

LAKES REGION PLANNING COMMISSION

103 Main Street, Suite #3
Meredith, NH 03253
Tel 603.279.8171
www.lakesrpc.nh.gov



LRPC COMMISSIONER'S MEETING

Monday, November 25, 2024

6:00 PM

Bridgewater Town Office
297 Mayhew Turnpike (Route 3A)
Bristol, NH
(directions on reverse)

AGENDA

-
1. **Call to Order, Establish Quorum**
 2. **Approve Draft Minutes** of October 23, 2024 (*actionable item*) *Attachment 1*
 3. **Old Business**
 - a. Conflict of Interest Forms (tentative)
 - b. Commissioner Handbook Acknowledgment (tentative)
 4. **New Business**

Transportation Advisory Committee (TAC) - Ten Year Plan (TYP) *Attachment 2*
(2027-2036) Endorsement – Plymouth Route 3 (*actionable item*)
 5. **Presentation**

LRPC Project Update: Stormwater Management & Culvert Assessments
Presenter: Glenn Trefethen, LRPC Transportation Planner
 6. **General Updates/Announcements**
 7. **Commissioner Roundtable**

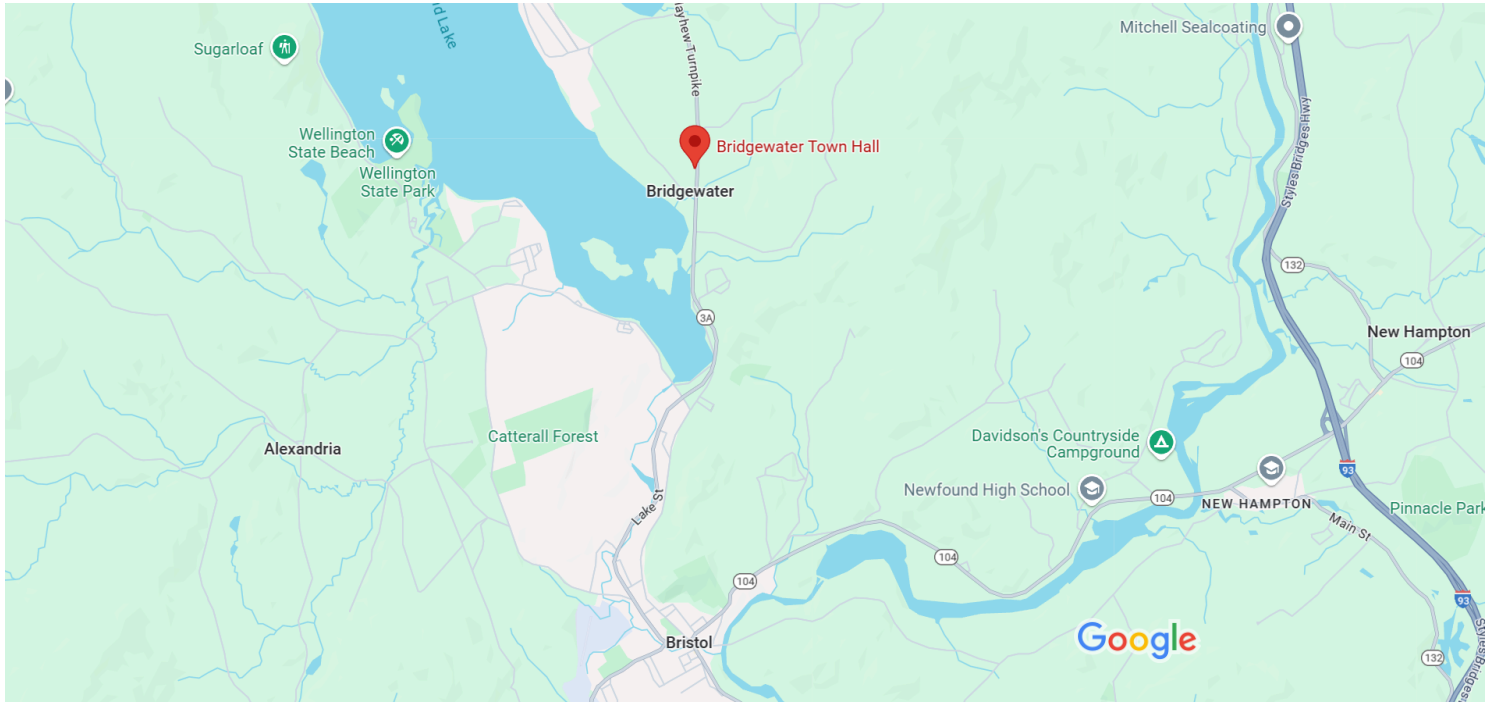
Share noteworthy news and happenings from your communities.
 8. **Adjourn**

NEXT MEETING: March 24, 2025

Have a safe winter and Happy Holidays!

The Lakes Region Planning Commission reserves the right to hold a non-public session whether noted on the Agenda or not. Notice of a non-public session on an agenda is for planning purposes only. The citations to the Right-to-Know Law are provisional and may be revised as circumstances required. The LRPC complies with the ADA regulations. Please contact the LRPC office if you need special assistance in order to attend this meeting.

All meeting dates and times are subject to change.



Map data ©2024 Google 5000 ft



Bridgewater Town Hall

City Hall ·

Overview

About



Directions



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297 NH-3A, Bristol, NH 03222

Attachment 1

LAKES REGION PLANNING COMMISSION

103 Main Street, Suite #3
Meredith, NH 03253
Tel 603.279.8171
www.lakesrpc.nh.gov



LRPC Commissioner Meeting

Location: Colonial Theater | Laconia

Minutes of October 23, 2024

Commissioners Present		Commissioners Absent	
Alexandria:	George Tuthill	Ashland:	Mardean Badger
Andover:	Roland Carter	Barnstead:	David Kerr
	Donna Crisp Duclos	Danbury:	John Taylor
Belmont:	Rod Cameron	Gilford:	John Ayer
Bridgewater:	Ken Weidman	Meredith:	Stephanie Maltais
	Judith Faran	Moultonborough:	Cristina Ashjian
Bristol:	Buz Kenney		Celeste Burns
Center Harbor:	Mark Hildebrand	New Hampton:	Andy Anderson
Danbury:	Mark Zaccaria	Plymouth:	John Christ
Franklin:	Chip Ach	Tamworth:	Lianne Prentice
	Jo Brown	Tilton:	Jane Alden
Freedom:	Mark McConkey		Nathan Langione
Hebron:	Ivan Quinchia	Tuftsboro:	Tim Galvin
Laconia:	Tyler Carmichael	Wolfeboro:	Roger Murray, III
	Richard MacNeill		
Meredith:	Daniel Whitney		
New Hampton:	David Katz		
Northfield:	Beth Keck		
	Ken Tripple		
Plymouth:	William Bolton		
	Neil McIver		
Sandwich:	Maureen Westrick		
Tamworth:	Richard Doucette		
Tilton:	Joseph Jesseman		

LRPC Staff: Executive Director Shanna B. Saunders, Administrative Assistant Linda Waldron, Transportation Planner Glenn Trefethen.

Public: Zachary Branscom, Field Representative & Patrick Cavanaugh, Public Information Officer, NH E911 (presenters) | Matt White, Mapping & Data Operations, NH E911 | Mark Doyle, Director & Tim Scott, Assistant Director, Division of Emergency Services and Communications.

1. Call to Order

The meeting was called to order at 6:00 PM by Vice Chair Katz. A quorum was established.



