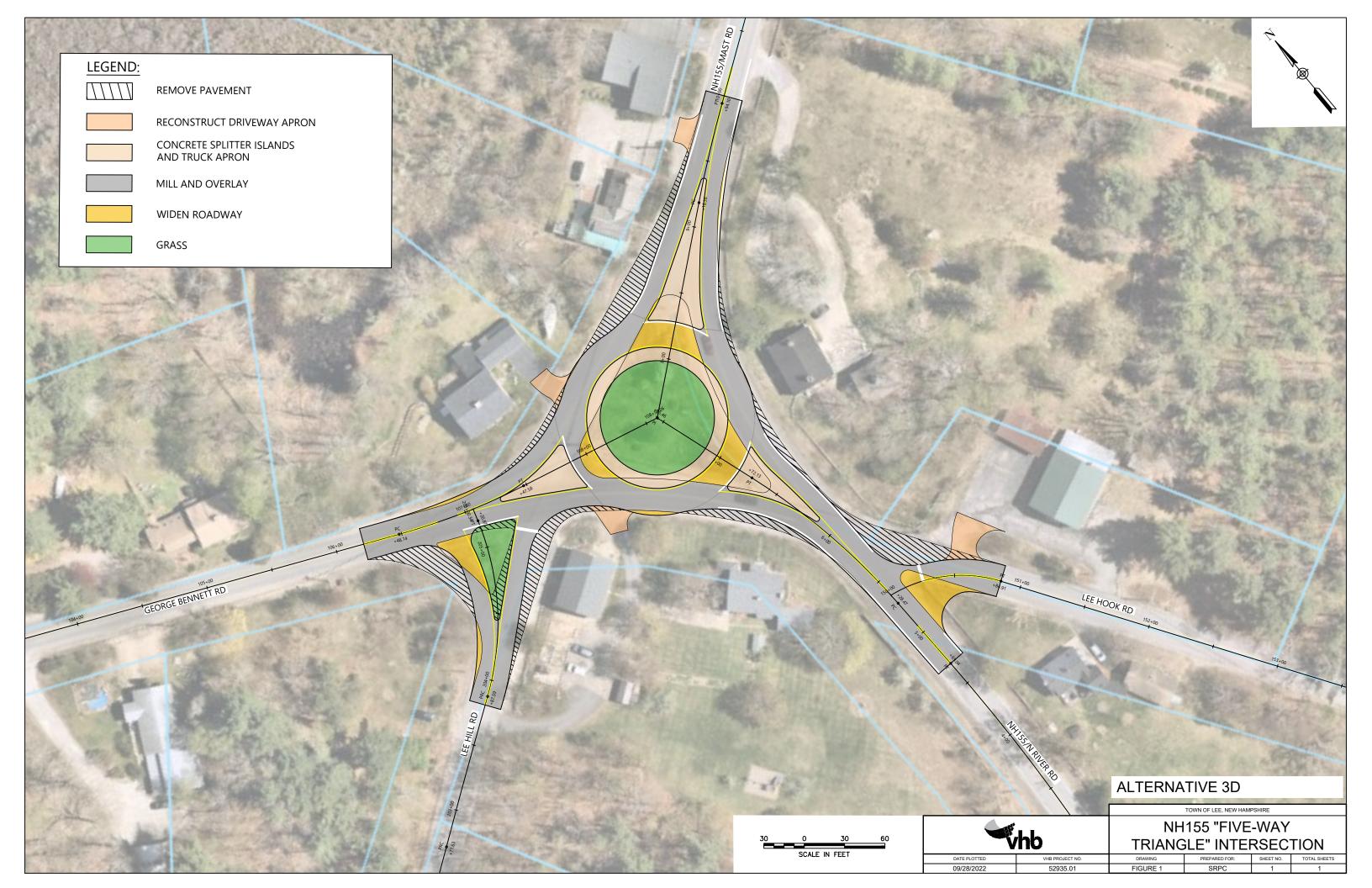
LOCATION: LEE NH 155A/MAIN STREET/MAST ROAD INTERSECTION - ALTERNATIVE 3D

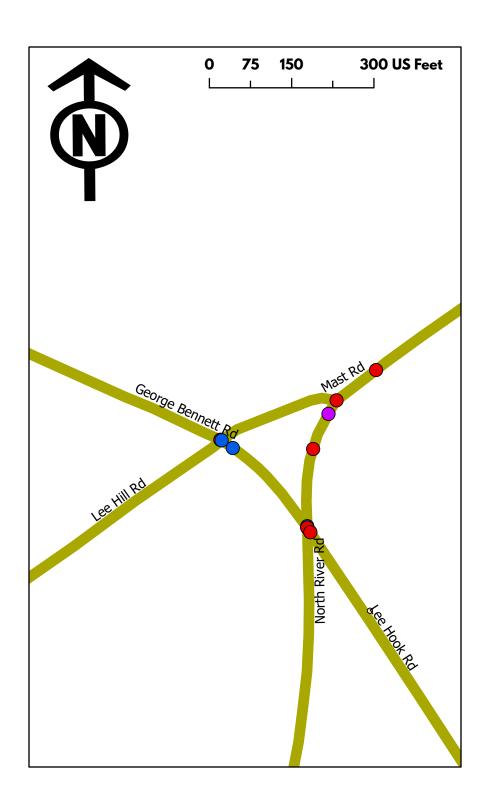
VHB PROJECT NO. 52935.01

TYPE: Program Level Conceptual Estimate

	ITEM DESCRIPTION			UNIT	QUANTITY	TOTAL COST			
200.4	COLUMN TYPE WATER	611		PRICE	000	*			
203.1	COMMON EXCAVATION	CY	\$	18.00	660	\$11,880			
304.4	CRUSHED STONE (FINE GRADATION) (F)	CY	\$	40.00	160	\$6,400			
304.5	CRUSHED STONE (COURSE GRADATION) (F)	CY	\$	40.00	500	\$20,000			
403.11	HOT BITUMINOUS PAVEMENT - MACHINE METHOD	TON	\$	120.00	550	\$66,000			
403.12	HOT BITUMINOUS PAVEMENT - HAND METHOD	TON	\$	150.00	50	\$7,500			
403.99	TEMPORARY BITUMINOUS PAVEMENT	TON	\$	110.00	50	\$5,500			
417	COLD PLANING BITUMINOUS SURFACES	SY	\$	5.00	2200	\$11,000			
603.00215	15" R.C. PIPE, 2000D	LF	\$	80.00	400	\$32,000			
604.0007	POLYETHELENE LINER	EA	\$	350.00	4	\$1,400			
604.124	CATCH BASINS TYPE B, 4-FOOT DIAMETER	UNIT	\$	4,000.00	4	\$16,000			
604.4	RECONSTRUCTING/ADJUSTING CATCH BASIN & DROP INLET	LF	\$	400.00		\$0			
604.324	DRAINAGE MANHOLES, 4 FT DIAMETER	U	\$	4,000.00	2	\$8,000			
607.5140	WOOD FENCE (STOCKADE), 4'-0" HIGH	LF	\$	50.00	20	\$1,000			
608.24	4" CONCRETE SIDEWALK (F)	SY	\$	80.00	480	\$38,400			
608.38	8" REINFORCED CONCRETE SIDEWALK (F)	SY	\$	220.00	330	\$72,600			
609.01	STRAIGHT GRANITE CURB	LF	\$	45.00	840	\$37,800			
609.01123	STRAIGHT GRANITE CURB, 12" HIGH WITH 3"X3" MOUNTABLE BEVELED EDGE	LF	\$	70.00	330	\$23,100			
609.02	CURVED GRANITE CURB	LF	\$	50.00	20	\$1,000			
615.0301	TRAFFIC SIGN TYPE C	SF	\$	90.00	100	\$9,000			
618.61	UNIFORMED OFFICERS W/ VEHICLE	HR	\$	75.00	320	\$24,000			
618.7	FLAGGERS	HR	\$	40.00	1280	\$51,200			
619.1	MAINTENANCE OF TRAFFIC	UNIT	\$	50,000.00	1	\$50,000			
619.253	PORTABLE CHANGEABLE MESSAGE SIGN (UNIT WEEK)	UWK	\$	600.00	48	\$28,800			
625.525	STREET LIGHTS INCLUDING POLES, FOUNDATIONS AND LUMINAIRES	EA	\$	8,000.00	6	\$48,000			
628.2	SAWED BITUMINOUS PAVEMENT	LF	\$	4.00	1920	\$7,680			
646.51	TURF ESTABLISHMENT WITH MULCH, TACKIFIERS AND LOAM	SY	\$	5.00	840	\$4,200			
650.2	LANDSCAPING	U	\$	20,000.00	1	\$20,000			
692	MOBILIZATION	UNIT	\$	30,000.00	1	\$30,000			
698.13	FIELD OFFICE TYPE C	MON	\$	1,800.00	6	\$10,800			
699	MISCELLANEOUS TEMPORARY EROSION AND SEDIMENT CONTROL	\$	\$	2,000.00	1	\$2,000			
				,					
	SUBTOTAL					\$645,260			
			MISC	ELL ANEOUS	S ITEMS (10%)	\$64,526			
			WIISC		ENCIES (20%)	\$129,052			
				00111110	SUBTOTAL:	\$838,838			
						\$839,000			
TOTAL ESTIMATED CONSTRUCTION COST									
ENGINEERING (PE)									
ROW									
	CONSTRUCTION	ENGINEERII	NG, II	NSPECTION .	AND TESTING	\$70,000			
ESTIMATED PROJECT TOTAL:									







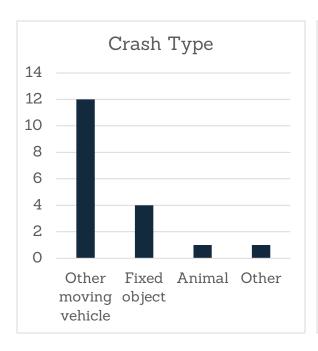


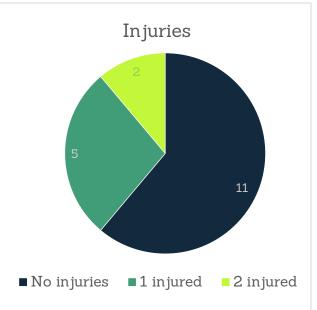
Lee Priority Project: NH 155

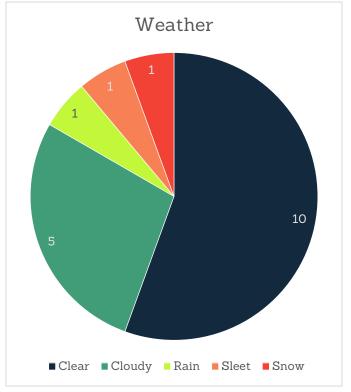
"Lee Five-Way"; "Triangle" improvements

Incidents 2010-2020

- Non-incapacitating
- No apparent Injury
 - Suspected minor injury
- Unknown
- Possible serious injury (0)
- Fatalities (0)
- Incident type not reported (0)



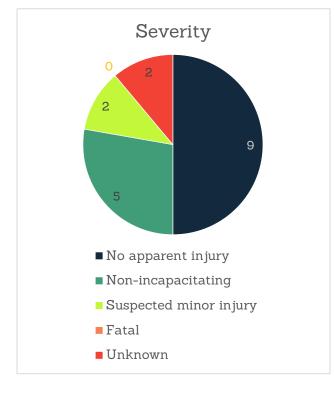


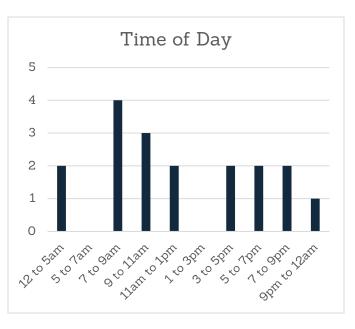


Reported number of incidents 2010 - 2020 18

Jan	4
Feb	2
Mar	1
Apr	2
May	1
Jun	2
Jul	0
Aug	1
Sep	0
Oct	3
Nov	2
Dec	0

0
2
0
5
4
3
4





SRPC TRANSPORTATION PROJECT PROPOSAL FORM

CONTACT INFORMATION - REQUIRED Full Name Municipality Katrin Kasper Lee **Email** kkasper@leenh.org **Affiliation** Select Board **Phone Number** (603) 659-5414 **Title Position** Select Board Member TRANSPORTATION PROJECT INFORMATION - REQUIRED Name/Title of Project Town Center Bike/Ped path Please select the project type(s): **Highway Improvements** (operational Planning Studies (road diets, corridor studies, improvements, access management, intelligent network studies, pedestrian/cyclist safety transportation systems, widening, technology studies) operation improvements) **Asset Management** (bridge rehabilitation, bridge Infrastructure-related Travel Demand replacement, pavement repair/replacement) Management (park & ride lots, transit or HOV lanes, priority signalization, bus shelters, intermodal transportation centers) M **Bicycle and Pedestrian Improvements** (sidewalks, bike trails, multi-use paths, traffic calming improvements) Please provide a reference photo of the project location. (e.g. Google Maps/Earth) See attached estimate Where is this project located? (road names, nearby facilities/landmarks) City/Town Lee NH155 Road From Town Hall/Library Recycling Center Rd To What is the size of this project? (please provide approximate measurements in 10th of a mile; you can use Google Maps measuring tool to estimate distances) 2,100 feet

