



LEBANON PEDESTRIAN & BICYCLIST ADVISORY COMMITTEE

MAY 2, 2023 - 7:00 PM

**COUNCIL CHAMBERS, CITY HALL OR
REMOTE VIA VIRTUAL PLATFORM
LEBANONNH.GOV/LIVE**

-
- 1. Call to Order**
 - 2. Approval of Minutes**
 - A. April 4, 2023
 - 3. Open to the Public**
 - 4. Study Items**
 - A. Updates from Other Boards
 - Planning Office - Planning Staff
 - Safe Routes to School - Planning Staff
 - City Council
 - Planning Board/CIP Meeting
 - Police Reports
 - Mascoma River Greenway Coalition
 - Class VI Roads
 - State of NH Updates
 - Friends of the Northern Rail Trail
 - Communications Plan
 - B. Review of final draft Walk Bike Ride Lebanon multimodal and complete streets implementation plan
 - C. High contrast crosswalks
 - 5. Other Business**
 - A. Curb the Car Day 5/19 planning - call for volunteers and sponsors
 - B. Bike Rodeo 6/3 planning needs - call for volunteers and sponsors
 - C. Updates on City and NHDOT Projects
 - 6. Future Agenda Items**
 - A. Bike Friendly Community Designation Renewal
 - B. CIP 2024 projects
 - C. Safety Action Plan / Vision Zero Policy
 - D. E-transportation
 - E. 12A path legal review / status
 - F. Route 10 ped-bike corridor

7. Adjournment

The order of agenda items is subject to change.

Meetings are open for in-person and remote attendance. Members of the public that wish to attend remotely may do so by going to LebanonNH.gov/Live where you will find instructions on how to enter the meeting. Members of the public will be able to participate and ask questions through the City's virtual platform or by phone. Please note: Should technical difficulties occur during the meeting that disrupts virtual or phone connection(s), the meeting will continue without remote access capabilities.

DRAFT

**PEDESTRIAN & BICYCLIST ADVISORY COMMITTEE
REGULAR MEETING MINUTES
COUNCIL CHAMBERS – CITY HALL &
REMOTE VIA WEBEX [LebanonNH.gov/LIVE](https://lebanonnh.gov/LIVE)
7:00 PM, TUESDAY APRIL 4, 2023**

MEMBERS PRESENT: Colin Smith (Chair); Adams Carroll; Erling Heistad (City Council); Amy Chan; Dave Koch (Alt); Haynes Bunn; Jake Kelleher

MEMBERS ABSENT: George Sykes (City Council, Alt); Marie McCormick; Sean Dittrich; Clifton Below (Alt)

STAFF PRESENT: Tim Corwin (Deputy Planning & Development Director)

1) CALL TO ORDER:

Chair Smith called the meeting to order at 7:00 PM.

Dave Koch sat for Marie McCormick.

2) APPROVAL OF MINUTES

A. March 7, 2023

A Motion was made by Mr. Kelleher to accept the meeting minutes of March 7, 2023, as presented. Seconded by Mr. Heistad.

**The vote on the MOTION was approved (7-0-0).*

3) OPEN TO THE PUBLIC: None at this time.

4) STUDY ITEMS

A. Updates from Other Boards

- Planning Office - Planning Staff / Planning Board / CIP Meeting

Tim Corwin introduced himself to the Committee. He noted that development application plans will be included to the Committee, with the intention of passing comments along to the Planning Board.

- Safe Routes to School - Planning Staff

Chair Smith noted that the school will be holding a Walk and Bike to School event the week after spring break.

- City Council - Erling Heistad

Councilor Heistad stated there will be a discussion regarding replacement of the West Lebanon Fire Station and potential locations tomorrow evening. He stated that the Council is interested in planting trees around the City, and he would like to see more native plantings.

- Planning Board/CIP Meeting

1 Mr. Corwin stated that the old Irving Station will be redeveloped, and the site plan application will be on
2 the May 8th Planning Board agenda. He will include this in the Committee's May meeting packet. The
3 casino project can also be reviewed.

- 4
- 5 • Police Reports
- 6

7 Ms. Bunn stated that there was one crash in January and zero in February. At this point in the year last
8 year, there had been two crashes. She asked for more detailed reports to be made available for analysis.

- 9
- 10 • Mascoma River Greenway Coalition - Colin Smith
- 11

12 There was brief discussion on the Mascoma River Greenway.

- 13
- 14 • Class VI Roads - Colin Smith
- 15

16 Chair Smith stated that the Class VI Committee is waiting for maple sugar syrup season to finish so it can
17 continue its discussion on Ticknor Road.

- 18
- 19 • State of NH Updates – Vacant
- 20

21 It was noted that, on April 11th at the Kilton Library, the Regional Planning Commission (RPC)
22 Transportation Advisory Committee will be finalizing its 10 Year Plan project priorities. As part of this, a
23 charette will be held from 4pm-5:30pm. Committee members were encouraged to attend.

- 24
- 25 • Rails to Trails - Amy Chan
- 26

27 Ms. Chan stated that the group is working to extend the pollinator gardens at the Mascoma River
28 Greenway, and this is being discussed with the State.

- 29
- 30 • Communications Plan - Marie McCormick
- 31

32 There was no update at this time.

33 B. Update on the multimodal and complete streets implementation plan

34 Chair Smith stated that the RPC is still working through past comments and will submit a revised draft
35 shortly.

36 5) OTHER BUSINESS

37 A. Updates on City and NHDOT Projects

38 There were no other updates at this time.

39 B. Curb the Car Day & Bike Rodeo 2023

40 Ms. Chan stated that Curb the Car Day will be held on May 19th. The Committee discussed how it can
41 help with the event. It is unclear yet what is happening with the Bike Rodeo this year. The Committee
42 discussed waiting until next year to help with this item.

43 C. High contrast crosswalks - Next Step

44 There were no updates at this time.

45 6) FUTURE AGENDA ITEMS & FOLLOW-UP NEEDS:

1 A. Bike Friendly Community Designation Renewal

2
3 Chair Smith stated that the membership for this expires at some point this year. Mr. Corwin stated that
4 there is concern regarding staffing this item. The Committee agreed to look into the process for renewal.

5
6 B. Vision Zero Policies and NYC Safety Measures ranking

7
8 There was no update at this time.

9
10 C. E-transportation: E-bike library and charging station locations, e-trishaw, EVs

11
12 Regarding the E-bike library, the Committee discussed the potential for staffing and carrying on this item.
13 Mr. Kelleher agreed to sit in on monthly calls regarding the E-bike library.

14
15 D. Bike Racks/Repair Stations

16
17 It was noted that the City does not have an E-bike charging station. Encouraging a local business to
18 partner on this item may be beneficial.

19
20 E. 12A path legal review/status

21
22 There was discussion regarding potential trails in this area. Mr. Corwin stated that the City may have to
23 rely on the property owner's good will to create a path in this area. It does not appear that this path was a
24 condition of Planning Board approval that can be enforced. Councilor Heistad suggested looking into past
25 Conservation Commission minutes regarding this item.

26
27 F. Route 10 ped-bike corridor

28
29 This item was not addressed at this time.

30
31 7) **ADJOURMENT:**

32
33 *A Motion was made by Mr. Heistad to adjourn the meeting.*

34 *Seconded by Ms. Bunn.*

35 **The vote on the MOTION was approved (7-0-0).*

36
37 **The meeting was adjourned at 8:33 PM.**

38
39 Respectfully submitted,
40 Kristan Patenaude, Recording Secretary



CITY OF LEBANON ~ PLANNING & DEVELOPMENT

MEMORANDUM

TO: Lebanon Pedestrian and Bicyclist Advisory Committee (“Ped Bike”)
CC: Rebecca Owens, Senior Planner
FROM: Nathan Reichert, Planning & Development Director
RE: Review and Endorsement of Walk Bike Ride Leb Plan
DATE: May 2, 2023

Overview

Over the years, progress has been made toward improving the safety and comfort of walking and bicycling in the City of Lebanon. Some notable achievements include constructing the Mascoma River Greenway, improving pedestrian facilities along the Miracle Mile, and adopting a [Complete Streets policy](#). However, Lebanon has never had a comprehensive, citywide guide for walking and bicycling infrastructure and programming needs.



Walk, Bike, Ride Leb (WBRL), developed between 2022 and 2023, is a plan to create a **safe, comfortable, and connected** walking and bicycling network in the City of Lebanon, including connections to public transportation. The WBRL Plan is founded in diverse public input and identifies the community’s highest priority multimodal improvements. Now near completion (see attached final draft), this plan is poised as a key tool to inform how walking and bicycling improvements are factored into [City budgets](#) and [Capital Improvements Programs](#), which grant opportunities are pursued, and how new and existing developments can be connected to the walking and bicycling network.

Development of the Plan

Development of the WBRL plan was led by a Project Team comprised of the Upper Valley Lake Sunapee Regional Planning Commission (UVLSRPC) and the City’s Planning and Development Department. The Lebanon Pedestrian and Bicyclist Commission (“Ped-Bike”) was involved at all points in the process between project scoping and priority project identification. Other Project Advisory Committee (PAC) members included representatives from the Department of Public Works, Department of Recreation, Arts and Parks, City Manager’s Office, Police Department, Planning Board, and Advance Transit. Numerous project contributors from throughout the community were also engaged.

Community outreach, review of existing data, plans and studies, and multimodal network analysis were the primary outcomes of Phase 1 of the project. Phase 2 focused on the identification and categorization and prioritization of key projects and strategies shared by the community, to create an actionable plan that helps decision-makers focus on “pre-vetted”

opportunities for improvement. The WBRL plan's major recommendations thus fall into two main "buckets": (1) network improvement projects or the "Implementation Plan" (i.e., priority projects list) and (2) non-capital project "Related Key Strategies" (i.e., education, design, maintenance, operations, policy, and safety).

Some of the input tools created for the outreach process, including the network map and non-capital projects list, were developed for on-going utilization—as permanent tools to help the City reassess priorities going forward.

As a final outcome, the plan produced conceptual designs and cost estimates for three network improvements from the priority projects list, which are included in the appendix with some similar pre-engineering due diligence generated by the City for three additional priority improvements. These six concepts are intended to support grant readiness for the City.

For more information about the project's development and input process, the WBRL [website](#) includes links to the City's Complete Streets Policy, WBRL public survey dashboard, network map, CIP proposal, and Scope of Work.

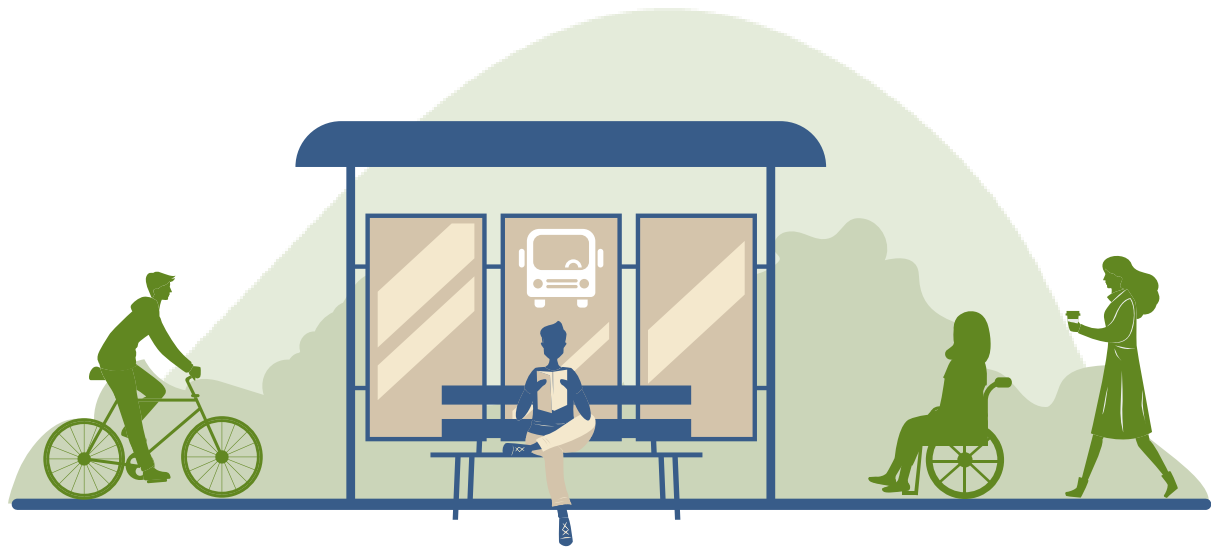
Final Draft Review

At their regular monthly meeting of May 2, 2023, Ped-Bike members will review and comment on a final draft version of the WBRL Plan. If members see it fit to do so, they will be asked to formally endorse the WBRL final draft ("with comments addressed") and make a recommendation that the City Council should adopt the plan.

Concurrently, members of the PAC will be emailed the final draft for review and comment and the public will be made aware of the draft via LebNews.

On May 22, 2023, the Planning Board will provide its review, comment, and hoped for endorsement. Subsequently, edits provided to date will be addressed to the degree possible in a draft provided to the City Council for its consideration and recommended adoption on June 7, 2023. Some minor concluding edits, formatting and project team coordination will close out the project following these reviews and the completed WBRL plan will be published to the City website.

In the long-term, one of the WBRL Plan's strategic recommendations is for there to be a regular interdepartmental review of the plan and priority projects, in conjunction with updates to WBRL's living tools, the network map and project lists.



WALK·BIKE·RIDE·LEB

City of Lebanon, NH

MAY 2023



LEBANON
NEW HAMPSHIRE





ACKNOWLEDGEMENTS

The *Walk Bike Ride Leb Plan* was prepared by the Upper Valley Lake Sunapee Regional Planning Commission (UVLSRPC) and funded by the City of Lebanon. The Project Team would like to thank the following people and organizations for their time, effort, and collaboration on this project.

Project Team

- Alex Belenz, Planner, UVLSRPC
- Meghan Butts, Executive Director, UVLSRPC
- Andrea Cass, Associate Planner, UVLSRPC
- Rebecca Owens, Senior Planner, City of Lebanon

Project Advisory Committee

- David Brooks, City Planning
- Jay Cairelli, City Department of Public Works
- Paul Coats, City Department of Recreation and Parks
- Shaun Mulholland/Paula Maville, City Manager's Office
- Colin Smith, City Pedestrian-Bicycle Advisory Committee
- Marie McCormick, City Pedestrian-Bicycle Advisory Committee
- Kim Chewning, City Planning Board
- Tim Cohen, Police Department
- Van Chestnut, Advance Transit

Project Contributors

- Dartmouth College
- GCSCC
- Hanover Bike-Walk Committee
- Hanover Co-op Food Stores
- SAU 88
- Tri-Valley Transit
- Upper Valley Cycling Club
- Upper Valley Running Club
- UVMBA
- West Lebanon Revitalization Advisory Committee



EXECUTIVE SUMMARY

INTRODUCTION

Throughout years of transportation planning, the City of Lebanon identified a need for a comprehensive and concise multi-modal transportation plan. Some notable achievements include constructing the Mascoma River Greenway, improving pedestrian safety along Miracle Mile, and adopting a [Complete Streets policy](#). Other cities and towns across the country have recognized the required thoroughness to develop a multi-modal plan. These are sometimes referred to as "master ped/bike plan" or "comprehensive bike plans" in other towns and cities. While multi-modal transportation challenges and opportunities have been discussed in plans for many years, the *Walk Bike Ride Leb Plan* identifies specific actions that the City can take to develop a safe, comfortable, and connected walking and bicycling network, including connections to public transportation services. As potential funding sources, public input, and mobility continue to change, the City believes a comprehensive plan with a focus solely on multi-modal transportation would benefit all people living, working, and traveling in Lebanon.

Most of the workforce population living in Lebanon works in or near Lebanon, with a mean travel time of under 20 minutes (primarily by single occupant vehicle).¹ In addition, in Grafton County, the greatest share of trips averages 1-3 miles, followed by trips under 1 mile, meaning that biking and transit has the potential to serve a significant portion of travel.² Ostensibly, there is a significant portion of Lebanon's populace that could (and would) commute and go to school more regularly by transit, walking, bicycling, or a combination if the accessibility of those modes and level of comfort navigating them in Lebanon were bolstered. That is one of the goals of this plan: to promote the build-out of improvements that complete and modernize Lebanon's multimodal network in a way that markedly improves our citizens' level of comfort getting around their community—with safety at the front and center.

PURPOSE

The primary purpose of the Lebanon Multimodal and Complete Streets Implementation Plan (herein referred to as the "Plan") is to apply existing information and recommendations found in City, regional, and State plans, as well as public input, to establish baseline conditions and improvement, needs assessment for pedestrian and bicycle facilities, standardize criteria for and verify improvement priorities, and better prepare the City for the funding and implementation of priority projects. The intended use of the plan is for internal use for budget planning, operations, grant applications, development review, and a public guide to Lebanon's facilities.

CHAPTER 1: SUMMARY OF EXISTING DATA

The Project Team collected readily available multi-modal transportation data for the City of Lebanon. This data came from local, regional, and statewide resources. Data topics included vehicular traffic, pedestrian and bicyclist traffic, crashes, transit ridership, surveys, and public outreach. This data was used to inform the development of the Plan and to inform additional data collection and analysis efforts needed for the development of the Plan. The Project Advisory Committee assisted in reviewing the data summary and assessing gaps and needs for data collection.

CHAPTER 2: SUMMARY OF EXISTING PLANS AND STUDIES

The Project Team reviewed over 30 documents that contained an element of multi-modal transportation planning relating to the City of Lebanon. Sources included neighborhood, local, regional, and statewide plans. The purpose of reviewing previous studies and plans was to 1) evaluate the City's current progress toward multi-modal transportation; 2) ensure that

¹ Economic & Labor Market Information Bureau, NH Employment Security, 2021. Community Response Received 5/27/22.

<https://www.nhes.nh.gov/elmi/products/cp/profiles-htm/lebanon.htm>

² U.S. Department of Transportation, Bureau of Transportation Statistics, Trips by Distance, <https://www.bts.gov/daily-travel>

previously studied needs are reflected in this PLAN; and 3) help identify multi-modal transportation needs and opportunities that need further planning and study.

CHAPTER 3: PEDESTRIAN, BICYCLE, AND TRANSIT NETWORK ANALYSIS

The Project Team verified key data/metrics deemed critical for the assessment of existing and planned pedestrian, bicycle, and transit conditions in Lebanon. Then, team evaluated associated conditions and synthesized results to create a baseline analysis (text and data) and graphics (e.g., map). The objective was to create a needs assessment that identified locations for facility and programmatic improvements. The analysis included primary network gaps, barriers, and opportunities, with an emphasis on pedestrian and bicyclist improvements for key destinations.

CHAPTER 4: PUBLIC ENGAGEMENT AND COMMUNITY OUTREACH

To inform the development of the *Walk Bike Ride Leb* plan, the Project Team conducted a series of public engagement efforts. The goal of the public engagement effort was to invite residents into the planning process by bringing the planning to them. The Project Team utilized existing communication channels in the City and hosted a mix of **in-person and virtual events using creative public involvement strategies and tools**. As a result of the public engagement and stakeholder meetings, an inventory of existing infrastructure, identified gaps, and desired multi-modal network was created and displayed on a network map using ArcGIS. The suggested improvements and identified network gaps went through a series of criteria to determine the feasibility and true need of the project in order to prioritize improvements. Criteria included the analyses mentioned above: walkability, bicycle level of stress, supporting commuting data and key destinations, existing plans and studies support, steep slopes, and traffic volumes. Geographic Information Systems (GIS) was used to overlay analyses on top of the suggested improvements and network gaps to assist in determining if the project was feasible based on those criteria. The network map can be found [here](#). On top of this effort, the public survey for this project revealed incredible results. Based on the survey, **more than 80% of community members think that Lebanon should invest more city funds into pedestrian and bicycle infrastructure**. When asked what keeps them from walking and biking, community members listed issues with road safety among their top concerns, including busy road crossings and traffic speeds. Community members with an accessibility challenge said snow/ice on sidewalks along with sidewalk/road in poor condition were key issues. These insights will directly support the implementation of the *Walk Bike Ride Leb* plan.

CHAPTER 5: PROJECT DEVELOPMENT SUMMARY

The Project Advisory Committee (PAC) engaged first in a work session to catalog known infrastructure improvements, projects, and locations. The work session resulted in a list of identified projects that could improve the multimodal network when implemented. The WBRL project list was further refined and expanded, with many key projects confirmed for local support, via the project team's interview of various stakeholders and a public survey. The PAC then engaged in a second work session to evaluate community feedback, incorporate new projects, and identify and rank top-priority projects to be implemented based on project readiness and community need. Projects were ranked into "tier" and "priority" categories.

CHAPTER 6: IMPLEMENTATION AND RELATED KEY STRATEGIES

The Project Team developed supporting strategies based on findings revealed in prior tasks for the improvement of bicyclist and pedestrian safety and connectivity in Lebanon. While the prior tasks focused on corridor gaps and infrastructure improvements, these strategies require complementary "soft interventions" to ensure the success of Lebanon's Complete Streets Policy implementation. These key strategies include education/engagement, infrastructure design, operations, pilot programs, regulations, and safety. Each strategy has an overarching goal with associated activities. The goals included 1) Increase usership of bicycle and pedestrian facilities by utilizing education strategies to increase awareness among community members; 2) Incorporate design principles that promote sustainability, safety, and smart-growth concepts in infrastructure; 3) Strengthen bicycle and pedestrian programs through updating municipal procedures and daily activities; 4) Test novel bike/ped projects to maximize limited resources and generate public enthusiasm; 5) Reduce regulatory barriers and promote policies that further the adoption of bike/ped projects; and 6) Proactively combat safety issues for all biked/ped users and strive towards eliminating all bike/ped accidents. The Project Team created a "living" document (excel spreadsheet) with recommended activities to meet these goals.



OVERVIEW:

This document provides a summary of readily available multi-modal transportation data for the City of Lebanon, NH. This data will be used 1) for the development of the *Walk, Bike, Ride, Leb* plan, 2) to inform additional data collection and analysis efforts needed for the implementation of the *Walk, Bike, Ride, Leb* plan, and 3) serve as a support for the pursuit of funding for projects.

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PREPARED BY:



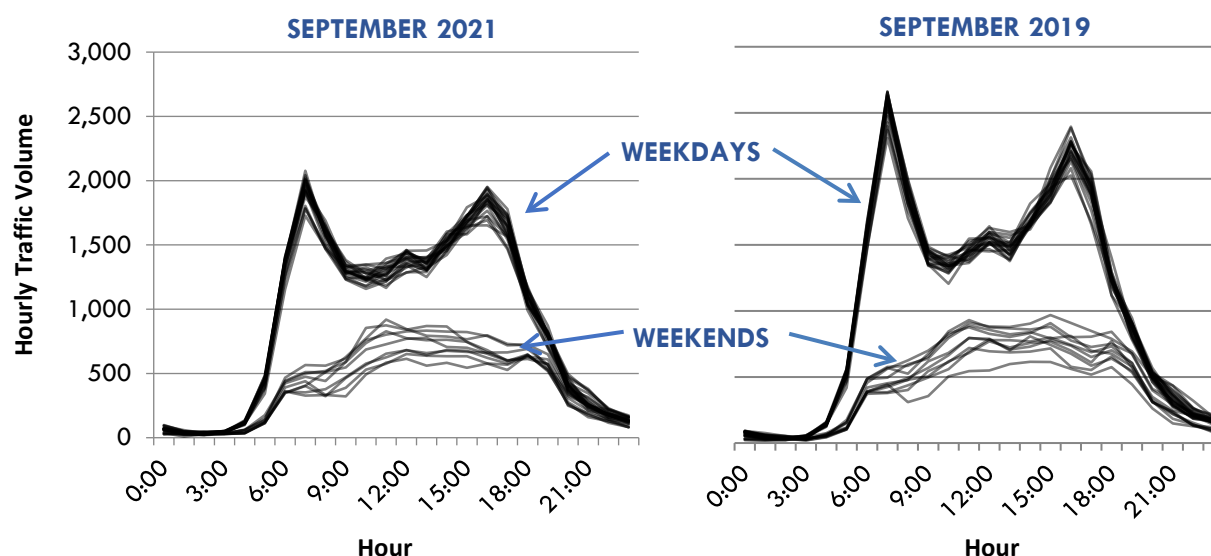
EXISTING MULTI-MODAL DATA SUMMARY

VEHICULAR TRAFFIC DATA:

Due to the COVID-19 pandemic, uncertainty exists around present and future traffic volumes. Traffic volume data were collected in 2020 for some locations by UVLSRPC; however, there were significant fluctuations in the data depending on 1) where it was collected, and 2) when in 2020 the count was performed. For consistency's sake, pre-COVID-19 data (2019 and earlier) is presented in the table below.

Data from the continuous traffic monitoring station on NH Route 120 south of Lahaye Drive indicates that, as October 2021, weekday traffic volumes are down approximately 15% compared to October 2019. This continued dip in traffic volumes is likely influenced by remote work policies at DHMC, Dartmouth College, and other major employers in the NH Route 120 corridor, and may not apply equally to other count locations in the City.

HOURLY TRAFFIC VOLUME – NH ROUTE 120 SOUTH OF LAHAYE DRIVE:



EXISTING TRAFFIC VOLUME DATA:

ROAD / ROUTE	LOCATION DESCRIPTION	AADT*	YEAR
Bank St Ext	Bank St Extension at Mascoma River	3,200	2018
Daisy Hill Rd	Daisy Hill Rd West of NH 120	630	2018
Glen Rd	Glen Rd Under State of NH Railroad Active Trail	3,600	2018
Great Brook Rd	Great Brook Rd South of Cross Rd	140	2018
Mascoma St	Mascoma St over I-89	1,500	2017
Mascoma St	Mascoma St West of Granite St	3,100	2015
Mt Support Rd	Mt Support Rd N of Dartmouth Ave	3,600	2018
NH 10	NH 10 (No. Main St) South of Lakeview Dr at Wilder Dam	6,400	2017
NH 120	NH 120 South of Lahaye Dr	20,100	2019
NH 120	NH 120 (Meriden Rd) South of Messenger St	3,500	2018
NH 120	NH 120 (Mt. Support Rd) at Hanover TL	11,900	2018
NH 120	NH 120 (Hanover St) South of Taylor St	5,900	2017
NH 120	NH 120 South of Heater Rd	25,400	2016
NH 120	NH 120 West of I-89 Exit 18	10,800	2016
NH 12A	NH 12A (So. Main St) South of Glen Rd	13,400	2016

*AADT = Annual Average Daily Traffic. Traffic data from 2020 are not reported due to COVID-19 impacts.

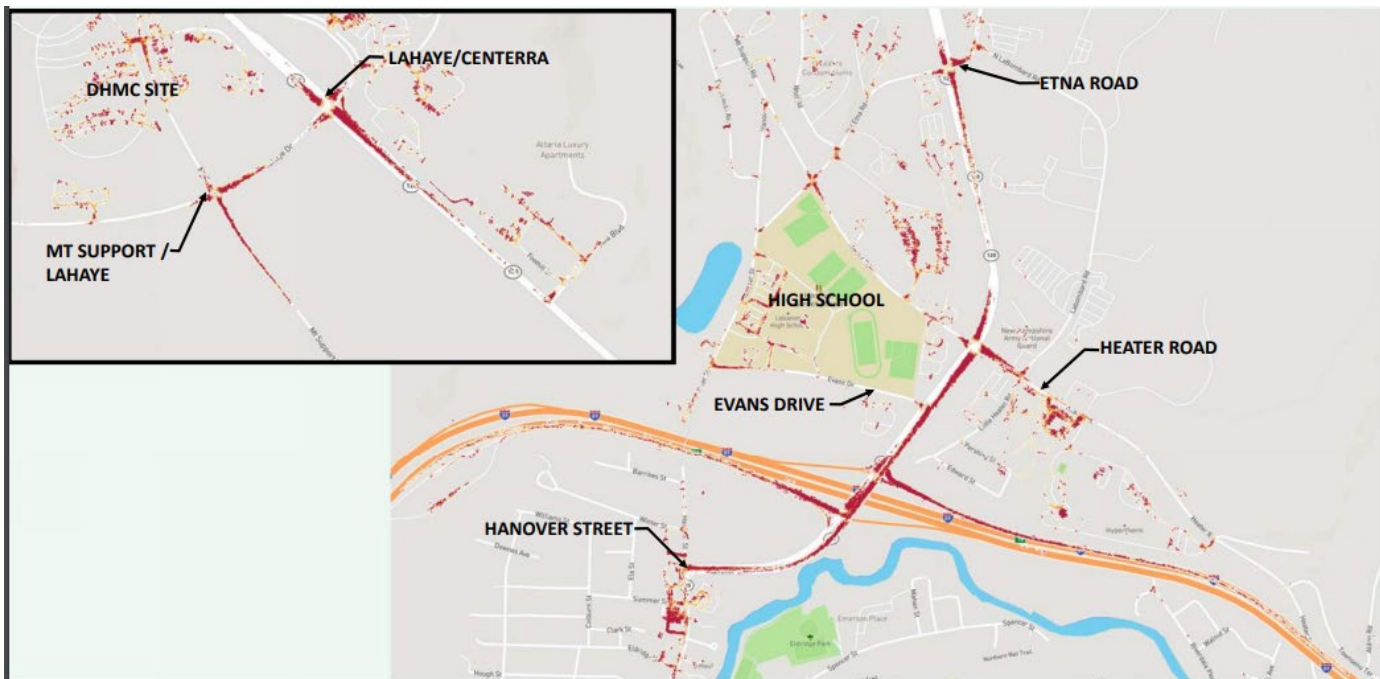
EXISTING MULTI-MODAL DATA SUMMARY

ROAD / ROUTE	LOCATION DESCRIPTION	AADT*	YEAR
NH 12A	NH 12A (So. Main St) at State of NH Railroad	8,200	2017
Payne Rd	Payne Rd over Mascoma River	170	2019
Poverty Ln	Poverty Ln over I-89	1,200	2019
Riverside Dr	Riverside Dr at Mascoma River South of Hardy Hill Rd	1,700	2018
Slayton Hill Rd	Slayton Hill Rd over Mascoma River	1,100	2015
Spring St	Spring St over Great Brook	454	2016
Trues Brook Rd	Trues Brook Rd East of Derby Ln	1,130	2018
US 4	US 4/NH 10 (Mechanic St) West of Poverty Lane	13,900	2019
US 4	US 4 West of I-89 at Exit 17	5,000	2017
US 4	US 4 (Bridge St) at Vermont SL	12,100	2017
US 4	US 4 at Lebanon TL	10,000	2017
US 4	US 4/NH 10 (Seminary Hill Rd) South of Johnson Ave	8,100	2017
US 4	US 4 (Mechanic St) West of Blacksmith St	10,100	2017
US 4	US 4 (Mechanic St) East of Foundry St	9,500	2016
US 4	US 4 (Bank St) West of Elm St	4,600	2019
US 4	US 4 (Mechanic St) East of Buckingham Place	14,000	2016
US 4	US 4/NH 10 (So. Main St) North of Tracy St	14,500	2018
US 4	US 4 East of Stoney Brook Rd	13,600	2019
US 4 / NH 120	US 4/NH 120 (So. Park St) West of School St	8,200	2017

*AADT = Annual Average Daily Traffic. Traffic data from 2020 are not reported due to COVID-19 impacts.