2. Approval of Minutes

Vice Chair Katz presented the minutes of September 23, 2024 for discussion. There was no discussion. Judy Faran moved to approve the minutes, and Tyler Carmichael seconded the motion. A voice vote was taken, all present were in favor. **Motion passed.**

3. Old Business

The items listed on the agenda were addressed prior to the meeting and are thus moot.

4. New Business

Housing Champion Designation. Executive Director Saunders discussed the importance of the housing champion designation and the application process. A new directive from the State requires that a municipality must apply to be labeled as such, otherwise they are at risk of being denied discretionary grant funding. She emphasized that the application process is complex and time-consuming, and while LRPC cannot assist with filling it out, we can answer questions and provide data. This program is run through the Department of Business and Economic Affairs (BEA) and applications will be accepted until November 15th.

Also mentioned was the 10-year plan project, the Transportation Advisory Committee (TAC), and the need for municipal TAC representatives for several communities.

5. Presentation

Vice Chair Katz introduced Zachary Branscom and Patrick Cavanaugh from NH Emergency Services & Communications (NH E911). Mr. Cavanaugh and Mr. Branscom spoke about how E911 works in New Hampshire, and how it is different from other states – and from TV. This included information on town/city partnerships, standardized addressing and benefits, state and local regulations on addressing, and non-standard addressing. He also reminded attendees that 911 is capable of being reached via text message. Slides from this presentation will be posted to LRPC's website. A question and answer session followed the presentation.

6. General Updates/Announcements

None.

7. Commissioner Roundtable

The following provided updates concerning activities in their communities: Bill Bolton (Plymouth), Neil McIver (Plymouth), Mark McConkey (Freedom), Chip Ach (Franklin), Beth Keck (Northfield), Roland Carter (Andover), Daniel Whitney (Meredith), Jo Brown (Franklin), Maureen Westrick (Sandwich), Buz Kenney (Bristol), Joseph Jesseman (Tilton), Richard MacNeill (Laconia), Tyler Carmichael (Laconia), Mark Zaccaria (Danbury), David Katz (New Hampton), and Executive Director Saunders (for Wolfeboro).

8. Adjournment

Vice Chair Katz adjourned the meeting at 7:30 PM.

Respectfully Submitted,

Linda Waldron
Executive Administrative Assistant



Attachment 2

November 15, 2024

Scott Weden, Town Manager
Town of Plymouth
6 Post Office Square
Plymouth, NH 03264



2024 UPDATED TEN-YEAR PLAN COST

US Route 3 - Roadway and Pedestrian Improvements, Plymouth, NH
HEB Project #2022-105A

Dear Scott,

In November 2022, HEB Engineers, Inc. (HEB) prepared a Ten-Year Plan scope and estimate on behalf of the Lakes Region Planning Commission (LRPC) for multi-modal improvements on US Route 3 (Main Street) in Plymouth, NH. At the request of LRPC, the Town of Plymouth (Town) has engaged HEB to update the 2022 project cost estimates for a 2024 Ten-Year Plan submission, through the New Hampshire Department of Transportation (NHDOT).

SUMMARY OF THE 2022 SCOPE

The purpose of the project is to improve safety for all roadway users along Main Street from Tobey Road to Fairgrounds Road. There are substandard intersection sight distances from Armory Road, and no dedicated facilities for pedestrians or bicyclists through most of the project corridor.

The Town and LRPC agreed to split this scope into two phases. Phase 1 focuses on the roadway geometry improvements and addition of sidewalk, and wider shoulders for bicyclists along Main Street from Tobey Road to the bridge over the Baker River. Phase 2 focuses on pedestrian improvements by adding sidewalk from the bridge over the Baker River to Fairgrounds Road. The 2022 Scoping Memo prepared by HEB is included in Appendix B.

OPINION OF PROBABLE COSTS

HEB updated the 2022 Opinion of Probable Cost (OPC) estimate based 2024 unit prices. A detailed unit cost estimate is included in Appendix A. Costs are based on the assumption that the work will be completed under a project with Federal funding. Therefore, unit prices were compiled using bid history from other recently bid projects and the NHDOT Weighted Averages database on iPDweb. The summarized costs include the following:

2024 Construction (CON)

The line item for CON includes the subtotal costs of all the identified construction items plus unidentified minor items and contingency plus construction administration. Unidentified minor items and contingency are 30% of the identified construction items. Construction administration costs are 15% of the combined costs of identified construction items plus unidentified minor items and contingency. CON represents the total of all Construction costs.

2024 Preliminary Engineer (PE)

The line item for PE is estimated at 20% of the CON costs for Phase 1. For Phase 2, the Construction Cost is lower; however, if Federal funding is pursued there's not enough PE budget at 20% to provide adequate services to meet the needs of the Federal Aid Program. Therefore, the PE budget was increased to 30% for Phase 2.

2024 Right-of-Way (ROW)

The line item for ROW is estimated based on engineering judgment and past experience. ROW costs include property appraisals, offers/negotiations, and anticipated property costs. In Phase 1, there are permanent and temporary easements anticipated to shift US Route 3 for geometrical improvements. In Phase 2, the 2022 HEB scoping memo carried a cost for ROW; however, it appears all the work can be accomplished within State ROW, and there are no ROW impacts for Phase 2, the 2024 estimate has been updated.

Since this project is in the early stages of planning and a funding source has not yet been identified, HEB did not project future costs for the improvements. All costs are based on recent market prices, recent projects, or engineering judgment. Below is a summary of the project costs.

Proposed Improvements:	2024 PE	2024 ROW	2024 CON	Total
Phase 1 Tobey Rd. to Bridge	\$ 608,000	\$ 80,000	\$ 3,040,000	\$ 3,728,000
Phase 2 Bridge to Fairgrounds Rd.	\$ 165,000	\$ --	\$ 548,000	\$ 713,000

The Phase 1 Total cost in the 2022 Scoping Memo was \$3,346,000 compared to \$3,728,000 for the 2024 updated cost, a 11% increase. The increased cost in Phase 1 can be accounted for increases in industry unit costs due to inflation over the past few years. The Phase 2 Total cost in the 2022 Scoping Memo was \$655,000 compared to \$713,000 for the 2024 updated cost, a 9% increase. The increased cost in Phase 2 can also be accounted for increases in industry unit costs due to inflation. Phase 2 was also updated to eliminate any ROW costs; however, the PE costs were increased to account for design processes associated with a Federal Aid project.

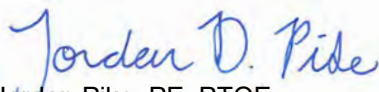
RECOMMENDATIONS

These projects were initially requested to be separated into two projects, Phase 1 and Phase 2. It seems the scope for Phase 2 could qualify for NHDOT's Transportation Alternatives Program (TAP). It is recommended to either combine Phase 1 and Phase 2 into a single Ten-Year Plan project or to pursue TAP funding for Phase 2, which perhaps could be accomplished in advance of the Phase 1 Ten-Year Plan project.

If you have any questions or would like to discuss this matter further, please do not hesitate to contact me.

Sincerely,

HEB Engineers, Inc.