February 2022

Where can support for this project be found? (Plan titles/names and the applicable section(s), who would provide letters of support, people involved in this project, etc.)
project is supported by the town Select board and is included in the Strafford MPO Metro Plan
Please provide any additional information about this project. (local knowledge/insight, relevant studies/data, infrastructure needs, etc.) This intersection is currently stop controlled on the NH155A and Mast Rd legs. It consists of two state-owned legs and two town-owned legs. Wetlands present in southeast quadrant.
two town owned regar wettands present in southeast quadrant.
PURPOSE, NEED, AND SCOPE - REQUIRED
Please provide the Purpose Statement for this project. What problem(s) is the proposal addressing? ex: "The purpose of this project is to support increased non-motorized activity by addressing safety issues resulting from unsafe vehicle speeds and inadequate protections for pedestrians on Main Street between 1st and 2nd Street."
The purpose of this project is to create a dedicated non-motorized path connecting destinations concentrated in the town center.
Please provide the Need Statement for this project. ex: "The section of Main St between 1st Street and 2nd Street is unsafe for pedestrians. This section is in the center of the city's commercial district concentrated with jobs and small businesses. In the past 5 years there have 15 crashes in this section of Main St: two resulted in serious injuries to pedestrians and one resulted in a pedestrian fatality. Continued local economic development depends on increased walkability and safety for pedestrians." _ Dedicated non-motorized facility is needed to connect major destinations in the town center. Town hall and library complex is being renovated and proposed path route connects to Mast Way Elementary School; students regularly visit the town library. Full proposed path would connect to recreation sites and transfer station on Recycling Center Rd.
Please outline the project scope. ex: "Install pedestrian crossings on Main Street at 1st and 2nd street intersections and at mid-block, including pedestrian refuge medians, other streetscaping and traffic calming infrastructure."
Construct 10ft wide separated shared-use path along southwest-bound lane of NH155
SUBMISSION - REQUIRED
Please return this form to Colin Lentz at Strafford Regional Planning Commission, clentz@strafford.org . Please attach relevant EXCERPTS of any supporting documents, maps, cost estimates, and data along with this form.
Please check what supporting documents that you have attached:
☐ Local Plans/Master Plans ☐ Maps ☐ Bike/Pedestrian Surveys

	Cost Estimate Local Police Crash Data Corridor Study Special Studies (Road Safety Audit, Warrant Analysis, Safe Routes to School Plan, etc.)		Transit Operator Data Development Studies Regional Planning Study Turning Movement or Traffic Volume Data		Project Scope Conceptual Designs
SUPPI	LEMENTARY INFORMATI	ON -	- OPTIONAL		
Commiss proposa What a	sion (SRPC). Please try to answer th I submission. However, if you are u	nese d nable	d to make an initial submission to S juestions now as they will still need to answer them on your own at the en considered to address this prob	to be is tim	e answered as part of the final e, staff at SRPC will assist you.
	ansportation Alternatives Program	would	d be an excellent alternative funding	g sour	rce. This has been proposed to
Please Project		ach a board	• •	_	•
Plan.	., , . , . ,				
			involvement over the life of this portion of the conduction of the	-	
This pr	oject will likely require additional lo	ocal re	eview.		
Is the p	• •	local	, regional plan, or recent corridor so or regional plan (e.g. local master pertinent section of the plan(s).	•	
This pr	oject is supported by the town sele	ct bo	ard and the local master plan.		
Will th	e project be managed locally?				
Voc					

Please provide evidence supporting this project.

Please provide any evidence of the project need. For example crash history, turning movement counts, signal warrant analysis, etc. (review list of documents, data sources, plans, guidance, maps, etc. that will serve as a prompt for possible sources of information to bolster the application; please note what and where you are referencing from)

February 2022

Crash data analysis attached with estimates and design
--

Cost Estimate

Please provide any cost estimates that you have at this time for the project. SRPC can assist with developing a cost estimate if one doesn't exist or the town does not have an existing basis from which to prepare an estimate.

	2022 \$	2032 \$ (10 years	inflation at 2.8% annually)
Engineering	\$90,000	\$118,624	
Right-of-Way	\$10,000	\$13,180	
Construction	\$479,000	\$631,345	
Structures	0	0	
Capital	0	0	
Operating	0	0	
Total	\$579,000	\$763,149	

What is the source of the above cost estimate?

VHB was hired by SRPC to develop this cost estimate. See attached design and detailed estimate.

Will the town be providing any matching funds? (NHDOT will expect matching funds for certain types of projects; is the town prepared to provide those funds?)

If an LPA project the town would provide the required 20% match.

PROJECT IMPACTS - TO BE COMPLETED BY SRPC

Please review the following list of potential impacts a project might have. Indicate whether the project might present an adverse impact or potential benefit to each resource.

Impact	Benefit	NA	Community Facilities and Resources	
	\boxtimes		Parks and recreation areas	
	\boxtimes		Scenic, historic, and cultural resources	
	\boxtimes		Municipal services and schools	
	\boxtimes		Employment Centers	
Impact	Benefit	NA	Transportation Infrastructure	
		\boxtimes	Transit or public transportation routes or stops	
		\boxtimes	Park and Ride facilities	
		\boxtimes	Culverts or bridges	

		\boxtimes	Signalized intersections
		\boxtimes	Active railroads
		\boxtimes	Freight Corridors
		\boxtimes	Other active or planned transportation improvements
Impact	Benefit	NA	Environmental Characteristics
		\boxtimes	Aquifers/groundwater resources
		\boxtimes	Wetlands
		\boxtimes	Surface water bodies
		\boxtimes	Flood zones
		\boxtimes	Prime farmland
		\boxtimes	Wildlife habitats
		\boxtimes	Species of special concern
		\boxtimes	Riparian habitats
			Air quality
		\boxtimes	Noise
			Noise
☐ Impact	Benefit	NA NA	Noise Title VI and Underserved Population Centers
Impact	Benefit		
Impact	Benefit	NA	Title VI and Underserved Population Centers
Impact	Benefit	NA	Title VI and Underserved Population Centers Low-income
Impact	Benefit	NA	Title VI and Underserved Population Centers Low-income Minority population
Impact	Benefit	NA	Title VI and Underserved Population Centers Low-income Minority population Senior (65+) population
Impact		NA	Title VI and Underserved Population Centers Low-income Minority population Senior (65+) population Less than a high school diploma
Impact		NA	Title VI and Underserved Population Centers Low-income Minority population Senior (65+) population Less than a high school diploma Children under 18
Impact		NA	Title VI and Underserved Population Centers Low-income Minority population Senior (65+) population Less than a high school diploma Children under 18 Children under 5
Impact		NA	Title VI and Underserved Population Centers Low-income Minority population Senior (65+) population Less than a high school diploma Children under 18 Children under 5 Language isolation
Impact		NA	Title VI and Underserved Population Centers Low-income Minority population Senior (65+) population Less than a high school diploma Children under 18 Children under 5 Language isolation Households without access to a vehicle

Attach a detailed map showing the proposal location and surroundings. Include any pertinent data for identified impacts or benefits.



To: Colin Lentz – Sr. Transportation Planner Strafford Regional Planning Commission 150 Wakefield Street, Suite 12, Rochester, NH 03867

Project #: 52935.01

From: Gregory L. Bakos Re: On-Call Engineering

Task # 5 – Lee: NH155 Town Center Shared Use Path

As requested, VHB has estimated the cost for completing pedestrian related improvements along an in-town segment of NH155 (Mast Road) in Lee. The cost estimate is provided for the SRPC to consider the project for inclusion in the Ten-Year-Plan (TYP). VHB based the costs on the materials provided by the community as well as online data gathering, conceptual designs and engineering judgement.

Project Purpose and Need

The Town's stated purpose for this project is to create a dedicated non-motorized path connecting destinations concentrated in the town center. A dedicated non-motorized facility is needed to connect major destinations in the town center. Town hall and library complex is being renovated and the proposed path route connects to Mast Way Elementary School. Students regularly visit the town library. The full proposed path would connect to recreation sites and transfer station on Recycling Center Rd.

The town reports that there have been four vehicle crashes within the project limits from 2010 to 2020 and none of those included incapacitating injuries. Accident history aside, there are eight active driveways on the north side of Mast Road within the approximately 2,000-foot-long project limits. Each of these represent potential conflict points between motor vehicles and bikes or pedestrians.

The Bicycle Level of Traffic Stress (BLTS) for the subject section of Mast Road is listed as LTS 3 – Moderate Stress according to the SRPC LTS inventory. This means the project area is suitable for those who ride regularly. School children do not fit this description. Mast Road is approximately 26-feet wide within the project limits including narrow striped shoulders, which means bicyclists share the road with motor vehicles and pedestrians typically walk off to the side in the gravel or grass shoulders. Traffic volumes are relatively low at 1,226 per NHDOT's Roads and projects website. The posted speed is 30 MPH and 20 MPH within the school zone when signs are flashing.

Please Refer to Lee's project proposal which includes additional documentation on the Purpose and Need and the benefits that these improvements will bring to the community.

Existing Conditions

Construct a 10-foot-wide separated shared-use path along the northwest side of NH155 between the Town hall and library site and a point east of Recycling Center Road at the Town Garage. The total length of improvements will be approximately 2,000 feet.

Proposed Improvements

Following is a description of the proposed improvements that are the basis for the included cost estimate. Also see the attached schematic plans.

Colin Lentz – Sr. Transportation Planner

Ref: 52935.01 November 3, 2002

Page 2



Shared Use Path

The proposed 10-foot-wide paved path will be offset from the existing roadway by a minimum of 5-feet where attainable. This separation provides recovery room for bicyclists that go off the path and it also provides recovery room for errant motor vehicles. The buffer will also provide space for winter snow storage, a place for roadside signs, and it will be vegetated. It is assumed that the path will not be curbed.

Stormwater

Stormwater is a significant consideration for this project since roadway runoff currently sheets off the roadway and into the grass, wooded or paved areas adjacent to the road. It is not desirable to allow roadway runoff to run over the proposed paved path since it could introduce sediment onto the path in the summer and icing conditions in the winter. It is therefore preferred to collect the runoff within the grass buffer and distribute it to discharge points. One thing that is working against this approach is that the roadway appears to be very flat within the project limits. This makes it more difficult to convey the collected water over appreciable distances in any one direction. Another factor is that there do not appear to be low areas adjacent to the roadway in convenient locations. Lastly, some discharge points would likely fall on private property.

The accompanying concept plans show one potential stormwater discharge point on Lee Congregational Church property. The attached cost estimate includes costs for drop inlets and drainage pipe to convey water to that area. It may alternatively be possible to construct gravel wetlands and/or infiltration areas in the vegetated areas between the path and the road or outside the path. Stormwater collection, treatment and disposal will require further study during preliminary engineering to determine where the drainage outfalls will be, whether it is possible to construct systems that will convey the water the required distances, and what feasible alternatives may be available. As a result of the uncertainty about the stormwater design solutions the cost estimate for this project includes assumptions and a stormwater allowance.

Other Considerations

The following information is provided for context and to help assess the challenges and readiness of this proposed project.

Right-of-Way

It is difficult to say with certainty, given that the existing right-of-way is GIS based, whether there will be significant permanent right-of-way impacts to accommodate the path, but it appears that the majority of the proposed work will fit within the existing Town right-of-way. An exception may be stormwater discharge and treatment features that would require drainage easements. Temporary construction easements may also be required for grading and to provide the contractor access to the work. A nominal cost is carried in the cost estimate for right-of-way. If large stormwater features are required outside of the public right-of-way on private property the costs may increase.

Natural Resources

The environmental considerations within this segment will be mostly centered around stormwater outfalls and/or any slope impacts in wetlands. The area appears relatively free of potential regulated natural resource areas.

Colin Lentz – Sr. Transportation Planner

Ref: 52935.01 November 3, 2002

Page 3



If federal funds are used the project will need to complete NEPA documentation that will include a wide range of natural and cultural resource documentation.

Estimated Project Costs

Based on the above discussions and the attached concept plans, VHB developed program level estimates of probable cost broken out by primary components as shown on the attached spreadsheets.