NH ROUTE 120 CORRIDOR - VEHICLE DELAY:

Red dots = vehicle stopped traveling very slowly



Source: <https://www.nh.gov/dot/projects/lebanon29612/documents/29612-pre-pac3-06032021.pdf>

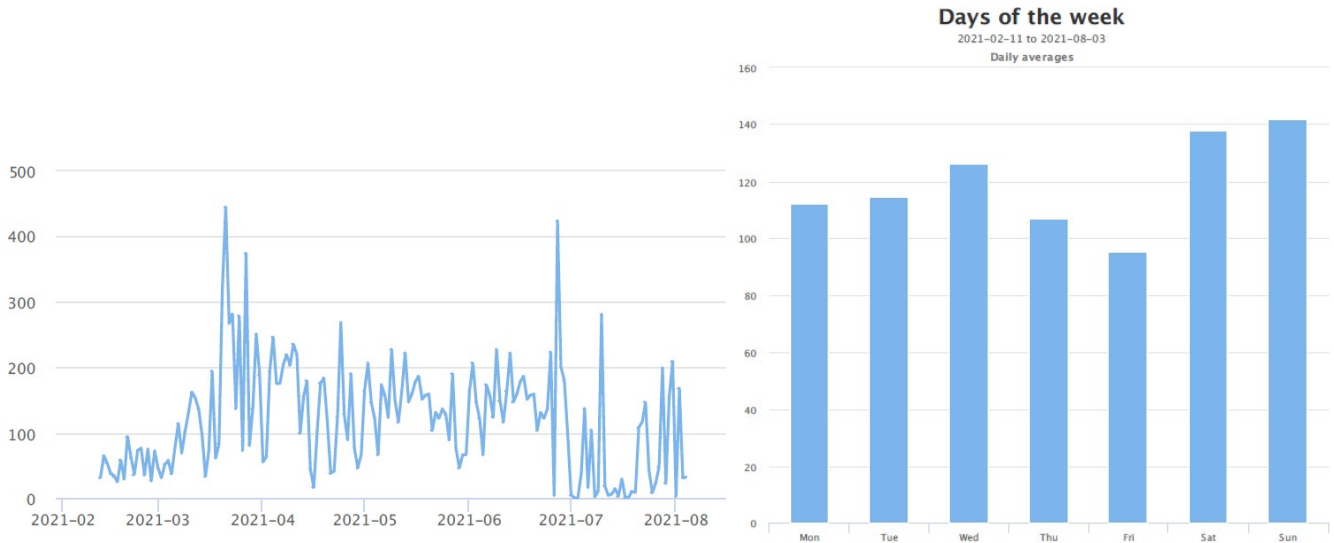


EXISTING MULTI-MODAL DATA SUMMARY

PEDESTRIAN & BICYCLIST TRAFFIC DATA:

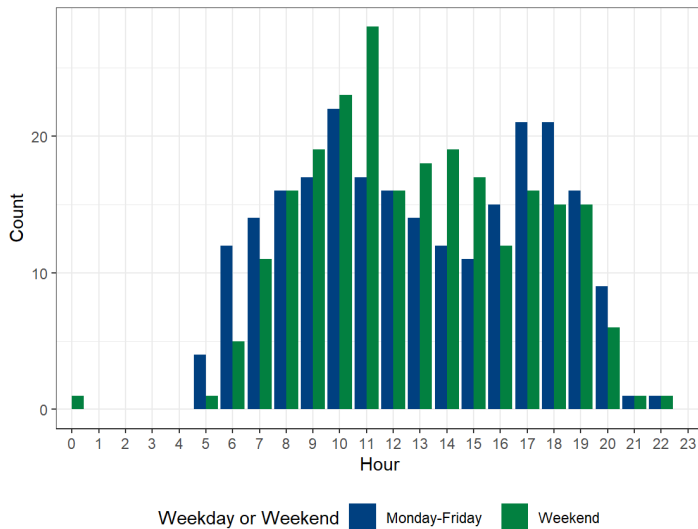
MASCOMA RIVER GREENWAY (BEHIND MIRACLE MILE):

Total Daily Users, February 2021 – August 2021

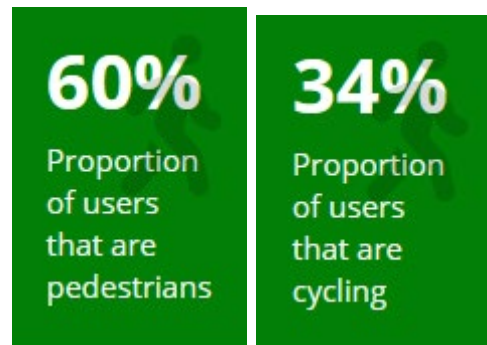


Data courtesy Upper Valley Trails Alliance

Mascoma River Greenway – Hourly Trail Users, July – August 2021



Mascoma River Greenway - Mode of Travel, August 2020



Source: 2020 Mascoma River Greenway Survey & Count Results -

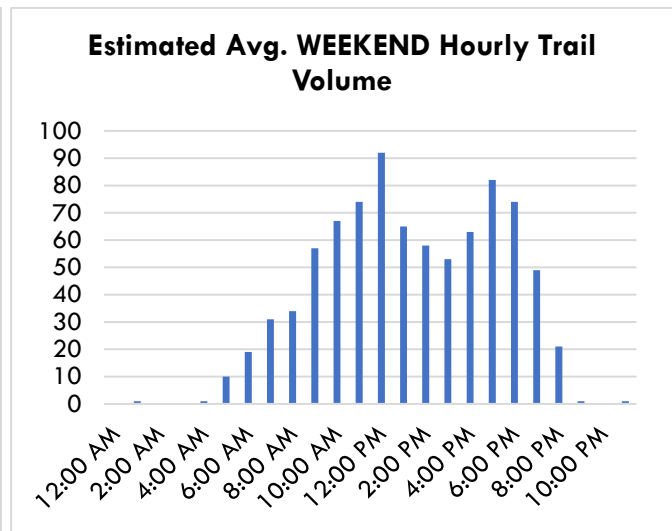
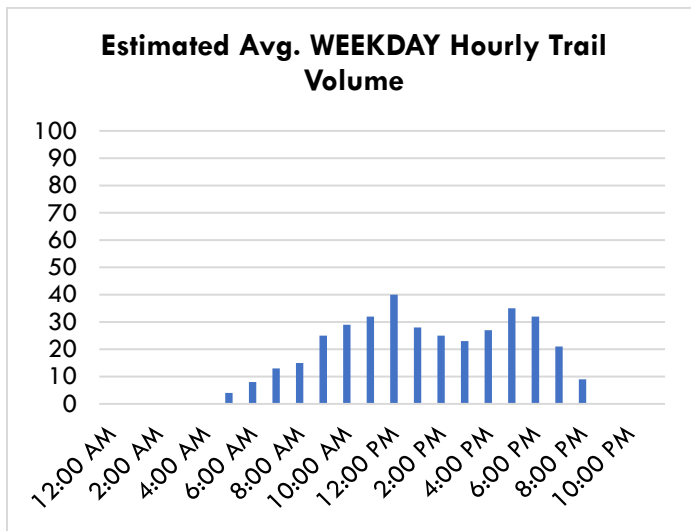
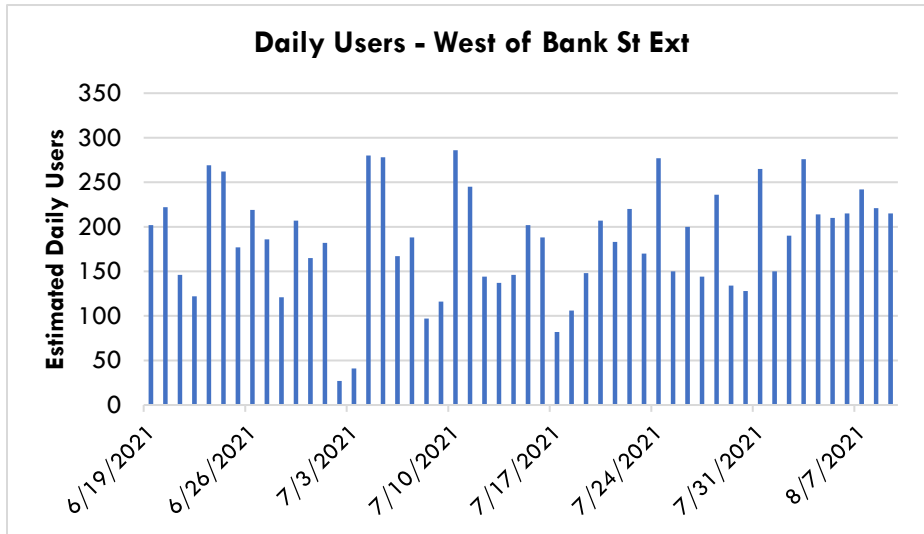
https://abelenz.github.io/MascomaGreenway/MRG_Survey_And_Count_Results.html#counts



EXISTING MULTI-MODAL DATA SUMMARY

NORTHERN RAIL TRAIL:

Trail use estimates performed by UVLSRPC using TRAFx infrared trail counter, June 2021 – August 2021



Daily Users: Estimated number of unique individuals using the trail each day

Hourly Trail Volume = Estimated usage level of the trail each hour (may include individual users multiple times)

Source: UVLSRPC

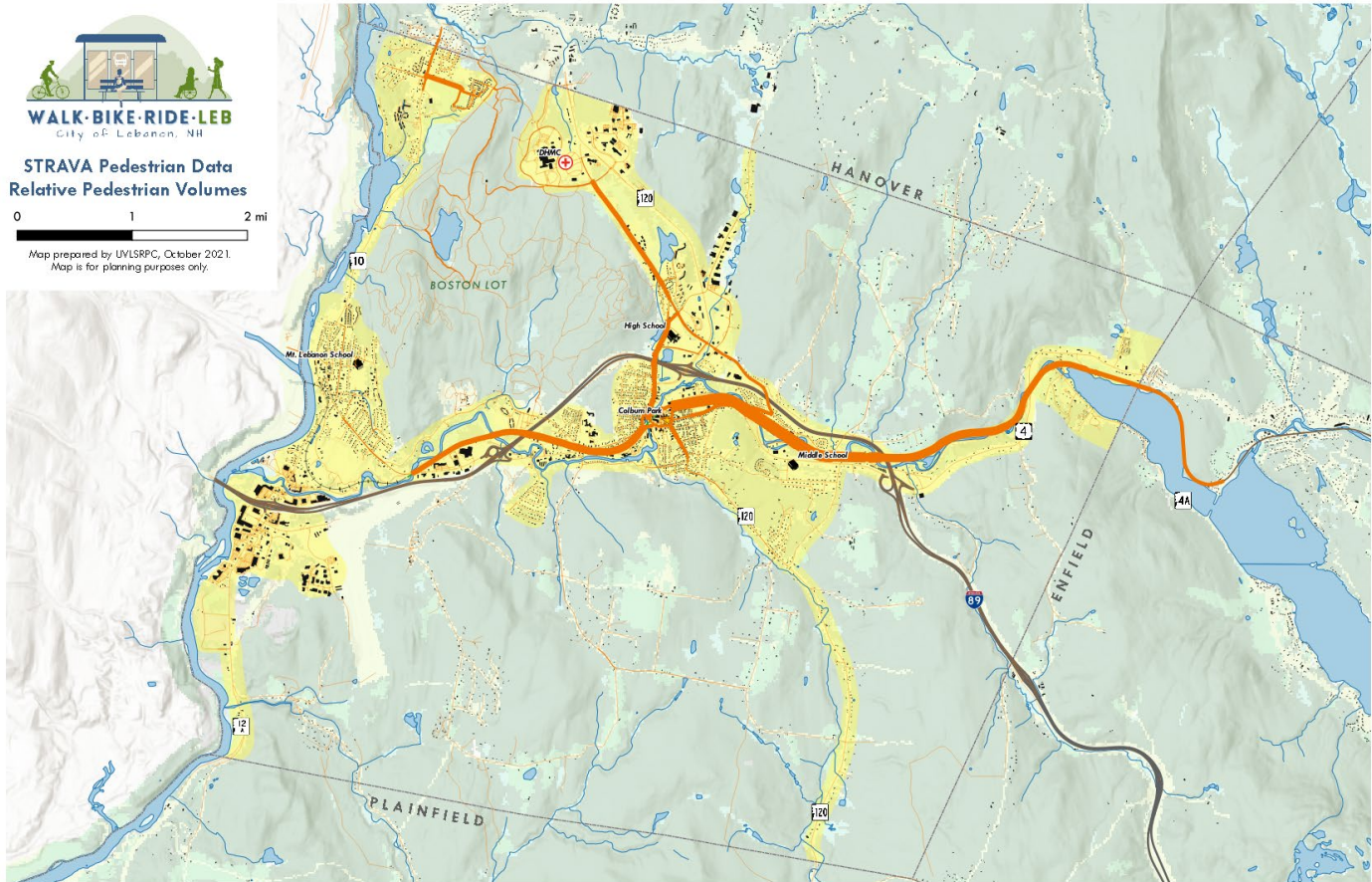


EXISTING MULTI-MODAL DATA SUMMARY

STRAVA PEDESTRIAN AND BICYCLIST DATA:

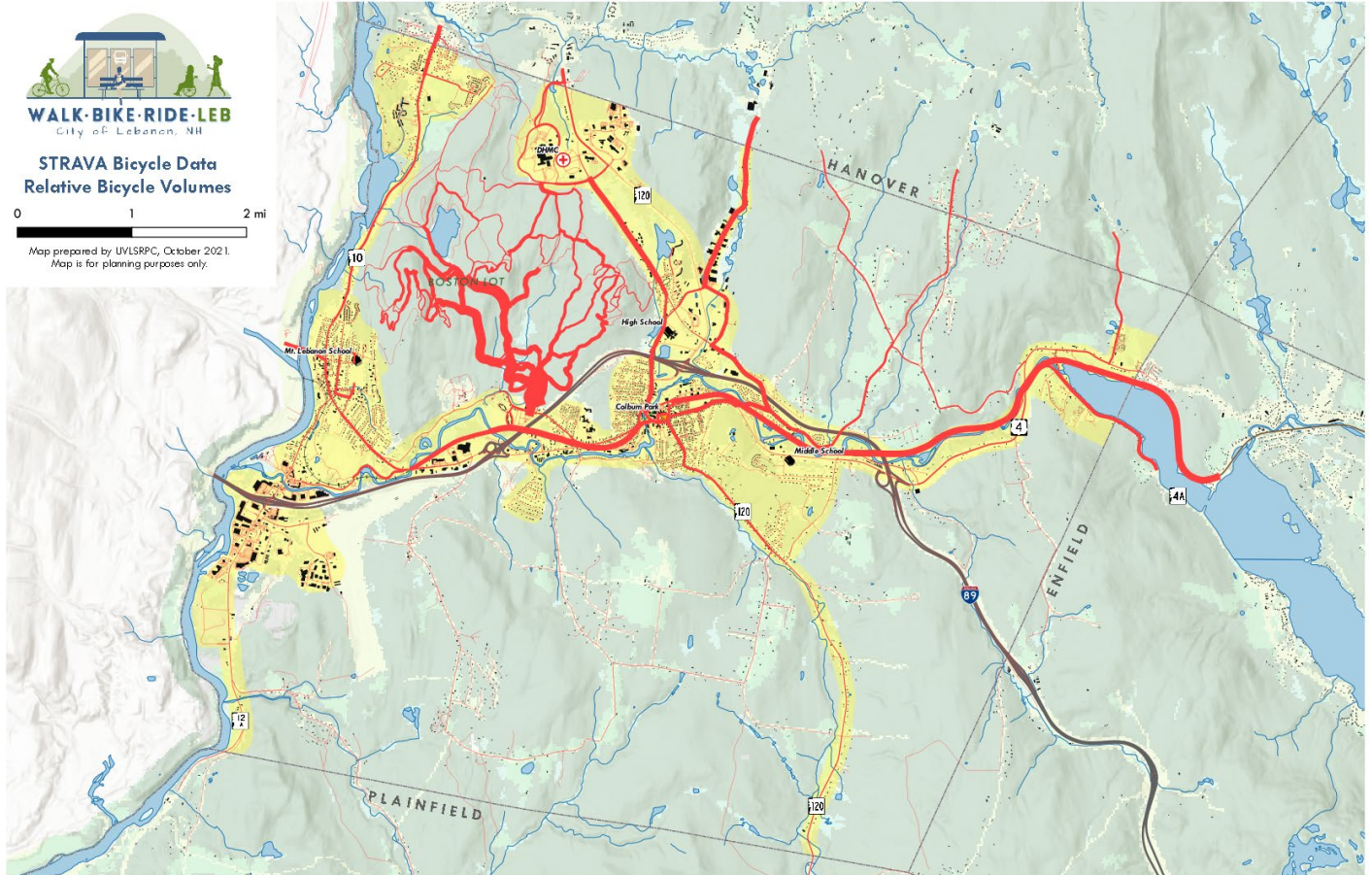
STRAVA is a popular fitness app used by many to track activities such as walking, bicycling, and running. STRAVA has developed the Metro dataset, which runs STRAVA user data through a model to predict the **relative** amount of pedestrian and bicyclist traffic in a given area. More information: <https://metro.strava.com/faq>

Relative Pedestrian Traffic Volume:



EXISTING MULTI-MODAL DATA SUMMARY

Relative Bicyclist Traffic Volume:



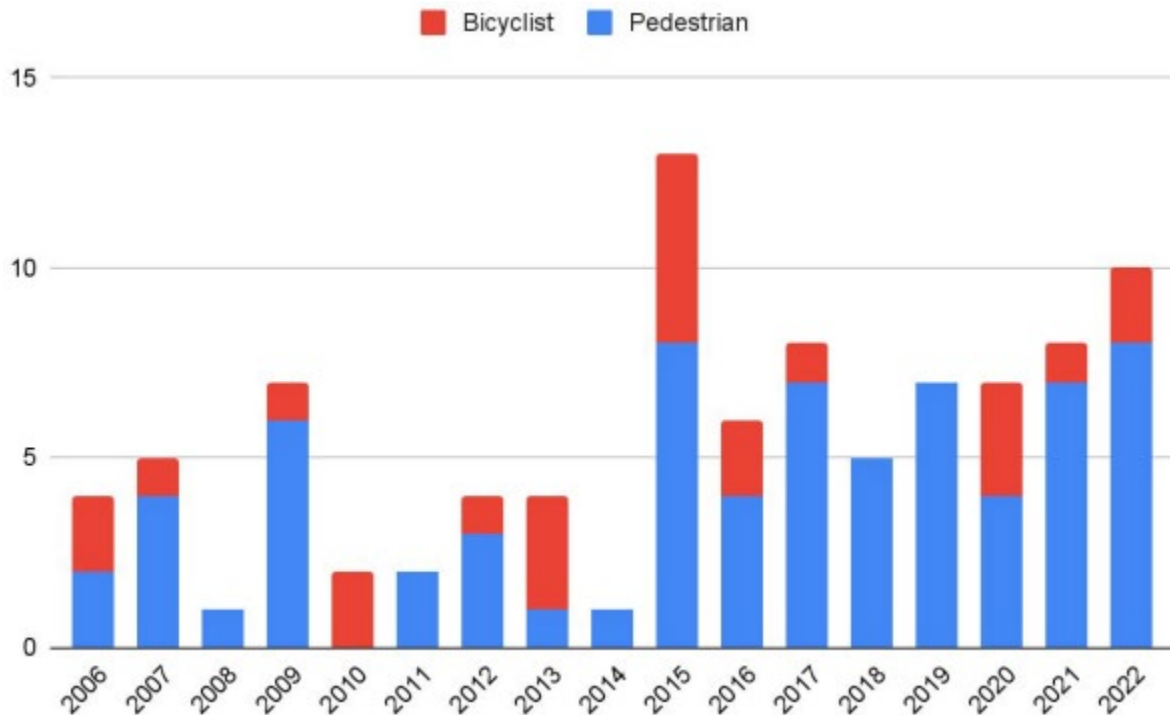


EXISTING MULTI-MODAL DATA SUMMARY

CRASH DATA:

Aggregated pedestrian and bicyclist crash data has been collected and summarized by Haynes Bunn of the City Pedestrian and Bicyclist Advisory Committee from 2006 – 2022 here: <https://lebanonnh.gov/1246/Safety-and-Skills>. The increasing number of crashes involving pedestrians in recent years is consistent with [national trends](#).

Crashes involving pedestrians and bicyclists, by Year, Lebanon NH, 2006-2022* (n=94 crashes)



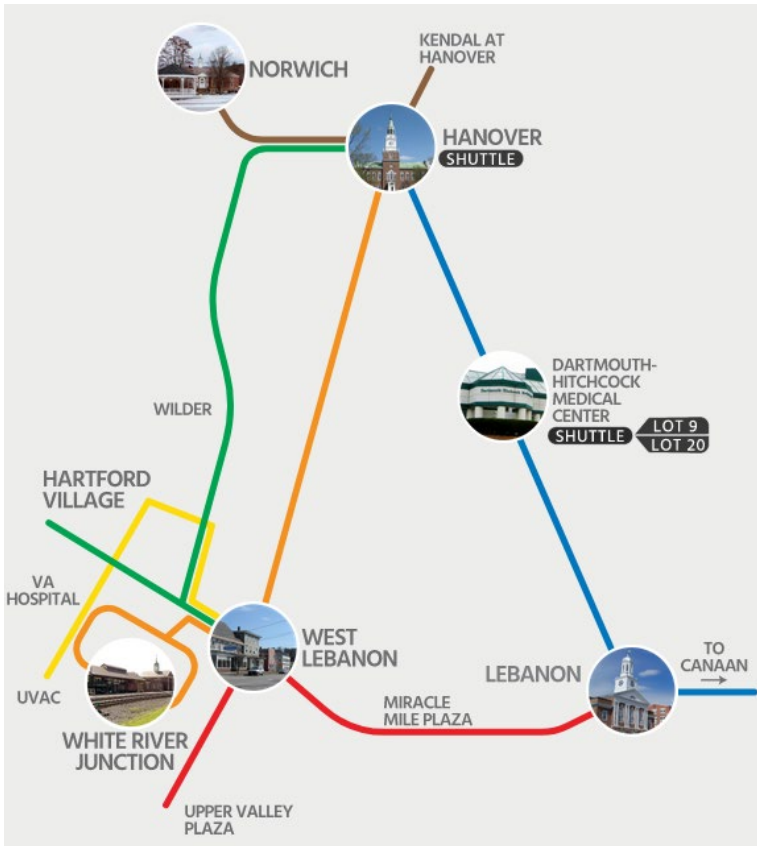
*Includes LFD EMS data: Pedestrian-involved crashes in 2015, 2016, and 2019. Source: Leb. Police Dept. data & Leb. Fire Dept. EMS data provided to LPBAC through Leb. Planning Office

An additional analysis performed in 2018 discusses high-crash locations within the City, identifying parking lots and crosswalks as the most frequent locations for crashes involving pedestrians:

<https://lebanonnh.gov/DocumentCenter/View/8405/LPBAC-Crash-Data-Analysis->

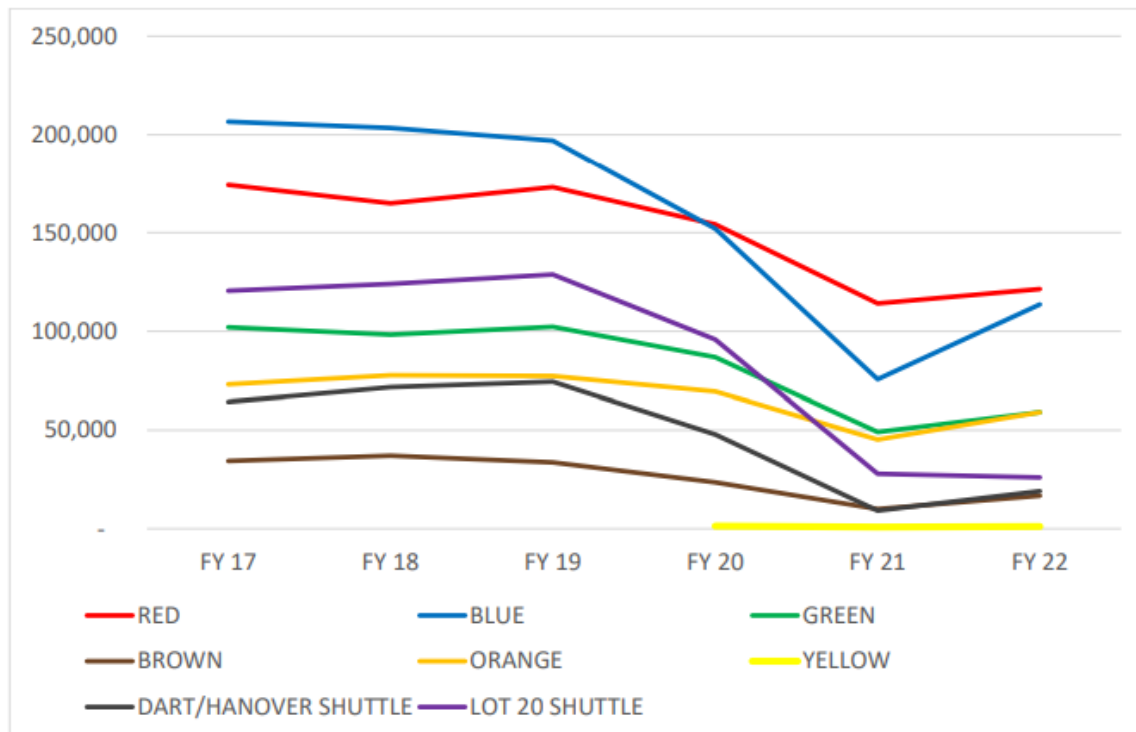
EXISTING MULTI-MODAL DATA SUMMARY

TRANSIT RIDERSHIP DATA:



Ridership for Advance Transit fixed-route bus service is reported in the [2023 Transit Development Plan Interim Report](#).

Figure 2.2 Six-Year Ridership Trend by Route



EXISTING MULTI-MODAL DATA SUMMARY

Table 2.1 Advance Transit Performance, Feb-Mar-Apr 2022

	Total Rides	Daily Rides	Rides per Hour	Rides per Round Trip
Blue	30,630	479	11.6	10.0
Brown	4,353	68	5.9	4.0
Green	13,545	212	8.6	8.1
Orange	15,080	236	15.3	11.8
Red	29,246	457	20.5	19.9
Yellow	271	4	1.4	0.7
DH Lot 20*	8,374	190	15.9	1.3
Dartmouth/DT	5,177	81	2.9	1.4
All routes	106,676	1,726	11.0	5.1
Line routes	93,125	1,455	12.3	10.4

*The Lot 20 Shuttle did not operate in April 2022. Statistics represent February and March only.

Table 2.2 Advance Transit Performance, 2017 and 2022

FEBRUARY–APRIL 2017 AND 2022

RIDERS PER DAY

	2017	2022	Change
BLUE	871	479	-45%
GREEN	402	212	-47%
RED	654	457	-30%
BROWN	137	68	-50%
ORANGE	284	236	-17%
YELLOW	N/A	4	N/A
DARTMOUTH	332	81	-76%
DH	896	190	-79%
TOTAL	3,576	1,726	-52%
REGULAR ROUTE	2,347	1,455	-38%

Blue Route:

- During October of 2017, four Blue route bus stops accounted for 63% of passenger boardings on the route. The busiest stop was DHMC, with 25% of Blue route boardings. Since most people travel round trip, this figure suggests that travel to and from the medical center accounts for approximately 50% of Blue route usage. The bus stop at Lebanon City Hall generated 18% of Blue route boardings, while the Dartmouth Bookstore accounted for 12% of boardings and Vail/DMS generated 7%. Stops in Canaan and Enfield accounted for 1,112 boardings in October of 2017, or 6% of the Blue route total. All of these percentages are slightly lower than those in 2012, suggesting that other stops became somewhat more important during the last five years.
- Stops in downtown Hanover and on the Dartmouth College campus generated a combined total of 5,682 boardings, or 31% of the Blue route total. This suggests that about 62% of Blue route rides involve trips to or from Hanover or the college. Clearly many of the riders are traveling between Hanover/Dartmouth and DHMC.



EXISTING MULTI-MODAL DATA SUMMARY

Red Route:

- During October of 2017, three Red route bus stops accounted for 68% of passenger boardings on the route. The busiest stop was in front of Kilton Library in West Lebanon, which generated 28% of Red route boardings. Lebanon City Hall, with 25% of Red route boardings was the next busiest. Walmart accounted for 15% of boardings on this route.
- Other Route 12A plaza stops (from Glen Rd Plaza south) accounted for 14% of Red route boardings. Since most people travel round trip, these figures suggest that travel to and from the Route 12A plazas accounts for 50% or more of Red route usage (since some riders likely make multiple stops among the plazas).

Green Route:

- In October of 2017, West Lebanon accounted for 22% of Green route boardings, while stops on the Dartmouth College campus and in downtown Hanover accounted for 20% of Green route boardings. Assuming that most people ride round trip, this suggests that 84% of Green route usage involves trips to New Hampshire, with West Lebanon accounting for 44% and Hanover/ Dartmouth College accounting for 40%, although there are likely some people who ride all the way from West Lebanon to Hanover via the Green route, and they would be double counted by this method.
- The busiest stop in Vermont is the Haven, with nearly 1,000 Green route boardings in October 2017 (about 45 per day northbound and southbound combined).

Orange Route:

- In October of 2017, 27% of Orange route passengers boarded in White River Junction, 45% boarded within the town of Lebanon, and 28% boarded in Hanover. The busiest stop on the route was West Lebanon, which accounted for 24% of Orange route boardings, down from 27% in 2012. Sachem Village, which had been the fourth busiest stop at the time of the last TDP in 2012 is now the second busiest, with more than 1,100 boardings there in October 2017 (over 50 per day), in spite of the long walk from where the housing is out to the bus stop on Route 10. That figure represents 16% of total Orange line riders. The next busiest stops were the Dartmouth Bookstore with 9%, and the Coolidge Hotel/American Legion with 8%. The VA Hospital accounted for 4% of Orange route boardings.
- Downtown Hanover and the Dartmouth College campus combined to account for 24% of Orange route boardings. Assuming that everyone rides round trip, this would suggest that trips to and from Hanover/Dartmouth College account for 48% of Orange route usage.



EXISTING MULTI-MODAL DATA SUMMARY

SURVEY/PUBLIC OUTREACH DATA:

LEBANON 29612 EXIT 18/NH ROUTE 120 PROJECT SURVEY & OUTREACH (2021):

Survey and interactive map were used to collect feedback on the NH Route 120 corridor from Hanover St to Lahaye Dr. Survey and public meeting summaries are presented at <https://www.nh.gov/dot/projects/lebanon29612/>; key results are presented below. Additional survey data to be requested from consultant.

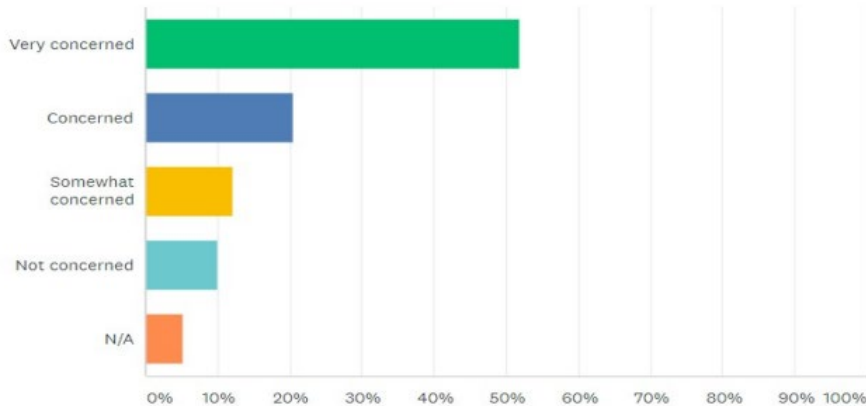
Questionnaire: Current Transportation Challenges

- Speed of traffic and number of vehicles traveling and turning in and out of the road
- Congestion and not cyclist / pedestrian friendly
- Traffic backed up on I-89 is extremely dangerous
- Bicycling between Lebanon and Hanover is treacherous; should have bike path not in roadway
- Traffic during peak hours; pedestrian safety to walk along NH 120 during weekdays

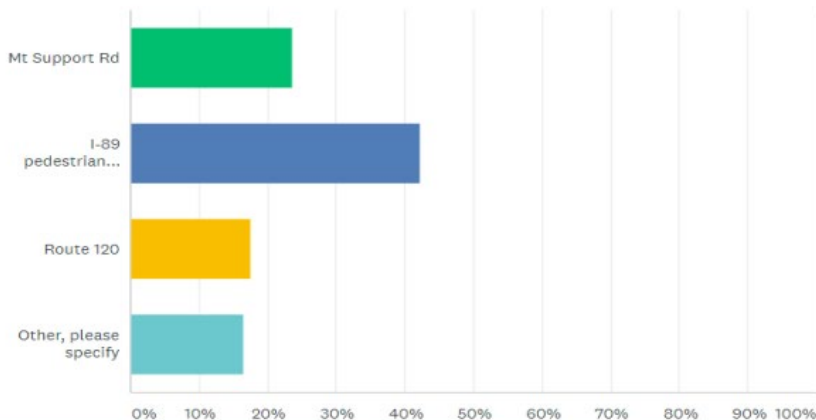
Questionnaire: Potential Improvements Suggestions

- Improve Traffic Signal coordination / management
- Improve pedestrian access to the schools and could reduce some congestion on NH 120
- Create a walking/bike trail that goes through woods on either side of NH 120, bypassing the road altogether and connecting new housing projects with commercial spaces
- Add dedicated sidewalk or bicycle path along NH 120 between Hanover and Lebanon
- Preserve and maintain trees in the area

How concerned are you with walking along and/or crossing NH 120 or adjacent roadways (assume pre-COVID-19 traffic patterns)?



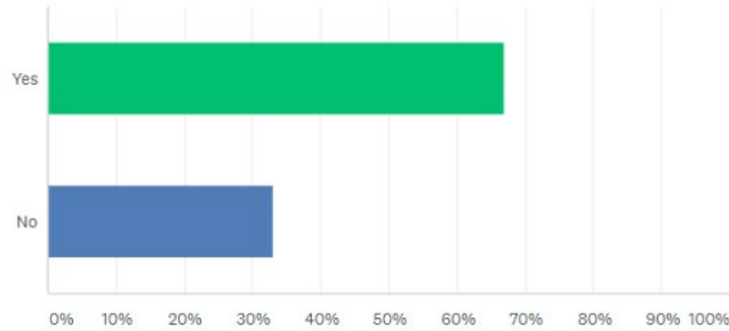
If you choose to bicycle or walk through the corridor, how do you travel from Hanover Street to points north?