Jordan Pike, PE, PTOE
Senior Transportation Engineer

Enclosures: Appendix A – 2024 Updated Engineer's Opinion of Probable Cost
Appendix B – 2022 HEB Scoping Memo – US-3 Plymouth

Copy: Lakes Region Planning Commission
File

APPENDIX A

2024 Updated Engineer's Opinion of Probable Cost

Engineer's Opinion of Probable Cost

Roadway & Pedestrian Improvements on US Route 3
Plymouth, New Hampshire

HEB Project #: 2022-105A

Date: 11/15/24

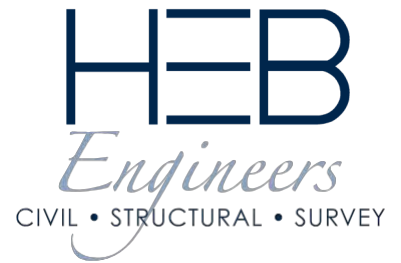
Computed by: AML/JDP

NHDOT Item #	Description	Unit	Unit Cost	Phase 1: Tobey Road to Bridge		Phase 2: Bridge to Fairgrounds Road	
				Quantity	Total Cost	Quantity	Total Cost
	Earthwork						
201.1	Clearing and Grubbing	Acre	\$ 30,000.00	0.5	\$ 15,000.00	0	\$ -
203.1	Common Excavation	CY	\$ 24.00	8,200	\$ 196,800.00	200	\$ 4,800.00
203.2	Rock Excavation	CY	\$ 100.00	1,000	\$ 100,000.00	10	\$ 1,000.00
209.1	Granular Backfill	CY	\$ 40.00	590	\$ 23,600.00	100	\$ 4,000.00
214	Fine Grading	Unit	\$ 1.00	40,000	\$ 40,000.00	5,000	\$ 5,000.00
	Base Courses						
304.1	Sand	CY	\$ 35.00	1,340	\$ 46,900.00	0	\$ -
304.2	Gravel	CY	\$ 45.00	1,340	\$ 60,300.00	0	\$ -
304.3	Crushed Gravel	CY	\$ 50.00	1,550	\$ 77,500.00	230	\$ 11,500.00
	Pavements						
403.11	Hot Bituminous Pavement, Machine Method	Ton	\$ 140.00	1,400	\$ 196,000.00	0	\$ -
403.12	Hot Bituminous Pavement, Hand Method	Ton	\$ 220.00	30	\$ 6,600.00	60	\$ 13,200.00
410.22	Asphalt Emulsion for Tack Coat	Gal	\$ 8.00	660	\$ 5,280.00	40	\$ 320.00
417	Cold Planing Bituminous Surfaces	SY	\$ 5.00	1,300	\$ 6,500.00	0	\$ -
	Structures						
TBD	Retaining Wall	SF	\$ 165.00	3,500	\$ 577,500.00	0	\$ -
	Incidental Construction						
603.00215	15" R.C. Pipe 2000D	LF	\$ 145.00	360	\$ 52,200.00	400	\$ 58,000.00
604.124	Catch Basin, Type B, 4'-Diameter	EA	\$ 5,500.00	3	\$ 16,500.00	2	\$ 11,000.00
604.4	Reconstructing/Adjusting Catch Basins	LF	\$ 1,400.00	2	\$ 2,800.00	2	\$ 2,800.00
604.62	Drainage Manhole Cover and Frames	EA	\$ 1,200.00	3	\$ 3,600.00	2	\$ 2,400.00
606.18001	31" W-Beam Guardrail with 8" Offset Block (Steel Post)	LF	\$ 40.00	250	\$ 10,000.00	50	\$ 2,000.00
606.82	Anchorage for Beam Guardrail	EA	\$ 4,500.00	2	\$ 9,000.00	1	\$ 4,500.00
608.24	4" Concrete Sidewalk (F)	SY	\$ 70.00	890	\$ 62,300.00	890	\$ 62,300.00
608.54	Detectable Warning Plates	SY	\$ 500.00	8	\$ 4,000.00	3	\$ 1,500.00
609.01	Straight Granite Curb	LF	\$ 65.00	1,600	\$ 104,000.00	1,600	\$ 104,000.00
615.02201	Traffic Sign Type B, Breakaway Mounts	SF	\$ 125.00	12	\$ 1,500.00	6	\$ 750.00
618.7	Flaggers	HR	\$ 65.00	640	\$ 41,600.00	0	\$ -
619.1	Maintenance of Traffic	Unit	\$ 1.00	89,300	\$ 89,300.00	16,100	\$ 16,100.00
628.2	Sawed Bituminous Pavement	LF	\$ 8.00	780	\$ 6,240.00	1,600	\$ 12,800.00
632.0104	Retroreflective Paint Pavement Marking, 4" Line	LF	\$ 0.50	6,400	\$ 3,200.00	0	\$ -
632.0124	Retroreflective Paint Pavement Marking, 24" Line	LF	\$ 0.75	520	\$ 390.00	0	\$ -
645.531	Silt Fence	LF	\$ 6.00	3,000	\$ 18,000.00	500	\$ 3,000.00
646.31	Turf Establishment with Mulch and Tackifiers	SY	\$ 8.00	4,000	\$ 32,000.00	40	\$ 320.00
692	Mobilization	Unit	\$ 1.00	159,300	\$ 159,300.00	28,900	\$ 28,900.00
698.13	Field Office Type C	Mo.	\$ 2,000.00	10	\$ 20,000.00	5	\$ 10,000.00
699	Miscellaneous Temporary Erosion and Sediment Controls	\$	\$ 1.00	30,000	\$ 30,000.00	5,000	\$ 5,000.00
	Utility Pole Relocations	EA	\$ 15,000.00	1	\$ 15,000.00	0	\$ -
				Phase 1: Tobey Road to Bridge		Phase 2: Bridge to Fairgrounds Road (Sidewalk & Curbing)	
				Construction Items Subtotal	\$ 2,033,000.00	Construction Items Subtotal	\$ 366,000.00
				Minor Items & Contingency (30%)	\$ 610,000.00	Minor Items & Contingency (30%)	\$ 110,000.00
				Construction Administration (15%)	\$ 397,000.00	Construction Administration (15%)	\$ 72,000.00
				2024 Construction Cost (CON)	\$ 3,040,000.00	2024 Construction Cost (CON)	\$ 548,000.00
				2024 Prelim. Engineering (20%) (PE)	\$ 608,000.00	2024 Prelim. Engineering (30%) (PE)	\$ 165,000.00
				2024 Right-of-Way (ROW)	\$ 80,000.00	2024 Right-of-Way (ROW)	\$ -
				2024 Total Project Cost	\$ 3,728,000.00	2024 Total Project Cost	\$ 713,000.00

APPENDIX B

2022 HEB Scoping Memo – US-3 Plymouth

MEMORANDUM



To: Sean Chamberlin
Lakes Region Planning Commission
103 Main Street, Suite #3
Meredith, NH 03253

Date: November 8, 2022

From: Jordan Pike, PE, PTOE

Email: jpike@hebengineers.com

Re: **On-Call Assignment #1 | Task Order 1 | US-3 Plymouth**
HEB Project #2022-105

The Lakes Region Planning Commission (LRPC) has requested HEB Engineers, Inc. (HEB) investigate and provide costs associated for multi-modal improvements on US-3 (Main Street) from Tobey Road to Fairgrounds Road in Plymouth, New Hampshire (see Project Location Plan in Attachment A). The purpose is to provide conceptual drawings with associated cost estimates for consideration of adding improvements at this location to the NHDOT Ten Year Plan (TYP).

HEB reviewed the Transportation Project Proposal prepared by the Town of Plymouth, conducted a field review of the project site, and attended a meeting with Town Officials and Public Works staff to discuss on-going safety concerns. HEB evaluated all the information provided and presented concept drawings and project costs to the LRPC Transportation Technical Advisory Committee (TAC) for improvements on US-3 between Tobey Road and Fairgrounds Road in Plymouth. Below is a summary of our findings.