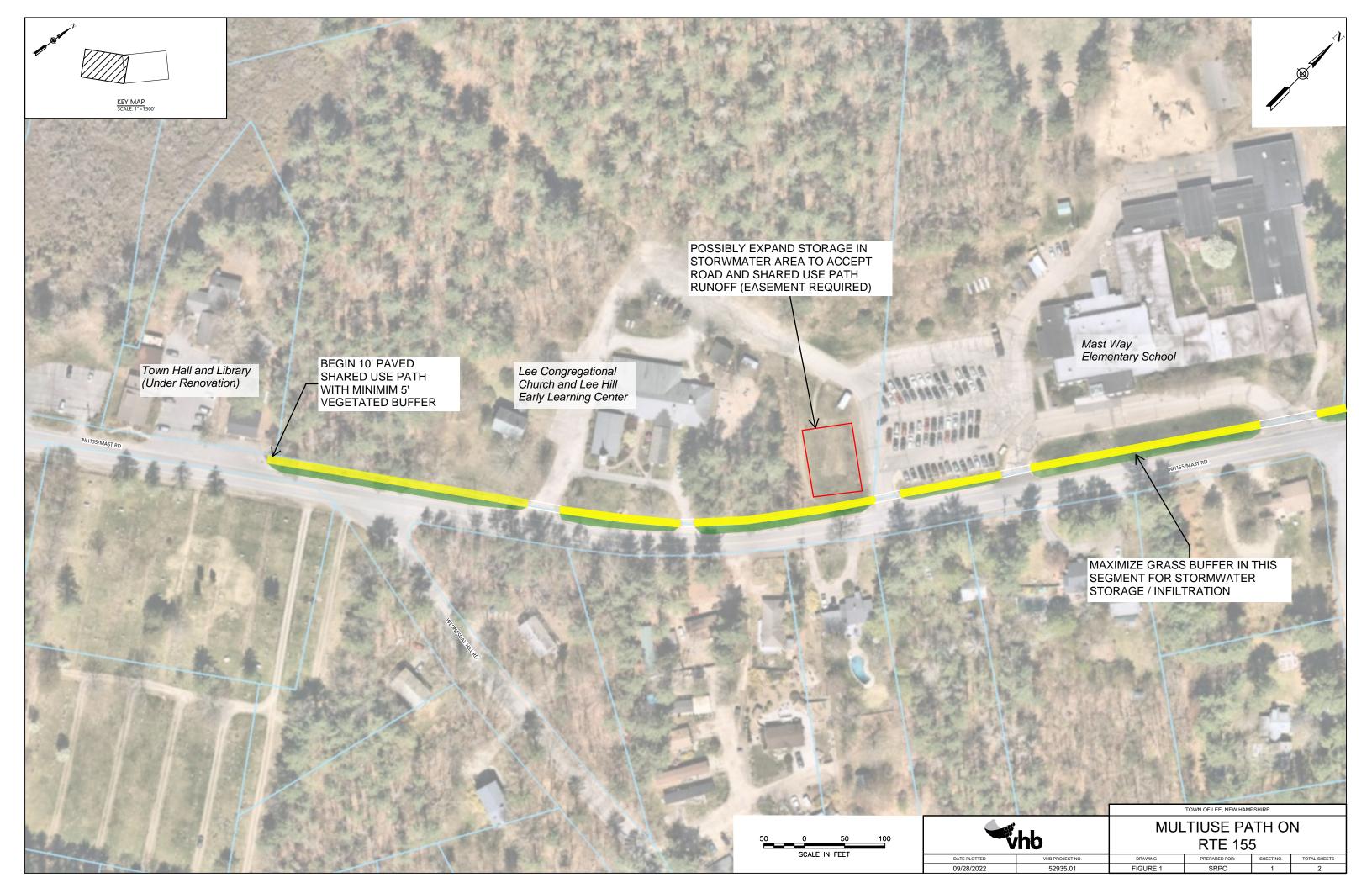
Estimated Shared Use Path Costs

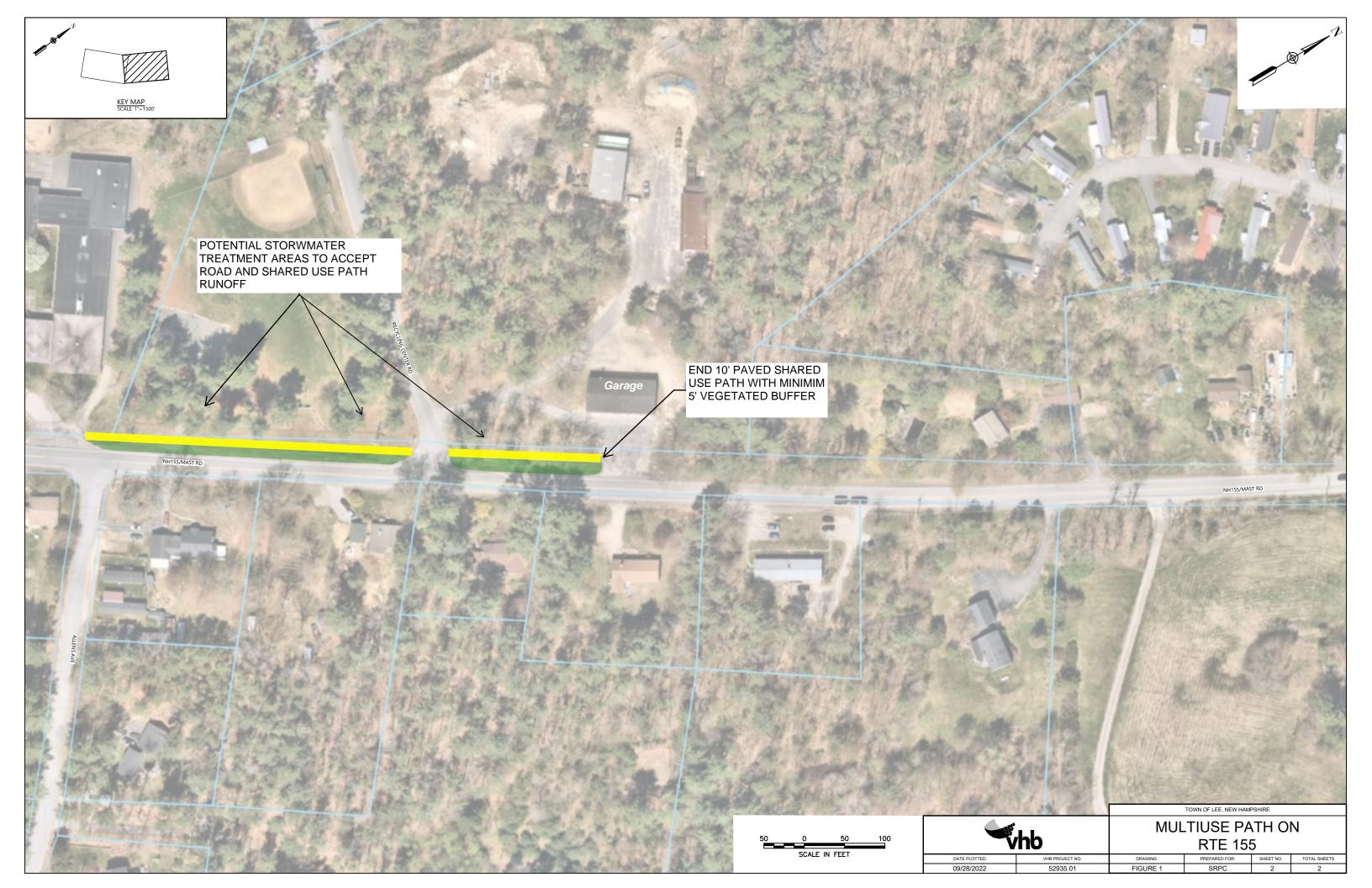
The paved path construction is assumed to be relatively straight forward. The primary costs will be for clearing, grading, compacting and applying the crushed stone base, and paving the 10-fot wide path. The work will also include standard erosion control measures along its length. The cost estimate includes a cost for pedestrian scale street lighting along the path.

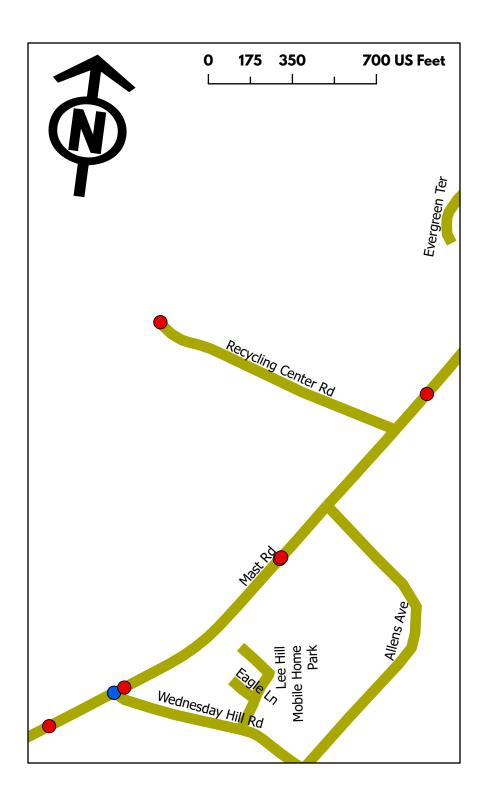
The path construction will likely necessitate the installation of drainage infrastructure as noted above. The cost estimate includes an estimated number of drainage structures and pipe and associated outfalls.

Design and Permitting Costs

It is assumed that the project will be advanced as a Local Public Agency (LPA) project administered locally and following the prescribed LPA project development process with NHDOT oversight. This is significant since the process has cost implications. In determining the design phase costs VHB applied rule of thumb percentages adjusted for the anticipated permitting or other complexities such as stormwater analysis and design.









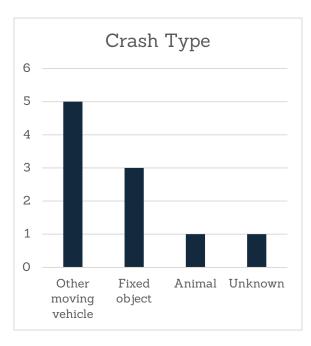
Lee Priority Project: NH 155

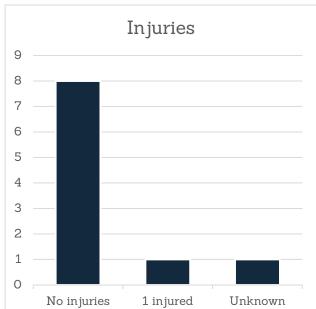
Proposed shared-use path

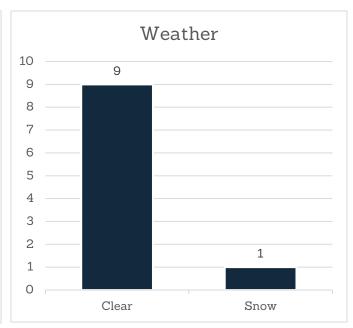
Incidents 2010-2020

- No apparent Injury
- Non-incapacitating
- Incapacitating (0)

- Possible serious injury (0)
- Fatalities (0)
- Incident type not reported (0)
- Unknown (0)



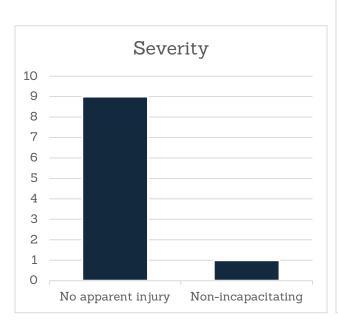


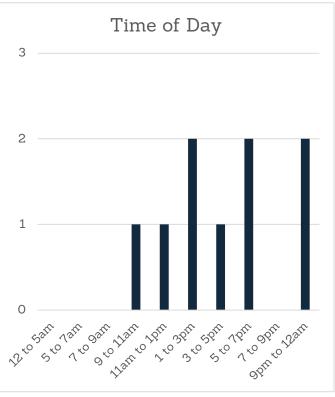


Reported number of incidents 2010 - 2020 10

Jan	3
Feb	1
Mar	0
Apr	1
May	1
Jun	1
Jul	0
Aug	2
0	
Sep	0
Oct	0
-	0 0 1

Mon	2
Tues	3
Wed	1
Thurs	2
Fri	1
Sat	1
Sun	0





SRPC TRANSPORTATION PROJECT PROPOSAL FORM

CONTACT INFORMATION - REQUIRED Full Name Michael J. Bobinsky Municipality City of Somersworth **Email** mbobinsky@somersworth.com **Affiliation** City of Somersworth **Phone Number** (603) 692-4266 **Title Position** Director of Public Works and Utilities TRANSPORTATION PROJECT INFORMATION - REQUIRED Name/Title of Project Intersection safety improvements at W. High, Maple Street and Sunset Drive Please select the project type(s): **Highway Improvements** (operational **Planning Studies** (road diets, corridor studies, improvements, access management, intelligent network studies, pedestrian/cyclist safety transportation systems, widening, technology studies) operation improvements) **Asset Management** (bridge rehabilitation, bridge Infrastructure-related Travel Demand replacement, pavement repair/replacement) Management (park & ride lots, transit or HOV lanes, priority signalization, bus shelters, intermodal transportation centers)

Please provide a reference photo of the project location. (e.g. Google Maps/Earth)

See attached estimate

M

Where is this project located? (road names, nearby facilities/landmarks)

Bicycle and Pedestrian Improvements

calming improvements)

(sidewalks, bike trails, multi-use paths, traffic

City/Town Somersworth

Road West High St (NH236)/Maple St/Sunset Dr

From Intersection

To Intersection

What is the size of this project? (please provide approximate measurements in 10th of a mile; you can use Google Maps measuring tool to estimate distances)

Intesection		

Where can support for this project be found? (Plan titles/names and the applicable section(s), who would provide letters of support, people involved in this project, etc.)