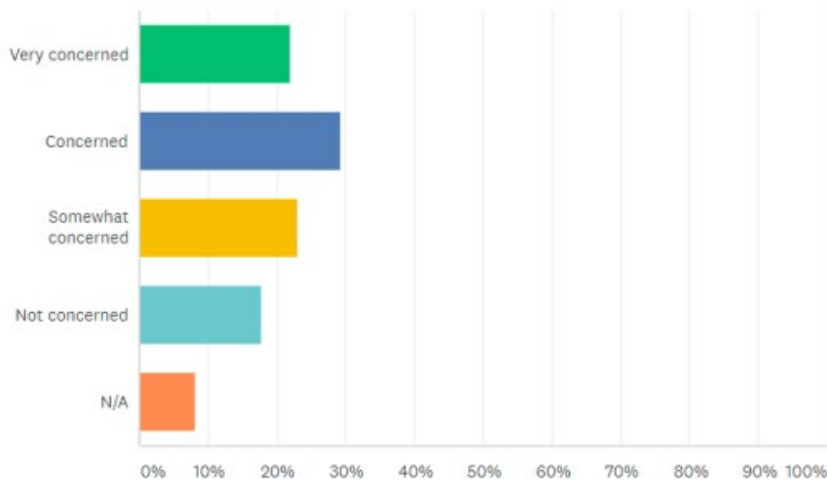


EXISTING MULTI-MODAL DATA SUMMARY

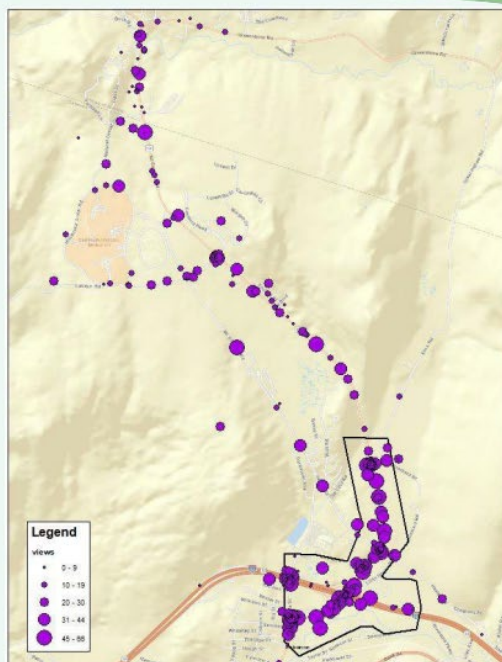
If improvements are made along and/or crossing NH 120 or adjacent roadways for bicyclists and pedestrians, would this increase the amount that you use these modes of transportation in the area?



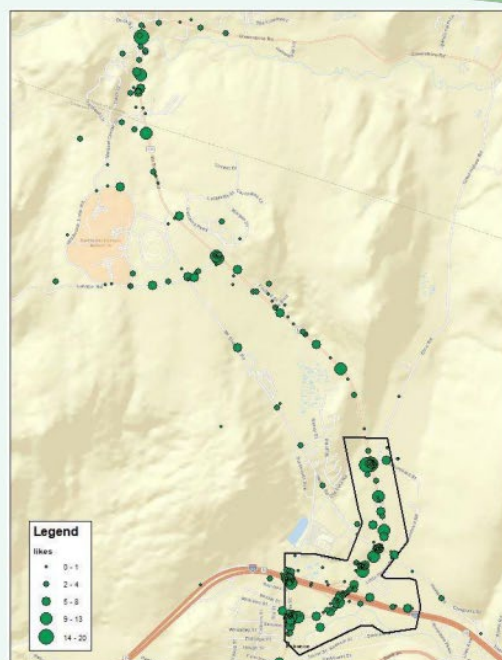
How concerned are you with transit connections between local and regional destinations and services?



Most viewed comment: **67** views



- Most liked comment: **20** likes





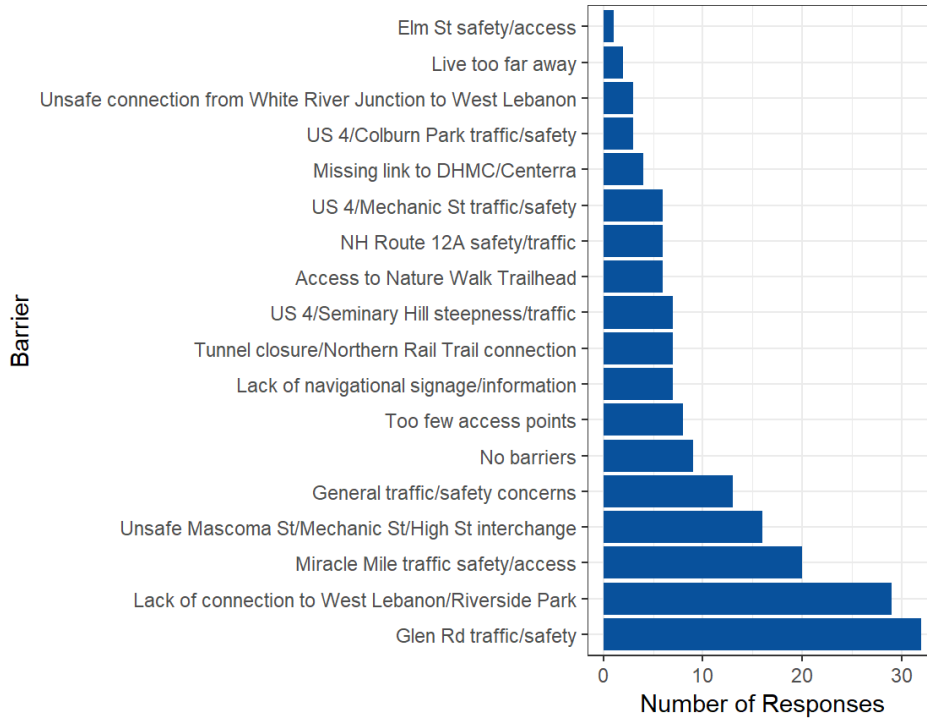
EXISTING MULTI-MODAL DATA SUMMARY

MASCOMA RIVER GREENWAY SURVEY (2020):

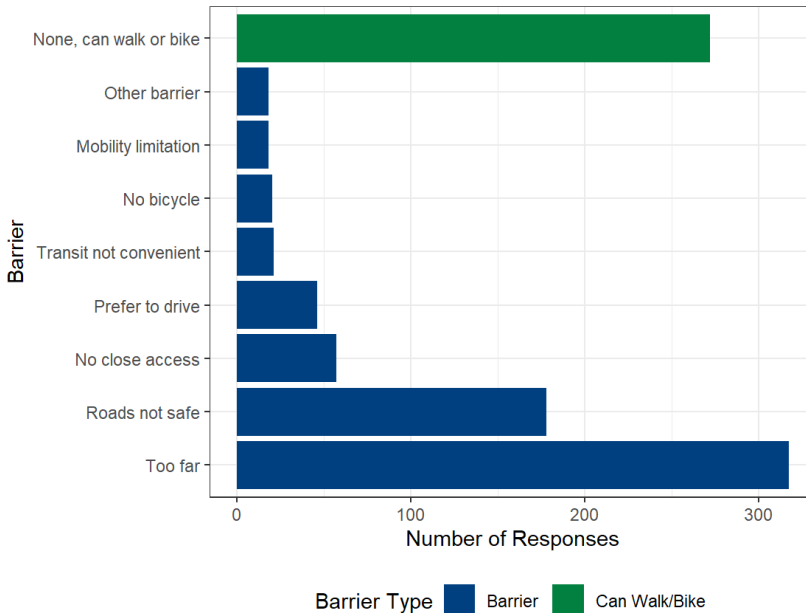
Full breakdown of survey results is presented at

https://abelensz.github.io/MascomaGreenway/MRG_Survey_And_Count_Results.html; key results are presented below:

MRG Access Barriers:

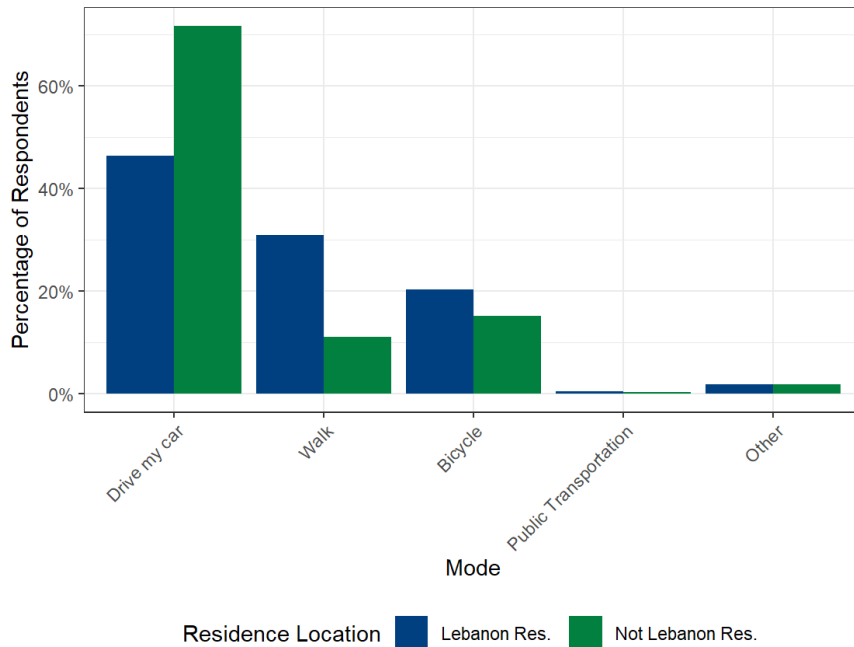


MRG Access Barriers (categorized):

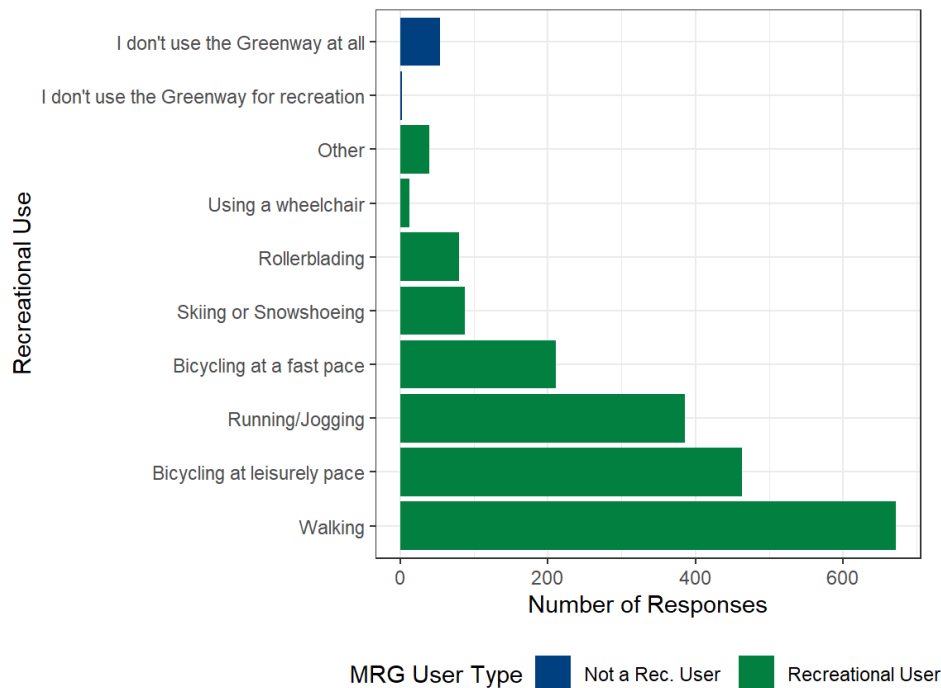


Mode of Travel to Access the MRG:

EXISTING MULTI-MODAL DATA SUMMARY



Recreational Use of the MRG:



UVLSRPC REGIONAL CORRIDOR TRANSPORTATION PLAN (2020 - 2021):

Online surveys and an interactive map were used to collect data on regional transportation needs, including pedestrian, bicycle, and transit access. The full draft *Plan* with public input summaries will be posted in November 2021:

<https://www.uvlsrpc.org/projects/transportation/regional-corridor-transportation-plan/>



EXISTING MULTI-MODAL DATA SUMMARY

ADVANCE TRANSIT - TRANSIT DEVELOPMENT PLAN (2018):

An on-board passenger survey of Advance Transit riders was taken in 2017. A program of targeted stakeholder outreach was undertaken as well. Detailed results are presented in the *Plan*; a summary of key results is presented below.

Table 3.7 2017 Trip Purposes by Route (including transfer routes)

	Blue	Red	Green	Orange	Brown	Total
Work	70%	48%	46%	34%	33%	53%
Shopping	4%	26%	10%	12%	4%	11%
School or college	13%	3%	15%	38%	61%	18%
Medical	7%	14%	14%	6%	0%	9%
Recreation/Social	2%	4%	8%	5%	0%	4%
Other	4%	4%	8%	4%	2%	5%

Table 3.14 Employment Status

	2008	2012	2015	2017
Full-time	66%	53%	62%	55%
Part-time	16%	22%	16%	18%
Retired	6%	6%	8%	7%
Unemployed	6%	13%	9%	14%
Other	6%	6%	6%	7%

Table 3.16 Automobile Usage

	2004	2008	2012	2015	2017
No car available	57%	47%	61%	48%	58%
Home	23%	29%	23%	28%	24%
DHMC Lot	0%	1%	3%	2%	4%
Dartmouth or Hanover lot	2%	3%	2%	2%	2%
Someone else is using it	8%	7%	5%	13%	7%
Garage for repairs	1%	1%	3%	2%	1%
Near AT bus stop	8%	10%	3%	4%	2%
Other	2%	2%	1%	1%	1%

Table 3.17 Distribution of Advance Transit Riders by Age Group

	1999	2004	2008	2012	2015	2017
Under 18	1%	8%	3%	4%	2%	5%
18-25	17%	21%	22%	26%	19%	19%
26-40	39%	24%	29%	32%	36%	37%
41-65	37%	40%	41%	30%	34%	32%
Over 65	5%	8%	5%	7%	8%	7%

EXISTING MULTI-MODAL DATA SUMMARY

Table 3.15 Employment Locations

Location	Responses	Percent
Downtown Hanover	138	31%
DHMC main campus	109	25%
West Lebanon	30	7%
White River Junction	27	6%
Route 12A Plazas	26	6%
Hanover Lyme Rd	17	4%
Downtown Lebanon	16	4%
Wilder	8	2%
Centerra	6	1%
DHMC Heater Rd	5	1%
Norwich	4	1%
Other	56	13%
	442	100%

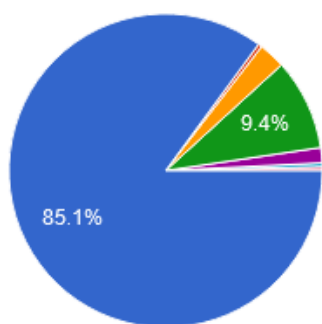
WEST LEBANON VILLAGE VISION CHARRETTE (2019):

An in-person charrette and online public survey were conducted regarding West Lebanon revitalization in 2019. Full results are available at <https://lebanonnh.gov/1324/West-Lebanon-Village-Visioning>; key survey results are summarized below:

When you visit West Lebanon Village, what mode of transportation are you most likely to use?



255 responses



- Personal passenger vehicle
- Carpool
- Bus
- Walk
- Bike
- Running
- I live there (Mack Ave). When I go to Main St. for library or to catch the bus or other reason I usually walk

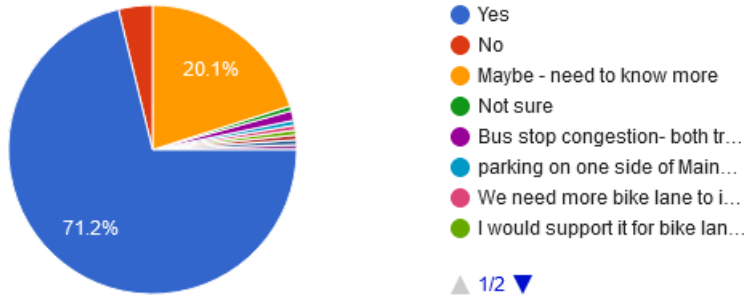


EXISTING MULTI-MODAL DATA SUMMARY

Would you support the relocation of on-street parking from one side of Main Street to another nearby location convenient to Main Street if doing so enabled safety and streetscape improvements, such as street trees, sitting areas, wider sidewalks, and accessibility improvements?



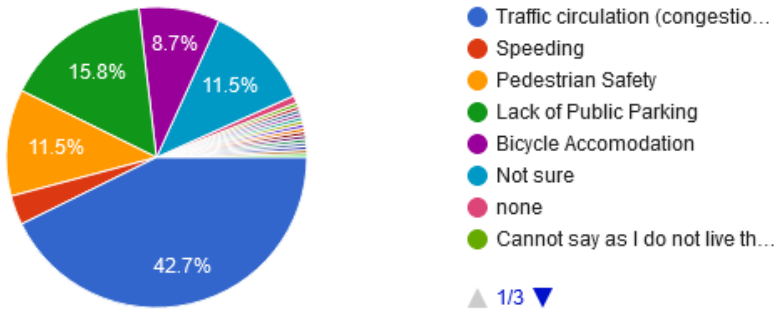
184 responses



Of the following choices, what do you view as the most important mobility issue within West Lebanon Village?

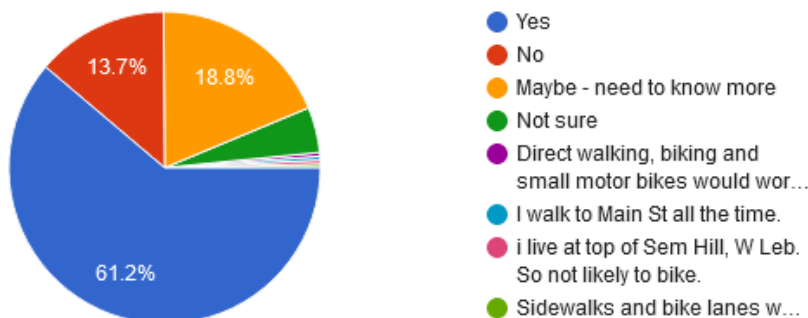


253 responses



Would safer, more inviting and direct walking and biking connections between West Lebanon Village and adjacent neighborhoods make you more likely to walk or bike to West Lebanon area destinations?

255 responses

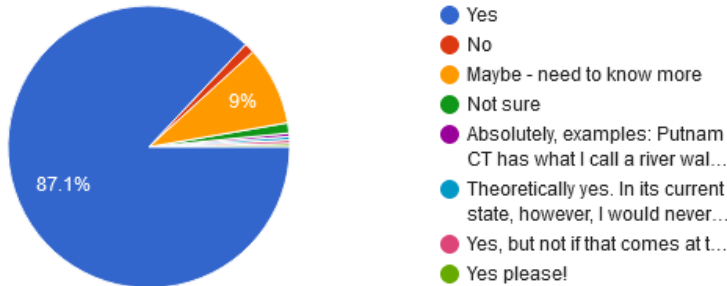




EXISTING MULTI-MODAL DATA SUMMARY

Would you support creating walks or trails along and/or across the Connecticut River, to celebrate and experience the river as a special part of West Lebanon?

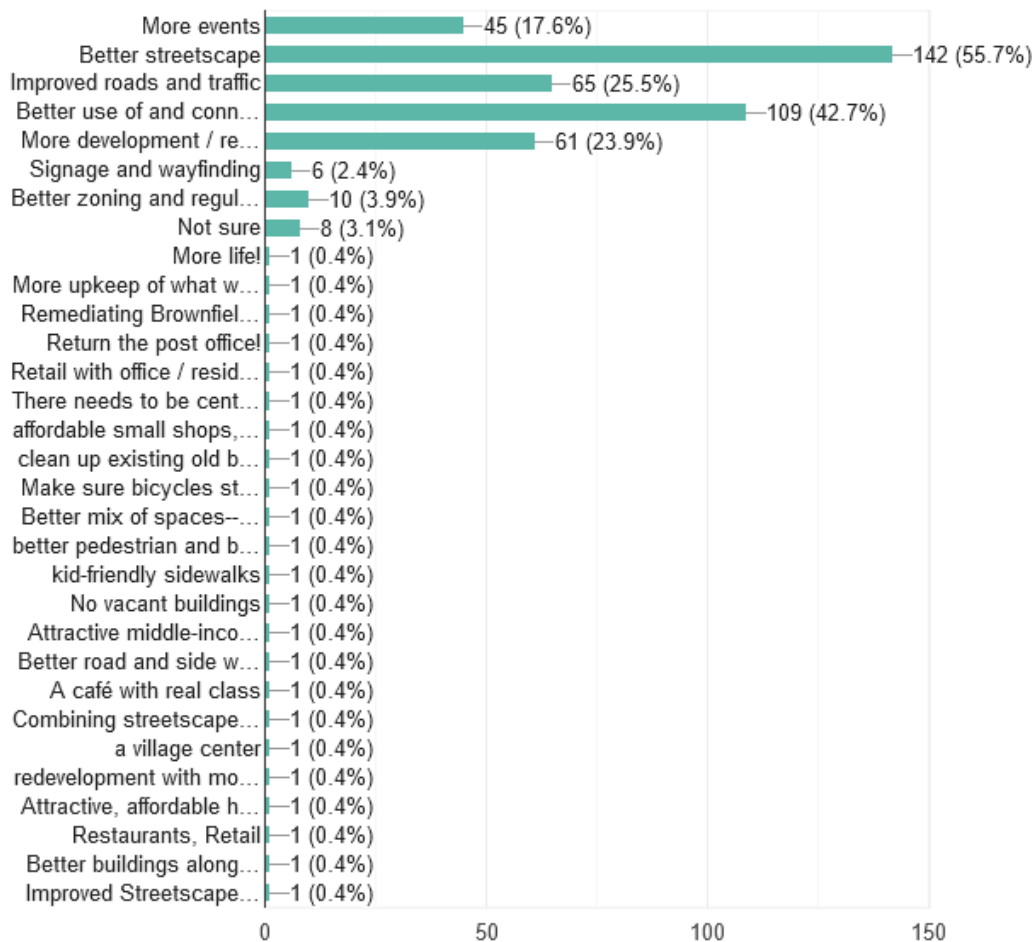
255 responses



What 2 things could make the downtown better?



255 responses



EXISTING MULTI-MODAL DATA SUMMARY

DOWNTOWN VISIONING STUDY AND TUNNEL PROJECT (2016):

This study included public meetings, stakeholder interviews, and an online survey. The full study is available here: <https://lebanonnh.gov/DocumentCenter/View/687/Lebanon-Downtown-Vision-Plan-and-Tunnel-Assessment-Full-Report-PDF>; key results are summarized below.

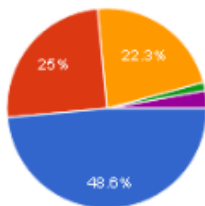


SUMMARY OF OPPORTUNITIES



SUMMARY OF ISSUES

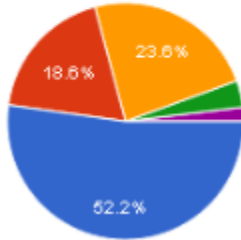
4. Would you be willing to park 1-2 blocks away from a downtown destination (post office, restaurant, Colburn Park, etc.) if you could walk to your destination along a prominent, well-lit sidewalk, and cars had to stop at crosswalks?



Yes	253	48.6%
No	130	25%
Maybe - need to know more	116	22.3%
Not sure	7	1.3%
Other	15	2.9%

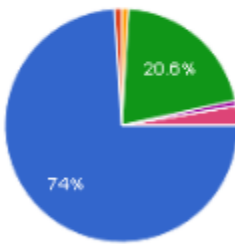
EXISTING MULTI-MODAL DATA SUMMARY

5. Would you tolerate more stop signs and/or traffic signals downtown if they improved safety and convenience of walking and driving?



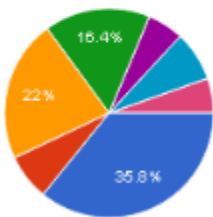
Yes	272	52.2%
No	97	18.6%
Maybe - need to know more	123	23.6%
Not sure	19	3.6%
Other	10	1.9%

6. When you visit the downtown, what mode of transportation are you most likely to take?



Personal passenger vehicle	385	74%
Carpool	5	1%
Bus	5	1%
Walk	107	20.6%
Bike	4	0.8%
Not sure	0	0%
Other	14	2.7%

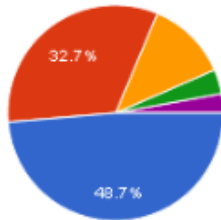
7. Of the following choices, what do you view as the most important mobility issue within the downtown?



Traffic circulation (congestion, wayfinding)	186	35.8%
Speeding	37	7.1%
Pedestrian Safety	114	22%
Parking	85	16.4%
Bicycle Accomodation	29	5.6%
Not sure	40	7.7%
Other	28	5.4%

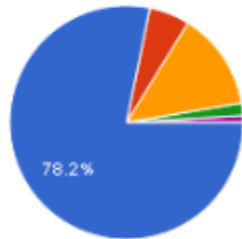
EXISTING MULTI-MODAL DATA SUMMARY

8. Would safer, more inviting and direct walking and biking connections between downtown and adjacent neighborhoods make you more likely to walk or bike to downtown area destinations?



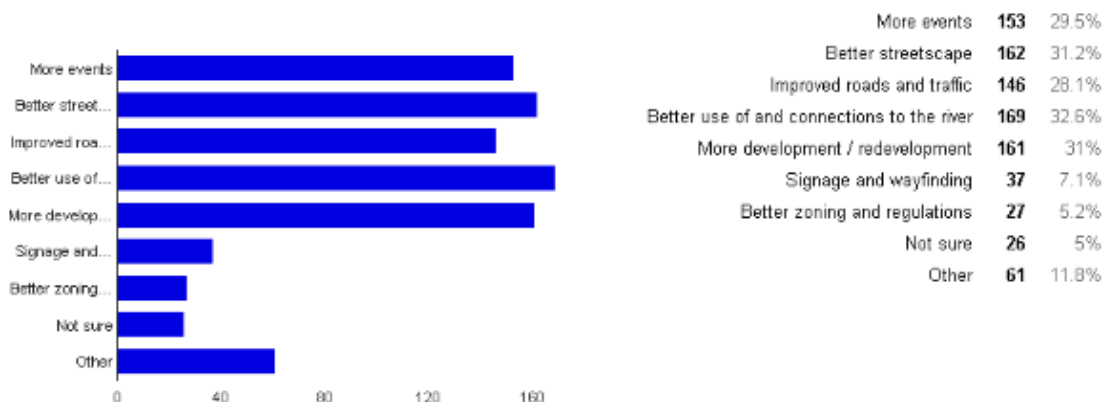
Yes	253	48.7%
No	170	32.7%
Maybe - need to know more	63	12.1%
Not sure	19	3.7%
Other	15	2.9%

9. Would you support creating walks or trails along and/or across the Mascoma River downtown, to celebrate and experience the river as a special part of Lebanon?



Yes	406	78.2%
No	29	5.6%
Maybe - need to know more	70	13.5%
Not sure	9	1.7%
Other	5	1%

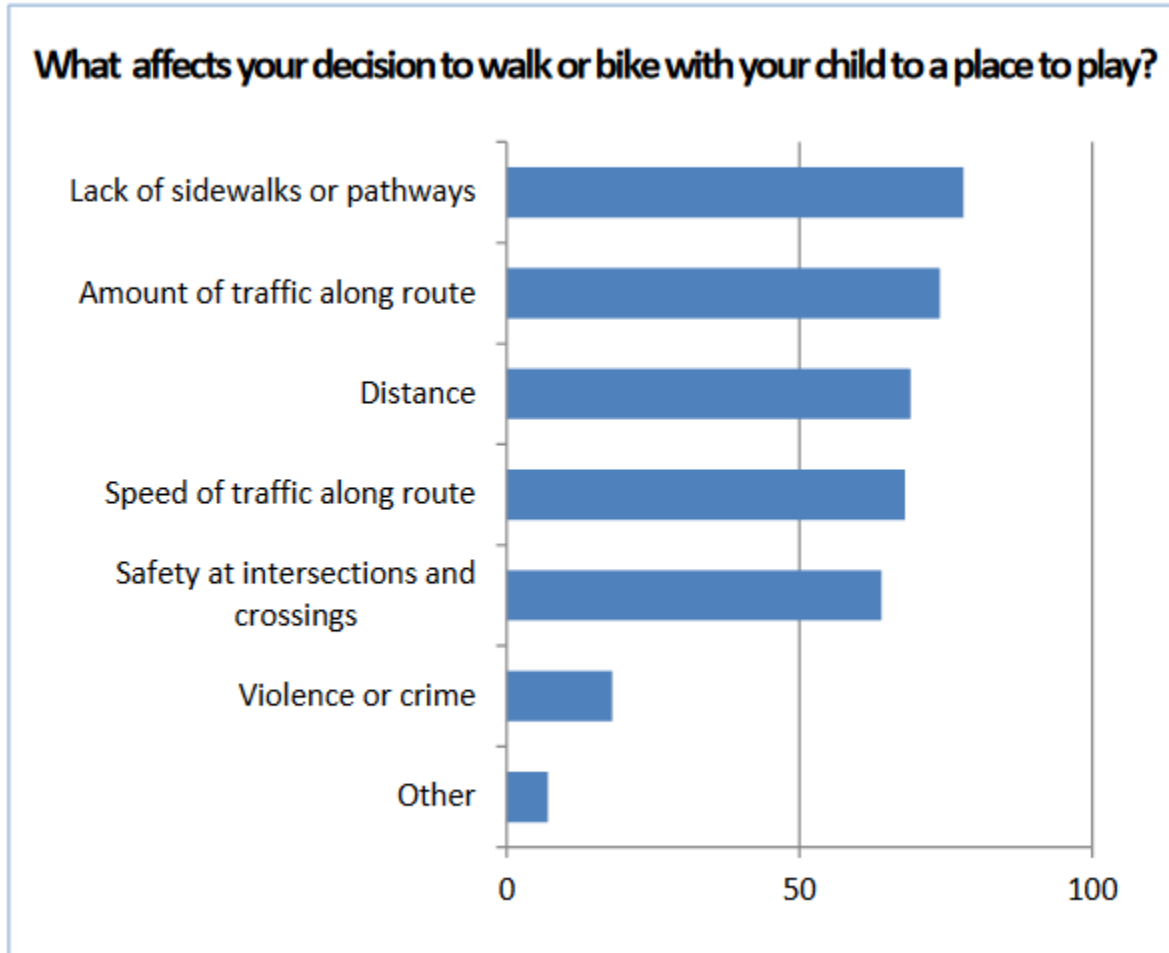
12. What TWO (2) things could make the downtown better?



EXISTING MULTI-MODAL DATA SUMMARY

SAFE ROUTES TO PLAY (2014):

A parent survey was conducted as part of this planning effort. **This survey data is now over eight years old, and may not reflect current needs and preferences.** Full SRTS report is available at: <https://www.gpred.org/wp-content/uploads/2014/09/Lebanon-SRTP-CompleteFinal11182014.pdf>.



Identified Safety Concerns – Safe Routes to Play:

In addition to a general concern that users of Lebanon's roads do not know or follow the rules of the road, participants identified several intersections or sections of road that they consider especially unsafe for bicycle or pedestrian use. These include:

- The Lebanon Green (Colburn Park);
- The intersection of NH Route 10/Gould Rd/Oak Ridge Rd;
- NH Route 10 from Sachem Village to West Lebanon;
- School Street (near South and Messenger Street);
- NH Route 120 (Meriden Road) at the access to Goodwin Park;
- Mechanic Street between High Street and I-89 Exit 19;
- The intersection of Plainfield Road/NH Route 12A;
- The intersection of U.S. Route 4/NH Route 4A adjacent to Mascoma Lake.



EXISTING MULTI-MODAL DATA SUMMARY

SAFE ROUTES TO SCHOOL – SURVEY DATA (2009 - 2011):

Outreach to school parents was performed as part of Safe Routes to School planning efforts in 2009 and 2011 for all public schools in Lebanon. **This survey data is now over ten years old, and may not reflect current needs and preferences.** Full SRTS reports are available at: [https://www.uvlsrpc.org/project/Lebanon Safe Routes to School 76/](https://www.uvlsrpc.org/project/Lebanon%20Safe%20Routes%20to%20School%2076/).