Existing Conditions

US-3 (Main Street) from Tobey Road to Fairgrounds Road is a north/south, two-lane, rural major collector highway. It is a non-NHS route, with a posted speed limit of 30 mph which changes to 40 mph in the vicinity of Armory Road. The 2019 Annual Average Daily Traffic of 4,161 vehicles per day. NHDOT collected more recent traffic data in May 2022; however, updated AADT values are currently unavailable.

The project area includes a number of anchor businesses and employers within downtown Plymouth, as well as sites that present opportunities for future economic development. Plymouth benefits from an outdoor recreation economy; however, there is no pedestrian or bicycle infrastructure within the project area to provide connectivity to key businesses and existing destinations.

Pedestrian Infrastructure

There are narrow shoulders and no sidewalks along US-3 within the project limits. "Herd paths" were observed along much of the roadway corridor, presenting evidence of pedestrian traffic utilizing the roadside instead of the shoulder.

Plymouth State University has student housing and commuter parking along this stretch of Main Street, with university buildings located to the south, requiring students to walk or bike to classes along US-3. This creates safety concerns for students walking between classes, housing, and the commuter lot.

There is affordable housing on Fairgrounds Road; however, there is no pedestrian connection from Fairgrounds Road to downtown Plymouth businesses; approximately 0.7 miles. Residents in affordable housing communities may be less likely to have access to a personal motor vehicle and may require public transportation or non-motorized modes to get around. Non-motorized users are disproportionately affected by motor vehicle crashes. Nation-wide pedestrian fatalities are trending in the wrong direction. NHDOT's 2022 Strategic Highway Safety Plan indicates that over the past 5 years pedestrian fatalities have increased over 20%.

Bicycle Infrastructure

US-3 has a narrow roadway section, approximately 26 feet wide near Tobey Road. It widens slightly towards the Baker River, but generally paved shoulders are between 1 – 2 feet wide. During the field review, multiple bicyclists were observed riding within the project limits. The observed cyclists were all from the Mt. Prospect Academy; which is approximately 0.25 miles north of Fairgrounds Road. Outdoor recreation is part of their regular program. There is a bicycle shop on Foster Street, and the Town of Plymouth has plans to include a recreational trail connection from Main Street to the Langdon Woods trails along the Baker River as part of a budgeted sewer project.

There are wider shoulders north of Foster Street. Recent re-striping reduced the 3-lane section between the Tenney Mountain Highway ramps to a 2-lane section with wider shoulders and a painted median.

Roadway

The New Hampshire Army National Guard has a facility located on Armory Road. Due to limited sight distance the National Guard has truck deliveries utilize a right-in/right-out commuting pattern. Although this delivery practice is safer, it increases fuel consumption and creates unnecessary motor vehicle delay. Intersection sight distance (ISD) was measured during the site walk to be approximately 273 feet, which would be inadequate for a passenger car design speed of 25 mph and inadequate for a single-unit truck design speed of 20 mph. The posted speed limit on US-3 at Armory Road is 40 mph. In reviewing the vertical geometry, HEB believes that the stopping sight distance along this vertical curve is also sub-standard for the roadway (approximated from available LiDAR).

Proposed Project Scope

The purpose of this project is to improve safety for motorized and non-motorized traffic along US-3 (Main Street) between Tobey Road and Fairgrounds Road in Plymouth, NH. Safety improvements for motorized traffic pertain to sub-standard sight distances in the vicinity of Armory Road. Safety improvements for non-motorized traffic include the addition of bicycle and pedestrian facilities within the project limits.

At the Town's request the project was scoped in two phases. Phase 1 includes all roadway work and pedestrian connectivity from Tobey Road to Foster Street. Phase 2 extends the pedestrian connection from Foster Street to Fairgrounds Road. Please see the concept drawings in Attachment B. Below is a narrative that discusses the proposed improvements shown on the concept drawings.

Phase 1: US-3 from Tobey Road to Foster Street

There is a significant need for non-motorized infrastructure within the project limits. The proposed project scope would include a 5-foot concrete sidewalk along the west side of US-3. The sidewalk would tie in to the existing sidewalk at Tobey Road then continue north to the Baker River Bridge, where there is an existing 5-foot-wide pedestrian walkway across the west side of the bridge. The 5-foot concrete sidewalk would continue on the other side of the Baker River and cross the eastbound ramps for the Tenney Mountain Highway, to a proposed pedestrian crossing on US-3 to Foster Street. This would provide connectivity from downtown Plymouth, along university housing and parking, and terminate at a destination. At the request of the Town, a 4-foot grass buffer strip, also known as a snow shelf, is planned between the sidewalk and the roadway. The snow shelf provides room for snow storage for winter maintenance and additional separation of facilities for pedestrian safety.

Based on observed bicycle traffic, an established bicycle shop on Foster Street, and a future planned trail connection from US-3 to the Langdon Woods recreational trails, it is recommended to add 5-foot-wide shoulders on both sides of US-3 for enhanced bicycle accommodation. This will provide dedicated space for bicyclists, which will enhance safety and use, as well as create additional opportunities for recreation from downtown.

US-3 between Tobey Road and Old Main Street should be reconstructed to meet geometric standards. This work would include correcting the crest vertical curve between Tobey Road and Armory Road to provide SSD that meets design guidance and ISD for truck traffic on Armory Road. This work will result in a large retaining wall near the crest of the vertical curve, to eliminate grading impacts to university parking. It is recommended to shift the alignment of US-3 horizontally away from the parking lot to minimize the size of the retaining wall.

The addition of curbing on the west side of US-3 will require extending the contained drainage system. There is an existing Town maintained system near Tobey Road. For drainage towards Tobey Road, there is a plan to add two additional basins to the existing system. On the Armory Road side of the crest vertical curve, a new State maintained contained drainage system will need to be installed. US-3 is superelevated through the Armory Road intersection, so it is anticipated only two basins would be needed through the sag vertical curve approaching the Baker River Bridge. This system may require a drainage easement to outlet to the west in the vegetated area.

Additional consideration of an appropriate design speed should be investigated in the Preliminary Engineering phase. For scoping purposes, HEB utilized a design speed of 40 mph; however, as land use continues to develop in this area, it could become an extension of the downtown corridor. The anticipated change in land use paired with the addition of multi-modal infrastructure warrants an engineering study to determine an appropriate speed limit and design speed for US-3 in this area. It seems with an increased focus on non-motorized modes within the project limits, reducing speeds should be considered and could ultimately affect the level of geometric improvement at this location.

Phase 2: US-3 from Foster Street to Fairgrounds Road

The proposed project scope for this phase is a continuation of the sidewalk improvements from the pedestrian crossing at Foster Street north to Fairgrounds Road. This provides a pedestrian connection along the west side of US-3 to Fairgrounds Road. There is a large embankment for US-3 to build up to the overpass bridge over the Tenney Mountain Highway. In order to minimize grading impacts in this area, sidewalk and granite curbing is planned to be along the roadside at the eastbound ramps. As the sidewalk continues north and the turn lanes taper back, the sidewalk should transition from the roadside to the roadway. Sidewalk planned in the roadway will still be 5 feet wide with granite curbing. There is additional pavement available from the reduced roadway section across the Tenney Mountain Highway overpass on US-3. Pavement markings could be revised in this area to reduce the painted island to include the sidewalk across the bridge, and maintain existing shoulder and lane widths. A contained drainage system already exists through this part of the corridor, basins will need to be modified to the new gutter line with the sidewalk improvements.