Project was prioritized by municipal staff and is included in the SRPC Metro Plan

Please provide any additional information about this project. (local knowledge/insight, relevant studies/data, infrastructure needs, etc.)

City Police and staff have led past efforts to seek FHWA -NHDOT sponsored safety audit funds to evaluate current conditions and develop recommendations for improvement. While not meeting all criteria to be eligible for safety audit funding, City officials continue to support the need for improvements to this intersection to reduce accident potential and improve safety for all modes of transportation in this area. In addition, staff has looked at other pedestrian crosswalk layout features during annual re- painting of pavement markings to include the possibility of island refuge in W. High Street and or bump outs to reduce the length of the crossing while adding traffic calming elements on W. High Street.

PURPOSE, NEED, AND SCOPE - REQUIRED

Please provide the Purpose Statement for this project. What problem(s) is the proposal addressing? ex: "The purpose of this project is to support increased non-motorized activity by addressing safety issues resulting from unsafe vehicle speeds and inadequate protections for pedestrians on Main Street between 1st and 2nd Street."

The purpose of this project is to address safety concerns for motorists, pedestrians, and cyclist at this off-set 3-legged intersection, located at W. High Street, Maple Street and Sunset Drive.

Please provide the Need Statement for this project.

ex: "The section of Main St between 1st Street and 2nd Street is unsafe for pedestrians. This section is in the center of the city's commercial district concentrated with jobs and small businesses. In the past 5 years there have 15 crashes in this section of Main St: two resulted in serious injuries to pedestrians and one resulted in a pedestrian fatality. Continued local economic development depends on increased walkability and safety for pedestrians." _

This intersection is unsafe due to 2 adjacent streets (Maple St and Sunset Drive) immediately next to each other connecting to W. High Street, along with opposite leg of Maple Street. As a result of current layout, it is difficult for motorists, pedestrians or cyclists to adequately view traffic approaching from the west or east on W. High Street. This intersection also sees a steady volume of pedestrians from the residential areas of Maple St and Sunset Drive. City staff has sought FHWA -NHDOT Traffic Safety Audit Grants over the past few years to assist with evaluating alternatives to enhance safety. St. Martin Church is located on W. High Street and generates a traffic particularly during church services. Over the past several years there has been 1 serious crash and several minor accidents and countless near misses.

Please outline the project scope.

ex: "Install pedestrian crossings on Main Street at 1st and 2nd street intersections and at mid-block, including pedestrian refuge medians, other streetscaping and traffic calming infrastructure."

Using public engagement to establish basis for design, prepare design alternatives that enhance safety for all modes, addressing improved pedestrian crosswalks, streetscapes and traffic calming features that enhance overall safety while improving the efficiency of the intersection. Develop and adopt final design recommendations, prepare engineering plans and specifications to solicit bids for construction.

SUBMISSION - REQUIRED

Please return this form to Colin Lentz at Strafford Regional Planning Commission, clentz@strafford.org . Please attach relevant EXCERPTS of any supporting documents, maps, cost estimates, and data along with this form.							
Please c	heck what supporting documents t	hat yo	u have attached:				
	Local Plans/Master Plans		Maps		Bike/Pedestrian Surveys		
\boxtimes	Cost Estimate		Transit Operator Data		Project Scope		
\boxtimes	Local Police Crash Data		Development Studies	\boxtimes	Conceptual Designs		
	Corridor Study		Regional Planning Study				
	Special Studies (Road Safety Audit, Warrant Analysis, Safe		Turning Movement or Traffic Volume Data				

SUPPLEMENTARY INFORMATION - OPTIONAL

Routes to School Plan, etc.)

Please note that these questions are not required to make an initial submission to Strafford Regional Planning Commission (SRPC). Please try to answer these questions now as they will still need to be answered as part of the final proposal submission. However, if you are unable to answer them on your own at this time, staff at SRPC will assist you.

What alternative options or methods have been considered to address this problem and what makes this project proposal the best option?

Staff has considered remarking the intersection for improved pedestrian safety and some traffic calming. However given complexities of the intersections a comprehensive review and assessment of design layout options is preferred to come up with a final design that is buildable and can be implemented.

How involved has the public been in this project proposal so far?

Please describe the extent of public outreach and involvement efforts to date.

We have not had any public meetings on the project; however, City staff does receive regular calls and inquiries from nearby residents complaining about the safety concerns at this location. A public engagement process would be used as part of the preliminary design process to assist with gathering important feedback on potential design options.

What is the anticipated level of further public involvement over the life of this project?

Please describe anticipated public outreach and involvement efforts to be conducted in the future for this project.

Should the project be included in the future 10 Year Plan and funds become available, a public engagement process will be included to assist with the development of design options.

How much of a priority is this in the local plan, regional plan, or recent corridor study?

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).

Project is included in the Strafford RPC Metro Plan

Will the project be managed locally?

Yes

Please provide evidence supporting this project.

Please provide any evidence of the project need. For example crash history, turning movement counts, signal warrant analysis, etc. (review list of documents, data sources, plans, guidance, maps, etc. that will serve as a prompt for possible sources of information to bolster the application; please note what and where you are referencing from)

Crash data analysis attached with estimates and design

Cost Estimate

Please provide any cost estimates that you have at this time for the project. SRPC can assist with developing a cost estimate if one doesn't exist or the town does not have an existing basis from which to prepare an estimate.

	2022 \$	2032 \$ (10 years in	flation at 2.8% annually
Engineering	\$80,000	\$105,444	
Right-of-Way	\$10,000	\$13,180	
Construction	\$477,000	\$628,709	
Structures	0	0	
Capital	0	0	
Operating	0	0	
Total	\$567,000	\$747,333	

What is the source of the above cost estimate?

VHB was hired by SRPC to develop this cost estimate. See attached design and detailed estimate.

Will the town be providing any matching funds? (NHDOT will expect matching funds for certain types of projects; is the town prepared to provide those funds?)

If an LPA project the town would provide the required 20% match.

PROJECT IMPACTS - TO BE COMPLETED BY SRPC

Please review the following list of potential impacts a project might have. Indicate whether the project might present an adverse impact or potential benefit to each resource.

Impact	Benefit	NA	Community Facilities and Resources
	\boxtimes		Parks and recreation areas
		\boxtimes	Scenic, historic, and cultural resources
	\boxtimes		Municipal services and schools
		\boxtimes	Employment Centers
Impact	Benefit	NA	Transportation Infrastructure
			Transit or public transportation routes or stops
			Park and Ride facilities
			Culverts or bridges
			Signalized intersections
			Active railroads
			Freight Corridors
			Other active or planned transportation improvements
		Ш	other active of planned transportation improvements
Impact	Benefit	NA	Environmental Characteristics
Impact	Benefit	NA	Aquifers/groundwater resources
Impact	Benefit		
Impact	Benefit		Aquifers/groundwater resources
Impact	Benefit		Aquifers/groundwater resources Wetlands
Impact	Benefit		Aquifers/groundwater resources Wetlands Surface water bodies
Impact	Benefit		Aquifers/groundwater resources Wetlands Surface water bodies Flood zones
Impact	Benefit		Aquifers/groundwater resources Wetlands Surface water bodies Flood zones Prime farmland
Impact	Benefit		Aquifers/groundwater resources Wetlands Surface water bodies Flood zones Prime farmland Wildlife habitats
Impact	Benefit		Aquifers/groundwater resources Wetlands Surface water bodies Flood zones Prime farmland Wildlife habitats Species of special concern
Impact	Benefit		Aquifers/groundwater resources Wetlands Surface water bodies Flood zones Prime farmland Wildlife habitats Species of special concern Riparian habitats
Impact	Benefit		Aquifers/groundwater resources Wetlands Surface water bodies Flood zones Prime farmland Wildlife habitats Species of special concern Riparian habitats Air quality
Impact	Benefit Benefit		Aquifers/groundwater resources Wetlands Surface water bodies Flood zones Prime farmland Wildlife habitats Species of special concern Riparian habitats Air quality
			Aquifers/groundwater resources Wetlands Surface water bodies Flood zones Prime farmland Wildlife habitats Species of special concern Riparian habitats Air quality Noise
			Aquifers/groundwater resources Wetlands Surface water bodies Flood zones Prime farmland Wildlife habitats Species of special concern Riparian habitats Air quality Noise Title VI and Underserved Population Centers

	\boxtimes	Less than a high school diploma
	\boxtimes	Children under 18
	\boxtimes	Children under 5
		Language isolation
		Households without access to a vehicle
		Disability status
	\boxtimes	Single parent households

Attach a detailed map showing the proposal location and surroundings. Include any pertinent data for identified impacts or benefits.



To: Colin Lentz – Sr. Transportation Planner Strafford Regional Planning Commission 150 Wakefield Street, Suite 12, Rochester, NH 03867

Project #: 52935.01

From: Gregory L. Bakos Re: On-Call Engineering

Task # 6 – Somersworth: W High St, Maple St, and Sunset Dr Intersection

As requested, VHB has estimated the cost for completing safety related improvements on NH Route 236 (West High Street) at its intersection with Maple Street and Sunset Drive in Somersworth, New Hampshire. The cost estimate is provided for the SRPC to consider the project for inclusion in the Ten-Year-Plan (TYP). VHB based the costs on the materials provided by the community as well as online data gathering, conceptual designs, and engineering judgement.

Project Purpose and Need

The City of Somersworth's stated purpose for this project is to address safety concerns for motorists, pedestrians, and cyclists within the intersection.

The City further states that: this intersection is unsafe due to the close proximity of two adjacent roadways (Maple Street and Sunset Drive) immediately next to each other connecting to the north side of West High Street, along with opposite (south) leg of Maple Street. As a result of the current layout, it is difficult for motorists, pedestrians, or cyclists to adequately view traffic approaching from the west or east on West High Street. This intersection also experiences a steady volume of pedestrians from the residential areas of Maple Street and Sunset Drive. St. Martin Church is located on the south side of West High Street east of Maple Street, and generates traffic particularly during church services. Over the past several years, there has been one 'serious' crash, several minor incidents, and countless near misses. The serious collision resulted in a fatality very near the intersection in 2019.

Please also refer to Somersworth's project proposal which includes additional documentation on the Purpose and Need and the benefits that these improvements will bring to the community.

Existing Conditions

VHB's observed that West High Street is very straight and level roadway, and there are few visual cues to encourage motorists to observe the posted 30 miles per hour (MPH) speed limit. VHB concurs that the unusual split geometry of the Maple Street/ Sunset Drive approaches creates confusion, conflict, and limited sight lines. A related safety consideration is that serious side-impact crashes might be expected at this location as drivers on these two side streets vie to enter the higher speed mainline roadway (West High Street).

The long diagonal crosswalk pedestrian crosswalk that crosses through the middle of the intersection from the southeast corner of the intersection to between Maple Street and Sunset Drive also raises some concerns. The crossing length is approximately 65 feet and there is no sidewalk or pedestrian landing on the north side between Maple Street and Sunset Drive.

The Bicycle Level of Traffic Stress (BLTS) for the subject section of West High Street is listed as LTS 3 – Moderate Stress according to the SRPC LTS inventory. This result means the project area is suitable for those who ride regularly along this section of the West High Street. School children do not fit this description. West High Street is approximately 28-feet wide within the project limits including 2-foot striped shoulders, which means bicyclists mostly share the travel

Colin Lentz – Sr. Transportation Planner

Ref: 52935.01 November 3, 2002

Page 2



lanes with motor vehicles. Pedestrians typically walk off to the side in the gravel or grass shoulders where there are no sidewalks. Traffic volumes are moderate at 3,619 per NHDOT's Roads and Projects website.

Traffic

SRPC provided VHB with September 2022 tuning movements at the intersection for the weekday AM and PM peak periods (7-9 AM and 4-6 PM). VHB adjusted the traffic counts to reflect 2042 design year average-month, prepandemic traffic volumes. VHB then conducted a warrant analysis to determine whether the projected traffic volumes satisfy the Manual on Uniform Traffic Control Devices (MUTCD) thresholds for the consideration of a traffic signal to address the vehicular (five approaches to the unsignalized intersection) and/or pedestrian (extensive pedestrian crossing through the intersection) safety concerns. The results of the analysis indicated that the four hours of available traffic volumes do not meet the MUTCD volume-based traffic signal warrants during the 2042 design year. See the attached traffic documentation.