Lebanon Middle School Survey Data:

Figure 3-2: Past Interest and Participation in Active Transportation

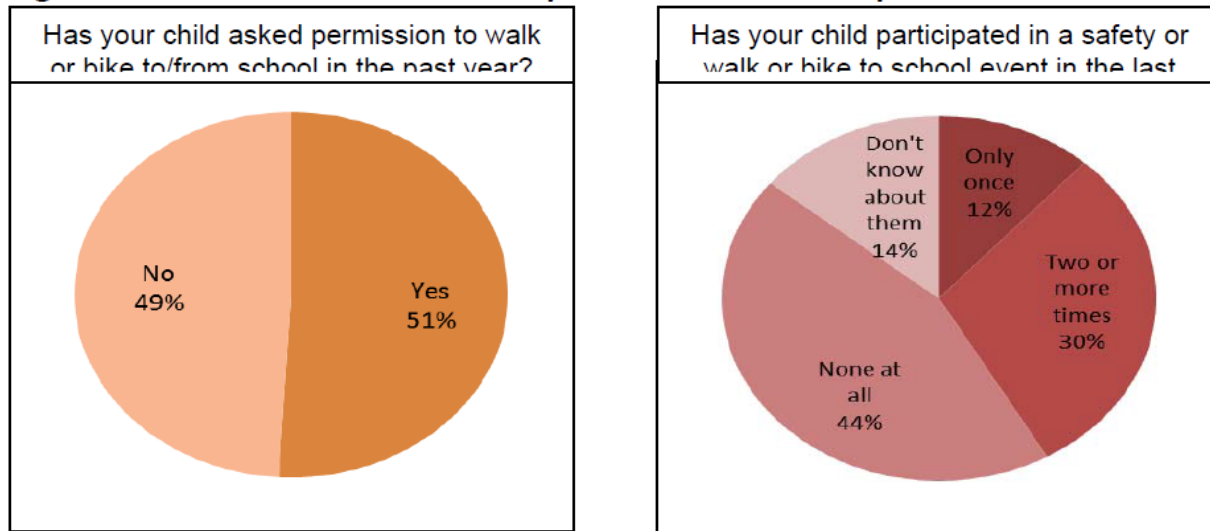
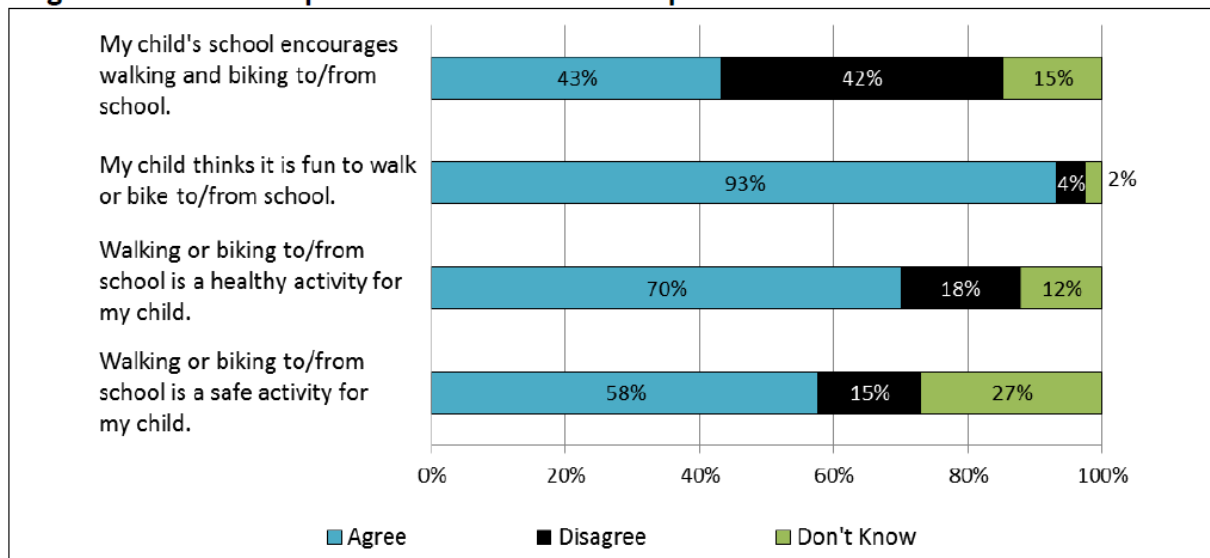


Figure 3-3: Parent Opinions about Active Transportation



EXISTING MULTI-MODAL DATA SUMMARY

Figure 3-5: Stated Travel Choices to/from LMS

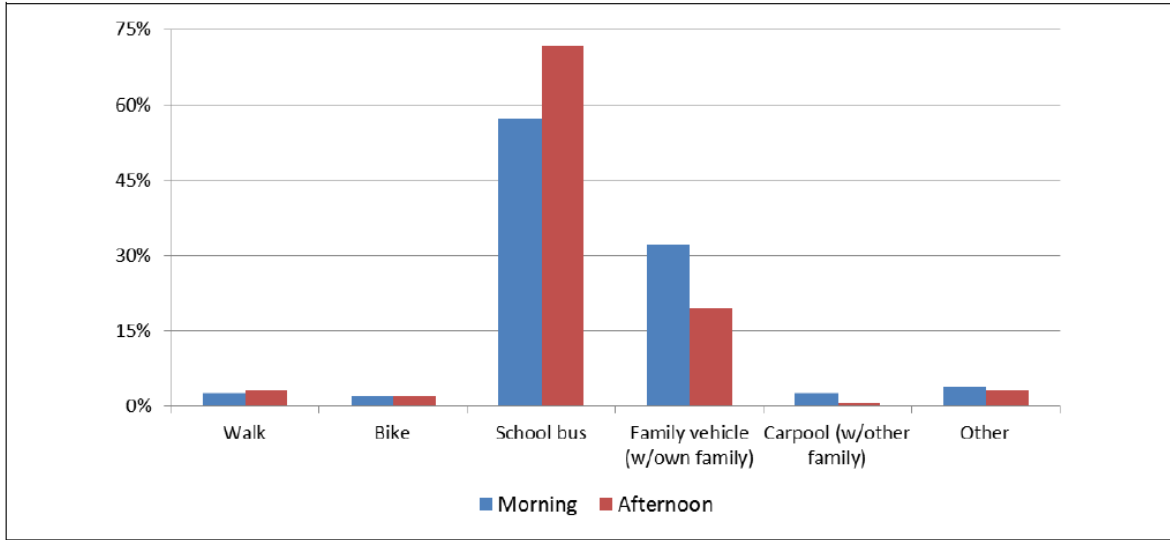
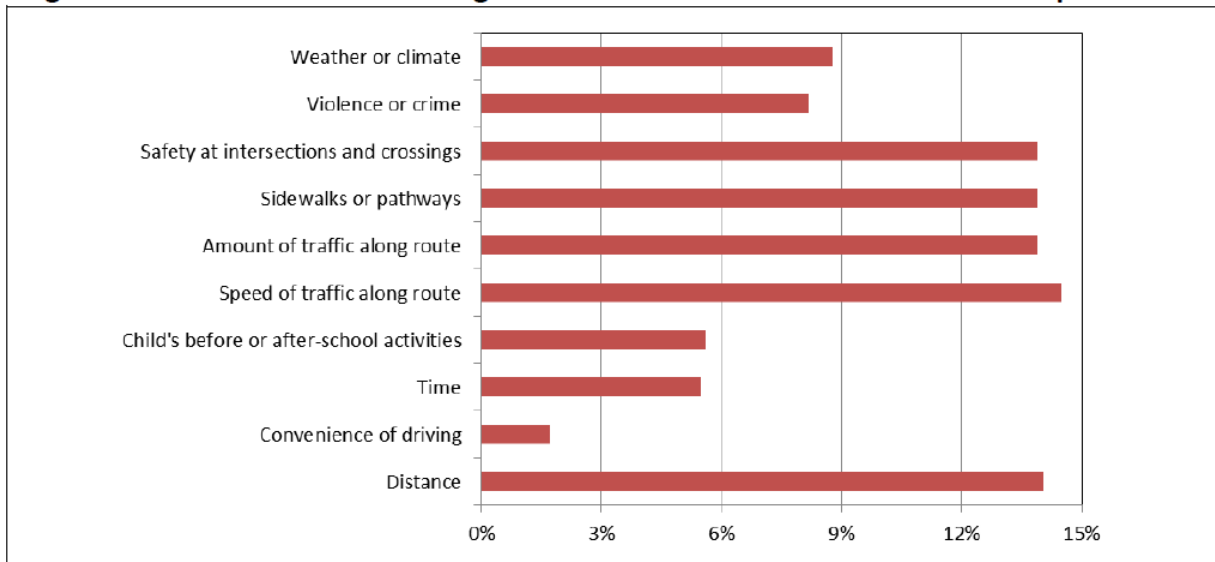


Figure 3-6: Conditions Influencing a Parent's Decision to Allow Active Transportation





EXISTING MULTI-MODAL DATA SUMMARY

Mount Lebanon Elementary School:

Figure 4-1: Number of MLES Children by Distance They Live from School

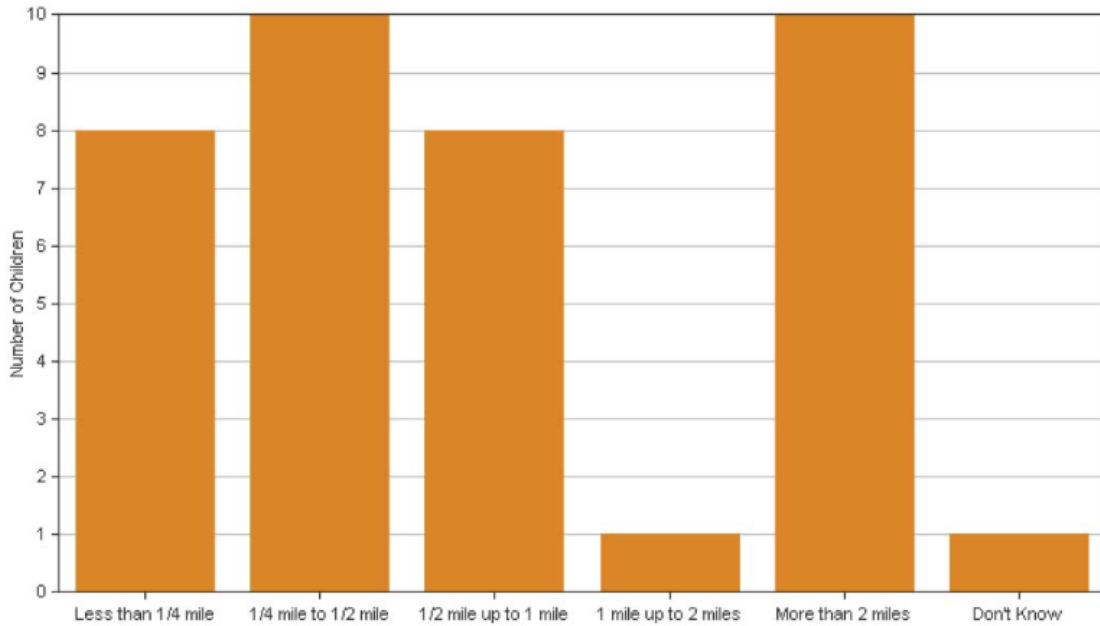
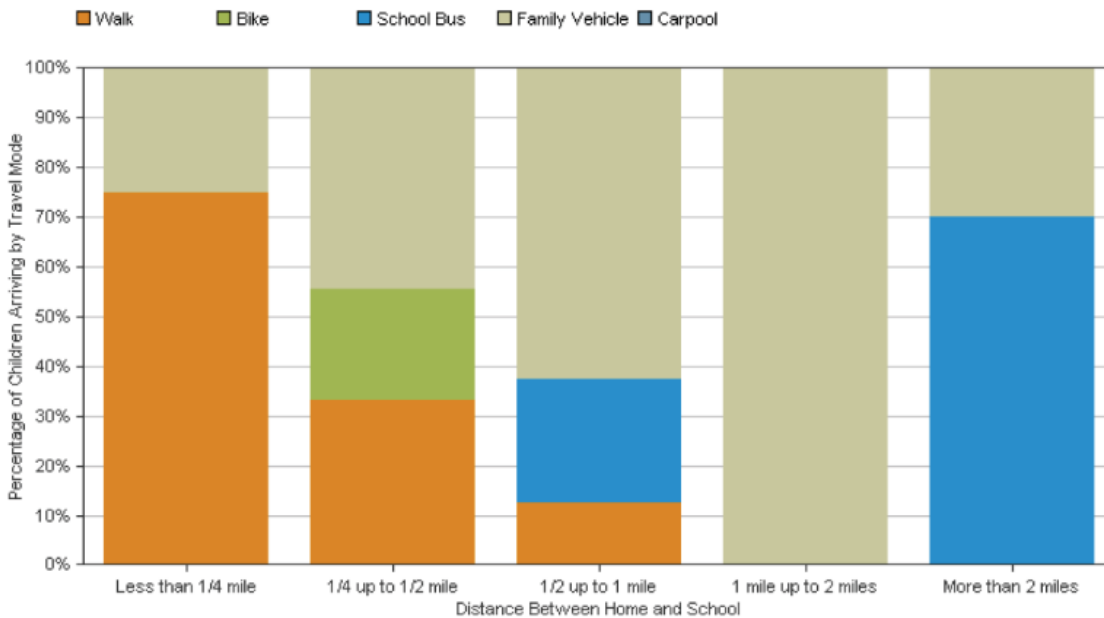


Figure 4-2: Percentage of MLES Children by Travel Mode to School



EXISTING MULTI-MODAL DATA SUMMARY

Figure 4-3: Percentage of MLES Children by Travel Mode from School

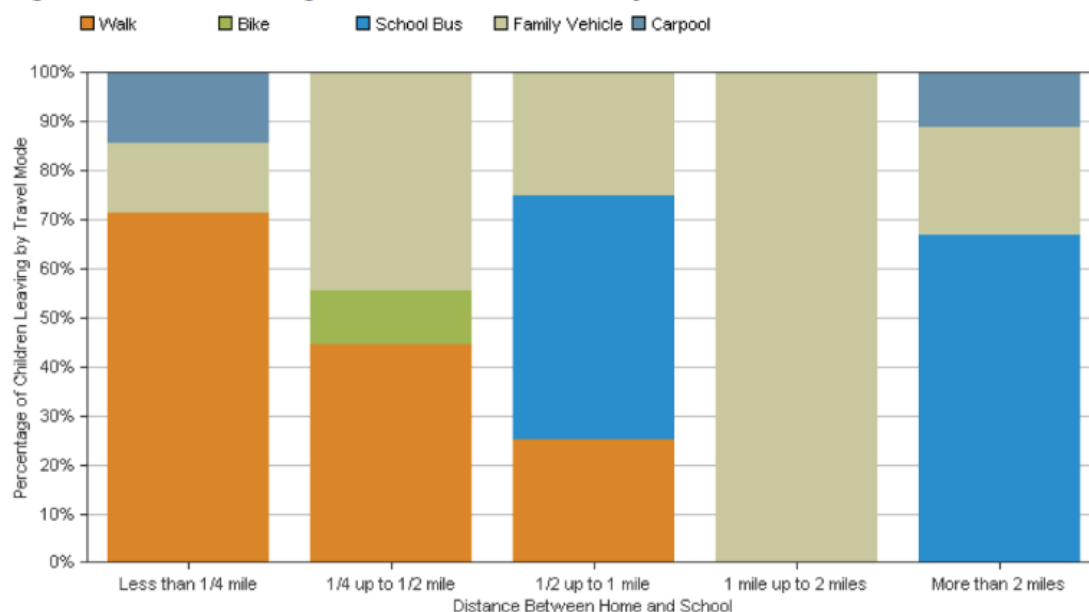


Table 4-1: Issues that Affect Parent's Decision to Allow or Not Allow Their Child to Walk or Bike to/from School Separated by Children who Do and Do Not Already Walk or Bike to/from School

Issue	Child walks/bikes to school	Child does not walk/bike to school
Distance	8 (61.5%)	16 (66.7%)
Convenience of driving	1 (7.7%)	2 (8.3%)
Time	3 (23.1%)	8 (33.3%)
Before/after-school activities	2 (15.4%)	7 (29.2%)
Traffic speed along route to school	9 (69.2%)	18 (75.0%)
Traffic volume along route	6 (46.2%)	20 (83.3%)
Adults to walk/bike with	5 (38.5%)	3 (12.5%)
Sidewalks or pathways	9 (69.2%)	14 (58.3%)
Safety of intersections & crossings	12 (92.3%)	11 (45.8%)
Crossing guards	9 (69.2%)	4 (16.7%)
Violence or crime	3 (23.1%)	11 (45.8%)
Weather or climate	4 (30.8%)	11 (45.8%)
Number of Respondents Per Category	13	24
No Response: 7		

(Percentages may not total 100% due to rounding.)

Hanover Street Elementary School:

Figure 4-1: Number of HSES Children by Distance They Live from School

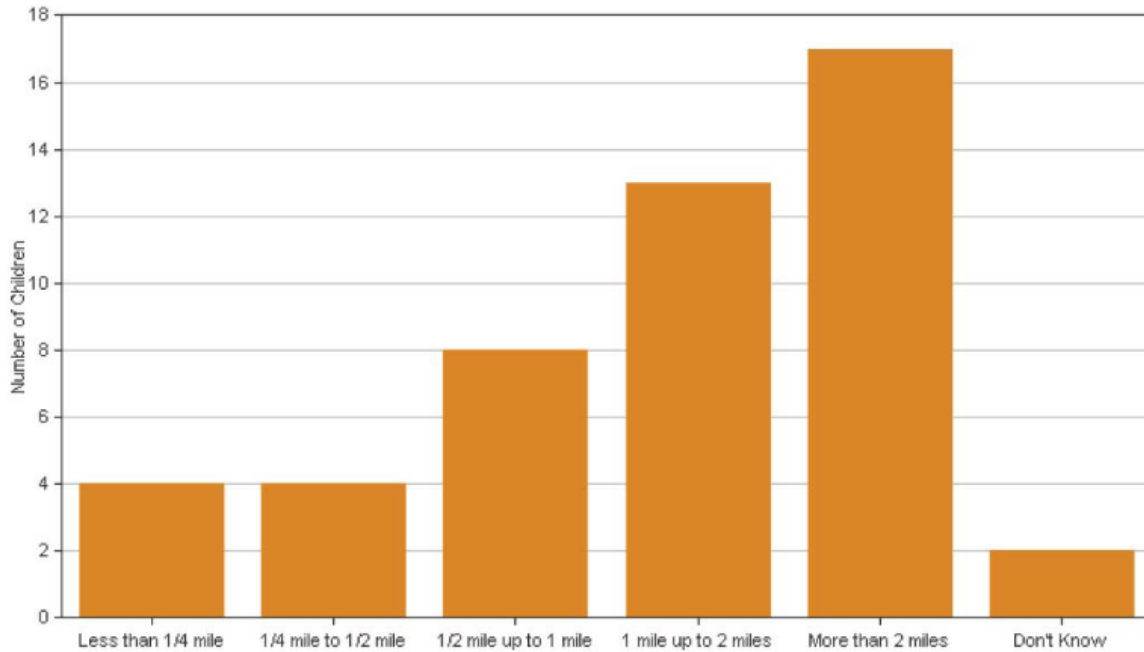
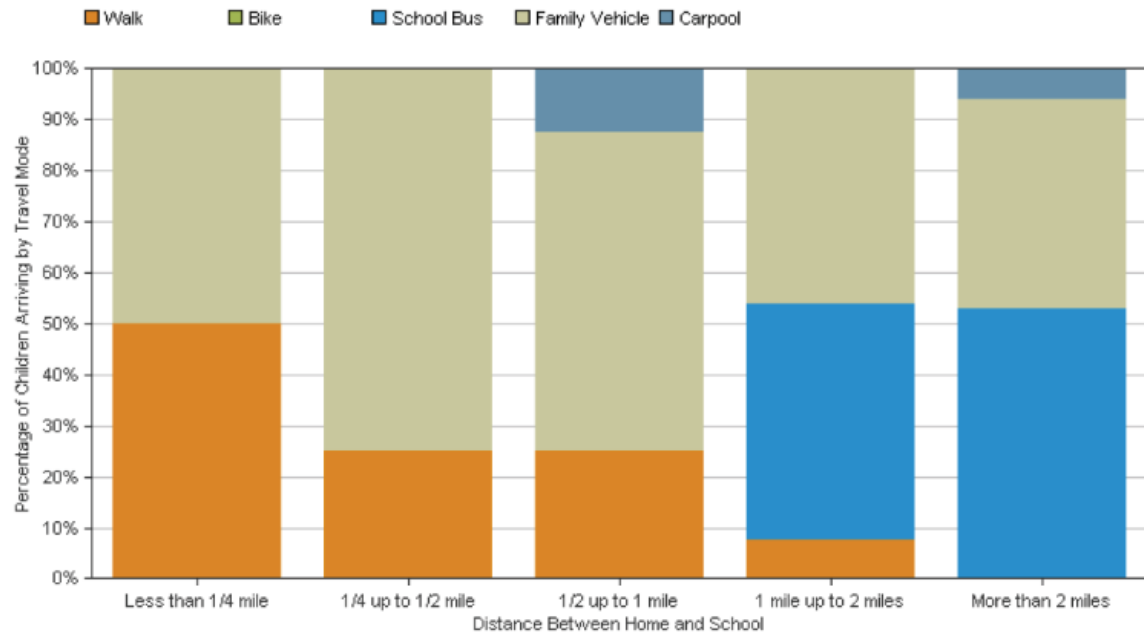


Figure 4-2: Percentage of Children by Travel Mode to School





EXISTING MULTI-MODAL DATA SUMMARY

Figure 4-3: Percentage of HSES Children by Travel Mode from School

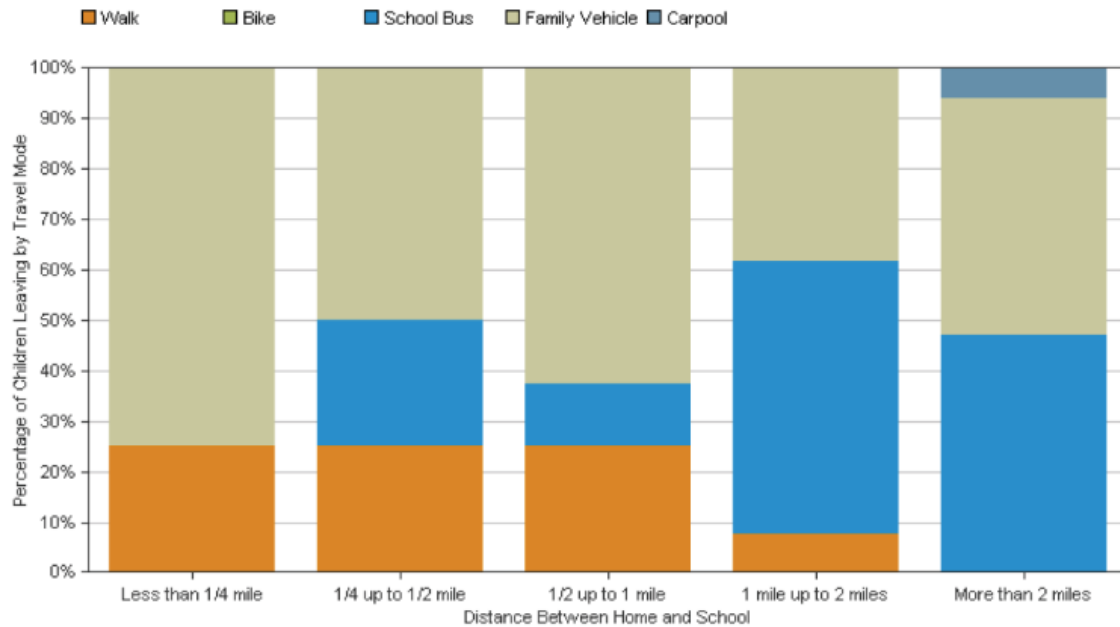


Table 4-1: Issues that Affect Parent's Decision to Allow or Not Allow Their Child to Walk or Bike to/from School Separated by Children who Do and Do Not Already Walk or Bike to/from School

Issue	Child walks/bikes to school	Child does not walk/bike to school
Distance	5 (83.3%)	30 (73.2%)
Convenience of driving	0 (0.0%)	0 (0.0%)
Time	2 (33.3%)	14 (34.1%)
Before/after-school activities	1 (16.7%)	5 (12.2%)
Traffic speed along route to school	4 (66.7%)	26 (63.4%)
Traffic volume along route	3 (50.0%)	28 (68.3%)
Adults to walk/bike with	5 (83.3%)	14 (34.1%)
Sidewalks or pathways	4 (66.7%)	20 (48.8%)
Safety of intersections & crossings	3 (50.0%)	28 (68.3%)
Crossing guards	3 (50.0%)	9 (22.0%)
Violence or crime	2 (33.3%)	17 (41.5%)
Weather or climate	2 (33.3%)	20 (48.8%)
Number of Respondents Per Category	6	41
No Response: 7		

(Percentages may not total 100% due to rounding.)



EXISTING MULTI-MODAL DATA SUMMARY

EXISTING DATA SUMMARY & NEEDS ASSESSMENT

SURVEY DATA SUMMARY & NEEDS ASSESSMENT:

PLAN / STUDY / SURVEY TITLE	YEAR	GEOGRAPHIC AREA(S)	METHOD(S)	TOPICS	RESPONSE STATS
Lebanon 29612 Exit 18/NH 120 Survey & Outreach	2021	NH Route 120-DHMC corridor; Downtown area	Online Survey Interactive Map	Multi-modal access & safety; Project ideas	527 survey responses
Mascoma River Greenway Survey	2020	Downtown area; Mechanic St - Miracle Mile corridor	Online Survey Interactive Map	Trail access; Trail user experience; Trail destinations; Priorities for improvements	880 survey responses
UVLSRPC Regional Corridor Transportation Plan	2020-2021	City-wide, focusing on major transportation corridors	Online Survey Interactive Map	Multi-modal access & safety; Project ideas	1,450 survey responses total (need to break down for Lebanon); hundreds of interactive map points
Advance Transit Transit Development Plan	2018	Downtown area; Mechanic St - Miracle Mile corridor; NH 120 - DHMC Corridor; West Lebanon area; Sachem area; NH 12A Commercial area;	Passenger survey	Trip purpose; Employment status/locations; Access to personal vehicle	583 returned surveys; 93% response rate
West Lebanon Village Vision Charrette	2019	West Lebanon area	Online Survey In-Person Charrette Stakeholder Meeting	Mode choice; Parking; Mobility challenges; Ped-bike connections; CT River connections; Streetscapes;	256 online survey responses
Downtown Visioning Study & Tunnel Project	2016	Downtown area	Online Survey Public Meetings Stakeholder Interviews "I Wish" Posters	Park & walk; Traffic calming; Mode choice; Mobility challenges; Ped-bike connections; Recreational trails	"Hundreds" of participants at public meetings; 530 online survey responses; 263 responses on "I Wish" posters
Safe Routes to Play	2014	City-wide, focusing on major recreation areas/facilities and parks	Parent survey Public meetings	Ped-bike access/safety; Ped-bike areas of concern	107 survey responses; 60% response rate
Safe Routes to School	2009; 2011	Areas surrounding public schools in Lebanon	Parent survey Public meetings	Distance to school; Mode choice; Parent concerns/barriers	n/a



EXISTING MULTI-MODAL DATA SUMMARY

NEEDED PUBLIC INPUT	OUTREACH METHOD(S)	NOTES
First-mile / last-mile connections to public transit	Passenger survey at bus stops; targeted stakeholder outreach	In-person administration using QR code; iPad as backup. Can use Soofa signs for additional public input.
Spot improvements for ped-bike safety & access	Online public input portal on project website; targeted stakeholder outreach	Use interactive map or other virtual media to solicit input on specific areas & locations. Can use Soofa signs for additional input.
Desired City-wide pedestrian and bicycle network	In-person or virtual charrette; targeted stakeholder outreach (building on all prior input/studies)	Desired networks can be built using existing data; additional public input is needed to validate and refine.



OVERVIEW:

To inform the development of the *Walk Bike Ride Leb* plan, a review of existing City of Lebanon plans and studies was performed. This included the 2012 City of Lebanon *Master Plan*, as well as a number of transportation-specific studies and plans. This summary will be used to 1) evaluate current progress towards improving multi-modal transportation; 2) ensure that previously identified multi-modal transportation needs are reflected in the *Walk Bike Ride Leb* plan; and 3) help identify multi-modal transportation needs and opportunities that need further planning and study.

This summary presents 1) specific planned and proposed multi-modal transportation projects identified in City plans and studies; and 2) higher-level multi-modal transportation needs and opportunities described in City plans and studies. Multi-modal transportation projects, needs, and opportunities are grouped by sub-areas and corridors within the City.

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PREPARED BY:





SUMMARY OF EXISTING MULTI-MODAL TRANSPORTATION PLANS & STUDIES

GLOSSARY OF TRANSPORTATION PLANNING TERMS:

Bike Lane: A painted lane with bicycle markings designating operating space for bicyclists within the roadway.

Bike Shoulder: A painted shoulder/fog line without bicycle markings that provides operating space for bicyclists within the roadway. Shoulder must typically be 4+ feet to be considered a suitable bike shoulder (5+ feet if curb/guardrail is present).

CIP: City of Lebanon Capital Improvements Program

FTA: Federal Transit Administration

Multi-Modal Transportation: Refers to multiple “modes” (types) of transportation (driving, walking, bicycling, public transit, using a wheelchair, etc.) that comprise the local and regional transportation system.

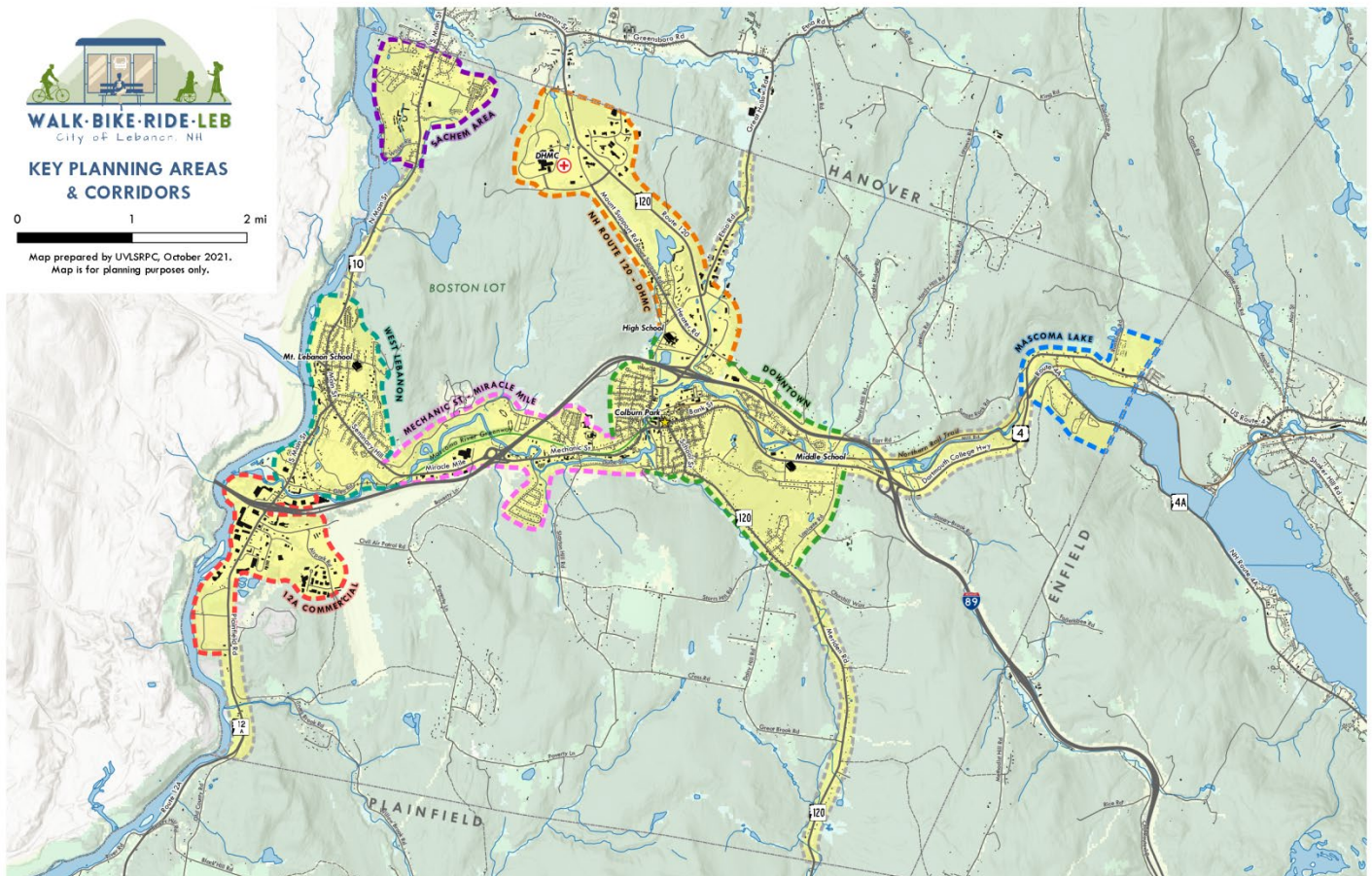
Multi-Use Path: A pedestrian and bicycle path that is physically-separated from adjacent/nearby roadway(s).

NH Ten-Year Plan: The NH Ten-Year Transportation Improvement Program (“Ten-Year Plan”) - the statewide transportation budget. Ten-Year Plan projects typically use federal funds, but may require local match.

TAP: Transportation Alternatives Program – a federal aid program (administered by NHDOT) for pedestrian and bicycle infrastructure improvements.

Traffic Calming: The use of physical infrastructure, signage, and/or other techniques to reduce vehicle speeds and increase driver awareness in busier areas with increased pedestrian and bicycle traffic.