Constructing the sidewalk from Foster Street to Fairgrounds Road along the east side of US-3 was given strong consideration. Much of the "herd path" along US-3 is on this side of the road and there is existing granite curbing as well as a sidewalk on the east side of the US-3 overpass. Building the sidewalk on the east side of US-3 would be simpler and more cost effective. However, this alternative seems to deviate from the project scope of non-motorized safety and pedestrian connectivity. One of the major driving factors for extending the sidewalk to Fairgrounds Road is to better accommodate pedestrians from affordable housing communities on Fairgrounds Road to downtown locations. The eastern sidewalk alternative would require pedestrians to cross four lanes of pavement at Fairgrounds Road and an additional four lanes of pavement at Foster Street. Providing the sidewalk infrastructure on the west side of US-3 reduces these conflict points and provides a consistent corridor for pedestrians.

Estimated Project Costs

As requested, HEB has prepared cost estimates for both Phase 1 and Phase 2 based on the concept drawings for Multi-Modal Improvements on US-3 in Plymouth. The estimates include line items for 2023 Construction Cost (CN), 2023 Preliminary Engineering (PE), and 2023 Rights-of-Way (RW). A minor item allowance of 20% was added to the base estimate to account for items too small to quantify during the conceptual design phase. Construction Engineering costs were assumed to be 25% of the Base Estimate. Total Construction Cost (CN) includes the Base Estimate, plus Construction Engineering, plus a 10% contingency. Preliminary Engineering costs were assumed to be 20% of the CN cost; additional effort is anticipated due to scope complexity, potential historic involvement, and potential railroad coordination. This breakdown and quantity estimates are available on the attached spreadsheet.

In order to account for inflation, the Base Estimate was compounded annually at a 2.8% interest rate. Each phase was adjusted for inflation accordingly dependent on the fiscal year monies are anticipated to be obligated. Based on an assumed TYP schedule the phases were inflated to the following years: PE in 2029, RW in 2032, and CN in 2034.

HEB has prepared a preliminary Engineer's Opinion of Probable Costs (see Attachment C). Below is a summary of the proposed improvements with projected costs for each phase on the NHDOT Ten Year Plan.

Proposed Improvements:	2029 PE	2032 RW	2034 CN	Totals
Phase 1	\$ 738,000	\$ 103,000	\$ 3,688,000	\$ 4,529,000
Phase 2	\$ 102,000	\$ 103,000	\$ 679,000	\$ 884,000
Combined Phase 1 & 2	\$ 840,000	\$ 206,000	\$ 4,367,000	\$ 5,413,000

Recommendations

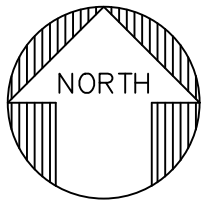
Although the Town requested looking at these projects as two separate phases due to concerns over funding constraints, HEB feels there is enough purpose and need for non-motorized and geometric improvements within this corridor and that these scoped phases should be combined into one proposed project.

The combined proposed project scope provides safety improvements for all roadway users, creates opportunities for economic development, provides downtown connectivity to affordable housing (potential Environmental Justice communities), and encourages recreation and alternate transportation modes. Plymouth is also a major transportation junction within the region providing an eastern gateway to the Lakes and White Mountain regions, with access to I-93, US-3 and the Tenney Mountain Highway.

P:\Jobs\2022\2022-105 LRPC - US-3 Plymouth, NH\Reports\TYP Scoping Report\US-3 Plymouth Scoping Memo 11-08-22.docx

ATTACHMENT A

Project Location Plan



Campton
Plymouth

PROJECT LOCATION
PHASE 2 END

PROJECT LOCATION
PHASE 1 END
PHASE 2 BEGIN

PROJECT LOCATION
PHASE 1 BEGIN

Fairgrounds Rd

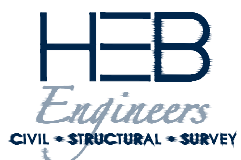
Tenney Mountain Hwy

Armory Rd
Tobey Rd

Foster St
Old Main St

I-93 Style Bridges Hwy

Holderness



HEB Engineers, Inc.
www.hebengineers.com
NH Office (603) 356-6936
Post Office Box 440
North Conway, NH 03860
ME Office (207) 803-8265
Post Office Box 343
Bridgton, ME 04009

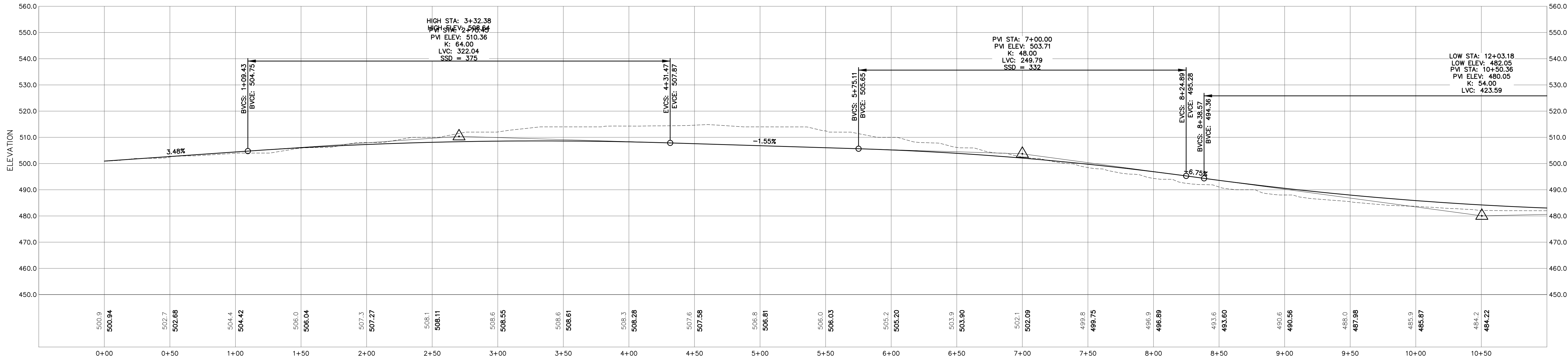
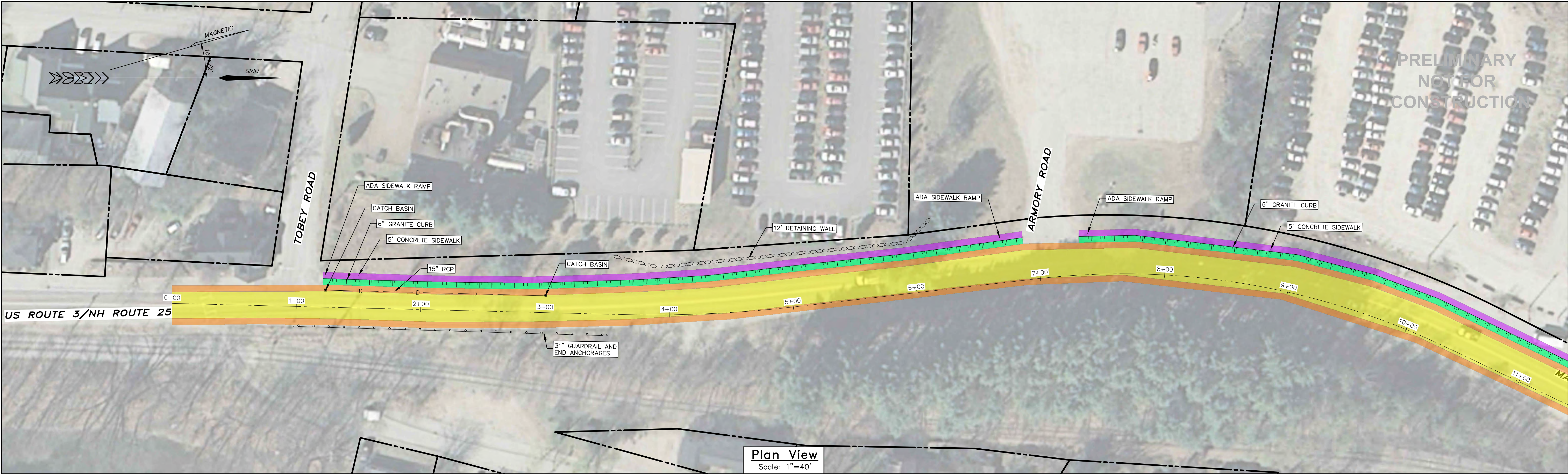
Project Location Plan
for
US Route 3
located in
Plymouth, New Hampshire
prepared for
Lakes Region Planning Commission