VHB subsequently evaluated whether a single lane roundabout would function adequately at this intersection, and the Highway Capacity Manual (HCM) results show that all approaches would operate at optimal levels. These findings are not unexpected given the relatively low traffic volumes. The roundabout would be considered for safety purposes in controlling conflicts and accommodating pedestrian crossings since delays and queues do not appear to be concerns at this intersection.

Proposed Improvements

Following is a description of the proposed improvements that are the basis for the included cost estimate. Also see the attached schematic plans. Two alternatives were considered as follows.

OPTION-1: Traffic Calming and Pedestrian Crossing Improvements:

The improvements included with this alternative are expected to enhance pedestrian and motor vehicle safety in the following ways:

> Raised medians:

Two 6-foot-wide raised medians are proposed. The eastern median would include a pedestrian cut-through
where a crosswalk would be located. The median effectively divides the crossing distance in half and also
increases the visibility of the crossing. Both medians are expected to provide a measure of traffic calming, draw
attention to the intersection, and require motorists to negotiate around the medians. The western median is
depicted with a section of flush cobblestone (or similar) pavers to accommodate large vehicles turning right
from Sunset Drive.

> Geometric Improvements

- The concept plan includes minor geometric modifications that include angling the Sunset Drive approach slightly away from the Maple Street approach so the nose between the two could be lengthened and a sidewalk could be added with a pedestrian landing. There is currently no pedestrian landing between the two approaches even though there is a crosswalk leading to the nose area.
- West High Street would also be widened several feet on both sides to provide space for the raised medians.
- Sidewalks

Colin Lentz - Sr. Transportation Planner

Ref: 52935.01 November 3, 2002

Page 3



The plan includes adding sidewalks on the north side of West High Street to accept the pedestrians crossing at
the crosswalk. In addition, the concept includes a sidewalk between Maple Street and Sunset Drive that extends
up Sunset Drive a short distance to remove pedestrians from the intersection area. Additional sidewalks could
be added, however, the only existing sidewalks are within the southeast quadrant along Maple Street and West
High Street.

- Rectangular Rapid Flashing Beacons (RRFBs)
 - Pedestrian actuated RRFBs are proposed at the pedestrian crossing on the ends of the crosswalk and within the
 median refuge island. The City noted that this location is a high pedestrian crossing area and the RRFBs would
 enhance driver awareness of pedestrians attempting to cross.

OPTION-2: Single Lane Roundabout:

The single lane roundabout alternative provides a higher level of safety improvement for motorists since it would slow vehicle speeds and, more importantly, address the Maple Street / Sunset Drive approach issues. The roundabout would also provide improved pedestrian safety since there would be three raised medians providing refuge and shorter crossing distances.

The roundabout option provides significant motorist and pedestrian safety improvements, but this concept comes at a considerably higher cost with greater property impacts.

Other Considerations

The following information is provided for context and to help assess the challenges and readiness of this proposed project.

Right-of-Way

Option-1 would have minimal permanent property impacts, estimated to be approximately 200 square feet (SF), and

Option-2 would impact all five corners of the intersection and result in approximately 7,500 SF of permanent impacts. All of the impacts would be to yard areas and are not projected to impact any buildings.

Natural Resources

The environmental considerations within this project are expected to be minimal since the area appears to be free of regulated natural resource areas.

If federal funds are used, the project will still need to complete National Environmental Policy Act (NEPA) documentation which will include a wide range of natural and cultural resource documentation.

Estimated Project Costs

Based on the above discussions and the attached concept plans, VHB developed program level estimates of probable cost broken out by primary components as shown on the attached spreadsheets.

Colin Lentz – Sr. Transportation Planner

Ref: 52935.01 November 3, 2002

Page 4



Estimated Costs

Major construction items are described as follows. The roadway widening areas are estimated to require full depth pavement construction consisting of 6 inches of bituminous pavement over 24 inches of crushed stone base course. The medians include a 4 inch concrete walk surface and 12 inches of a crushed stone base. The sidewalks include a 3 inch bituminous walk surface over 12 inches of a crushed stone base. The truck apron includes an 8 inch concrete surface over 24 inches of a crushed stone base. Drainage system costs are estimated based on the number of catch basins and connecting pipe to connect to existing systems. See the attached conceptual cost estimates for a detailed list of items and quantities.

Design and Permitting Costs

The project will be assumed to advance as a Local Public Agency (LPA) project administered locally and following the prescribed LPA project development process with NHDOT oversight. This process is significant since there are cost implications. In determining the design phase costs, VHB applied 'rule-of-thumb' percentages adjusted for the anticipated permitting or other complexities as well as the scale of the project. Smaller projects typically have higher design costs as a percentage of the construction costs.

Proposed Improvements:	PE	ROW	Construction	<u>Totals</u>
Option 1: Traffic Calming / Sidewalks	\$80,000	\$10,000	\$477,000	\$567,000
Option 2: Roundabout This option was not selected	\$180,000	\$10,000	\$996,000	\$1,186,000

This option was not selected

CONSTRUCTION COST ESTIMATE

PROJECT : Strafford Regional Planning Commission TYP Project Candidates

LOCATION: DURHAM NH 155A/MAIN STREET/MAST ROAD INTERSECTION

VHB PROJECT NO. 52935.01

TYPE: Program Level Conceptual Estimate

304.4 C	COMMON EXCAVATION	0)/		PRICE			
304.4 C							
		CY	\$	18.00	281	\$5,057	
304.5 C	CRUSHED STONE (FINE GRADATION) (F)	CY	\$	40.00	80	\$3,217	
	CRUSHED STONE (COURSE GRADATION) (F)	CY	\$	40.00	201	\$8,021	
	HOT BITUMINOUS PAVEMENT - MACHINE METHOD	TON	\$	120.00	316	\$37,908	
403.12 H	HOT BITUMINOUS PAVEMENT - HAND METHOD	TON	\$	150.00	20	\$3,000	
403.99 T	TEMPORARY BITUMINOUS PAVEMENT	TON	\$	110.00	20	\$2,200	
417 C	COLD PLANING BITUMINOUS SURFACES	SY	\$	5.00	2558	\$12,788	
603.00215 1	15" R.C. PIPE, 2000D	LF	\$	80.00	80	\$6,400	
604.0007 P	POLYETHELENE LINER	EA	\$	350.00	4	\$1,400	
604.124 C	CATCH BASINS TYPE B, 4-FOOT DIAMETER	UNIT	\$	4,000.00	4	\$16,000	
604.324	DRAINAGE MANHOLES, 4 FT DIAMETER	U	\$	4,000.00	1	\$4,000	
608.13	B" BITUMINOUS SIDEWALK (F)	SY	\$	70.00	200	\$14,000	
608.36	" REINFORCED CONCRETE SIDEWALK (F)	SY	\$	100.00	41	\$4,128	
608.54 D	DETECTABLE WARNING DEVICES, CAST IRON	SY	\$	500.00	6	\$3,000	
609.01 S	STRAIGHT GRANITE CURB	LF	\$	45.00	460	\$20,700	
609.02 C	CURVED GRANITE CURB	LF	\$	50.00	70	\$3,500	
611.90001 A	ADJUSTING WATER GATES AND SHUTOFFS SET BY OTHERS	EA	\$	250.00	3	\$750	
615.0301 T	TRAFFIC SIGN TYPE C	SF	\$	90.00	40	\$3,600	
616.26101 F	RECTANGULAR RAPID FLASHING BEACON	U	\$	35,000.00	1	\$35,000	
618.61 L	JNIFORMED OFFICERS W/ VEHICLE	HR	\$	75.00	320	\$24,000	
618.7 F	FLAGGERS	HR	\$	40.00	640	\$25,600	
619.1 N	MAINTENANCE OF TRAFFIC	UNIT	\$	25,000.00	1	\$25,000	
619.253 P	PORTABLE CHANGEABLE MESSAGE SIGN (UNIT WEEK)	UWK	\$	600.00	24	\$14,400	
625.525 S	STREET LIGHTS INCLUDING POLES, FOUNDATIONS AND LUMINAIRES	EA	\$	8,000.00	2	\$16,000	
628.2 S	SAWED BITUMINOUS PAVEMENT	LF	\$	4.00	330	\$1,320	
646.51 T	TURF ESTABLISHMENT WITH MULCH, TACKIFIERS AND LOAM	SY	\$	5.00	1000	\$5,000	
650.2 L	ANDSCAPING	U	\$	-	0	\$0	
692 N	MOBILIZATION	UNIT	\$	20,000.00	1	\$20,000	
698.13 F	FIELD OFFICE TYPE C	MON	\$	1,800.00	6	\$10,800	
699 M	MISCELLANEOUS TEMPORARY EROSION AND SEDIMENT CONTROL	\$	\$	2,000.00	1	\$2,000	
	SUBTOTAL					\$328,788	
			MISC	ELLANEOUS	S ITEMS (10%)	\$32,879	
					ENCIES (20%)	\$65,758	
					SUBTOTAL:	\$427,424	
		TOTAL FOR	18.1 A T	ED CONSTR		\$427,000	
		IOIAL EST	IIVIA I		UCTION COST	\$80,000	
ENGINEERING (PE)							
ROW							
	CONSTRUCTIO	N ENGINEERII	NG, II	NSPECTION A	AND TESTING	\$50,000	
			EST	IMATED PRO	JECT TOTAL:	\$567,000	

CONSTRUCTION COST ESTIMATE

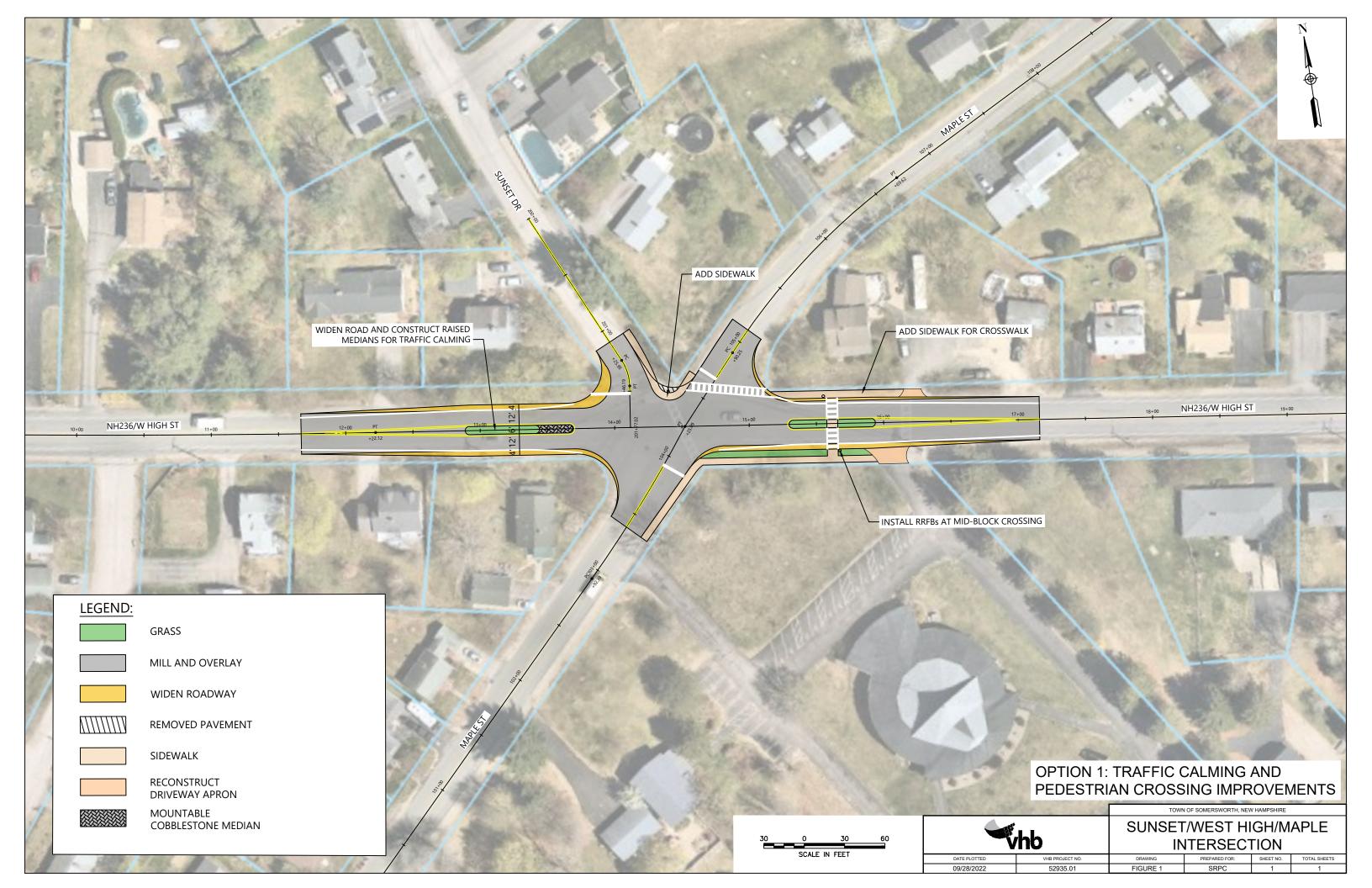
PROJECT : Strafford Regional Planning Commission TYP Project Candidates