KEY MULTI-MODAL TRANSPORTATION PLANNING AREAS & CORRIDORS:





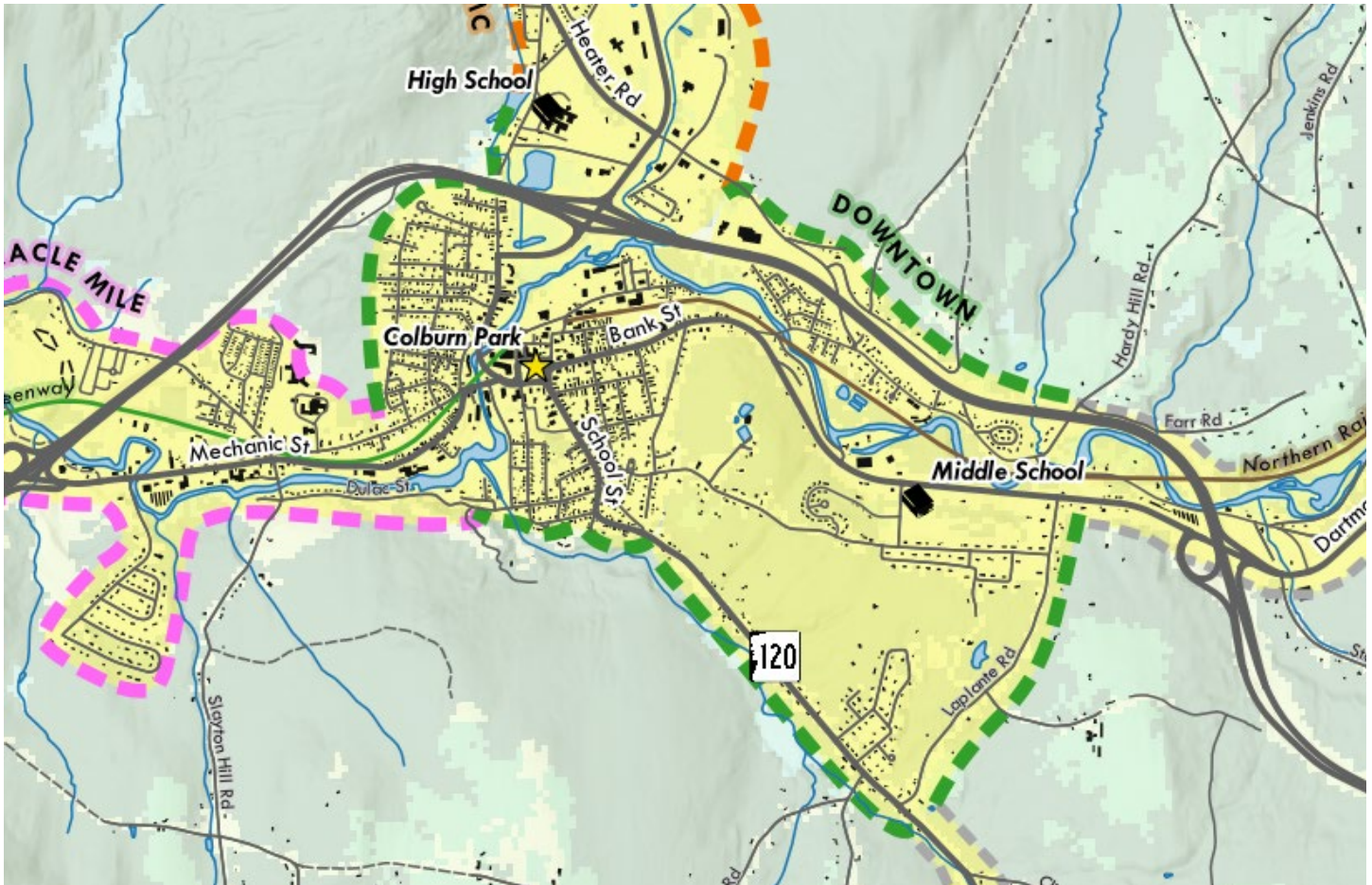
SUMMARY OF EXISTING MULTI-MODAL TRANSPORTATION PLANS & STUDIES

CITY-WIDE MULTI-MODAL TRANSPORTATION NEEDS & OPPORTUNITIES IDENTIFIED IN EXISTING PLANS & STUDIES:

NEED / OPPORTUNITY	SOURCE
Improve pedestrian and bicycle connections between employers, residential areas, major hubs, and bus stops.	City 2012 Master Plan
Improve availability of bicycle parking.	City 2012 Master Plan
Small/inconsistent shoulder widths limit bicycle access.	City 2012 Master Plan
Create a “String of Pearls” connecting parks and recreation areas with pedestrian and bicycle paths.	City 2012 Master Plan
Balance needs of all transportation system users when considering parking locations, layouts, and number of spaces.	City 2012 Master Plan
Create more inviting/attractive streetscapes for pedestrians, including landscaped buffers, street trees, seating, etc.	City 2012 Master Plan
Manage vehicular travel demand/congestion by promoting other modes of transportation.	City 2012 Master Plan
Improve access to the Mascoma River.	City 2012 Master Plan
Encourage future developments to be less auto-oriented/reliant, including improved public transit access.	City 2012 Master Plan; 2010 Advance Transit Bus Stop Study
Improve safe walking and bicycling routes to schools – traffic speed, development density, and distance identified as primary barriers.	City 2012 Master Plan
Aging population will create increased demand for mobility services and alternatives to driving.	City 2012 Master Plan
Currently there are few bus pullouts and covered shelters in Lebanon.	City 2012 Master Plan; 2010 Advance Transit Bus Stop Study
Manage driveway access points to minimize potential conflict points for all modes of transportation.	City 2012 Master Plan

SUMMARY OF EXISTING MULTI-MODAL TRANSPORTATION PLANS & STUDIES

DOWNTOWN AREA



Planned & Proposed Multi-Modal Transportation Projects:

PROJECT	DESCRIPTION	FUNDING	STATUS	COST	YEAR	NOTES
Sullivan County Transit Claremont-Lebanon NH 120 bus service	Commuter bus service from Claremont to downtown Lebanon/DHMC	FTA; other contributions	Funded	?	2021	Bus service started this year, serves City Hall & DHMC; potential for future service changes/expansions
Spencer St Reconstruction	Reconstruction of Spencer St from Northern Rail Trail crossing to Kendrick St, including new sidewalks and crosswalks	CIP	Funded	\$1,974,000	2021	Underway
US Route 4/Moulton Ave Pedestrian Crossing & Trail	Construct ped-bike connection from Northern Rail Trail to Middle School, including woods trail, road crossing, and sidewalk extension along Moulton Ave	CIP	Funded	?	2021 - 2022	Underway



SUMMARY OF EXISTING MULTI-MODAL TRANSPORTATION PLANS & STUDIES

PROJECT	DESCRIPTION	FUNDING	STATUS	COST	YEAR	NOTES
Kimball St sidewalk upgrade	Improve sidewalks along Kimball St	CIP	Funded	\$1,191,160	2022	2022-2027 does not provide detail
Resurfacing NH 120 from City urban compact to Plainfield	Light capital paving of NH 120/Meriden Rd (project #22202)	NHDOT Paving Program	Funded	n/a	2022	Opportunity to consider lane striping adjustments for wider shoulders
Mascoma St/High St/Mechanic St Roundabout	Construct roundabout at Mascoma/Mechanic/High St	City of Lebanon; NH Ten-Year Plan	Funded	\$3,053,580	2023	Connection between Mascoma Greenway and ped-bike tunnel
Hanover St/ NH 120 Reconstruction	Reconstruction of Hanover St from NH 120 to High St, including traffic calming, streetscape, and ped-bike access improvements. Includes intersection improvements at NH 120/Hanover St and Hanover St/High St/Hough St	CIP; NH Ten-Year Plan (potential)	Planned	est. \$6,000,000	2024 - 2026	\$1.4m in 2024 with \$5.9m planned for full street overhaul after 2026. \$1.4 is for intersection improvements at NH 120 and remainder is for remainder through the High St Intersection after 2026. NH 120/Hanover St intersection could be folded into NH 120/Exit 18 Ten-Year Plan project.
Reconfigure of NH 120/US4/Park St around Colburn Park	Convert N Park St to one-way w/ wider sidewalk & public space; convert E W & S Park to 2-way w/rotary at S/E Park and NH 120S	n/a	Concept	est. \$6,000,000	n/a	From 2016 <i>Downtown Visioning Study</i> ; includes numerous site improvements such as pedestrian crossings, bus shelters, etc.
Extend Taylor St access	Extend Taylor St through parking and formalize roadway to access behind Opera House	n/a	Concept	n/a	n/a	From 2016 <i>Downtown Visioning Study</i> ; would be part of larger scale re-imagining of downtown area
Reconfigure Hanover St/Mascoma St intersection	Realign merge intersection into T-intersection	n/a	Concept	est. \$500,000	n/a	From 2016 <i>Downtown Visioning Study</i>
Ped-bike improvements south NH 120/Meriden Rd	Extend shoulder widening/ped-bike improvements south along NH 120/Meriden Rd south of prior CSO project/urban compact line	n/a	Concept	n/a	n/a	Concept plans previously worked on – need more information.
Ped-bike improvements along Bank St Ext east of Heater Rd	Extension of sidewalk along Bank St Ext; formalize connection to Northern Rail trail	n/a	Concept	n/a	n/a	From UVLSRPC <i>Regional Corridor Transportation Plan</i>



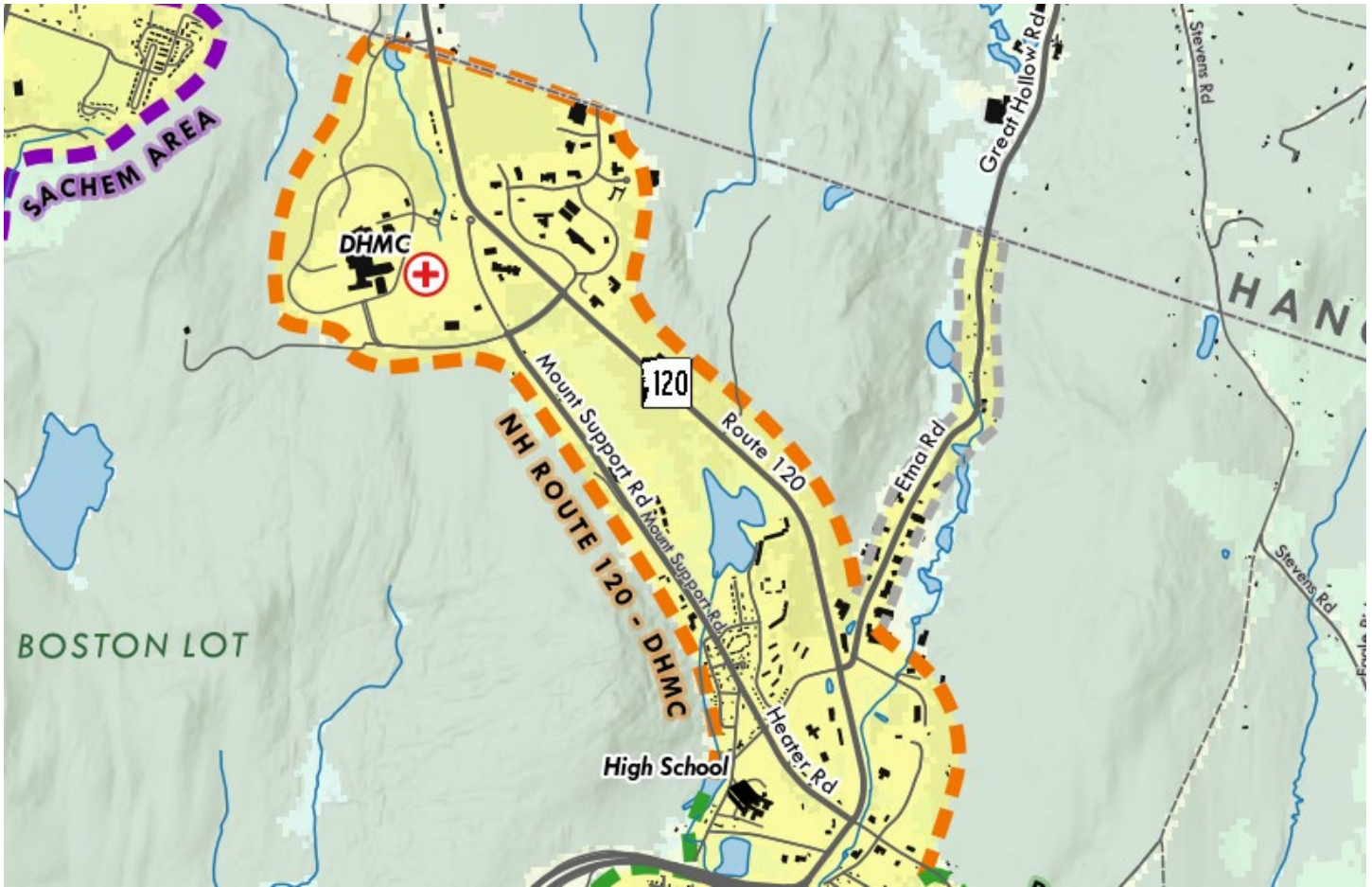
SUMMARY OF EXISTING MULTI-MODAL TRANSPORTATION PLANS & STUDIES

Additional Identified Multi-Modal Transportation Needs & Opportunities:

DESCRIPTION	SOURCE	NOTES
Improve amenities for transit users (shelters/benches, public restrooms)	City 2012 <i>Master Plan</i> ; 2016 <i>Downtown Visioning Study</i>	Increased importance with new NH 120 bus service from SCT
Downtown recreation path network	City 2012 <i>Master Plan</i> ; 2016 <i>Downtown Visioning Study</i>	Concepts presented in 2016 study; unclear if additional planning/feasibility work has been done. Focus on connections to key destinations and public spaces/park areas
Provide improved & attractive streetscape amenities, such as movable planters, seating, adequate trash cans, and bicycle racks through the CBD	City 2012 <i>Master Plan</i> (p. 3-9)	Consider permanent conversion of Court St to public, car-free space?
Improve Mechanic St with sidewalks and bike paths	City 2012 <i>Master Plan</i> (p. 3-9)	Progress has been made, gaps remain in sidewalk network.
Identify a pedestrian route to Storrs Hill from CBD, utilizing existing sidewalks	City 2012 <i>Master Plan</i> (p. 3-10)	Refers to signage/wayfinding?
Develop a plan for bikeways/pedestrian paths connecting neighborhoods in the CBD core	City 2012 <i>Master Plan</i> (p. 3-9)	Several proposed/planned projects address this goal – important to evaluate where gaps remain
Develop downtown Tax Increment Finance (TIF)/Special Assessment District to support projects	City 2012 <i>Master Plan</i> (p. 3-6); 2016 <i>Downtown Visioning Study</i>	Downtown TIF still active?
Ped-bike improvements along Bank St Ext east of Heater Rd	UVLSRPC <i>Regional Corridor Transportation Plan</i>	Sidewalk ends at Heater Rd; minimal shoulder; no formal connection to Northern Rail Trail

SUMMARY OF EXISTING MULTI-MODAL TRANSPORTATION PLANS & STUDIES

NH ROUTE 120 – DHMC CORRIDOR



Planned & Proposed Multi-Modal Transportation Projects:

PROJECT	DESCRIPTION	FUNDING	STATUS	COST	YEAR	NOTES
Sullivan County Transit Claremont-Lebanon NH 120 bus service	Commuter bus service from Claremont to downtown Lebanon/DHMC	FTA; other contributions	Funded	?	2021	Bus service started this year, serves City Hall & DHMC; potential for future service changes/expansions
Sullivan County Transit Newport-Lebanon NH 120 bus service	Commuter bus service from Newport/Grantham along I-89 to DHMC	FTA; other contributions	Funded	?	2021	Service scheduled to start in fall 2021
Advance Transit Blue Route Expansion	Increasing Blue Route to 15 min service between downtown Lebanon and Hanover	Advance Transit; NHDOT/FTA; municipalities; private entities	Planned	\$316,586	2022	Partially funding via CMAQ; AT currently raising additional funds. Identified in 2018 <i>Transit Development Plan</i> .
Mt Support Rd/LaHaye Drive Intersection Improvement	Upgrade Mt Support/LaHaye Dr intersection	CIP; Special Assessment District	Funded	\$2,250,000	2023	Will connect into Lahaye Drive multi-use path project. Currently in preliminary design.
Resurfacing Etna Rd from NH 120 to Etna	Light capital paving of Etna Rd (project #22206)	NHDOT Paving Program	Funded	n/a	2023	Opportunity to consider lane striping adjustments/other spot treatments



SUMMARY OF EXISTING MULTI-MODAL TRANSPORTATION PLANS & STUDIES

PROJECT	DESCRIPTION	FUNDING	STATUS	COST	YEAR	NOTES
NH 120 corridor improvements from Hanover St to Etna Rd	Improve vehicular operations and ped. bike, and transit access along NH 120 corridor from Hanover St to Etna Rd, including I-89 Exit 18	NH Ten-Year Plan/STBG	Funded	\$7,000,000-\$18,133,581	2024	Additional \$11 million in construction funds proposed in draft Ten-Year Plan. Currently in preliminary engineering. Many potential improvements could be considered.
Lahaye Drive multi-use path	Construct multi-use path from Mt Support Rd to Centerra Parkway, including improved crossing of NH 120	City of Lebanon; Transportation Alternatives Program	Funded	\$857,237	2026?	Project unexpectedly proposed to be delayed by 3 years in draft NH Ten-Year Plan. City currently advocating to NHDOT to move up project timeline.
NH 120/Etna Rd pedestrian crossing	Construct pedestrian crossing of NH 120 at Etna Rd	City of Lebanon	Concept	n/a	n/a	Identified in 2021 in response to resident inquiry. Could potentially be included in NH 120 Ten-Year Plan project.
Advance Transit new Purple Line	Create new Purple Line to serve additional destinations in Lebanon -- APD, Mascoma St, Labombard, Centerra/Altaria	n/a	Concept	\$576,838	n/a	Identified in 2018 <i>Transit Development Plan</i> .
Pedestrian access to Advance Transit stop at Heater Rd/Old Etna Rd	Add sidewalk to Advance Transit stop at Heater Rd/Old Etna Rd	n/a	Concept	n/a	n/a	Identified in UVLSRPC <i>Regional Corridor Transportation Plan</i> .
Advance Transit Purple Route	New Advance Transit service with connections to Mascoma St, Dartmouth Coach, Lobombard Rd, Centerra Park, and DHMC	n/a	Concept	n/a	n/a	Identified in 2018 AT <i>Transit Development Plan</i>

Additional Identified Multi-Modal Transportation Needs & Opportunities:

DESCRIPTION	SOURCE	NOTES
Comprehensive plan for ped-bike access between downtown Lebanon, DHMC, and Hanover	UVLSRPC <i>Regional Corridor Transportation Plan</i>	Consideration necessity of on-road or separated bicycle facility along NH 120 vs alternate route (Mt. Support Rd/Lahaye), connections north towards Hanover
Lack of ped-bike connection from Mt. Support Rd multi-use path to DHMC	UVLSRPC <i>Regional Corridor Transportation Plan</i>	
Park-and-ride facility near I-89 Exit 18	City 2012 <i>Master Plan</i> ; UVLSRPC <i>Regional Corridor Transportation Plan</i>	Need for a park-and-ride is identified in NHDOT <i>Statewide Strategic Transit Assessment</i> . 2010 <i>Intermodal Facility Study</i> did not lead to further project development.

SUMMARY OF EXISTING MULTI-MODAL TRANSPORTATION PLANS & STUDIES

WEST LEBANON AREA:



Planned & Proposed Multi-Modal Transportation Projects:

PROJECT	DESCRIPTION	FUNDING	STATUS	COST	YEAR	NOTES
Westboro Rail Yard demolition; multi-use path (West Leb Greenway) & park	Demolition of buildings on site of Westboro Rail Yard to enable redevelopment, including multi-use path/Mascoma Greenway extension	NHDOT (demolition); City of Lebanon	Funded / Planned	\$756,420 (demolition)	2021 (demo)	Demo contract approved G&C 9/15/21, state funds. Future lease agreement to be negotiated. Site proposed to host park and multi-use path.
NH 12A/South Main Street Bridge Replacement #062-117	Replacement of NH 12A/South Main St "Dry Bridge" including wider bike shoulder and access road to Westboro Yards	City of Lebanon: NH Ten-Year Plan	Funded	\$10,063,536	2024	City contributing ~\$2.12 million to \$8.2 million bridge replacement; plus \$ for Westboro access
River Park - West Lebanon multimodal transportation facility	Move Advance Transit queuing station from Kilton Library to Riverpark	Lyme Properties; Advance Transit	Planned	?	?	Identified in 2018 AT Transit Development Plan



SUMMARY OF EXISTING MULTI-MODAL TRANSPORTATION PLANS & STUDIES

PROJECT	DESCRIPTION	FUNDING	STATUS	COST	YEAR	NOTES
Bridge St/Main St intersection improvement	Construct roundabout or other improvement at Bridge St/Main St intersection	n/a	Concept	n/a	n/a	Preliminary engineering underway w/ WLRAC. Potential to improve pedestrian access in "North Gateway" to West Lebanon
West Lebanon Main St Improvements	Streetscape improvements along West Lebanon Main St; including improved pedestrian and bicycle access	n/a	Concept	n/a	n/a	From 2020 West Lebanon Charrette Report; preliminary designs being worked on. Opportunity to add street furniture and bicycle parking as well.
Mascoma River Greenway extension to Riverside Park	Extend MRG along State of NH rail line to arch bridge; create connection from MRG to Riverside Park	n/a	Concept	n/a	n/a	Being planned/worked on by Recreation & Parks.
Mascoma River Greenway extension West Lebanon	Extend MRG along State of NH rail line West Lebanon/ Westboro Yard	n/a	Concept	n/a	n/a	Rail line is actively used; unclear if/when extension along rail line will be an option.
Pedestrian access to AT stop at Glen Rd Plaza	Construct sidewalk to AT stop at Glen Rd Plaza	n/a	Concept	n/a	n/a	Identified in UVALRPC Regional Corridor Transportation Plan
Connecticut River ped-bike bridge	Formalize ped-bike access along existing rail bridge between West Lebanon and White River Junction	n/a	Concept	\$0.83-\$1.2 million (2007 dollars)	n/a	2007 Feasibility Study completed by Upper Valley Trails Alliance; bridge used by Rhymes Propane currently. Identified in 2021 West Leb Action Plan.
River Park trail connection**	Connect Bridge St to Wilder Dam via River Park and Connecticut River waterfront	Lyme Properties	Planned	?	?	Lyme Properties has support from NPS Rivers, Trails, & Conservation Assistance Program; UVTA is fiscal sponsor. Not planned to be an accessible trail, but is proposed to connect to multi-use path in Westboro Yard

** Private entity project

SUMMARY OF EXISTING MULTI-MODAL TRANSPORTATION PLANS & STUDIES

3. West Lebanon Greenway - Action Items

1. Complete lease for Westboro Yard and waterfront corridor with NHDOT.
2. Advance engineering of Westboro yard segment of WLGS with VHB, including underpass beneath the RR bridge.
 - 2.1. NH Shoreland Urban Exemption may streamline this [Page 13]
3. Proactively engage landowners with proposed land-use changes that can increase land value, enable future economic development, and facilitate broader community trail goals [Chapter 5].
4. Establish the Greenway as the preferred alternative transportation route alongside West Lebanon Main Street and Route 10, to contribute towards larger, regional transportation plans.
 - 4.1. May open up potential transportation funding at the State and Federal level.
 - 4.2. Proposed streetscape improvements for Main Street does not have corridor width for dedicated Bike Lane.
 - 4.2.1. Currently Maple Street is shown as alternative walk/bicycle route.
 - 4.2.2. West Lebanon Greenway would be the preferred alternative, and would simultaneously make larger contribution to bike/ped infrastructure
 - 4.3. UVLSRPC Corridor Study and Lebanon Bike/Ped plan continue to build upon decades of community requests and study.
5. Support Rec Use Statute before NH Legislature in 2022.
6. Re-visit opportunity identified in 2007 Study to connect West Leb to White River Junction, Vt. via safe pedestrian passage across rail bridge.
7. Work with Greenway coalition members to advance plans and identify sources of potential funding, and tie to significant State and Federal funding priorities.



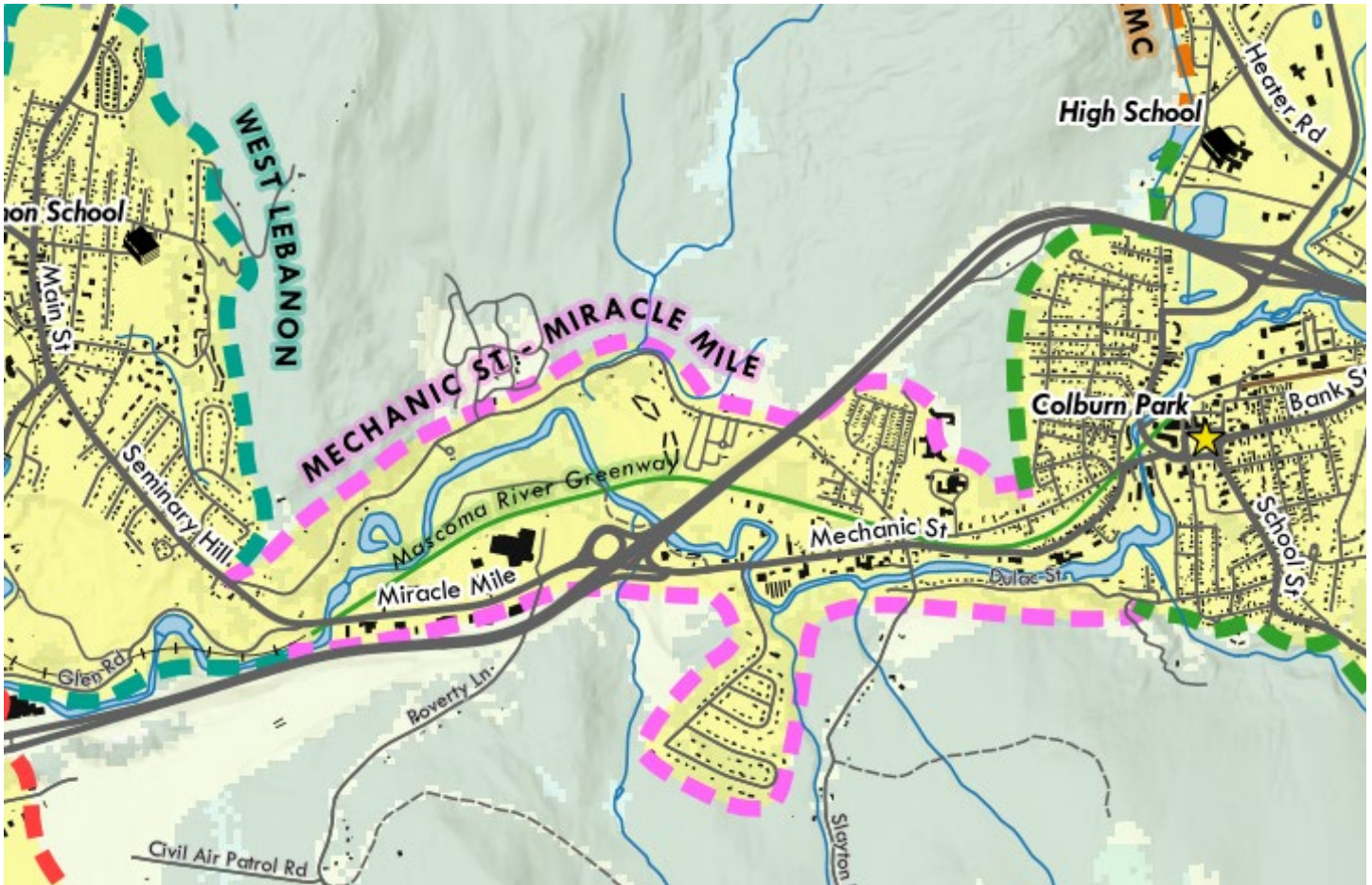
Figure 1. Screenshot of action items of West Lebanon Greenway from Action Plan for West Leb.

Additional Identified Multi-Modal Transportation Needs & Opportunities:

DESCRIPTION	SOURCE	NOTES
Seek opportunities for greater connectivity between West Lebanon Village and surrounding neighborhoods	West Lebanon Village Vision Charrette Report	
Seek opportunities to add street trees, benches, and other character-enhancing improvements along Main St	West Lebanon Village Vision Charrette Report	
Main St serves more as a pass-through for regional traffic than a destination itself	West Lebanon Village Vision Charrette Report	Connect ped-bike access improvements to placemaking and village revitalization strategies
Glen Rd access to Mascoma River Greenway is challenging for pedestrians and bicyclists	2020 Mascoma River Greenway survey	Would be remedied by changing primary access point to Riverside Park, but may need to consider short-term improvements.
Continuing the Greenway through West Leb and beyond	Action Plan for West Leb	Since the 2004 Westboro Riverfront Park Design Study there has been an ever-growing library of relevant documentation that references the potential for the Greenway through West Lebanon. This ranges from the initial envisioning work to in-depth land-use and engineering analysis. Recommendations from the plan include enhancing the pedestrian and bicyclist experience by upgrading infrastructure and expanding the network of sidewalks and bikeways to and within the village. Website: https://www.westleb.org/actionplan

SUMMARY OF EXISTING MULTI-MODAL TRANSPORTATION PLANS & STUDIES

MECHANIC ST – MIRACLE MILE CORRIDOR



Planned & Proposed Multi-Modal Transportation Projects:

PROJECT	DESCRIPTION	FUNDING	STATUS	COST	YEAR	NOTES
Mechanic St/Slayton Hill Rd roundabout	Construct roundabout at Mechanic St/Slayton Hill Rd	NH Ten-Year Plan; City of Lebanon	Funded	\$4,712,731	2029	Concept design includes pedestrian refuge islands and sidewalks in vicinity of proposed roundabout; may be able to incorporate additional improvements depending on funding availability
Mechanic St sidewalk extension	Construct sidewalk along Mechanic St from Slayton Hill Rd to American Legion	Congressional earmark	Planned	est. \$1,200,000	?	Rep. Kuster secured %290,250 earmark; project to tie into Mechanic St/Slayton Hill Rd intersection improvement project
Mascoma River Greenway – Miracle Mile connection	Construction ped-bike connection from MRG to Miracle Mile at Lebanon Ford	n/a	Planned	n/a	n/a	Being worked on by Recreation and Parks Department
Miracle Mile sidewalk extension	Construct sidewalk from current terminus to Poverty Lane/Timken	n/a	Planned	n/a	n/a	



SUMMARY OF EXISTING MULTI-MODAL TRANSPORTATION PLANS & STUDIES

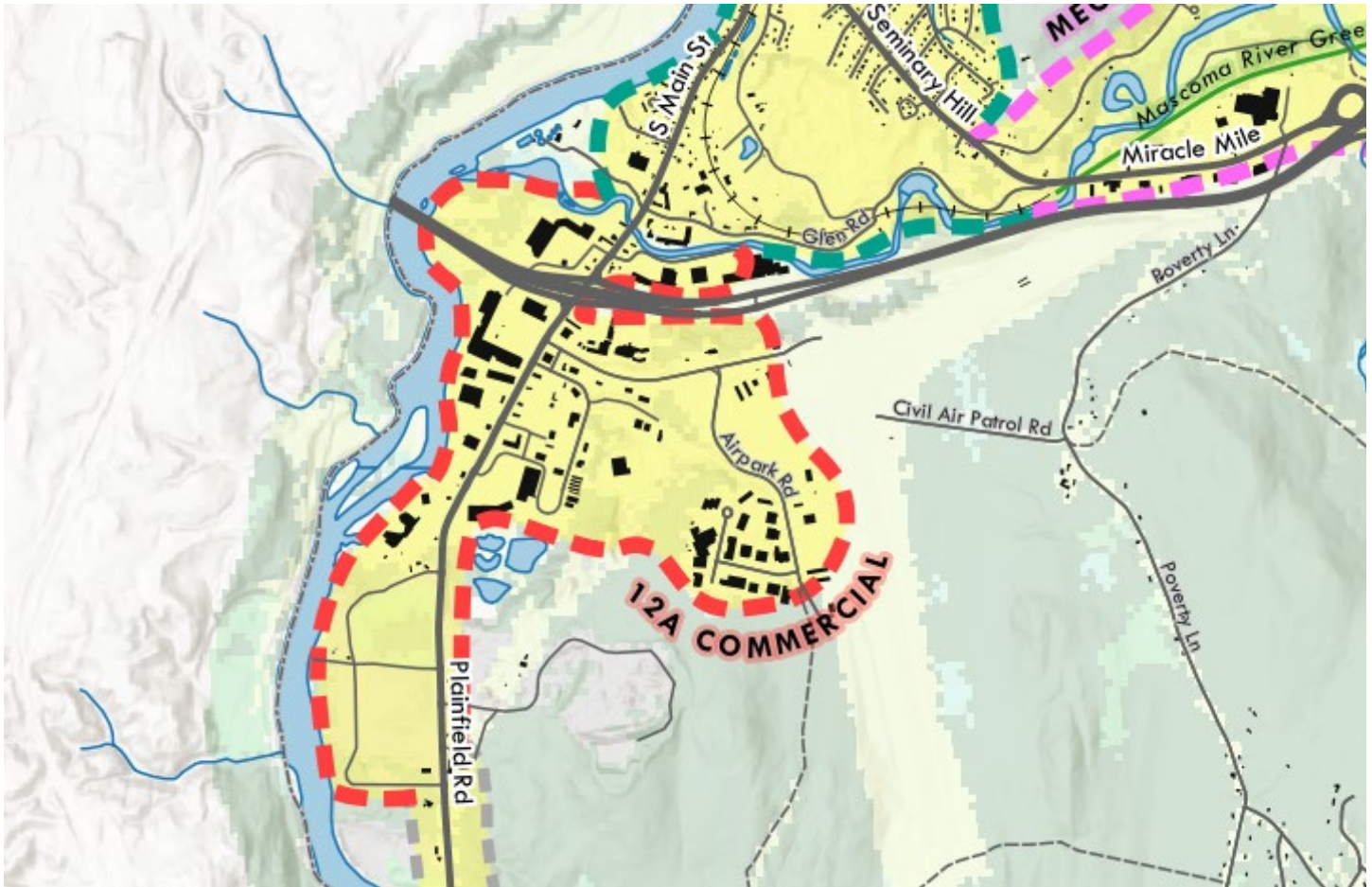
PROJECT	DESCRIPTION	FUNDING	STATUS	COST	YEAR	NOTES
Mascoma River Greenway - Mascoma St connection	Create ped-bike connection between MRG and Mascoma St/Boston Lot Nature Walk Trailhead	n/a	Concept	n/a	n/a	Cemetery Board rejected connection through cemetery, could potentially make connection along edge of I-89 ROW or other alignment.
Advance Transit Purple Route	New Advance Transit service with connections to Alice Peck Day & Mascoma St, as well as DHMC/Centerra	n/a	Concept	n/a	n/a	Identified in 2018 AT Transit Development Plan

Additional Identified Multi-Modal Transportation Needs & Opportunities:

DESCRIPTION	SOURCE	NOTES
Address gaps in the sidewalk network Mechanic St/US Route 4	2012 City Master Plan	
Improve navigation/access to Mascoma River Greenway	2020 Mascoma River Greenway survey	
Extension to West Lebanon is a priority	2022 NH Rail Trails Plan	There is active railroad activity in West Lebanon. Rail with trail or off corridor connection required.
Guidance for NHDOT Rail Trail Agreement	2022 NH Rail Trails Plan	The 2022 NH Rail Trails Plan includes a template for Rail Trail Guidance in the Appendix.