P1.01

DESIGNED BY	—	PROJECT	2022-105
DRAWN BY	CFX	REVISION	—
CHECKED BY	JDP	DATE	11/08/2022
		SCALE	1"=2000'

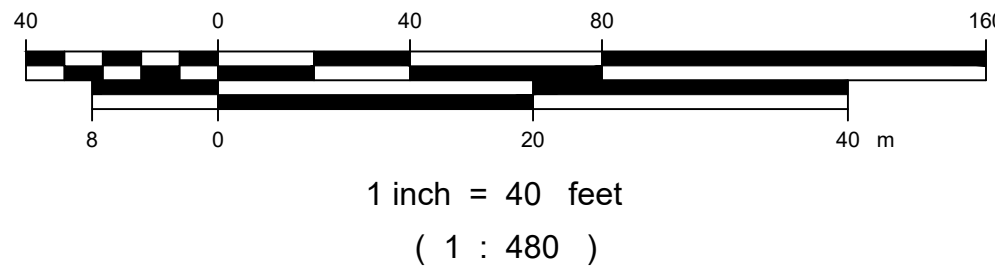
ATTACHMENT B

Concept Drawings

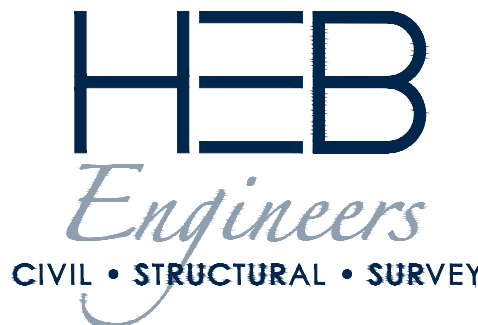


Legend

- Proposed Mill and Overlay
- Proposed Full Depth Reconstruction
- Proposed Snow Shelf
- Proposed Sidewalk



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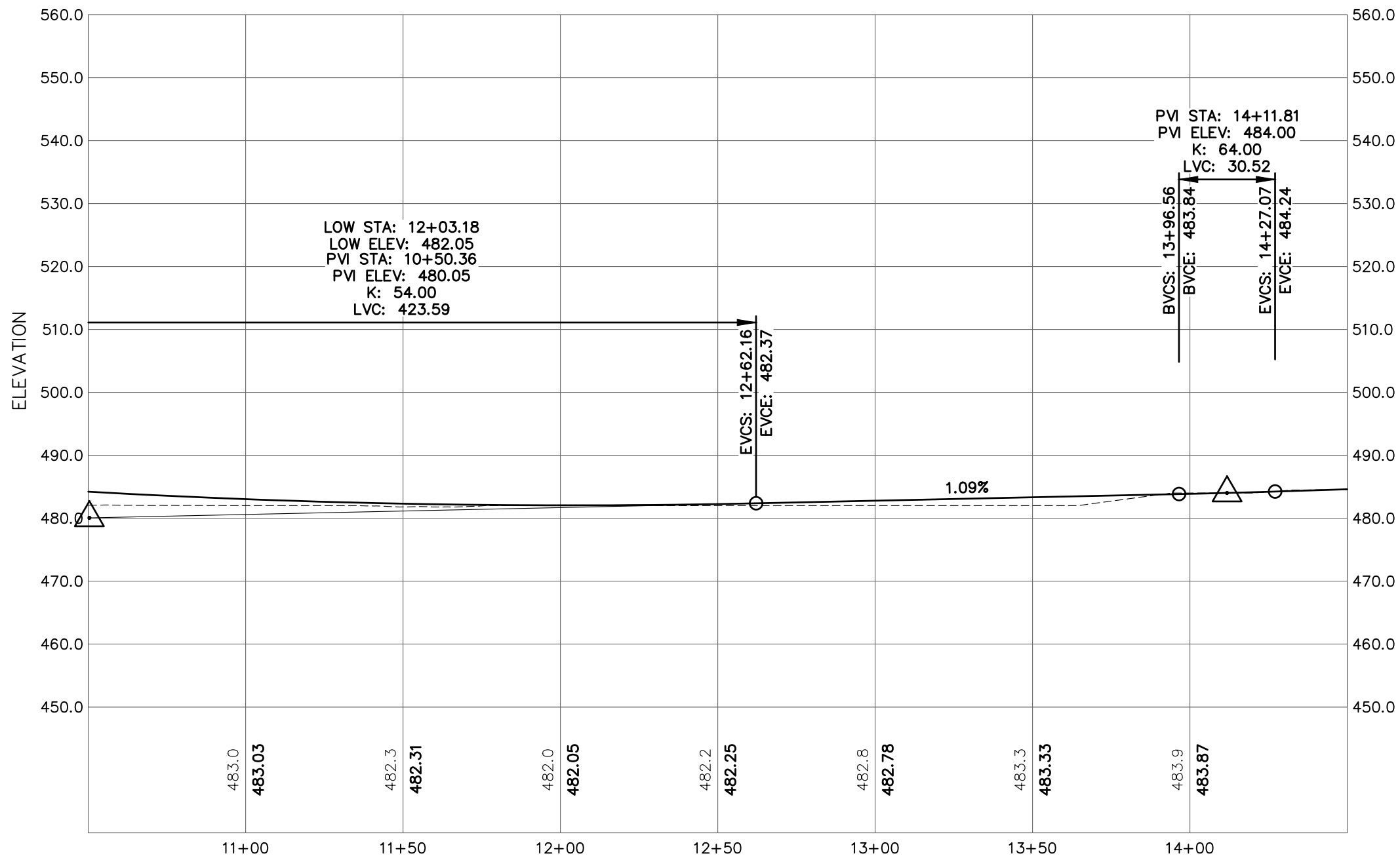
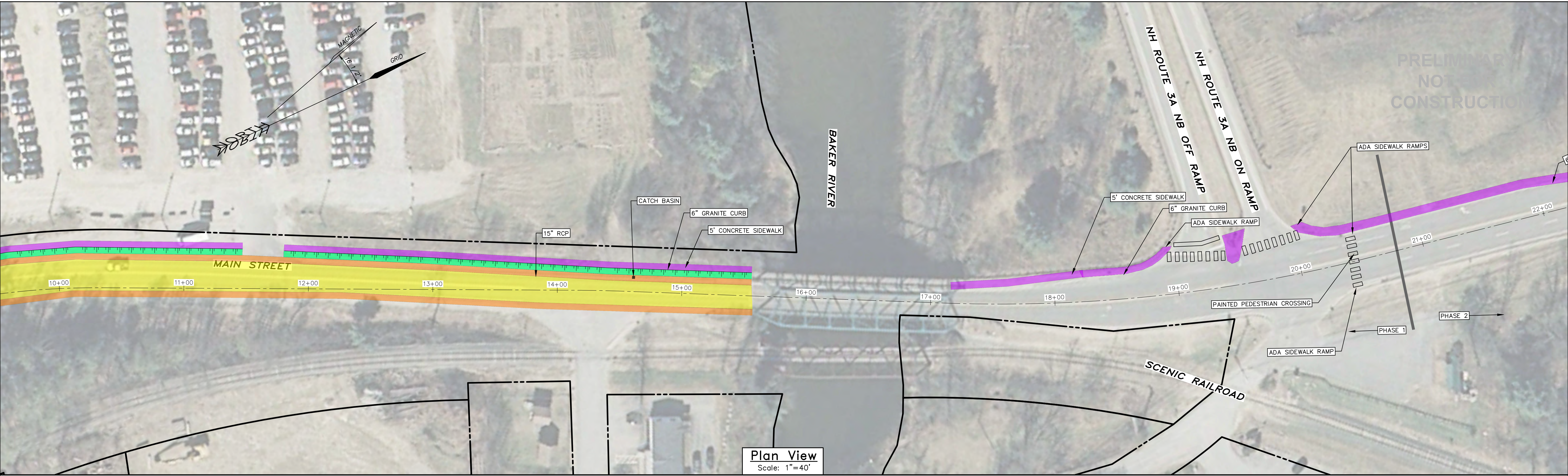
SURVEYED BY	—
DESIGNED BY	AML
DRAWN BY	CFX/JES
CHECKED BY	JDP
FIELD BOOK	—
SCALE	1"=40'
DATE	11/08/2022