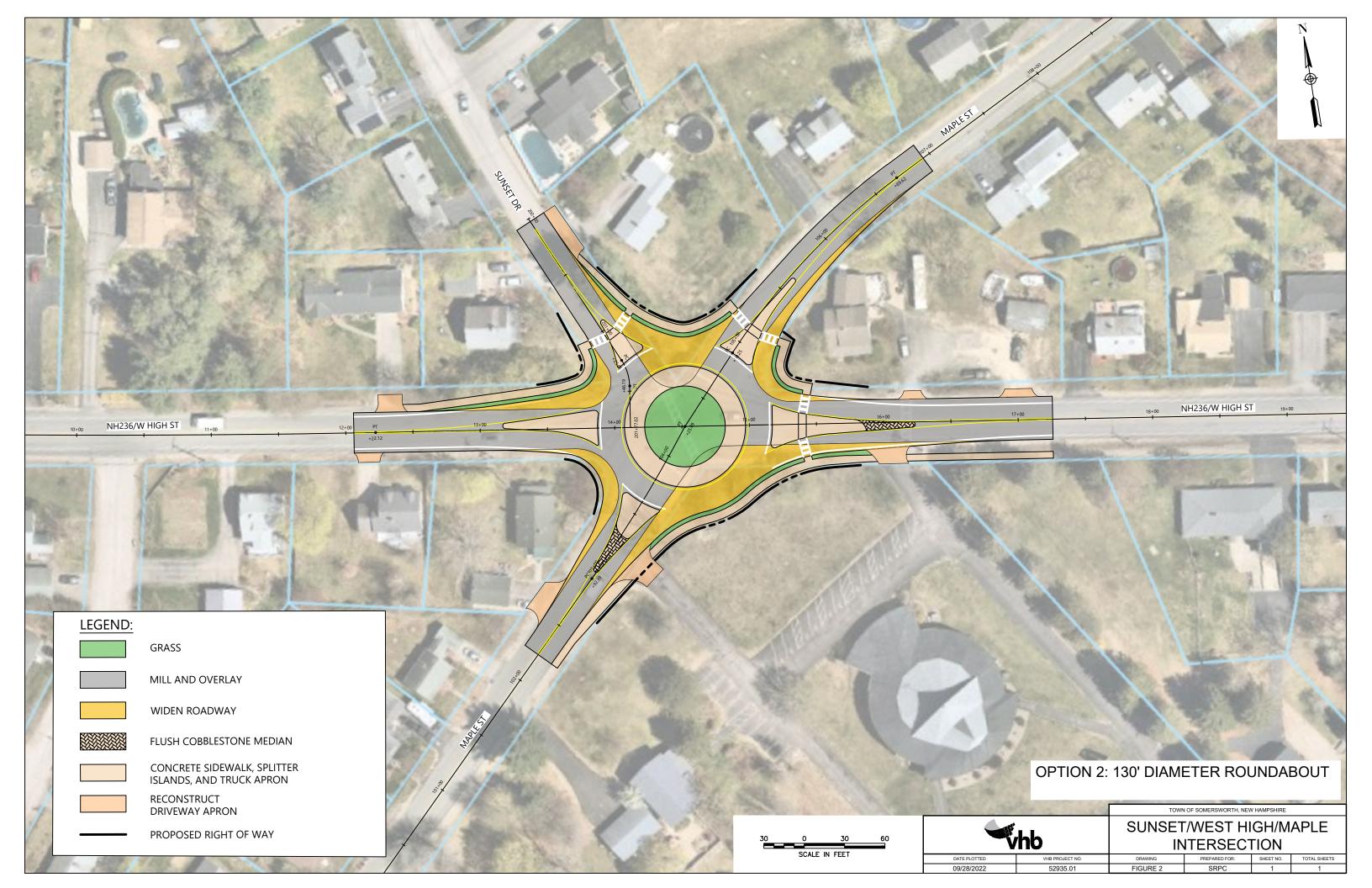
LOCATION: DURHAM NH 155A/MAIN STREET/MAST ROAD INTERSECTION

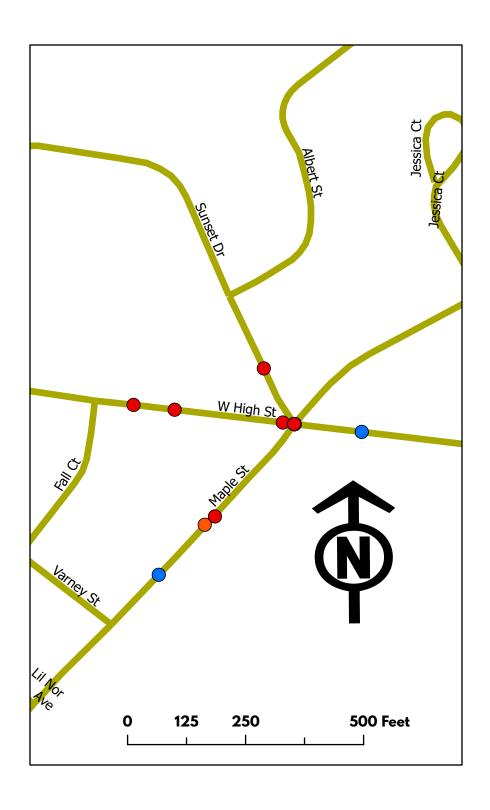
VHB PROJECT NO. 52935.01

TYPE: Program Level Conceptual Estimate

	ITEM DESCRIPTION	UNIT		UNIT PRICE	QUANTITY	TOTAL COST
203.1	COMMON EXCAVATION	CY	\$	18.00	1300	\$23,400
304.4	CRUSHED STONE (FINE GRADATION) (F)	CY	\$	40.00	300	\$12,000
304.5	CRUSHED STONE (COURSE GRADATION) (F)	CY	\$	40.00	920	\$36,800
403.11	HOT BITUMINOUS PAVEMENT - MACHINE METHOD	TON	\$	120.00	680	\$81,600
403.11	HOT BITUMINOUS PAVEMENT - HAND METHOD	TON	\$	150.00	20	\$3,000
403.12	TEMPORARY BITUMINOUS PAVEMENT	TON	\$	110.00	50	\$5,500
403.99		SY	\$	5.00		
	COLD PLANING BITUMINOUS SURFACES		<u> </u>		2000	\$10,000
603.00215	15" R.C. PIPE, 2000D	LF	\$	80.00	200	\$16,000
604.0007	POLYETHELENE LINER	EA	\$	350.00	4	\$1,400
604.124	CATCH BASINS TYPE B, 4-FOOT DIAMETER	UNIT	\$	4,000.00	4	\$16,000
604.324	DRAINAGE MANHOLES, 4 FT DIAMETER	U	\$	4,000.00	2	\$8,000
608.13	3" BITUMINOUS SIDEWALK (F)	SY	\$	70.00	390	\$27,300
608.24	4" CONCRETE SIDEWALK (F)	SY	\$	80.00	450	\$36,000
608.36	6" REINFORCED CONCRETE SIDEWALK (F)	SY	\$	100.00	60	\$6,000
608.38	8" REINFORCED CONCRETE SIDEWALK (F)	SY	\$	220.00	400	\$88,000
608.54	DETECTABLE WARNING DEVICES, CAST IRON	SY	\$	500.00	12	\$6,000
609.01	STRAIGHT GRANITE CURB	LF	\$	45.00	1130	\$50,850
609.01123	STRAIGHT GRANITE CURB, 12" HIGH WITH 3"X3" MOUNTABLE BEVELED EDGE	LF	\$	70.00	280	\$19,600
609.02	CURVED GRANITE CURB	LF	\$	50.00	60	\$3,000
611.90001	ADJUSTING WATER GATES AND SHUTOFFS SET BY OTHERS	EA	\$	250.00	3	\$750
615.0301	TRAFFIC SIGN TYPE C	SF	\$	90.00	80	\$7,200
618.61	UNIFORMED OFFICERS W/ VEHICLE	HR	\$	75.00	400	\$30,000
618.7	FLAGGERS	HR	\$	40.00	1000	\$40,000
619.1	MAINTENANCE OF TRAFFIC	UNIT	\$	40,000.00	1	\$40,000
619.253	PORTABLE CHANGEABLE MESSAGE SIGN (UNIT WEEK)	UWK	\$	600.00	36	\$21,600
625.525	STREET LIGHTS INCLUDING POLES, FOUNDATIONS AND LUMINAIRES	EA	\$	8,000.00	5	\$40,000
628.2	SAWED BITUMINOUS PAVEMENT	LF	\$	4.00	1200	\$4,800
646.51	TURF ESTABLISHMENT WITH MULCH, TACKIFIERS AND LOAM	SY	\$	5.00	160	\$800
650.2	LANDSCAPING	U	\$	20,000.00	1	\$20,000
692	MOBILIZATION	UNIT	\$	40,000.00	1	\$40,000
698.13	FIELD OFFICE TYPE C	MON	\$	1,800.00	8	\$14,400
699	MISCELLANEOUS TEMPORARY EROSION AND SEDIMENT CONTROL	\$	\$	2,000.00	1	\$2,000
	SUBTOTAL					\$712,000
			MISC	ELL ANEOU	S ITEMS (10%)	\$71,200
			MIIOC		ENCIES (20%)	\$142,400
				CONTING	SUBTOTAL:	\$925,600
		TOTAL EST	MAT	ED CONSTR		\$926,000
TOTAL ESTIMATED CONSTRUCTION COST						
				ENGI	NEERING (PE)	\$180,000
					ROW	\$10,000
	CONSTRUCTION	ENGINEERII	NG, II	NSPECTION	AND TESTING	\$70,000
			EST	IMATED PRO	JECT TOTAL:	\$1,186,000



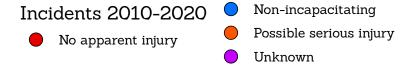


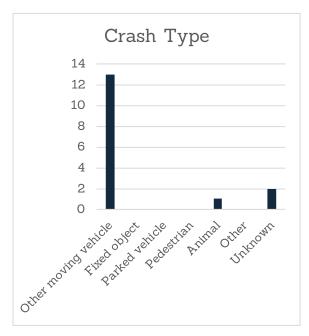


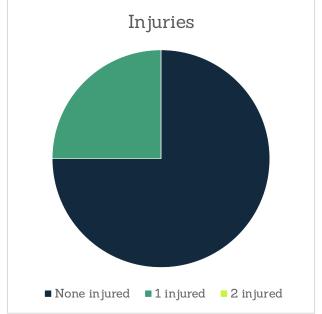


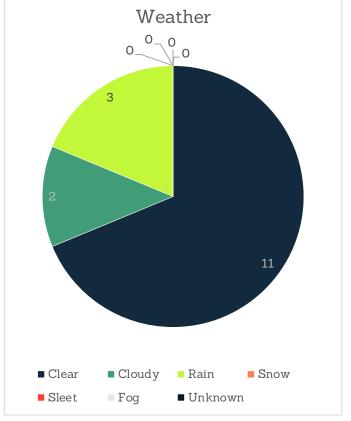
Somersworth Priority Project: W. High Street