SUMMARY OF EXISTING MULTI-MODAL TRANSPORTATION PLANS & STUDIES

12A COMMERCIAL AREA



Planned & Proposed Multi-Modal Transportation Projects:

PROJECT	DESCRIPTION	FUNDING	STATUS	COST	YEAR	NOTES
Add covered bus shelter(s) along NH 12A	Add covered bus shelter(s) along NH 12A	n/a	Concept	n/a	n/a	Identified in UVLRPC Regional Corridor Transportation Plan
Pedestrian crossing at Walmart	Create pedestrian crossing across NH 12A at Walmart	n/a	Concept	n/a	n/a	Identified in UVLRPC Regional Corridor Transportation Plan
NH 12A "bike bypass"	Study feasibility of "bike bypass" around NH 12A commercial, including potential riverside path	n/a	Concept	n/a	n/a	Identified in UVLRPC Regional Corridor Transportation Plan & River Park's Green Vision for West Lebanon

Additional Identified Multi-Modal Transportation Needs & Opportunities:

DESCRIPTION	SOURCE	NOTES
Address gaps in the sidewalk network Mechanic St/US Route 4	2012 City Master Plan	
Improve navigation/access to Mascoma River Greenway	2020 Mascoma River Greenway survey	

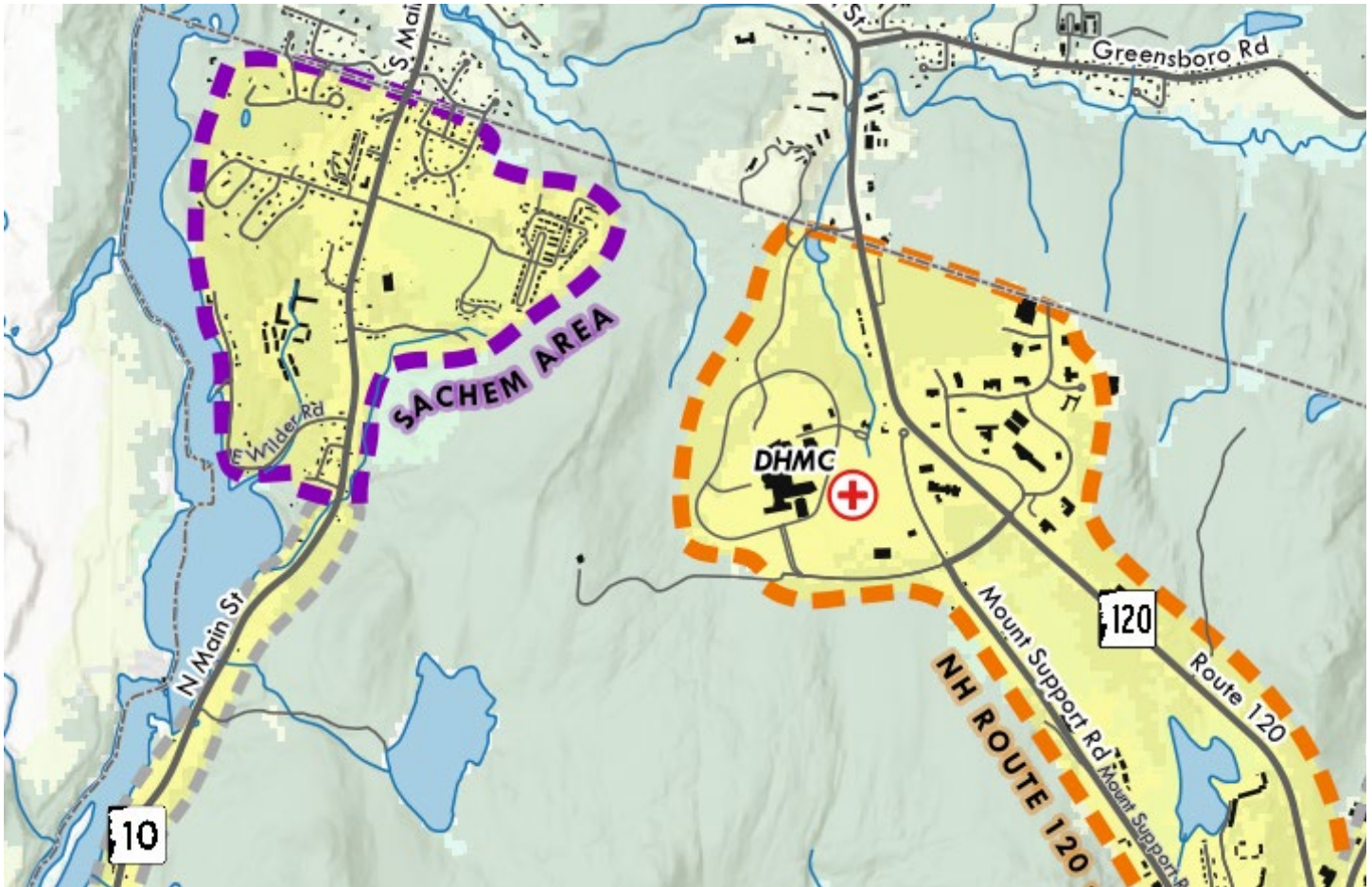


SUMMARY OF EXISTING MULTI-MODAL TRANSPORTATION PLANS & STUDIES

DESCRIPTION	SOURCE	NOTES
Glen Rd is challenging for pedestrians and bicyclists due to traffic and curves	UVALRPC <i>Regional Corridor Transportation Plan</i> ; 2020 <i>Mascoma River Greenway survey</i>	Gravel path from Riverside Park to Powerhouse Mall provides alternate route, but does not appear to well-known/utilized

SUMMARY OF EXISTING MULTI-MODAL TRANSPORTATION PLANS & STUDIES

SACHEM VILLAGE AREA



Planned & Proposed Multi-Modal Transportation Projects:

PROJECT	DESCRIPTION	FUNDING	STATUS	COST	YEAR	NOTES
Resurfacing NH 10 from urban compact to Hanover town line	Light capital paving of NH 10 (project #18215)	NHDOT Paving Program	Funded	n/a	2022	Opportunity to consider lane striping adjustments for wider shoulders, though limited space exists within narrow roadway
Dartmouth campus shuttle	Shuttle service from Sachem Village to Dartmouth campus; park-and-ride	n/a	Concept	n/a	n/a	Identified in 2021 <i>Dartmouth College Strategic Master Plan</i>
Sachem Village – DHMC transit & ped-bike connection	Limited-access roadway connecting Sachem Village to DHMC	n/a	Concept	n/a	n/a	Identified in 2021 <i>Dartmouth College Strategic Master Plan</i>

Additional Identified Multi-Modal Transportation Needs & Opportunities:

DESCRIPTION	SOURCE	NOTES
Lack of bicycle access/shoulders on NH Route 10	2012 Lebanon Pedestrian & Bicyclist Advisory Committee report; 2021 <i>Dartmouth College Strategic Master Plan</i>	Limited opportunity for lane reconfiguration of existing roadway given narrow roadway/ROW

SUMMARY OF EXISTING MULTI-MODAL TRANSPORTATION PLANS & STUDIES

MASCOMA LAKE AREA



Planned & Proposed Multi-Modal Transportation Projects:

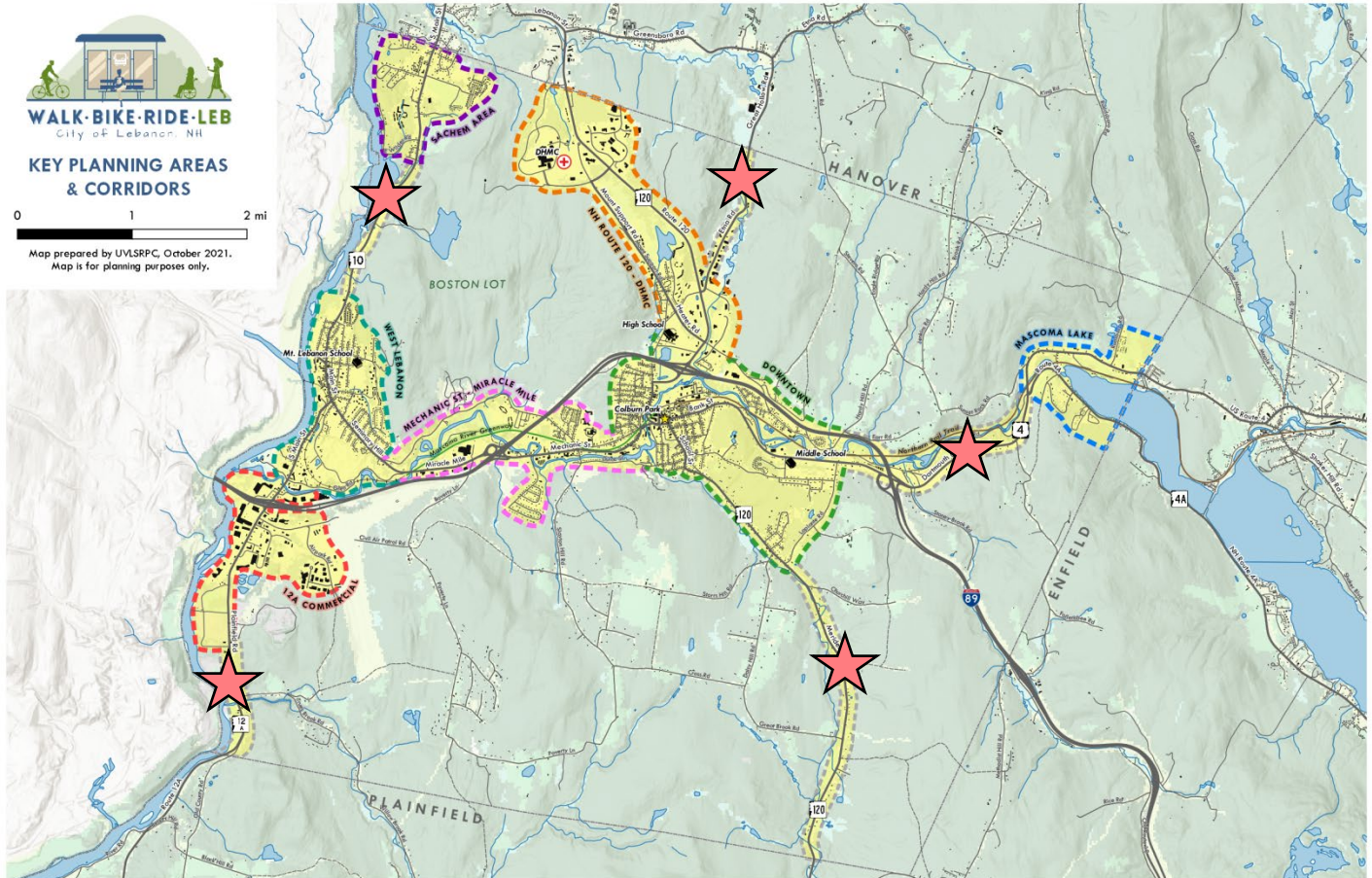
PROJECT	DESCRIPTION	FUNDING	STATUS	COST	YEAR	NOTES
Resurfacing NH 4A from US 4 to Enfield town line	Pavement preservation of NH 4A (project #22205)	NHDOT Paving Program	Funded	n/a	2023	Scope of maintenance project unclear; potential opportunity to reconfigure lane striping
Northern Rail Trail access at Payne Rd	Formalize access trail to Northern Rail Trail at Payne Rd overpass	n/a	Concept	n/a	n/a	Identified in UVALRPC Regional Corridor Transportation Plan; steep grades are a challenge for ADA access
US Route 4/ NH Route 4A intersection improvement	Improve intersection at US Route 4 and NH Route 4A	n/a	Concept	n/a	n/a	Identified in UVALRPC Regional Corridor Transportation Plan; intersection of US Route 4 and NH 4A is challenging for pedestrians and bicyclists accessing the Northern Rail Trail, particularly at peak commuting times. Creating rail trail access at Payne Rd would limit need for pedestrians and bicyclists to cross US Route 4

Additional Identified Multi-Modal Transportation Needs & Opportunities:

None identified in existing studies and plans.

SUMMARY OF EXISTING MULTI-MODAL TRANSPORTATION PLANS & STUDIES

KEY RURAL CORRIDORS



Planned & Proposed Multi-Modal Transportation Projects:

PROJECT	DESCRIPTION	FUNDING	STATUS	COST	YEAR	NOTES
Resurfacing NH 10 from City urban compact to Hanover town line	Light capital paving of NH 10 (project #18215)	NHDOT Paving Program	Funded	n/a	2022	Opportunity to consider lane striping adjustments for wider shoulders, though limited space exists within narrow roadway
Resurfacing NH 120 from City urban compact to Plainfield	Light capital paving of NH 120/Meriden Rd (project #22202)	NHDOT Paving Program	Funded	n/a	2022	Opportunity to consider lane striping adjustments for wider shoulders
Resurfacing Etna Rd from NH 120 to Etna	Light capital paving of Etna Rd (project #22206)	NHDOT Paving Program	Funded	n/a	2023	Opportunity to consider lane striping adjustments for wider shoulders

Additional Identified Multi-Modal Transportation Needs & Opportunities:

DESCRIPTION	SOURCE	NOTES
Etna Rd truck traffic and bicycle access; narrow/windy roadway	UVALRPC Regional Corridor Transportation Plan	Limited opportunity for lane reconfiguration of existing roadway given narrow roadway/ROW
NH 12A south of Lebanon landfill lacks adequate bicycle shoulder	UVALRPC Regional Corridor Transportation Plan	



SUMMARY OF NETWORK ANALYSIS

OVERVIEW:

To inform the development of the *Walk Bike Ride Leb* plan, a series of analyses of the current pedestrian, bicycle and transit network in the City of Lebanon was conducted. The individual analyses were used to provide guidance on future improvements to the transportation network in the City.

CONTENTS:

Walkability Analysis.....	2
Bicycle Level of Traffic Stress Analysis.....	3
Traffic.....	4
Safety Data.....	5

PREPARED BY:



Upper Valley Lake Sunapee
Regional Planning Commission

SUMMARY OF NETWORK ANALYSIS

WALKABILITY ANALYSIS:

UVLSRPC staff conducted a walkability analysis following the methodology in the table below. Destinations included but were not limited to those relevant to commuters (employment), recreation (both routes and end location, e.g., parks, places of play/sports), education (schools), community and critical services, housing (higher density residential), and food access (grocery).

ANALYSIS TASK	METHOD(S)
1. Conduct a “heat map” of destinations that can be applied to public engagement processes and help reveal network gaps	Use interactive platform to create map showing propensity metrics for pedestrian and bicycle travel and transit access. Metrics that can be shown on map: 1) destination locations/density (employment; recreation; education; services; residential; food access); 2) population density; 3) land use patterns (present & future). Use overlays to create heat map showing ped-bike travel propensity (for bikes - show Hanover/WRJ/Enfield)
2. Pedestrian “Walk Shed” analysis	Use task 1 outputs to identify likely pedestrian walkshed. Use 1/4 and 1/2-mile travel distance using network distance.
3. Pedestrian connectivity analysis	Within pedestrian walkshed, highlight existing sidewalks & low-stress roadways, and network gaps. Incorporate last-mile connections.

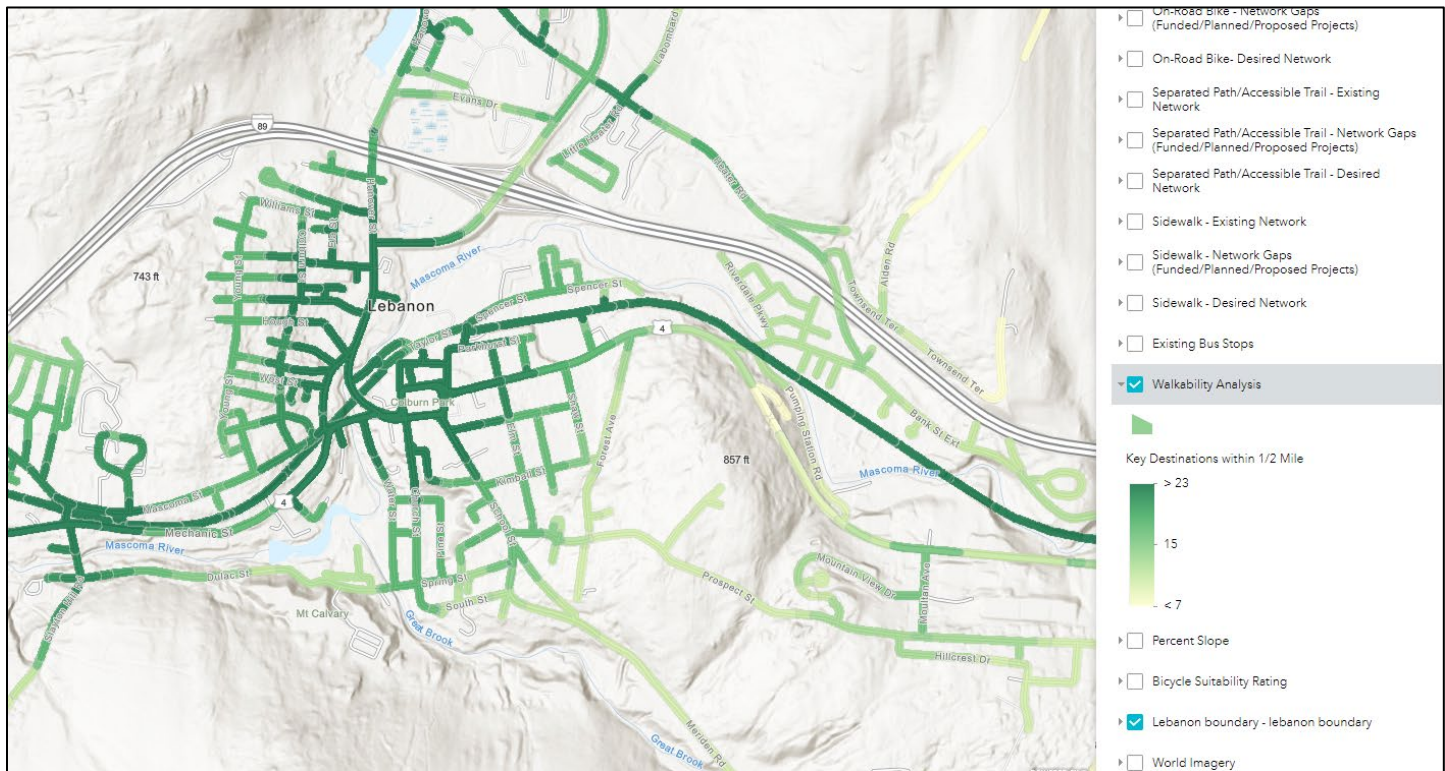


Figure 1. This is a snapshot from the interactive map to illustrate the walkability analysis. Darker green indicates more walkability and lighter green indicates less walkability in the area.

BICYCLE LEVEL OF TRAFFIC STRESS (BLTS) ANALYSIS:

A bicycle level of traffic stress test was conducted using the methodology below. The results were presented in as a suitability rating indicating the types of users that may comfortably cycle on that roadway. The information was used to determine project priorities in areas of identified gaps in the network.

ANALYSIS TASK	METHOD(S)
1. Confirm metrics	Many metrics can be used to inform a BLTS analysis. Metrics have been grouped below into “core” metrics that are foundational to BLTS and “auxiliary” metrics. It can also be useful to perform separate BLTS analysis for intersections vs roadway segments.
2. Roadway segment BLTS	Core Metrics: • Vehicular traffic volume (categorized based on FHWA Bikeway Facility Design Guide) – use existing traffic count data and estimates. • Posted/prevaling traffic speed (MPH categorized) • On-street parking (Y/N) • Striped shoulder presence/width (N/A, <4 ft (5 ft if curbed), >4 ft (5 ft if curbed) • Striped bike lane presence/width (N/A, <4 ft (5 ft if curbed), >4 ft (5 ft if curbed) • Presence of separated bike facility (directly adjacent to roadway) (Y/N)
3. Intersection BLTS	• Presence of right turn lane(s). • Length of right turn lane. • Turn lane configuration (bike lane shifts vs. bike lane continues straight). • Width/# lanes of cross street • Cross street traffic volume • Speed limit/prevaling speed of cross street (MPH) • Presence or absence of median refuge.

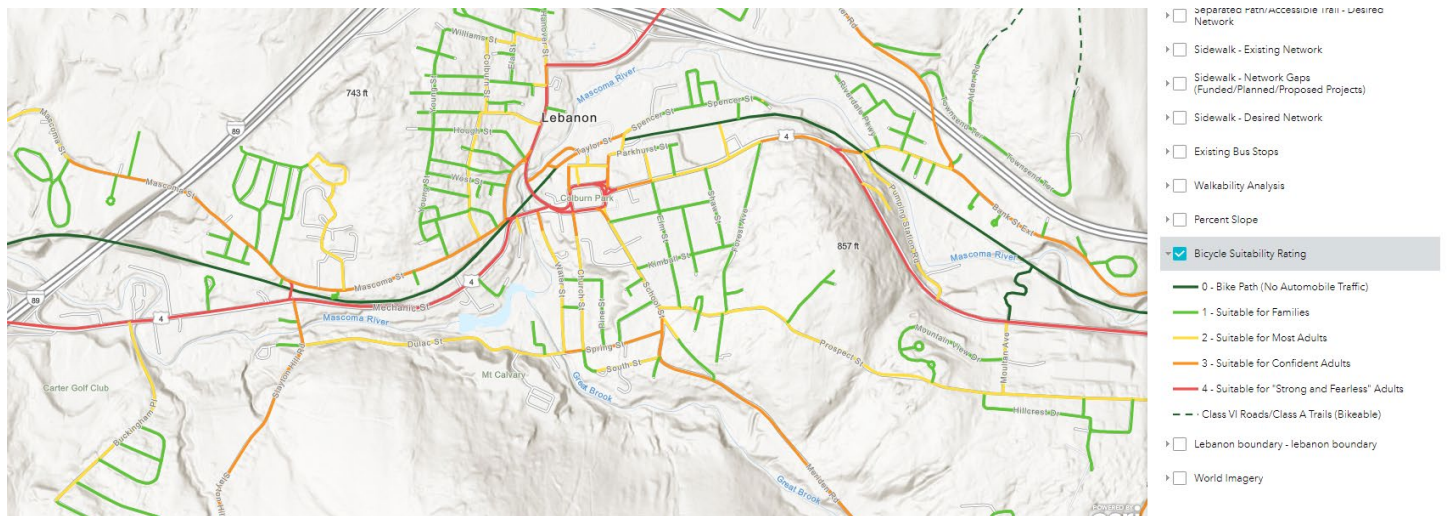


Figure 2. This is a snapshot from the interactive map to illustrate the bicycle suitability rating. Darker green indicates the area is more suitable for families while red indicates the area is suitable for “strong and fearless” adults.



SUMMARY OF NETWORK ANALYSIS

TRAFFIC:

A traffic analysis was conducted to have a better understanding of how people move around and through the City using different modes. In the traffic analysis traffic counts and ridership data were used as well as speed limits to determine traffic flow *challenges*. While this data is not included on the interactive map, it can be found in the *Existing Data Summary*. The methodology in the table below was used to conduct this analysis.

ANALYSIS TASK	METHOD(S)
1. Review traffic, pedestrian, and bicyclist data, collecting information on vehicle and ped-bike volumes to inform level of traffic stress analysis and use of existing ped-bike facilities.	All existing data has been pulled and summarized in <i>Existing Data Summary</i> .
2. Include recent bike-walk traffic counts in Lebanon, such as those conducted by NHDOT, UVLSRPC, and Friends of the Northern Rail Trail.	All existing data has been pulled and summarized in <i>Existing Data Summary</i> . This includes STRAVA data showing relative ped and bike volumes. STRAVA data can potentially be correlated and converted to volume estimates using Mascoma River Greenway/Northern Rail Trail usage counts.
3. Review transit ridership data from Advance Transit.	2018 data has been pulled and summarized in <i>Existing Data Summary</i> .
4. Identify speed limits (MPH) for the primary local and state travel corridors in Lebanon.	Pull from NHDOT GIS database. Work with City staff/perform field visits to verify current posted speeds.
5. National Household Travel Survey (trip distance data) may also be reviewed to validate last mile connectivity needs and potential.	Review as needed. High-level data about trip distance may be useful to highlight the % of trips that are walkable/bikeable distances.

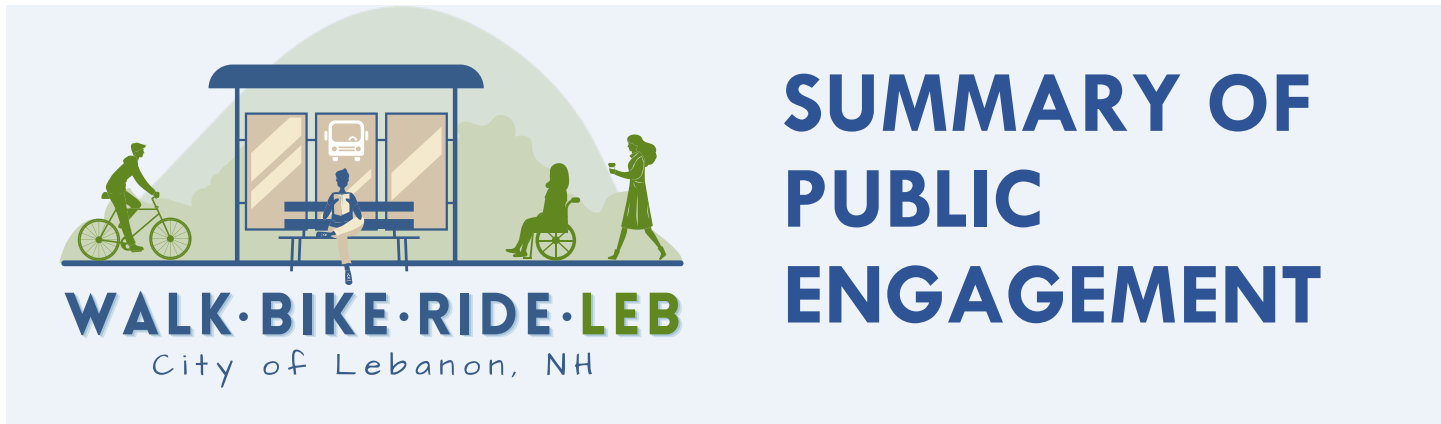


SUMMARY OF NETWORK ANALYSIS

SAFETY DATA:

UVLSRPC staff identified, collected, and derived patterns from recent collision data, with support from Lebanon Police, Fire/EMS, Pedestrian and Bicyclist Advisory Committee and Dartmouth Health Children's to highlight priority improvement locations and needs.

ANALYSIS TASK	METHOD(S)
1. Identify, collect, and derive patterns from recent collision data, with support from Lebanon Police, Fire/EMS, Pedestrian and Bicyclist Advisory Committee (PBAC), Dartmouth Health Children's to highlight priority improvement locations and needs	• Review high-level summary from PBAC. • Develop set of questions to share with Police Department, Pedestrian and Bicyclist Advisory Committee (PBAC), Dartmouth Health Children's ○ Figure out how they use/report data and what can be improved. ○ Facility types for crashes • Acquire crash reports. • Compare City data to NHDOT crash data. • High-level crash review • Identify clusters. 1. Start with GIS data. 2. Verify with City/ChaD data. • Deeper dive into clusters • Identify relevant regs, plans, studies, etc. • Recommendations on standardized data management/reporting
2. Recommend a collaborative regular review and/or common database management approach to evaluate priority improvement needs and track progress over time. Recommend a collaborative regular review and/or common database management approach to evaluate priority improvement needs and track progress over time	Develop based on results of Task 1 Reach out to towns/Regional Planning Commissions for examples



OVERVIEW:

To inform the development of the *Walk Bike Ride Leb* plan, the Project Team conducted a series of public engagement efforts. The goal of the public engagement effort was to invite residents into the planning process by bringing the planning to them. The Project Team utilized existing communication channels in the City and hosted a mix of in-person and virtual events using creative public involvement strategies and tools.

This summary presents 1) a description of the public involvement plan strategies 2) public feedback and survey responses.

CONTENTS:

Public Involvement Plan Overview.....	2
Project Advisory Committee.....	3
Virtual Public Engagement.....	4
Public Survey Summary.....	5
Targeted Outreach.....	6
Other Strategies	8

PREPARED BY:



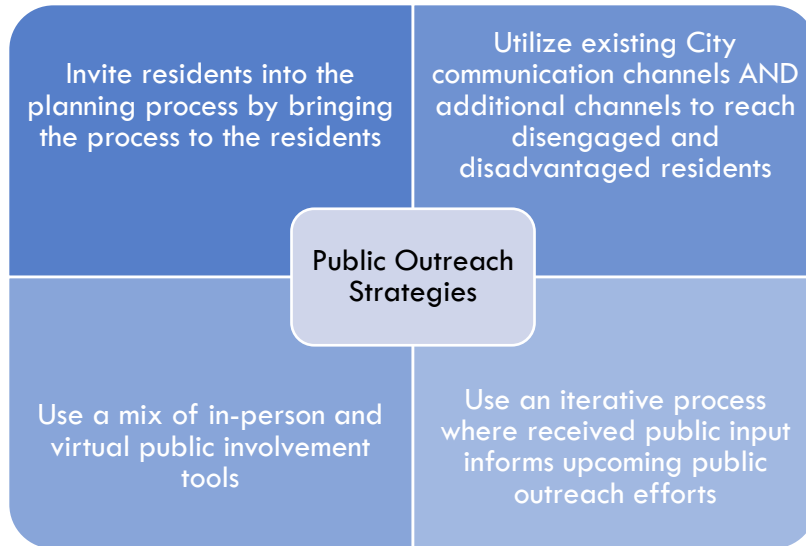


SUMMARY OF PUBLIC ENGAGEMENT & COMMUNITY OUTREACH

PUBLIC INVOLVEMENT PLAN OVERVIEW:

The public involvement for this project included in-person and virtual engagement efforts. The goals of the public involvement were to reach all types of roadway users including disengaged and disadvantaged residents in order to provide a more comprehensive sense of the multimodal needs in the City.

Public Outreach Strategies



Project Launch Strategy





SUMMARY OF PUBLIC ENGAGEMENT & COMMUNITY OUTREACH

PROJECT ADVISORY COMMITTEE:

As part of the planning process, a project advisory committee was formed made up of City staff and residents to help guide the process. A list of the members and meeting summaries and materials are below.

Members

PAC LIST			
Name	Representing	PAC/"Friend"	Responsible Party
David Brooks/Rebecca Owens	City Planning	PAC	Planning
Jay Cairelli	City DPW	PAC	Planning
Paul Coats	City Rec & Parks	PAC	Planning
Shaun Mulholland/Paula Maville	City Manager's Office	PAC	Planning
Colin Smith	City PBAC	PAC	Planning/Chair
Marie McCormick	City PBAC	PAC	Planning
Kim Chewning	City Planning Board	PAC	Planning/Chair
Tim Cohen	Police Dept	PAC	Planning
Van Chestnut	Advance Transit	PAC	Planning

Meetings and Materials

A series of meetings and exercises were held with the PAC to assist in the drafting of the *Walk, Bike, Ride Leb Plan*.