Multi-Modal Improvements
on
US Route 3
located in
Plymouth, NH
prepared for
Lakes Region Planning Commission

2022-105

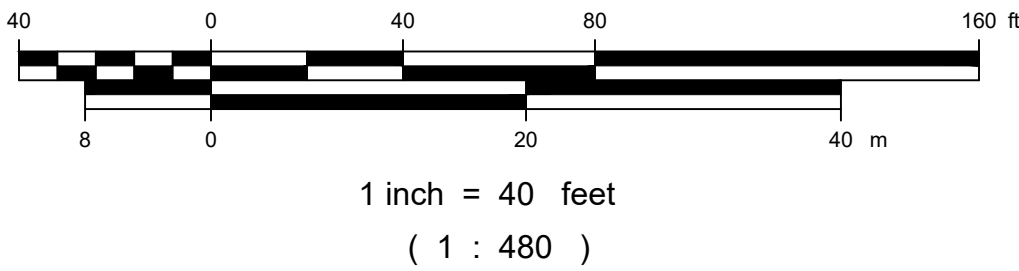
SK-1

SHEET 1 OF 3

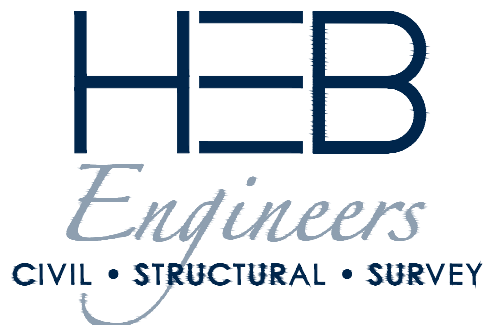


Legend

- Proposed Mill and Overlay
- Proposed Full Depth Reconstruction
- Proposed Snow Shelf
- Proposed Sidewalk



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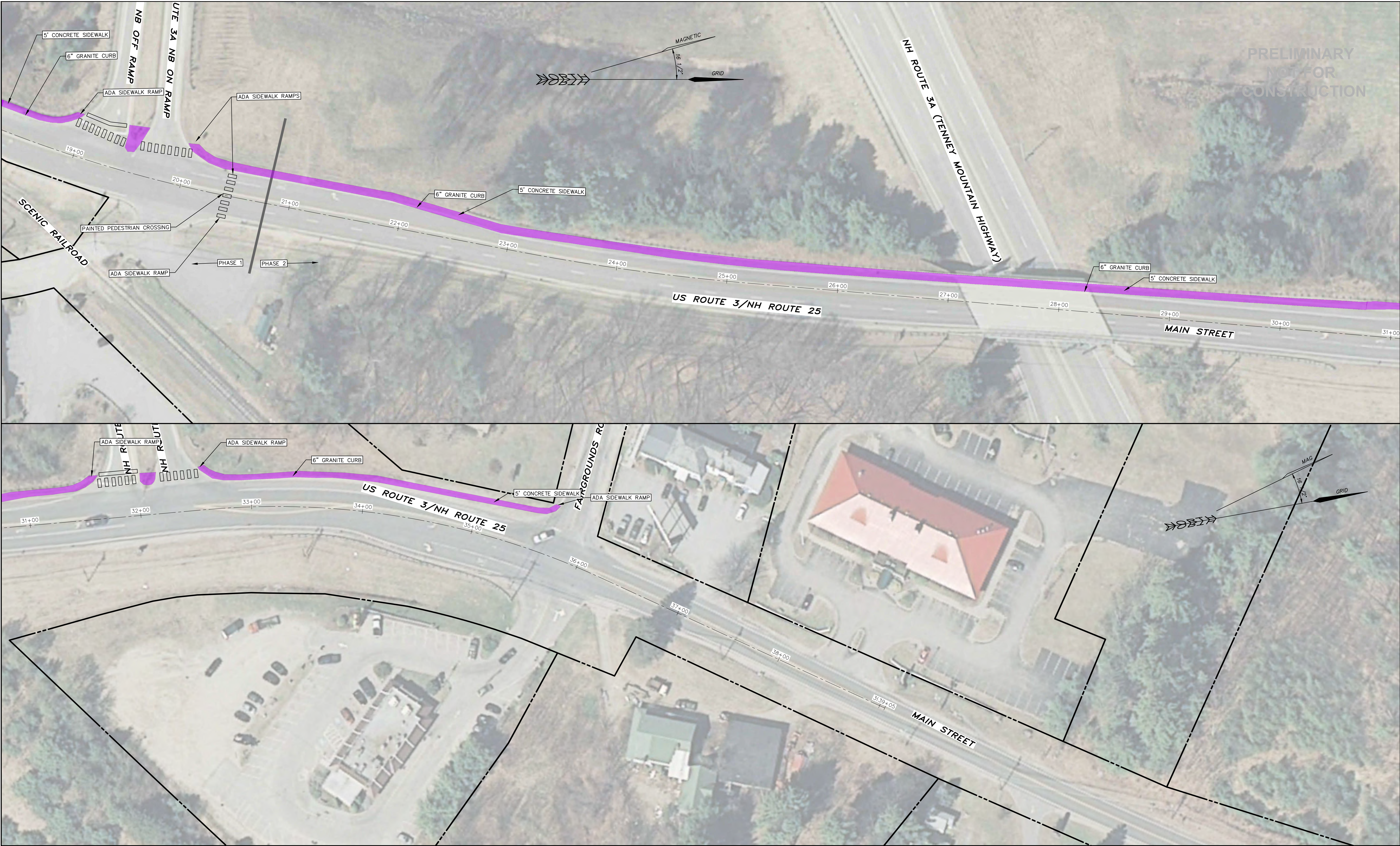
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www.hebengineers.com
NH Office (603) 356-6936
Post Office Box 440
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FIELD BOOK	—
SCALE	1"=40'
DATE	11/08/2022