Maple Street & Sunset Drive





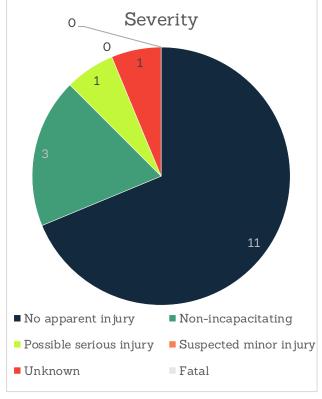


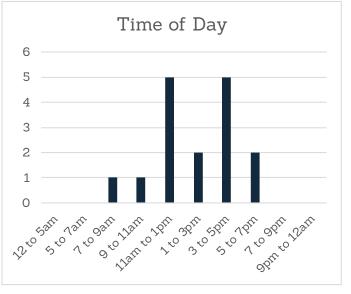


Reported number of incidents 2010 - 2020 16

Jan	6
Feb	0
Mar	0
Apr	2
May	2
Jun	0
Jul	0
Aug	1
Sep	1
Oct	1
Nov	1
Dec	2

Mon	nd
Tues	nd
Wed	nd
Thurs	nd
Fri	nd
Sat	nd
Sun	nd





SRPC TRANSPORTATION PROJECT PROPOSAL FORM

CONTACT INFORMATION - REQUIRED Full Name Steve Pesci Municipality UNH/Durham **Email** stephen.pesci@unh.edu **Affiliation UNH Campus Planning Phone Number** (603) 862-4207 **Title Position Special Projects Director** TRANSPORTATION PROJECT INFORMATION - REQUIRED Name/Title of Project NH155A/Main St Intersection Please select the project type(s): **Highway Improvements** (operational Planning Studies (road diets, corridor studies, improvements, access management, intelligent network studies, pedestrian/cyclist safety transportation systems, widening, technology studies) operation improvements) **Asset Management** (bridge rehabilitation, bridge Infrastructure-related Travel Demand replacement, pavement repair/replacement) Management (park & ride lots, transit or HOV lanes, priority signalization, bus shelters, intermodal transportation centers) M **Bicycle and Pedestrian Improvements** (sidewalks, bike trails, multi-use paths, traffic calming improvements) Please provide a reference photo of the project location. (e.g. Google Maps/Earth) See attached estimate Where is this project located? (road names, nearby facilities/landmarks) City/Town Durham Main St/NH155A Road From To What is the size of this project? (please provide approximate measurements in 10th of a mile; you can use Google Maps measuring tool to estimate distances) Intersection

Where can support for this project be found? (Plan titles/names and the applicable section(s), who would provide letters of support, people involved in this project, etc.) Project is supported by UNH and Durham Staff and is included in the Strafford MPO Metro Plan Please provide any additional information about this project. (local knowledge/insight, relevant studies/data, infrastructure needs, etc.) This intersection is currently stop controlled on the NH155A and Mast Rd legs. It consists of two state-owned legs and two town-owned legs. Wetlands present in southeast quadrant. PURPOSE, NEED, AND SCOPE - REQUIRED Please provide the Purpose Statement for this project. What problem(s) is the proposal addressing? ex: "The purpose of this project is to support increased non-motorized activity by addressing safety issues resulting from unsafe vehicle speeds and inadequate protections for pedestrians on Main Street between 1st and 2nd Street." The purpose of this project is to improve safety at the intersection. Please provide the Need Statement for this project. ex: "The section of Main St between 1st Street and 2nd Street is unsafe for pedestrians. This section is in the center of the city's commercial district concentrated with jobs and small businesses. In the past 5 years there have 15 crashes in this section of Main St: two resulted in serious injuries to pedestrians and one resulted in a pedestrian fatality. Continued local economic development depends on increased walkability and safety for pedestrians." Traffic is increasing due to continued development surrounding UNH campus. Main St is a primary route for local access to campus and downtown from the west. Proactive safety improvements are needed to preserve safety and functionality at this intersection. Please outline the project scope. ex: "Install pedestrian crossings on Main Street at 1st and 2nd street intersections and at mid-block, including pedestrian refuge medians, other streetscaping and traffic calming infrastructure." Convert stop-controlled intersection to roundabout **SUBMISSION - REQUIRED** Please return this form to Colin Lentz at Strafford Regional Planning Commission, clentz@strafford.org. Please attach relevant EXCERPTS of any supporting documents, maps, cost estimates, and data along with this form. Please check what supporting documents that you have attached: Local Plans/Master Plans Bike/Pedestrian Surveys Maps **Cost Estimate Project Scope** Transit Operator Data

 Local Police Crash Data Corridor Study Special Studies (Road Safety Audit, Warrant Analysis, Safe Routes to School Plan, etc.) 	 □ Development Studies □ Regional Planning Study □ Turning Movement or Traffic Volume Data
SUPPLEMENTARY INFORMATION	N - OPTIONAL
Commission (SRPC). Please try to answer the proposal submission. However, if you are un	uired to make an initial submission to Strafford Regional Planning see questions now as they will still need to be answered as part of the final able to answer them on your own at this time, staff at SRPC will assist you.
A traffic signal has been considered as an a safety improvements and capacity preserva	Iternative. A roundabout was prioritized because of greater value for ation.
How involved has the public been in this public describe the extent of public outrea	
	Ten Year Plan by staff from the Town of Durham and UNH Campus ugh the MPO process but has not been explicitly reviewed and prioritized
•	blic involvement over the life of this project? and involvement efforts to be conducted in the future for this project.
Project will be reviewed through the public	Ten Year Plan process
• •	plan, regional plan, or recent corridor study? ocal or regional plan (e.g. local master plan, local bicycle/pedestrian plan, the pertinent section of the plan(s).
Will the project be managed locally? To be determined	

Please provide evidence supporting this project.

Please provide any evidence of the project need. For example crash history, turning movement counts, signal warrant analysis, etc. (review list of documents, data sources, plans, guidance, maps, etc. that will serve as a prompt for possible sources of information to bolster the application; please note what and where you are referencing from)

Crash data analysis attached with estimates and design

February 2022

Cost Estimate

Please provide any cost estimates that you have at this time for the project. SRPC can assist with developing a cost estimate if one doesn't exist or the town does not have an existing basis from which to prepare an estimate.

	2022 \$	2032 \$ (10 years inflation	on at 2.8% annually)
Engineering	\$180,000	\$237,249	
Right-of-Way	\$30,000	\$39,541	
Construction	\$1,212,000	\$1,597,474	
Structures	0	0	
Capital	0	0	
Operating	0	0	
Total	\$1,422,000	\$1,874,264	

What is the source of the above cost estimate?

VHB was hired by SRPC to develop this cost estimate. See attached design and detailed estimate.

Will the town be providing any matching funds? (NHDOT will expect matching funds for certain types of projects; is the town prepared to provide those funds?)

If an LPA project the town would provide the required 20% match.

PROJECT IMPACTS - TO BE COMPLETED BY SRPC

Please review the following list of potential impacts a project might have. Indicate whether the project might present an adverse impact or potential benefit to each resource.

impact	Benefit	NA	Community Facilities and Resources
		\boxtimes	Parks and recreation areas
		\boxtimes	Scenic, historic, and cultural resources
		\boxtimes	Municipal services and schools
	\boxtimes	\boxtimes	Employment Centers
Impact	Renefit	NΔ	Transportation Infrastructure
Impact	Benefit	NA	Transportation Infrastructure
Impact	Benefit	NA	Transportation Infrastructure Transit or public transportation routes or stops
Impact	Benefit	NA	·
Impact	Benefit	NA	Transit or public transportation routes or stops
Impact	Benefit	NA	Transit or public transportation routes or stops Park and Ride facilities

			Active railroads
		\boxtimes	Freight Corridors
		\boxtimes	Other active or planned transportation improvements
Impact	Benefit	NA	Environmental Characteristics
		\boxtimes	Aquifers/groundwater resources
\boxtimes			Wetlands
			Surface water bodies
		\boxtimes	Flood zones
			Prime farmland
		\boxtimes	Wildlife habitats
			Species of special concern
			Riparian habitats
			Air quality
			Noise
Impact	Benefit	NA	Title VI and Underserved Population Centers
			Low-income
			Minority population
		\boxtimes	Senior (65+) population
		\boxtimes	Less than a high school diploma
		\boxtimes	Children under 18
		\boxtimes	Children under 5
			Language isolation
		\boxtimes	Households without access to a vehicle
			Disability status
			Single parent households

Attach a detailed map showing the proposal location and surroundings. Include any pertinent data for identified impacts or benefits.



To: Colin Lentz – Sr. Transportation Planner Strafford Regional Planning Commission 150 Wakefield Street, Suite 12, Rochester, NH 03867

Project #: 52935.01

From: Gregory L. Bakos Re: On-Call Engineering

Task # 1 – Durham: NH Route 155A (Mast Road) / Main Street Intersection

As requested, VHB has estimated the cost for completing safety related improvements on NH Route 155A (Mast Road) at the intersection with Main Street in Durham, New Hampshire. The cost estimate is provided for the SRPC to consider the project for inclusion in the Ten-Year-Plan (TYP). VHB based the costs on the materials provided by the community as well as online data gathering, conceptual designs, and engineering judgement.

Project Purpose and Need

The Town of Durham's stated purpose for this project is: to improve safety at the intersection. Traffic is increasing due to continued development surrounding the University of New Hampshire (UNH) campus. Main Street is a primary route for local access to campus and downtown from the west. This project is proactive in maintaining safety and function of the intersection as traffic grows.

Existing Conditions

Main Street and Mast Road intersect to form a four-legged unsignalized intersection. Main Street is generally aligned in an east-west direction and Mast Road is aligned in a north-south direction. NH Route 155A travel along Main Street east of the intersection and along Mast Road south of the intersection. The Main Street eastbound and westbound approached are free flow (i.e., no traffic control) and the Mast Road northbound and southbound approaches are under STOP-sign control. The Main Street eastbound and westbound approaches each consist of an exclusive left-turn lane and a shared through/right-turn lane. The Mast Road northbound approach includes a shared left-turn/through lane and an exclusive right-turn lane. A concern with this arrangement is that the stopped northbound vehicles can obstruct one another's sight lines, as can the vehicles in the center left turn lanes on Main Street. The Mast Road southbound approach consists of a single general purpose travel lane.

VHB observed that Main Street is very straight and level roadway, and that coming from the west there are few visual cues to encourage motorists to observe the posted 30 miles per hour (MPH) speed limit. In addition, some of the eastbound traffic enters Main Street from nearby NH Route 4 and may still be in a high-speed mindset as they approach the intersection.

There is an 8-foot-wide shared use path on the east side of the northbound Mast Road approach that wraps onto the south side of Main Street east of the intersection. There are no pedestrian facilities north of Main Street or west of Mast Road.

The Bicycle Level of Traffic Stress (BLTS) for the subject section of Main Street is listed as Low Stress according to the SRPC LTS inventory and the northbound Mast Road approach is listed as High Stress.

Colin Lentz - Sr. Transportation Planner

Ref: 52935.01 November 3, 2002

Page 2



Traffic

SRPC provided VHB with tuning movement counts at the Main Street and Mast Road intersection for the weekday AM peak period (October 19, 2022 = 7:00-8:45 AM, and October 20, 2022 = 7:30-8:45 AM). In addition, SRPC supplied automatic traffic recorder (ATR) counts along Main Street east and west of Mast Road between October 18-20, 2022. To develop weekday PM peak hour traffic volumes, the October 20, 2022 ATR counts were compared for the weekday AM and PM peak hours and the resulting factor was applied to the weekday AM peak hour turning movement counts. VHB adjusted the weekday AM and PM traffic data to reflect 2042 design year average-month, pre-pandemic traffic volumes.

Under existing traffic volume conditions, the Mast Road southbound approach operates with long delays (LOS F) during the weekday AM peak hour, In addition, the Mast Road northbound shared left-turn/through lane and exclusive right-turn lane operate with long delays (LOS F) during the weekday PM peak hour. VHB subsequently evaluated whether a single lane roundabout would function adequately at this intersection, and the Highway Capacity Manual (HCM) results show that a Mast Road northbound right-turn slip lane would be required onto Main Street eastbound. With this additional lane, all lanes approaching the roundabout would operate at LOS D or better during the weekday AM and PM peak hours.

Proposed Improvements

There is an existing roundabout on Main Street approximately 1,600-feet east of the Mast Road intersection, and introducing a roundabout at Mast Road would further extend the traffic calming effect to the west toward NH Route 4. Following is a description of the proposed improvements that are the basis for the included cost estimate. Also see the attached schematic plans.

The proposed single lane roundabout is very similar in scale to the existing roundabout that is 1,600-feet to the east on Main Street. A key difference is that the northbound approach includes a slip lane for right turning traffic. Another difference is that the northbound approach is skewed and, therefore, the eastbound approach includes a slip lane to accommodate all right turning vehicles including large vehicles.

The proposed improvements include relocating the existing shared use path as shown. There may also be a need to relocate the existing bus shelter further east.

Drainage is a consideration for this project since the existing roadway runoff sheets off into roadside ditches. There does not appear to be a closed drainage system to tie into. There may be a need to limit the amount of curbing used around the outside of the roundabout so stormwater can continue to run off to the surrounding ground. There may be difficulty in the southwest quadrant to achieve this design, so creative collection and conveyance and/or infiltration practices will be needed.

Other Considerations

The following information is provided for context and to help assess the challenges and readiness of this proposed project.

Colin Lentz - Sr. Transportation Planner

Ref: 52935.01 November 3, 2002

Page 3



Right-of-Way

The proposed roundabout will have approximately 15,000 SF of permanent impacts. All of the impacts would be to open areas and are not projected to impact any structures.

Natural Resources

The environmental considerations within this project are expected to include direct wetland impacts in at least two of the four quadrants of the intersection. These impacts are due to the roundabout geometry and are unavoidable.

If federal funds are used, the project will still need to complete National Environmental Policy Act (NEPA) documentation which will include a wide range of natural and cultural resource documentation.