Meeting 1 Summary:

The goal of this meeting was to introduce the PAC to the project. The highlights from the meeting include a discussion about the purpose of the plan and the PAC, an introduction to multimodal planning, and an overview of the project goals, timeline, budget, and vision.

Meeting 2 Summary:

The intent of this meeting was to briefly review the summary of existing studies and to use that information to identify 5-10 priority locations within the City that are in need of multi-modal improvements. The PAC broke out into groups to perform this exercise utilizing information provided and local knowledge.

Meeting 3 Summary:

The purpose of this meeting was to identify and gather information about priority projects within the identified priority locations. Potential projects were identified, discussed, and ranked to determine priority efforts.



SUMMARY OF PUBLIC ENGAGEMENT & COMMUNITY OUTREACH

VIRTUAL PUBLIC ENGAGEMENT:

Virtual public engagement efforts started with the creation of a [landing page](#) on the City of Lebanon's website. This site was used as an information gathering place to explain the project, provide contact information, and to host links to the project progress and items including surveys. The City used its Leb Alerts and LebNews systems to spread the word to Lebanon residents of the effort.

Walk Bike Ride Leb

What is Walk, Bike, Ride Leb?

Walk, Bike, Ride Leb will be a plan to create a **safe, comfortable, and connected** walking and bicycling network in the City of Lebanon, including connections to public transportation.

View the project [Story Map](#) for an interactive overview of this planning process!

Why is the City developing this plan?

Over the years, progress has been made towards improving the safety and comfort of walking and bicycling in the City of Lebanon. Some notable achievements include the construction of the Mascoma River Greenway, improved pedestrian safety along the Miracle Mile, and the adoption of a [Complete Streets policy](#).



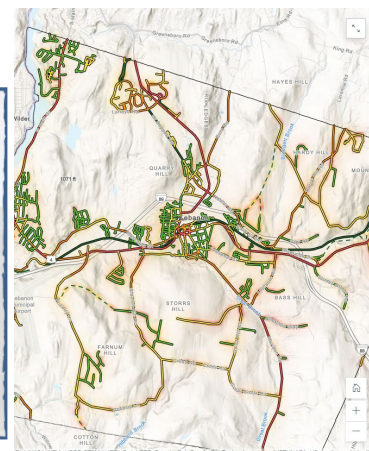
Figure 1. A Snapshot of the project's landing page on the City of Lebanon's website.

INTERACTIVE STORY MAP

UVLSRPC created a story map of the Walk Bike Ride Leb initiative using ArcGIS to provide background information and an overview of the project. The interactive story map can be found [here](#). Not to be confused with the planning and detailed ArGIS interactive map (found [here](#)), the interactive story map is a public-facing resource to provide bite-size pieces of the project to ordinary residents. It provides a timeline of previous plans and studies that have been completed. The story map also explains more "technical" information and language like the definitions of multi-use path, painted bike lanes, shared lane markings, etc. The story map highlights the importance of transit stops within the pedestrian and bicycle network and shows the location of these stops. Then, the story map explains how "walkability" and "bicycle suitability" analyses are conducted and their relevance to the project. In sum, the story map provided the public with a quick understanding of the Walk Bike Ride Leb initiative and bolstered further public engagement.

Walk, Bike, Ride Leb will be a plan to create a safe, comfortable, and connected walking and bicycling network, including connections to public transportation.

Scroll through the steps below to learn how the City is developing this plan. Then, take the quick survey provided at the bottom of the page.



Bicycle Suitability Analysis

This analysis helps show which City roads are more suitable for bicyclists of different ability levels. The analysis includes automobile traffic volumes and speeds; the presence of bike paths, lanes, or shoulders; and the presence of obstacles like on-street parking, commercial driveways, and challenging intersections.

Bicycle Suitability Rating

- Rating
- 0: Bike Path (No Automobile Traffic)
 - 1: Suitable for Families
 - 2: Suitable for Most Adults
 - 3: Suitable for Confident Adults
 - 4: Suitable for "Strong and Fearless" Adults
 - Class VI Roads/Class A Trails (Bikeable)

Percent Slope

- Percent Slope
- Flat/Rolling (0-3%)
 - Moderate (4-6%)
 - Steep (7-10%)
 - Very Steep (10-15%)
 - Extremely Steep (15%+)

Figure 2. Two snapshots from the Interactive Story Map of the project found [here](#).



SUMMARY OF PUBLIC ENGAGEMENT & COMMUNITY OUTREACH

PUBLIC SURVEY SUMMARY

In March of 2022, we asked how Lebanon residents and transit users feel about pedestrian, bicycle, and public transit infrastructure in their community. We received **410 responses** with 90% of respondents living or working in Lebanon, indicating the remaining 10% of respondents from outside of the community also have a vested interest in ped/bike infrastructure. Respondents also tended to have higher median household incomes than the median household income in Lebanon.

When asked what keeps them from walking and biking, community members listed issues with road safety among their top concerns. Respondents noted their top barriers to walking: 1) a lack of sidewalks, 2) busy road crossings, and 3) traffic speeds. To put it into perspective, **167 community members indicated sidewalk maintenance should be a top priority**, and 159 community members indicated road/sidewalk condition discourages them from walking more. Respondents also noted their top barriers to biking: 1) distracted drivers, 2) traffic speeds, and 3) traffic volume with 170 community members saying road conditions discourage them from bicycling.

When zooming in on these specific ped/bike attributes, community members believe **intersections/road crossings, walking/biking to stores and services, and walking/biking to work are in need of more attention**. This indicates a desire to replace low-mileage car trips with more active forms of transportation. However, the current state of safety discourages these behaviors for many community members.

While it is important to illuminate top concerns, it is also important to acknowledge barriers of lesser concern. For example, respondents did not see weather or steep hills at the largest barriers for bicycling or walking. Respondents also did not see access to bus stops or visibility/lighting as items that are in need of more attention. However, it should be noted these priorities can shift from the perspective of accessibility.

For the existing public infrastructure in Lebanon, we asked participants with a mobility limitation or other accessibility challenge to remark barriers based on their experience. **Community members with an accessibility challenge said snow/ice on sidewalks along with sidewalk/road in poor condition were key issues**. Given the fact Lebanon undergoes harsh winters and severe storms, this result was not a complete surprise. However, this may indicate more attention is needed to maintain ped/bike infrastructure year-long.

When asked about what projects are priorities, community members noted three projects that expand locations on the pedestrian and bicycle network. These included the Mascoma Greenway Extension, Colburn Park Ped/Bike Access, and NH Route 12A Commercial Area Access. While priority projects varied based on each respondent's needs and experiences, highly trafficked walk/bike routes reflected these preferences.

Any improvements or maintenance for ped/bike infrastructure require time and resources to accomplish. However, our survey significantly indicates it is worth the investment! **More than 80% of community members think that Lebanon should invest more city funds into pedestrian and bicycle infrastructure.**

In conclusion, our survey illuminated safety and accessibility concerns around pedestrian and bicycle mobility in Lebanon. The survey provided many insights into the types of investments the City should be making to improve community needs.



SUMMARY OF PUBLIC ENGAGEMENT & COMMUNITY OUTREACH

ONLINE SURVEY RESULTS DASHBOARD

UVLSRPC displayed these survey results online via ArcGIS. The dashboard can be found [here](#).

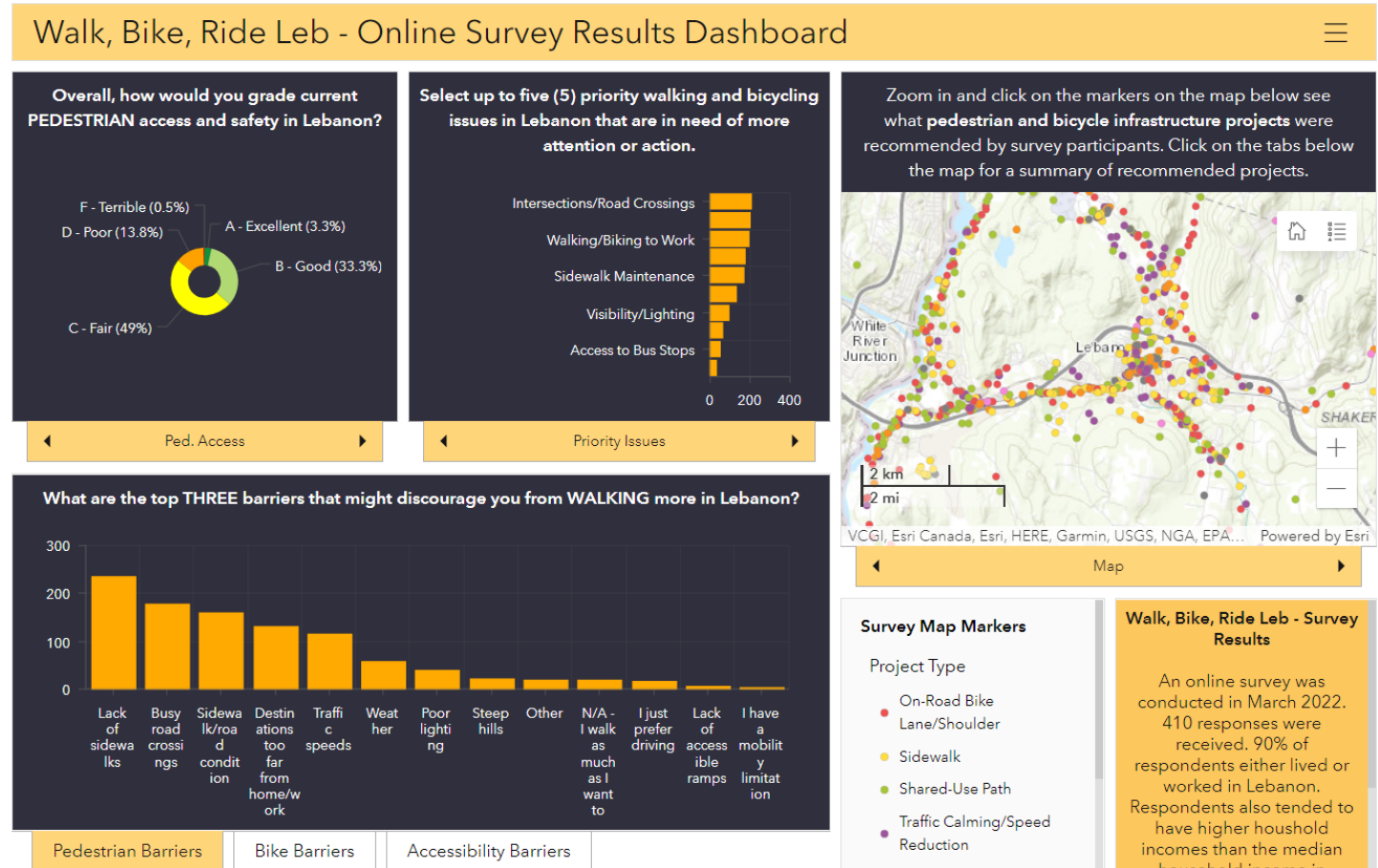


Figure 3. A snapshot of the online survey results dashboard.

Targeted Direct Outreach – User Groups

UVLSRPC reached out to “friends,” or individuals and organizations who could provide critical local knowledge, perspective, and connections, of the City’s Walk, Bike, Ride Leb initiative via email to garner meaningful participation. Staff conducted semi-structured interviews with 10 people using the questions listed below:

1. Describe the population that your organization serves.
2. How would the population your organization serves benefit from better walking, bicycling, and public transit access?
3. How are these goals related to your organizational goals?
4. Are you aware of specific issues or locations where walking, biking, and transit access are a problem?
5. Can you assist us with publicizing our public outreach opportunities as part of this plan?

User Groups

Upper Valley Cycling Club

- The group mostly organizes group rides in the area. The representative noted that the Westboro Rail Yard could be a multi-use path connecting Bridge Street and Mascoma River Greenway. Specific priorities included continuity of MRG to Northern Rail Trail past CCBA, resurfacing of roads not extending to pavement edge (Heater Rd), a



SUMMARY OF PUBLIC ENGAGEMENT & COMMUNITY OUTREACH

trail from MRG to Boston Lot, and shoulder widening of Heater Rd to Lobambard, NH 120 to Meriden, and Etna Rd to the Hanover Line. Besides from these priorities, utilizing Class XI roads are becoming more of-interest to cyclists. The representative also highlighted how cycling is a way-of-life and opportunity for economic development. For example, Boston Lot is a major mountain biking destination and cyclists support local coffee and bike shops in the area.

SAU 88

- Improving walking, bicycling, and public transit will help children travel to and from school safely and provide reason for educational programs. The biggest problems for Safe Routes to School programs have been the specified times for the walking school bus. This lack of flexibility has created a barrier. There is a small population of students who utilize public transportation to get to school. The school used to have a bike program led by the physical education teacher at the former Middle School, but a lack of crosswalk at the new Middle School was a major barrier. There is potential to reactivate the program given parents feel more comfortable with their children utilizing rail trails and COVID-19 is less of a concern; however, a lack of storage is also a potential barrier. Bringing back marketing and awareness of the SRTS program could be beneficial, especially with new bike/ped opportunities. Many things have been addressed since SRTS Plans were done (US 4 crosswalk, Moulton Ave) and proven successful. For example, “guides” along the Rail Trail resulted in higher Middle School ridership given the need for more bike racks. School zone flashing lights have also been successful at improving safety. The key priorities for the school include improving and connecting sidewalks and increasing awareness (“railroad days,” activity transport, etc.).

West Lebanon Revitalization Advisory Committee

- The representative brought a lot of insight on development. The key priorities included the advancement of planning for multi-use path through Westboro, connections north of Bridge St, and south to 12A. The representative indicated it is hard to prioritize projects without knowing costs. Also, the representative added how there are tradeoffs with any project like reducing parking or adding a bike lane. River Park hopes to adjust and implement a larger Loop Rd for Advance Transit queue and use mitigation payments to Greenway improvements (ARM). There is a “clear mandate” to advance waterfront trail. The top immediate priorities included advance greenway plans, the next phase of land control/planning for Westboro Park, and streetscaping. The representative noted a need for the City to create opportunities for investment, adjust future land use map and zoning, improve transportation, provide more flexibility with minimum parking requirements, and examine shared parking models. Civic engagement is also a critical piece.

GCSCC

- There is limited capacity on buses. The proximity of Rogers House to Advance Transit has been very successful. They organization has limited capacity due to 1 driver and 5 buses. Many of the riders need physical assistance and often use the bus for medical appointments and shopping. The drivers help passengers go from the pick-up point to destination. Paperwork is difficult for paratransit/fixed route. It is tough to get to folks who are rural (not served by paratransit/fixed routes), and the bus does not provide weekend service (given a lack of volunteers). The driver volunteers are also older which creates a sustainability issue for the future. Liabilities and insurance costs have also added pressure to their organization. There are other volunteer organizations that provide similar services. The representative indicated concern over far distances to walk given high fall rates.

Tri-Valley Transit

- The organization has no plans for expansion or additional stops, serving as a true commuter service to DHMC. However, they are open to that discussion in the future. The representative indicated there has not been a lot of feedback regarding pedestrian access. However, pedestrian access through Centerra would make their service more efficient. Bus bike racks have been used.

Upper Valley Running Club

- This group organizes running groups and meet-up points. Smaller groups often run on the rail trail around Lebanon. Large groups and potholes (especially filled with water) can be a safety challenge. Not a lot of spots in Lebanon have a reliable/striped shoulder even though that feels a lot more comfortable as a runner.

Hanover Bike-Walk Committee

- The representative suggested the City find more wiggle room within the public right-of-way by using “road money.” There are a lot of soft infrastructure options like signage, shoulder/lane striping, process-oriented improvement, and speed limit adjustments that can improve bike/ped safety. There needs to be more coordination amongst transit, bike-ped, road maintenance, and lighting. For example, Lebanon’s crosswalks are poorly lit. Urban3 has insight of return on investment for ped-bike infrastructure. Some of these insights include the life cycle



SUMMARY OF PUBLIC ENGAGEMENT & COMMUNITY OUTREACH

cost versus roads. People are much happier/comfortable with NH 120 ped-bike connection from Hanover to Lebanon vs Route 10. Centerra Parkway is a gap for biking. Hardcore cyclists avoid South Main/Route 10 and many grad students need access. Lowering the speed limit on Route 10 would have an immediate impact for cyclists. Wider shoulders can create problems/is challenging. Poor condition create additional challenges. South Main St (Hanover) and Main St (Lebanon) are both being traffic-calmed but the connection between the two suffer from high speeds. The representative noted that Dartmouth wants to develop intercept lots w/ shuttles and the Sachem to DHMC connection for ped-bike-bus is less of a priority. The representative also spoke about micro-mobility strategies. A previous bike share was very inconvenient, lacked stations at destinations, and overall poor bike quality. However, Valley Bikes is a different model to examine. The gap of Route 10 could also use a multi-use path. Further engineering is needed.

Hanover Co-op Food Stores

- The organization has been a part of surveys to identify transportation needs. Centerra access from NH 120 has been challenging. A purple route would help connect Coach, APD, Dartmouth Coach, and Centerra. There have been community forums where some feedback for ped-bike needs have emerged. These consistent observations include how NH 120 is dangerous and that bus options are often inconvenient. Centerra Park has sufficient sidewalk connectivity but there are some remaining gaps. This area is important for the Hanover Co-op. Many co-op employees commute from far away given the lack of affordable housing. Therefore, fewer people can walk or ride. Grocery shopping is a challenge for bikes and buses, however, many people conduct “fill-in” shopping via bus or bike. The representative was also a resident of Plainfield and shed light on the priorities. For example, NH 120 has narrow shoulders, higher speeds, and poor sightlines which are challenges for bicyclists. On 12A, it is very difficult to enter from Trues Brook. Finally, the southern approach to Dry Bridge is also dangerous due to narrow shoulders, poor pavement condition, and curving roads.

UVMBA

- UVMBA had volunteered to build a pe-bike trail from MRG to Boston Lot. However, there has been no funding for trails. The Nature Walk to DHMC is the highest priority with funding to build a pavilion. Hospital access has led to competition for parking but new development would provide a more accessible population. Class XI roads are largely unknown, so adding them to trail maps and providing signage for public access is needed. The City trail maps could also be improved by ongoing maintenance.

Dartmouth College

- The land from Sachem to DHMC is Dartmouth-owned. This connection could be shifted as a paved path or limited access highway to improve connectivity. The college could assist with planning, but the money would only come as part of a redevelopment or matched grant funds. The limited access road would likely get pushback from neighbors, so outreach would be important. Route 10/South Main remains a priority along with intercept lots for the Hanover shuttle at Sachem.

OTHER STRATEGIES:

Meetings with City Boards and Committees

- While key City boards and committees were represented on the Project Advisory Committee, UVLSRPC staff facilitated discussions and planning process updates to these boards directly. This included brief updates on the planning process, and more in depth and/or targeted presentations and discussions.



SUMMARY OF PUBLIC ENGAGEMENT & COMMUNITY OUTREACH

FARMER'S MARKET OUTREACH RESULTS*

DO YOU THINK THE CITY OF LEBANON IS DOING ENOUGH TO IMPROVE SAFE AND COMFORTABLE WALKING FOR RESIDENTS? CHOOSE ONE:

The City needs to spend more time and money on improving walking safety and comfort than it currently is.

XXXXXXXXXX

The City is currently spending about the right amount of time and money on improving walking safety and comfort.

The City is currently spending too much time and money on improving walking safety and comfort.

DO YOU THINK THE CITY OF LEBANON IS DOING ENOUGH TO IMPROVE SAFE AND COMFORTABLE BICYCLING FOR RESIDENTS? CHOOSE ONE:

XXXXXXXXXX

The City needs to spend more time and money on improving bicycling safety and comfort than it currently is.

The City is currently spending about the right amount of time and money on improving bicycling safety and comfort.

The City is currently spending too much time and money on improving bicycling safety and comfort.

GRAB A STICKY NOTE!

DESCRIBE WHAT ITS LIKE TO WALK, BIKE, AND/OR USE PUBLIC TRANSIT IN LEBANON:

"There are places where we feel very safe and places where we feel very unsafe."

*X indicates a sticky note.



SUMMARY OF PROJECT DEVELOPMENT

OVERVIEW:

Limited resources and funding necessitate a method to rank and prioritize bicycle, pedestrian, and transit projects. This section details what informed project priorities and how these priorities developed. There were eight identified priority projects. Three of those projects received conceptual designs and cost estimates by a contracted engineering firm: MRG to Lebanon Ford, MRG to Mascoma Street path, and Meriden Road Ped-Bike Improvements. The City also created two additional conceptual plans and estimates for the Sachem/DHMC Path and MRG extension.

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PREPARED BY:



Upper Valley Lake Sunapee
Regional Planning Commission



SUMMARY OF PROJECT DEVELOPMENT

PROJECT PRIORITY SUMMARY

The PAC engaged first in a work session to catalog known infrastructure improvements, projects, and locations. The work session resulted in a list of identified projects that could improve the multimodal network when implemented. The WBRL project list was further refined and expanded, with many key projects confirmed for local support, via the project team's interview of various stakeholders and a public survey. The PAC then engaged in a second work session to evaluate community feedback, incorporate new projects, and identify and rank top-priority projects to be implemented based on project readiness and community need. The PAC identified 8 priority projects for a more detailed discussion. These summaries can be found in this document. Ultimately, based on funding, three projects were sent to engineering for initial review and cost estimates.

Table 1. Priority projects identified by the Project Advisory Committee. Projects highlighted in green received conceptual designs and cost estimates by an engineering consultant. Projects highlighted in yellow received conceptual designs and cost estimates by the City.

PROJECT	DESCRIPTION
Sachem – Wilder Dam Path	This path would link up with the Bridge St - Wilder Dam trail (spearheaded by Friends of River Park) to form a key regional connection between West Lebanon and downtown Hanover and bypass of NH Route 10. Potential linkages include the existing utility corridor or a side path along NH 10.
NH 120 Ped-Bike Bridge	A ped-bike bike bridge of NH 120 would create a grade-separated crossing between the DHMC campus and Centerra Park. Previous planning efforts in the NH 120 corridor have identified the terminus of Mt. Support Rd as an ideal location.
NH 12A Riverfront Path	The NH 12A "Riverwalk" would create a safe and accessible pedestrian and bicycle connection along the Connecticut River, bypassing the busy highway commercial stretch of NH 12A/North Plainfield Rd. This connection is facilitated across some private properties via prior site plan approvals; access to other properties would need to be negotiated by the City.
MRG Extension	Extension of the Mascoma River Greenway from the current terminus near Glen Rd approximately 0.4 miles to Riverside Park. Future extension of the Mascoma River Greenway from Riverside Park to Westboro Yards.
Sachem – DHMC Path	Construct an accessible pedestrian and bicycle path from Sachem Village to Medical Center Drive using existing utility right of way.
MRG to Lebanon Ford*	Create an access point between the MRG and Route 4, establishing a connection to commercial areas.
MRG – Mascoma St Path*	Construct a path or trail from the Mascoma River Greenway to Mascoma St near Boston Lot trailhead.
Meriden Rd Ped-Bike Improvements*	Reconfigure road to increase shoulders and provide a dedicated space for pedestrians and bicyclists.

A. Sachem Village to Wilder Dam

Purpose and Need: An existing informal foot path exists in the utility right-of-way. A multi-use path would formalize this connection and serve as a key linkage for the residents between West Lebanon and Downtown Hanover.

Project Description: The path would start at the existing gravel access road at the intersection of Ralston Ln and Haddock Ln in Sachem Village and travel south along the utility right-of-way the existing Boston Lot Lake access trail. The path would then follow the existing trail east to the existing parking area on NH Route 10. The path would then travel south parallel to NH Route 10 to the terminus of the planned trail being advanced by Friends of River Park (adjacent to the Wilder Dam). A crosswalk and rectangular rapid-flashing beacon (RRFB) would be installed where the path crosses NH Route 10. Further evaluation is needed to see if this path would go along the east or west side of NH Route 10. The path would be gated at Sachem Village to restrict vehicular traffic, permit pedestrian and bicycle access, and permit periodic access by Liberty Utilities and City maintenance crews.

B. NH 120 Ped-Bike Bridge



SUMMARY OF PROJECT DEVELOPMENT

Purpose and Need: There is already a shuttle for employees between the DHMC campus and Centerra Park. However, as activity and development increases in this area, there will be a need to accommodate this growth for all users.

Project Description: This project would involve the construction of a grade-separated ped-bike bridge over NH Route 120, connecting the DHMC campus to Centerra Park. The specific dimensions of the bridge will depend on the exact location, though it is likely that the span will be approximately 125 - 150'. The length and grade to the approach to the bridge will also depend on the location and associated bridge height versus base elevation.

C. NH 12A Riverfront Path

Purpose and Need: Public survey respondents indicated a need to establish a connection between the Home Depot Plaza and Market Street. This area holds unique recreational value and potential to increase commercial activity.

Project Description: In the past, conservation easements running along the Connecticut River behind the route 12-A shopping plaza have been secured. Although not entirely contiguous, it offers a significant opportunity for a future trail that could provide public access to a hidden and beautiful section of the river. However, more project development is needed to answer private property and scope questions.

D. Mascoma River Greenway Extension

Purpose and Need: Currently, the Mascoma River Greenway is heavily utilized by recreationists, bicyclists, walkers, families, people with mobility challenges, people without cars, etc. An extension of the MRG would expand its usage while providing new connections for residents.

Project Description: This project extends the Mascoma River Greenway (MRG), a 10-foot wide paved corridor, 1.3 miles from its current terminus at Glen Road westward to the existing sidewalk network on Route 12A. It will also provide a new access point between sidewalks on Route 4 (Miracle Mile) and the MRG. The MRG is the primary non-motorized travel connection between residential and commercial hubs in West Lebanon and Lebanon but it lacks safe "last mile" access to the 12A and Miracle Mile destinations. The two new segments address the access gap and are anticipated to support a significant increase in non-motorized travel because over 50% of Lebanon's residents live within a half-mile of the MRG, and two-thirds live within one mile. These extensions into West Lebanon are vital for connecting neighborhoods to businesses, schools and parks as well as to the existing multimodal transportation network, including transit. The project scope is straightforward and entails the clearing of existing railroad tracks, laying of sub-base and pavement, conversion of 2 railroad bridges, installation of an earthen ramp, and addition of new railings and decking to an existing wooden bridge.

E. Sachem Village to Medical Center Drive

Purpose and Need: Similarly to Sacem Village to Wilder Dam, a multi-use path would provide a critical connection between where people live and where they work. This will increase walkability and improve quality of life.

Project Description: The project involves creating an accessible, 10-12' multi-use path from Sachem Village to Medical Center Drive using the existing utility right-of-way. This path could be a paved or crushed stone surface. The path would start at the existing gravel access road at the intersection of Ralston Ln and Haddock Ln in Sachem Village and would terminate near the electrical substation on Trailhead Lane. The path would be gated at either end to restrict vehicular traffic, permit pedestrian and bicycle access, and permit periodic access by Liberty Utilities and City maintenance crews.

F. Mascoma River Greenway to Route 4/Miracle Mile at Lebanon Ford

Purpose and Need: Currently, there is no access between the MRG and Route 4, preventing cyclists and pedestrians from accessing commercial areas along this road. By creating an access point, this will expand multi-modal travel along this corridor.

Project Description: The intent of this project is to construct an ADA accessible multi use connection from the sidewalk on Route 4 at the east end of the bridge over the Mascoma River, near Lebanon Ford's parking area, to the existing timber bridge over the Mascoma River Greenway (MRG). And reconstruct an existing non-ADA compliant path from the existing timber bridge over the MRG, then down to the rail trail. The MRG is a 4-mile multi-use separated pathway starting from



SUMMARY OF PROJECT DEVELOPMENT

the current terminus of the Northern Rail Trail at Spencer Street in downtown Lebanon. The MRG is a core transportation corridor for bikes and pedestrians through the heart of Lebanon and West Lebanon, connecting Lebanon's neighborhoods with workplaces, schools, open spaces, shopping areas, restaurants, a medical center and transit stops.

G. Mascoma River Greenway to Mascoma Street at Bridge over I-89

Purpose and Need: The City recently purchased a residential property at the junction of Mascoma Street and I-89 to help facilitate the construction of an accessible path or trail from the Mascoma River Greenway to Mascoma St. Currently, there is no formal public access from MRG to this section of Mascoma Street.

Project Description: The intent of this project is to construct a bicycle path from just north of the bridge where the Mascoma River Greenway crosses I-89 to Mascoma St., along the north side of the I-89 right of way corridor (adjacent to Valley Cemetery). The path will then cross through a property recently purchased by the City and connect to the access driveway of the Boston Lot trails/conservation area onto Mascoma St. The Mascoma River Greenway (MRG) is a 4-mile multi-use separated pathway starting from the current terminus of the Northern Rail Trail at Spencer Street in downtown Lebanon. The MRG is a core transportation corridor for bikes and pedestrians through the heart of Lebanon and West Lebanon, connecting Lebanon's neighborhoods with workplaces, schools, open spaces, shopping areas, restaurants, a medical center and transit stops. The Boston Lot Conservation area comprises 436 acres with seven miles of trail and recreational access to Dartmouth Hitchcock Medical Center and surrounding neighborhoods.

H. Meriden Rd from Messenger Street to Laplante Street

Purpose and Need: This stretch of Meriden Rd includes residential neighborhoods located a short distance from downtown Lebanon and has minimal shoulders; constructing wider shoulders would provide a dedicated space for pedestrians and bicyclists. Currently, pedestrians and bicyclists use this road, posing serious safety concerns.

Project Description: The intent of this project is to widen the shoulder on one side of Meriden Rd. from the existing sidewalk near Messenger St. to the Goodwin Park entrance, with the goal to improve safety for bicycle users and make the connection to Goodwin Park. This shoulder widening would be as wide as possible while minimizing impacts to Right-Of-Way (ROW) and costs such as extensive retaining walls or slope cuts.



SUMMARY OF IMPLEMENTATION & KEY STRATEGIES

OVERVIEW:

To inform the development of the *Walk Bike Ride Leb* plan, a series of related key strategies were recommended and specific capital improvements with outlined action steps for decision-makers. The key related strategies are non-capital, policy, or programmatic suggestions intended to complement Lebanon's Complete Streets Policy implementation.

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PREPARED BY:



Upper Valley Lake Sunapee
Regional Planning Commission



SUMMARY OF IMPLEMENTATION & KEY STRATEGIES

IMPLEMENTATION PLAN

The Implementation or “Action” Plan is a process to turn multi-modal needs and concepts into projects that are ready to compete for funding and be implemented. The Implementation plan will also be used to track the status of strategies and projects as they are developed. The City will track potential funding opportunities and needed studies for each project listed below. The Summary of Project Development describes how the tier system and priority rankings were developed.

The City will periodically update the list with new projects and add details to active projects. The City will continue to move forward projects while awaiting funding sources. As funding sources become available, the City will look at this list for eligible projects.

The PAC engaged first in a work session to catalog known infrastructure improvements, projects, and locations. The work session resulted in a list of identified projects that could improve the multimodal network when implemented. The WBRL project list was further refined and expanded, with many key projects confirmed for local support, via the project team’s interview of various stakeholders and a public survey. The PAC then engaged in a second work session to evaluate community feedback, incorporate new projects, and identify and rank top-priority projects to be implemented based on project readiness and community need. Projects were ranked into “tier” and “priority” categories.

The tiers delineate “project readiness.”

- Tier I – Shovel ready (cost estimates, general support, sufficient data collected)
- Tier II – Almost there (missing cost estimates/engineering, a data study)
- Tier III – Idea phase (missing clear location or improvement, engineering, unclear support, needs a study)

Since resources are limited, projects were prioritized based on the needs of the community, project advisory committee, relevant stakeholders, and the public. The prioritization criteria can be seen below.

- Priority A – Highest priority (clear need, overwhelming support, network significance)
- Priority B – Medium priority (known need, support, average return on investment)
- Priority C – Lowest priority (wish list item, many constraints – fiscal, social, etc.)

Tier I	Tier II	Tier III
• Fully-developed priority projects that are ready to compete for funding	• Priority projects that may benefit from additional planning or study before competing for funding	• Undefined project concepts that may require significant improvement and feasibility assessments.