Multi-Modal Improvements
on
US Route 3
located in
Plymouth, NH
prepared for
Lakes Region Planning Commission

2022-105

SK-2



Legend

- Proposed Mill and Overlay
- Proposed Full Depth Reconstruction
- Proposed Snow Shelf
- Proposed Sidewalk

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FIELD BOOK	—
SCALE	1" = 40'
DATE	11/08/2022

Multi-Modal Improvements
on
US Route 3
located in
Plymouth, NH
prepared for
Lakes Region Planning Commission

2022-105
SK-3
SHEET 3 OF 3

ATTACHMENT C

Engineer's Opinion of Probable Costs

Engineer's Opinion of Probable Cost

HEB Project #: 2022-105
Date: 11/08/22
Computed by: JDP

Roadway & Pedestrian Improvements on US-3
Plymouth, New Hampshire

				Phase 1: Tobey Road to Foster Street		Phase 2: Foster Street to Fairgrounds Rd.	
NHDOT Item #	Description	Unit	Unit Cost	Quantity	Total Cost	Quantity	Total Cost
	Earthwork						
201.1	Clearing and Grubbing	Acre	\$ 25,000.00	0.5	\$ 12,500.00	0	\$ -
203.1	Common Excavation	CY	\$ 18.00	8,200	\$ 147,600.00	111	\$ 2,000.00
203.2	Rock Excavation	CY	\$ 90.00	1,000	\$ 90,000.00	5	\$ 450.00
214	Fine Grading	Unit	\$ 25,000.00	1	\$ 25,000.00	1	\$ 2,500.00
	Base Courses						
304.1	Sand	CY	\$ 30.00	1,333	\$ 40,000.00	0	\$ -
304.2	Gravel	CY	\$ 35.00	1,333	\$ 46,666.67	0	\$ -
304.3	Crushed Gravel	CY	\$ 40.00	1,542	\$ 61,666.67	222	\$ 8,888.89
	Pavements						
403.11	Hot Bituminous Pavement, Machine Method	Ton	\$ 90.00	1,334	\$ 120,060.00	0	\$ -
403.12	Hot Bituminous Pavement, Hand Method	Ton	\$ 200.00	30	\$ 6,000.00	60	\$ 12,000.00
410.22	Asphalt Emulsion for Tack Coat	Gal	\$ 8.00	660	\$ 5,280.00	40	\$ 320.00
417	Cold Planing Bitumniuous Surfaces	SY	\$ 5.00	1,250	\$ 6,250.00	0	\$ -
	Structures						
	Retaining Wall	SF	\$ 150.00	3,500	\$ 525,000.00	0	\$ -
	Incidental Construction						
603.00215	15" R.C. Pipe 2000D	LF	\$ 100.00	360	\$ 36,000.00	400	\$ 40,000.00
604.124	Catch Basin, Type B. 4'-Diameter	EA	\$ 4,000.00	3	\$ 12,000.00	2	\$ 8,000.00
604.4	Reconstructing/Adjusting Catch Basins	LF	\$ 750.00	2	\$ 1,500.00	2	\$ 1,500.00
604.62	Drainage Manhole Cover and Frames	EA	\$ 700.00	3	\$ 2,100.00	2	\$ 1,400.00
606.18001	31" W-Beam Guardrail with 8" Offset Block (Steel Post)	LF	\$ 45.00	250	\$ 11,250.00	50	\$ 2,250.00
606.82	Anchorage for Bean Guardrail	EA	\$ 4,000.00	2	\$ 8,000.00	1	\$ 4,000.00
608.24	4" Concrete Sidewalk (F)	SY	\$ 70.00	890	\$ 63,000.00	889	\$ 63,000.00
608.54	Detectable Warning Plates	SY	\$ 500.00	8	\$ 4,000.00	3	\$ 1,500.00
609.01	Straight Granite Curb	LF	\$ 60.00	1,600	\$ 96,000.00	1,600	\$ 96,000.00
615.024	Relocating Traffic Sign Type B	EA	\$ 600.00	6	\$ 3,600.00	6	\$ 3,600.00
615.02201	Traffic Sign Type B, Breakaway Mounts	SF	\$ 180.00	6	\$ 1,080.00	0	\$ -
618.7	Flaggers	HR	\$ 55.00	640	\$ 35,200.00	0	\$ -
619.1	Maintenance of Traffic	Unit	\$ 1.00	73,623	\$ 74,000.00	13,480	\$ 13,480.00
628.2	Sawed Bituminous Pavement	LF	\$ 4.00	780	\$ 3,120.00	1,600	\$ 6,400.00
632.0104	Retroreflective Paint Pavement Marking, 4" Line	LF	\$ 0.50	6,400	\$ 3,200.00	0	\$ -
632.0124	Retroreflective Paint Pavement Marking, 24" Line	LF	\$ 0.75	512	\$ 384.00	0	\$ -
645.531	Silt Fence	LF	\$ 5.00	3,000	\$ 15,000.00	500	\$ 2,500.00
646.31	Turf Establishment with Mulch and Tackifiers	SY	\$ 7.00	4,000	\$ 28,000.00	40	\$ 280.00
692	Mobilization	Unit	\$ 1.00	131,171	\$ 132,000.00	24,270	\$ 24,270.00
698.13	Field Office Type C	Mo.	\$ 2,000.00	9	\$ 18,000.00	4	\$ 8,000.00
699	Miscellaneous Temporary Erosion and Sediment Controls	\$	\$ 30,000.00	1	\$ 30,000.00	1	\$ 5,000.00
	Utility Pole Relocations	EA	\$ 15,000.00	1	\$ 15,000.00	0	\$ -
				Phase 1: Tobey Rd. to Foster St.		Phase 2: Foster St. to Fairgrounds Rd. (Sidewalk & Curbing)	
				Minor Item Allowance (20%)	\$ 336,000.00	Minor Item Allowance (20%)	\$ 62,000.00
				2023 Base Estimate	\$ 2,015,000.00	2023 Base Estimate	\$ 370,000.00
				2034 Base Estimate	\$ 2,731,000.00	2034 Base Estimate	\$ 502,000.00
				2023 Construction Engineering (25%)	\$ 504,000.00	2023 Construction Engineering (25%)	\$ 93,000.00
				2034 Construction Engineering (25%)	\$ 683,000.00	2034 Construction Engineering (25%)	\$ 126,000.00
				Contingency	10%	Contingency	10%
				2023 Construction Cost (CN)	\$ 2,721,000.00	2023 Construction Cost (CN)	\$ 500,000.00
				2034 TYP Construction Cost (CN)	\$ 3,688,000.00	2034 TYP Construction Cost (CN)	\$ 679,000.00
				2023 Prelim. Engineering (20% PE)	\$ 545,000.00	2023 Prelim. Engineering (PE)	\$ 75,000.00
				2029 TYP Prelim. Engineering (20% PE)	\$ 738,000.00	2029 TYP Prelim. Engineering (PE)	\$ 102,000.00
				2023 Right-of-way (RW)	\$ 80,000.00	2023 Right-of-way (RW)	\$ 80,000.00
				2032 Right-of-way (RW)	\$ 103,000.00	2032 Right-of-way (RW)	\$ 103,000.00
				2023 Total Project Cost)	\$ 3,346,000.00	2023 Total Project Cost)	\$ 655,000.00
				NHDOT TYP Total Project Cost	\$ 4,529,000.00	NHDOT TYP Total Project Cost	\$ 884,000.00