Estimated Project Costs

Based on the above discussions and the attached concept plans, VHB developed program level estimates of probable cost broken out by primary components as shown on the attached spreadsheets.

Estimated Costs

Major construction items are described as follows. The roadway widening areas are estimated to require full depth pavement construction consisting of 6 inches of bituminous pavement over 24 inches of crushed stone base course. The splitter islands and medians include a 4-inch concrete walk surface and 12 inches of a crushed stone base. The sidewalks include a 3-inch bituminous walk surface over 12 inches of a crushed stone base. The truck apron includes an 8-inch concrete surface over 24 inches of a crushed stone base. Drainage system costs are estimated based on a small number of catch basins and connecting pipe to connect to existing systems. See the attached conceptual cost estimates for a detailed list of items and quantities.

Design and Permitting Costs

The project will be assumed to advance as a Local Public Agency (LPA) project administered locally and following the prescribed LPA project development process with NHDOT oversight. This process is significant since there are cost implications. In determining the design phase costs, VHB applied 'rule-of-thumb' percentages adjusted for the anticipated permitting or other complexities as well as the scale of the project.

Proposed Improvements:	PE	ROW	Construction	<u>Totals</u>
·				
Roundabout with slip lanes	\$180,000	\$30,000	\$1,212,000	\$1,422,000

CONSTRUCTION COST ESTIMATE

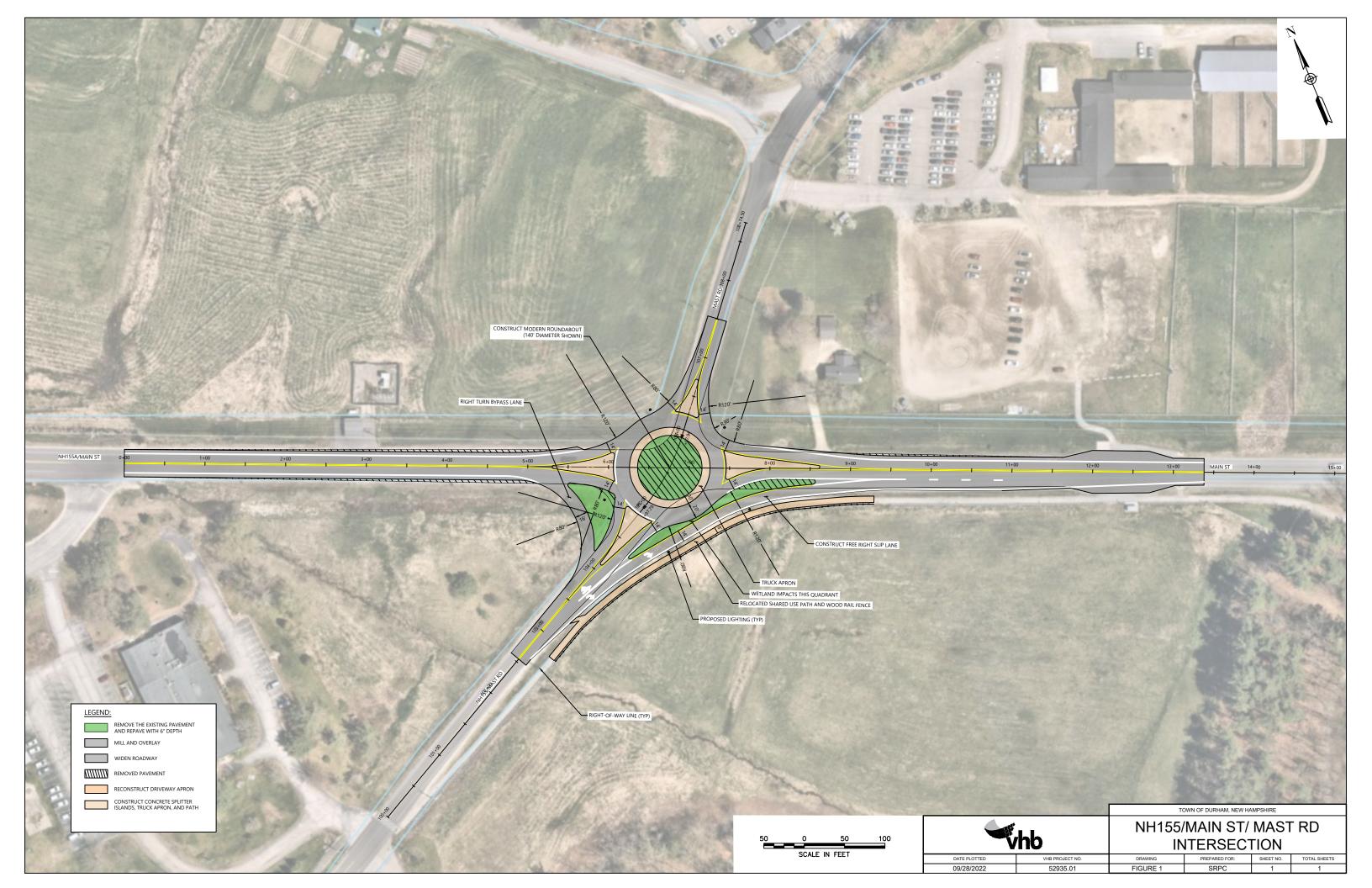
PROJECT : Strafford Regional Planning Commission TYP Project Candidates

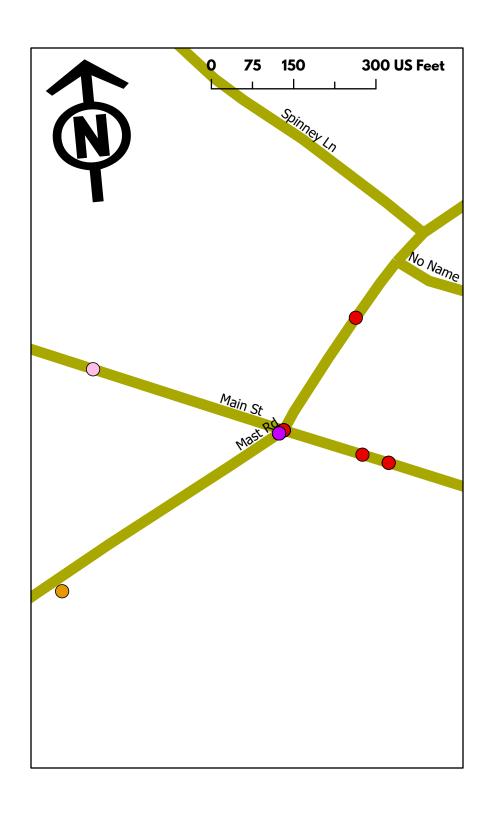
LOCATION: DURHAM NH 155A/MAIN STREET/MAST ROAD INTERSECTION

VHB PROJECT NO. 52935.01

TYPE: Program Level Conceptual Estimate

	ITEM DESCRIPTION	UNIT		UNIT	QUANTITY	TOTAL COST
202.4	COMMON EXCAVATION	CV	•	PRICE	1754	¢24.570
203.1	COMMON EXCAVATION CRUSHED STONE (FINE CRADATION) (F)	CY	\$	18.00	1754	\$31,572
304.4	CRUSHED STONE (FINE GRADATION) (F)	CY	\$	40.00	314	\$12,560
304.5	CRUSHED STONE (COURSE GRADATION) (F)	CY	\$	40.00	1440	\$57,600
403.11	HOT BITUMINOUS PAVEMENT - MACHINE METHOD	TON	\$	120.00	1077	\$129,198
403.12	HOT BITUMINOUS PAVEMENT - HAND METHOD	TON	\$	150.00	20	\$3,000
403.99	TEMPORARY BITUMINOUS PAVEMENT	TON	\$	110.00	50	\$5,500
417	COLD PLANING BITUMINOUS SURFACES	SY	\$	5.00	4593	\$22,966
603.00215	15" R.C. PIPE, 2000D	LF	\$	80.00	100	\$8,000
604.0007	POLYETHELENE LINER	EA	\$	350.00	4	\$1,400
604.124	CATCH BASINS TYPE B, 4-FOOT DIAMETER	UNIT	\$	4,000.00	4	\$16,000
604.324	DRAINAGE MANHOLES, 4 FT DIAMETER	U	\$	4,000.00	2	\$8,000
607.5340	WOOD FENCE (SPLIT RAIL), 4'-0" HIGH	LF	\$	25.00	457	\$11,425
608.13	3" BITUMINOUS SIDEWALK (F)	SY	\$	70.00	417	\$29,221
608.24	4" CONCRETE SIDEWALK (F)	SY	\$	80.00	523	\$41,849
608.38	8" REINFORCED CONCRETE SIDEWALK (F)	SY	\$	220.00	314	\$69,129
608.54	DETECTABLE WARNING DEVICES, CAST IRON	SY	\$	500.00	2	\$1,000
609.01	STRAIGHT GRANITE CURB	LF	\$	45.00	1796	\$80,820
609.01123	STRAIGHT GRANITE CURB, 12" HIGH WITH 3"X3" MOUNTABLE BEVELED EDGE	LF	\$	70.00	314	\$21,980
611.90001	ADJUSTING WATER GATES AND SHUTOFFS SET BY OTHERS	EA	\$	250.00	4	\$1,000
615.0301	TRAFFIC SIGN TYPE C	SF	\$	90.00	100	\$9,000
618.61	UNIFORMED OFFICERS W/ VEHICLE	HR	\$	75.00	320	\$24,000
618.7	FLAGGERS	HR	\$	40.00	1280	\$51,200
619.1	MAINTENANCE OF TRAFFIC	UNIT	\$	50,000.00	1	\$50,000
619.253	PORTABLE CHANGEABLE MESSAGE SIGN (UNIT WEEK)	UWK	\$	600.00	96	\$57,600
625.525	STREET LIGHTS INCLUDING POLES, FOUNDATIONS AND LUMINAIRES	EA	\$	8,000.00	5	\$40,000
628.2	SAWED BITUMINOUS PAVEMENT	LF	\$	4.00	600	\$2,400
646.51	TURF ESTABLISHMENT WITH MULCH, TACKIFIERS AND LOAM	SY	\$	5.00	1200	\$6,000
650.2	LANDSCAPING	U	\$	20,000.00	1	\$20,000
692	MOBILIZATION	UNIT	\$	50,000.00	1	\$50,000
698.13	FIELD OFFICE TYPE C	MON	\$	1,800.00	6	\$10,800
699	MISCELLANEOUS TEMPORARY EROSION AND SEDIMENT CONTROL	\$	\$	5,000.00	1	\$5,000
	SUBTOTAL					\$878,220
			MISC	CELLANEOU	S ITEMS (10%)	\$87,822
				CONTING	ENCIES (20%)	\$175,644
					SUBTOTAL:	\$1,141,685
		TOTAL EST	MAT	ED CONSTR	UCTION COST	\$1,142,000
				ENC	NEEDING (DE)	\$180,000
ENGINEERING (PE) ROW						\$30,000
CONSTRUCTION ENGINEERING, INSPECTION AND TESTING						\$70,000
						· ·
			EST	IMATED PRO	DJECT TOTAL:	\$1,422,000





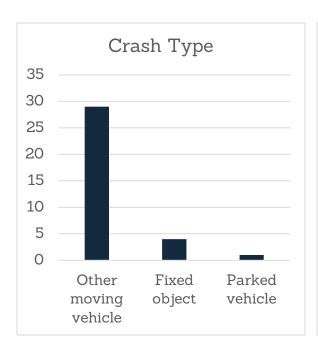


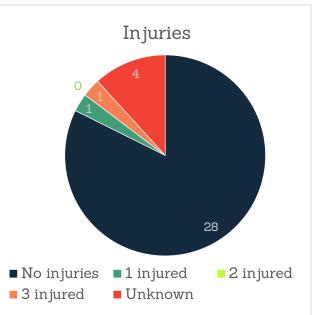
Durham Priority Project: NH 155A & Main Street

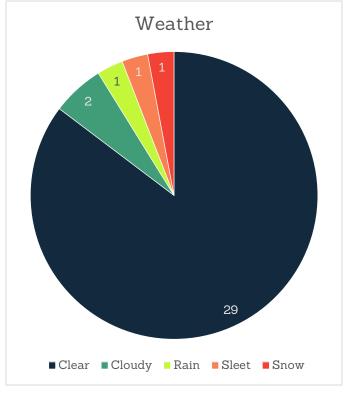
Mast Road Roundabout

Incidents 2010-2020

- No apparent Injury
- Non-incapacitating
- Possible serious injury
- Unknown
- Incident type not reported
- Suspected minor injury (0)
- Fatalities (0)







Reported number of incidents 2010 - 2020 34

Jan	7
Feb	8
Mar	1
Apr	3
May	3
Jun	0
Jul	1
Aug	1
Sep	4
Oct	3
Nov	2

4
10
5
4
6
2
3