SUMMARY OF IMPLEMENTATION & KEY STRATEGIES

TIER	PRIORITY	SCOPE	SUB-AREA	PROJECT LOCATION	PROJECT DESCRIPTION	PROJECT TYPE
I	A	Major	NH 10/Sachem	Sachem Village/DHMC	Multi-use path or accessible trail from Sachem Village to Medical Center Dr	Multi-use path
I	A	Major	Mechanic St - Miracle Mile Corridor	Mascoma River Greenway; Mascoma St	Multi-use path or accessible trail from MRG to Mascoma St/Nature Walk	Multi-use path
I	A	Major	West Lebanon	Mascoma River Greenway	Extend Mascoma River Greenway to Riverside Park; improve connection to Powerhouse Mall	Rail Trail
I	A	Major	Key Rural Corridors	NH 120/School St/Meriden Rd	Improve bicycle level of comfort; widen Meriden Rd roadway / broaden shoulders down to Laplante Rd	On-road bike lane/shoulder
I	A	Major	Downtown	Hanover St from High St to NH 120	Reconstruction of Hanover St; streetscape/traffic calming improvements; intersection improvements at NH 120 and High St; and improved connections to Mall area	Complete Street
I	A	Minor	Mechanic St - Miracle Mile Corridor	Mechanic St/Slayton Hill Rd	This project is the second phase of the Mechanic St improvements to traffic flow. The RR pass would be raised with sidewalks and a roundabout on Mechanic. Also improve bus stop locations, including crosswalk just east of Slayton.	Intersection Improvement
I	A	Major	NH 120 - Mt Support Corridor	NH 120; Etna Rd; Old Etna Rd; Labombard Rd	Pedestrian crossing of NH 120 at Etna Rd; add sidewalk on Old Etna Rd; add sidewalk on Etna Rd to Treetops; add sidewalk on Labombard Rd	Sidewalks; Pedestrian Crossing
I	A	Major	West Lebanon	Westboro	Multi-use path through Westboro from Dry Bridge to Bridge St (West Lebanon Greenway)	Multi-use path
I	A	Major	West Lebanon	NH Route 10/Main St	Streetscape improvements on Main St	
I	A	Major	Mechanic St - Miracle Mile Corridor	Miracle Mile (Poverty Lane to Price Chopper)	Add sidewalk along Miracle Mile from Price Chopper to Poverty Lane	Sidewalk
I	B	Major	West Lebanon	Glen Rd	Riverfront path or sidewalk from terminus of stone dust path at Powerhouse Mall to NH 12A, possibly in conjunction with MRG extension	Off-Road Path
I	B	Minor	West Lebanon	NH Route 10	Stripe wider shoulders for bicyclist travel (reallocate travel lane space)	On-road bike lane/shoulder
I	C	Spot	Downtown	Meriden Rd	Speed feedback sign on Meriden Rd north of Laplante Rd	Traffic calming
I	C	Spot	Downtown	Northern Rail Trail crossings at Spencer St; Bank St Ext; Riverside Dr	Using distinctive crosswalk markings (e.g., hi-vis green) at rail trail crossings	Pedestrian crossing

SUMMARY OF IMPLEMENTATION & KEY STRATEGIES

II	A	Major	West Lebanon	Mascoma River Greenway	Extend Mascoma River Greenway from Riverside Park to Westboro/Dry Bridge; consider alternative/interim connections	Rail Trail
II	A	Major	Mechanic St - Miracle Mile Corridor	Mechanic St (Rivermill to Slayton Hill, south side of road)	Add sidewalk along Mechanic St from Rivermill to Slayton Hill Rd	Sidewalk
II	A	Major	Mechanic St - Miracle Mile Corridor	Mechanic St (Buckingham to Poverty Ln)	Add sidewalks along Mechanic St from Buckingham Place to Poverty Lane and update/relocate AT bus stops near former (at Gardener Supply) including new crosswalk	Sidewalk
II	A	Major	Mechanic St - Miracle Mile Corridor	Mascoma River Greenway; Miracle Mile	MRG access improvement at Miracle Mile: 1) add a safe crossing over Seminary Hill Road, 2) rehab bridge over Greenway and add ADA-accessible route through Ford dealership, 3) update bicycle lanes, 4) make PChopper MRG trail accessible	Multi-use path
II	A	Spot	NH 120 - Mt Support Corridor	NH 120; Heater Rd	Improve pedestrian crossing of NH 120 at Heater Rd	Pedestrian crossing
II	B	Major	NH 10/Sachem	Sachem Village to Wilder Dam	Multi-use path or accessible trail connecting Sachem Village to Wilder Dam	Multi-use path
II	B	Major	Downtown	Colburn Park/US 4/NH 120	Improve circulation and pedestrian access around Colburn Park per 2016 Downtown Vision Study	Complete Street
II	B	Major	Downtown	Taylor St	Multi-use path connecting Mascoma Greenway tunnel to Northern Rail Trail - Phase II: Senior Center to Tunnel)	Multi-use path
II	B	Minor	NH 120 - DHMC/Centerra	Lahaye Dr/DHMC	Construct 4-foot shoulder from Mt. Support Rd to DHMC staff entrance OR sidewalk to Emergency entrance west of Outpatient Center entrance	Sidewalk
II	B	Major	West Lebanon	West Lebanon	Trail from Bridge St to Wilder Dam (West Lebanon Greenway)	Multi-use path
II	B	Major	NH 12A	NH 12A commercial area	Riverfront hardpack, multi-use path or accessible trail from Home Depot plaza to Market St	Multi-use path
II	B	Major	Mascoma Lake	NH Route 4A	Traffic calming measures to reduce bicyclist level of traffic stress	Traffic calming
II	B	Minor	Mechanic St - Miracle Mile Corridor	Mascoma St	Extend sidewalk on Mascoma St from I-89 bridge to NatureWalk, possibly in conjunction with MRG connector (project #3)	Sidewalk
II	B	Minor	NH 120 - DHMC/Centerra	DHMC /Jack Byrne Center	Improve pedestrian connection to palliative care on west side of Loop Rd at DHMC	Sidewalk
II	B	Minor	NH 120 - DHMC/Centerra	Loop Rd from Lahaye Dr to Medical Center Dr	Add bicycle lanes on Loop Rd on both sides	On-road bike lane/shoulder
II	B	Major	NH 12A	NH 12A south of Home Depot	Widen/reallocate space on NH 12A and provide bicycle shoulders	On-road bike lane/shoulder
II	B	Major	West Lebanon	NH 12A/South Main St	Complete bike shoulder gaps along NH 12A/South Main St from Dry Bridge south to existing bike shoulder/CSO project	On-road bike lane/shoulder
II	B	Minor	West Lebanon	US 4/Seminary Hill Rd	Traffic Calming	Traffic calming



SUMMARY OF IMPLEMENTATION & KEY STRATEGIES

II	B	Minor	West Lebanon	Glen Rd Plaza	Improve accessibility of transit stops at Glen Rd Plaza	Accessibility improvement
II	B	Minor	West Lebanon	NH 10	Extend sidewalk along NH 10 from Beyerle St to River Park	Sidewalk
II	B	Major	West Lebanon	US 4 between Seminary Hill and Miracle Mile	Improve (widen) shoulders to create compliant bike lanes on Dudley bridge and bridge lane gap between Miracle Mile and Seminary Hill	On-road bike lane/shoulder
II	C	Major	Downtown	Prospect St	Add sidewalk along Prospect St from Reservoir Rd to Moulton Ave	Sidewalk
II	C	Minor	Downtown	Hough St	Extend sidewalk on Hough St to Granite St	Sidewalk
II	C	Major	Downtown	Bank St Ext east of Heater Rd	Extend sidewalk along Bank St Ext from Heater Rd to Riverside Dr	Sidewalk
II	C	Minor	Downtown	Pumping Station Rd	Traffic calming/speed reduction/discourage cut-through on Pumping Station Rd	Traffic calming
II	C	Minor	Downtown	Eldridge St	Traffic calming/speed reduction on Eldridge St	Traffic calming
II	C	Minor	Downtown	Elm St	Add sidewalk on Elm St north of Bank St; add pedestrian crossing of Bank St at Elm St	Sidewalk; Pedestrian Crossing
II	C	Major	Key Rural Corridors	NH 120/Meriden Rd	Widen roadway and add bicycle shoulders from Laplante Rd to the Plainfield town line	On-road bike lane/shoulder
II	C	Minor	Key Rural Corridors	US 4/Fellows Hill	Increase shoulder width on US 4 on eastbound side at Fellows Hill	On-road bike lane/shoulder
II	C	Spot	Key Rural Corridors	NH 12A; Trues Brook Rd	Add shoulder width at intersection of NH 12A and Trues Brook Rd to allow bicyclists to accelerate	Intersection Improvement
II	C	Minor	Key Rural Corridors	Northern Rail Trail at US 4 park-and-ride lot	Improve accessibility to Northern Rail Trail from US 4 park-and-ride lot	Accessibility improvement
II	C	Major	NH 10/Sachem	NH 10	Traffic calming/speed reduction on NH 10 from downtown Hanover to Gould Rd	Traffic calming
II	C	Minor	NH 120 - Mt Support Corridor	Heater Rd	Widen/reallocate space on Heater Rd and provide bicycle shoulders on both sides	On-road bike lane/shoulder
II	C	Minor	NH 120 - Mt Support Corridor	Labombard Rd	Bike lanes along both sides of Labombard Rd	On-road bike lane/shoulder
II	C	Spot	NH 12A	NH 12A/Walmart	Crosswalk across NH 12A and bus shelter at Walmart	Pedestrian Crossing; Bus Shelter
II	C	Minor	NH 12A	Airport Rd; Airpark Dr	Add bicycle lane/shoulders on both sides of Airport Rd and Airpark Dr	On-road bike lane/shoulder
II	C	Minor	West Lebanon	Maple St	Extend sidewalk on Maple St to NH 10; add pedestrian crossing of NH 10	Sidewalk; Pedestrian Crossing
II	C	Minor	West Lebanon	Maple St	Traffic calming/discourage through-traffic on Maple St	Traffic calming
III	B	Minor	Mechanic St - Miracle Mile Corridor	Mascoma River Greenway	Create accessible connections to MRG from Mechanic St, Buckingham Pl	Multi-use path
III	B	Major	Key Rural Corridors	Etna Rd	Widen roadway and add bicycle shoulders from Etna Rd to Hanover town line	On-road bike lane/shoulder

SUMMARY OF IMPLEMENTATION & KEY STRATEGIES

III	C	Minor	NH 10/Sachem	Route 10N (near Quail Hollow)	Construct new sidewalk from Gould Rd to Quail Hollow Dr	Sidewalk
III	C	Minor	NH 120 - DHMC/Centerra	Centerra Parkway	Drop vehicular travel lane and add bicycle lanes along existing 4-lane section of Centerra Parkway, with new ped crossing and sidewalks into site from sidewalk to main Coop entrance	On-road bike lane/shoulder and sidewalk
III	C	Major	NH 120 - DHMC/Centerra	NH 120	Pedestrian bridge over 120 between Centerra and DHMC area, such as near terminus of Mount Support Road	Ped-bike bridge
III	C	Major	Downtown	Hanover St; Eldridge Park	Multi-use path or accessible trail connecting to Hanover St ped-bridge from Eldridge Park/downtown, including bridge over Mascoma River	Multi-use path
III	C	Major	Downtown	School St	Improve ped-bike safety along School St; including traffic calming	Traffic calming
III	C	Spot	Downtown	Parkhurst St	Pedestrian crossing of Parkhurst St at Spencer St	Pedestrian crossing
III	C	Minor	Mascoma Lake	Payne Rd; Northern Rail Trail	Construct accessible connection to the Northern Rail Trail at Payne Rd	Multi-use path
III	C	Major	NH 120 - Mt Support Corridor	NH 120 north of DHMC/Centerra	Lane drop on NH 120 accomodate bicycle shoulder on both sides	On-road bike lane/shoulder
III	C	Major	NH 12A	Airport Business Park	Add sidewalks in Airport Business Park	Sidewalk
III	C	Major	West Lebanon	NH 12A/Connecticut Riverfront	Multi-use path or accessible trail along the Connecticut River from Westboro to Market St following City sewer line easement	Multi-use path
III	C	Major	West Lebanon	West Lebanon - White River Junction	Formalize ped-bike connection across CT River RR bridge	Multi-use path
III	C	Major	West Lebanon	Bridge St	Widen Bridge St and add bicycle lanes	On-road bike lane/shoulder

PROJECTS CONSIDERED TO BE “FUNDED”

TIER	PRIORITY	SCOPE	SUB-AREA	PROJECT LOCATION	PROJECT DESCRIPTION	PROJECT TYPE
I	A	Major	Downtown	Mascoma/High/Mechanic St	Roundabout; pedestrian crossings	Intersection Improvement
I	A	Major	NH 120 - Mt Support Corridor	Mt Support Rd north of Lahaye Dr	Multi-use path along Mt Support Rd extending approximately 1,200' north of Lahaye Dr	Off-Road Path
I	A	Major	West Lebanon	NH Route 12A/South Main St	Replacement of NH 12A Dry Bridge, including new sidewalks and wider bicycle shoulders	Bridge
I	B	Major	Mechanic St - Miracle Mile Corridor	Mechanic St from Slayton Hill to American Legion.	NH Ten-Year Plan project #42604. Interim incremental improvement project to add sidewalks	Sidewalk
I	B	Minor	West Lebanon	NH Route 10	Stripe wider shoulders for bicyclist travel (reallocate travel lane space)	On-road bike lane/shoulder

RELATED KEY STRATEGIES

Pedestrian and bicycle capital projects are critical for increasing connectivity and facilities. However, non-capital and policy decisions enhance and strengthen overall mobility goals of the City. Strategies were divided into categories: education/engagement, infrastructure design, operations & maintenance, pilot programs, regulations & policy, and safety.

EDUCATION/ENGAGEMENT

Goal: Increase usership of bicycle and pedestrian facilities by utilizing education strategies to increase awareness among community members

Suggested Activities:

- Map showing current and planned bike-walk network including on- and off-street facilities, other markings and features, and speed limits
- Equity / DEI-related recommendations including public participation parameters
- Bolster educational programs including schools, youth instruction
- Bolster ped-bike educational facilities to support City programs and school PE classes (e.g., traffic garden)
- Community signage plan with unified design/branding and wayfinding
- Run ride/route showcase series like Wild About Lebanon
- Driver education
- Recommend for future updates to brand routes e.g., Providence's urban trails network

Education/Engagement

Infrastructure Design

Operations & Maintenance

Pilot Programs

Regulations & Policy

Safety



Figure 1. Example of a "Bike Bus" in Oregon. Source: <https://bikeportland.org/2022/09/21/the-alameda-bike-bus-has-more-than-doubled-in-size-in-just-four-months-364010>

SUMMARY OF IMPLEMENTATION & KEY STRATEGIES

Examples/Resources:

- [Boulder, CO Multimodal Planning Division](#)
- [Environmental Justice Public Participation Checklist for Governments](#)
- [Bicycle Friendly Community Equity and Participation Criteria](#)
- [Spectrum of Public Participation](#)
- [Indianapolis revised Complete Streets Policy](#)
- [Alta Quick Build Guide](#)
- [USDOT National Roadway Safety Strategy](#)
- [Street Mix Interactive Tool](#)
- [New London, NH Bike Rodeo Engagement Materials](#)
- [Bicycle Friendly Driver Initiative](#)
- [Bike Signage Project in Santa Cruz, CA](#)
- [Bike Route Wayfinding Signage and Markings System](#)
- [Providence Complete Streets Plan](#)

INFRASTRUCTURE DESIGN

Goal: Incorporate design principles that promote sustainability, safety, and smart-growth concepts in infrastructure

Suggested Activities:

- Update requirements/design guidance (in Complete Street Policy, Roadway Design Manual, Traffic Calming Bid Specifications with lane widths, shoulders, boulevards, traffic calming criteria, etc.)
- Incorporate green infrastructure into ped-bike projects
- Improve commercial/service offerings in downtown areas/near residential clusters
- Equity/DEI-related recommendations including public participation parameters



Figure 2. Picture of a "shared space" concept. Source: <https://altago.com/wp-content/uploads/Quick-Build-Guide-White-Paper-2020-1.pdf>



SUMMARY OF IMPLEMENTATION & KEY STRATEGIES

Examples/Resources:

- [Alta Quick Build Guide](#)
- [Design Guide for Low-Speed Multimodal Roadways](#)
- [Seattle Design Standards](#)
- [FHAW Self-Enforcing Roadways](#)
- [NACTO Urban Design Guide](#)
- [Green Infrastructure and Bike Design in Utah](#)
- [Boulder County Transportation Master Plan](#)

OPERATIONS & MAINTENANCE

Goal: Strengthen bicycle and pedestrian programs through updating municipal procedures and daily activities

Suggested Activities:

- Provide and support development of public bike/micromobility storage
- Pursue federal funding programs for major capital projects
- Coordination opportunities with related plans
- Continue participating in Upper Valley Transportation Management Association (UVTMA) and Upper Valley Lake Sunapee Regional Planning Commission's Transportation Advisory Committee (TAC)
- Increase staff resources for transportation planning
- Toolkits/checklists (Transit Demand Management etc.)
- Bike Friendly Community designation - timeline, integration, key outstanding actions
- Facility Maintenance Opportunities for Improvement or Regular Review
- Overall criteria for City project prioritization including CIP (noting back to how WBRL priority project list was developed) / Ped-bike checklist for major capital road & bridge projects
- Metrics: prioritizations, tracking success
- Include user data infographics/metrics summary for existing conditions section of plan (not recommendations)
- Update criteria for traffic studies in development review and capital projects
- Do regular multimodal traffic counts/get permanent counters
- Update employee dress code to facilitate more active walk-bike commuting and activity between facilities and become a "bicycle-friendly" workplace
- Travel demand management programs
- Monitor impacts of development to currently low-stress bicycle roads

SUMMARY OF IMPLEMENTATION & KEY STRATEGIES

MEASURING GOAL & OBJECTIVES

Goal and Objectives		Outcome Measures	Region		Trend		New Hampshire	United States	Data Source(s)
Goal			2012	Today	Desired	Observed			Note: Some figures may be influenced by the COVID-19 pandemic.
	Increase use and availability of local and regional transportation options in the Monadnock Region	Average Annual Vehicle Miles Traveled Per Resident	8,553	8,699	🟢	🔴	10,486	9,807	NHDOT and USDOT 2013, 2019 HPMS Data; 2019 NH OSI Annual Population Estimates, US Census Bureau
1	Increase Use & Availability of Sidewalks & Walkways	% of People that Walk to Work	5.2	2.8	🟢	🔴	3.0	2.8	American Community Survey 2006-2010 and 2015-2019 Estimates, US Census Bureau
		Miles of Sidewalk	103.0	105.4	🟢	🟢			SWRPC, 2021
		Miles of Improved Rail Trail		12.0	🟢	🟢			SWRPC, 2021
		Local Complete Streets Policies	0	9	🟢	🟢	13	1,404	Smart Growth America, 2021
2	Increase Use & Availability of Bicycle Infrastructure	# Commute Trips by Bike		1,472	🟢				Strava Metro, 2020 (Cheshire County)
		# Leisure Trips by Bike		23,375					
		% of People that Bike to Work	0.5	1.7	🟢	🟢	1.2	1.8	American Community Survey 2006-2010 and 2015-2019 Estimates, US Census Bureau
		Miles of Bike Lanes	0.7	0.7	🟢	↔️			SWRPC, 2021
		Bicycle Friendly Communities	1	1	🟢	↔️	5	485	League of American Bicyclists, 2021
		Bicycle Friendly Businesses	0	2	🟢	🟢	7	1,406	
3	Use & Availability of Public Transportation	Bicycle Friendly Universities	0	1	🟢	🟢	2	208	
		% of People that Wish the Bus Were Available or Easier to Use		42%	🟢				Cheshire Medical Center Community Survey, 2020 (Cheshire County)
		# of Trips Per Week		21	🟢				Home Healthcare Hospice & Community Services, MOOver, 2021
		# of Stops		37	🟢				SWRPC, 2021
4	Increase Use & Support for Ridesharing & Car Sharing	Route Miles	17.6	18.5	🟢	🟢			
		% of People that Carpool to Work	8.1	7.8	🟢	🔴	8.0	9.8	American Community Survey 2006-2010 and 2015-2019 Estimates, US Census Bureau
		# of Park and Ride Lots	1	1	🟢	↔️			SWRPC, 2021
		# of Park and Ride Parking Spaces	35	35	🟢	↔️			Commute Smart NH, 2021
5	Increase Awareness & Support of Intercity Bus Services & Rail	# of Commute Smart NH Rideshare Participants		4	🟢				Greyhound, 2021
		# of Stops	1	1	🟢	↔️			Greyhound, 2021
6	Implement Non-Transportation Strategies to Replace Vehicle Trips	# of Trips Per Week		14	🟢				
		% People that Work from Home	7.4	9.8	🟢	🟢	4.3	5.6	American Community Survey 2006-2010 and 2015-2019 Estimates, US Census Bureau
7	Increase Location Efficient Siting of Housing, Jobs and Services	% of People that Live Less than 15 Minutes Away from Work	39.4	34.7	🟢	🔴	27.1	25.5	American Community Survey 2015-2019 Estimates Table B08303, US Census Bureau

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Figure 3. Sample Metrics for Implementing Action Plan. Source: <https://www.mastnh.org/wp-content/uploads/2022/01/MAST-Action-Plan-2021-2030.pdf>

Examples/Resources:

- [Employer Guide to Promoting Alternative Transportation](#)
- [Resources for Building a Bicycle Friendly Community](#)
- [Winter Bike Lane Maintenance](#)
- [Decision Support Framework for Cycling Project Prioritization](#)
- [Vital Communities Mobility Checklist](#)
- [Quick Build Prioritization Process](#)
- [Sample Metrics for Implementing Action Plan](#)
- [How to Become a Bicycle Friendly Workplace](#)

PILOT PROGRAMS

Goal: Test novel bike/ped projects to maximize limited resources and generate public enthusiasm

Suggested Activities:

- Tactical urbanism/demo project/quick build project ideas and resources

SUMMARY OF IMPLEMENTATION & KEY STRATEGIES

- Low-cost traffic calming measures
- E-bike program
- (Electric) bikeshare or at least fleet for City employees e.g. meetings between City Hall and DPW and/or Leb Housing Authority



Figure 4. Picture from Vital Communities' E-Bike Lending Library Program. Source: <https://vitalcommunities.org/transportation/upper-valley-e-bike-lending-library/>

Examples/Resources:

- [Calbike Quick-Build Street Design](#)
- [Burlington, VT Quick Build Design](#)
- [Transportation Intervention Objects](#)
- [Quick Build Materials](#)
- [Worcester, MA E-Bike Program](#)
- [Colorado E-Bike Program](#)

REGULATIONS & POLICY

Goal: Reduce regulatory barriers and promote policies that further the adoption of bike/ped projects

Suggested Activities:

- Create dedicated ped-bike capital reserve

SUMMARY OF IMPLEMENTATION & KEY STRATEGIES

- Promote connectivity, walkability through land use regulation, including updated site plan requirements
- Revise Lebanon Complete Streets Policy and/or require annual review with annual actions that go into City Workplan
- Update Lebanon streetscapes policy
- Update Class VI Roads policy
- Adaptive speed management policy

III. The National Walkability Index in Action

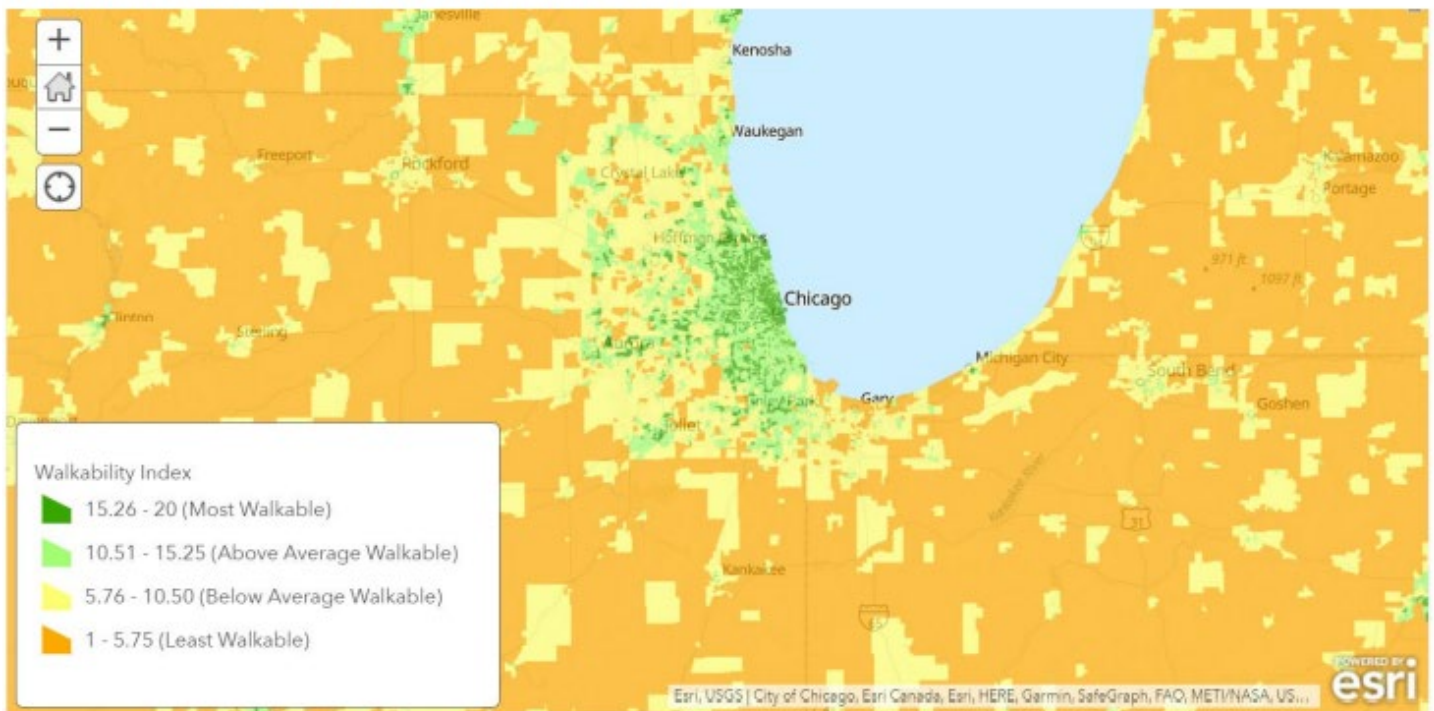


Figure 5. EPA's Walkability Index in Chicago. Source: https://www.epa.gov/sites/default/files/2021-06/documents/national_walkability_index_methodology_and_user_guide_june2021.pdf

Examples/Resources:

- [Guidelines for Regulating Shared Micro-mobility](#)
- [EPA Walkability Index](#)
- [Essentials of Bike Parking](#)
- [Streetscape Policy in Stoughton](#)
- [Durham, NH Class 6 Road Policy](#)
- [Creating a Speed Management Program](#)
- [FHWA Speed Management Strategic Initiative](#)

SAFETY

Goal: Proactively combat safety issues for all biked/ped users and strive towards eliminating all bike/ped accidents

Suggested Activities:

- Integrate Safe Routes to School with WBRL including safe bus stops and crossings



SUMMARY OF IMPLEMENTATION & KEY STRATEGIES

- Adopt Vision Zero
- Improve ped-bike crash data collection/reporting
- Revamp the Safety Committee
- Develop and adopt a Pedestrian and Bicycle Safety Action Plan



Safety Treatment Evaluation (2005-2018)

2022 – New York City Department of Transportation

Sample Size

Safety Treatment	Treatments	Centerline Miles
Road Diets	28	29.1
Conventional Bike Lanes	542	133.8
Protected Bike Lanes	146	36.7
Pedestrian Islands	177	2.1
Curb & Sidewalk Extensions	266	9.5
Turn Calming	107	NA
Leading Pedestrian Intervals (LPIs)	1446	NA

Figure 6. Safety Treatment Evaluation Example. Source: <https://www.nyc.gov/html/dot/downloads/pdf/safety-treatment-evaluation-2005-2018.pdf>

Examples/Resources:

- [New York City DOT Safety Measure Rankings](#)
- [Safe Routes to School Toolkit](#)
- [Boulder's Vision Zero](#)
- [Pedestrian and Bicycle Safety Action Plan](#)

SUMMARY OF IMPLEMENTATION & KEY STRATEGIES

DEVELOPMENT OF KEY STRATEGIES PLANNING DOCUMENT

UVLSRPC staff recommended a collaborative regular review and/or common database management approach to evaluate priority improvement needs and track progress over time. Also, UVLSRPC staff recommended a collaborative regular review and/or common database management approach to evaluate priority improvement needs and track progress over time. Using a spreadsheet in Excel, UVLSRPC Staff created a “living” document for decision-makers to enhance project development of pedestrian and bicycle initiatives (Figure 1). As priorities shift and opportunities arise, maintenance of this document will be paramount. It is recommended that planning staff at the City continue to maintain this document.

The excel sheet enables decision-makers to determine a priority level (1 to 3) for each non-capital project/program. Users then identify the key strategic area listed above. Given financial and temporal constraints, the drop-down menu includes projected costs (low to high) and timeframes (1 year to 10+ years). Rather than providing exact estimates, this process provides decision-makers with high-level considerations. The tool identifies stakeholders involved with each suggested activity and includes examples from other communities.

Priority Level (1 =	Strategy Category	Non-Capital Project/Program	Cost	Timeframe	Document/Project/Rt	Met
1	Education/engagement	Map showing current and planned bike-walk network including on- and off-street facilities, other marking	Low		BFC, WBRL	
2	Education/engagement	Update Lebanon web resources	Low	1 to 2 years		
1	Education/engagement	Equity / DEI-related recommendations including public participation parameters	Low	1 to 2 years	WBRL	
2	Education/engagement	Bolster educational programs including schools, youth instruction	Medium	2 to 4 years	BWANH Youth Instruction	
2	Education/engagement	Bolster ped-bike educational facilities to support City programs and school PE classes (e.g., traffic garden)	Medium	2 to 4 years		
2	Education/engagement	community signage plan with unified design/branding and wayfinding	High	5 to 10 years		
2	Education/engagement	Run ride/route showcase series like Wild About Lebanon	Low	1 to 2 years		
2	Education/engagement	Driver education	Low			
3	Education/engagement	recommend for future updates to brand routes e.g., Providence's urban trails network (combine this with	Medium	2 to 4 years	WBRL	
1	Infrastructure Design	update requirements / design guidance (in CS Policy, Roadway Design Manual, Traffic Calming Bid Spec	Medium	1 to 2 years	Complete Streets Policy	
2	Infrastructure Design	Incorporate green infrastructure into ped-bike projects	High	2 to 4 years	Envision	
1	Infrastructure Design	Add category to master projects list to identify key first and last mile connections	Low	1 to 2 years		
3	Infrastructure Design	Improve commercial/service offerings in downtown areas/near residential clusters	Medium			
1	Operations	provide and support development of public bike/micromobility storage	Medium		Master Plan	
1	Operations	Pursue federal funding programs for major capital projects	Low	2 to 4 years	NA	
1	Operations	Coordination opportunities with related plans	Low			
1	Operations	continue participating in TMA, TAC	Low			
2	Operations	Increase staff resources for transportation planning	High	2 to 4 years		
2	Operations	update (checklist, TDM etc)	Low			

Figure 7. A snapshot of the key strategies tool for bike/ped decision-making.



SUMMARY OF IMPLEMENTATION & KEY STRATEGIES

KEY FUNDING SOURCES

Funder	Program Name	Details
OST Programs	Safe Streets and Roads for All (SS4A) Grant Program	The SS4A program supports the Department's goal of zero deaths and serious injuries on our nation's roadways.
OST Programs	RAISE	The Rebuilding American Infrastructure with Sustainability and Equity, or RAISE Discretionary Grant program, provides a unique opportunity for the DOT to invest in road, rail, transit and port projects that promise to achieve national objectives. Previously known as the Better Utilizing Investments to Leverage Development (BUILD) and Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grants, Congress has dedicated nearly \$12.1 billion for fourteen rounds of National Infrastructure Investments to fund projects that have a significant local or regional impact.
FHWA	Congestion Mitigation and Air Quality Improvement (CMAQ) Program	The Congestion Mitigation and Air Quality Improvement (CMAQ) program provides a funding source for State and local governments to fund transportation projects and programs to help meet the requirements of the Clean Air Act (CAA) and its amendments and is codified at 23 USC Sec 149. CMAQ funds support state- and locally selected transportation projects that reduce mobile source emissions in both current and former areas designated by the U.S. Environmental Protection Agency (EPA) to be in nonattainment or maintenance of the national ambient air quality standards for ozone, carbon monoxide, and/or particulate matter. Many types of projects are eligible under the CMAQ program including electric vehicles and charging stations, diesel engine replacements and retrofits, transit improvements, bicycle and pedestrian facilities, shared micromobility projects including shared scooter systems, and more. In addition to improving air quality and reducing congestion, CMAQ projects can improve equitable access to transportation services, improve safety, and promote application of new and emerging technologies.
FHWA	Transportation Alternatives Program	The Transportation Alternatives (TA) Set-Aside from the Surface Transportation Block Grant (STBG) Program provides funding for a variety of generally smaller-scale transportation projects such as pedestrian and bicycle facilities; construction of turnouts, overlooks, and viewing areas; community improvements such as historic preservation and vegetation management; environmental mitigation related to stormwater and habitat connectivity; recreational trails; safe routes to school projects; and vulnerable road user safety assessments.



SUMMARY OF IMPLEMENTATION & KEY STRATEGIES

MULTI-MODAL PLACE-MAKING WISHLIST

The Project Team developed a Walk, Bike, and Ride Related Accessibility and Place-Making Wishlist to be used for fundraising activities. Many of these items include multi-modal accessories that are essential to a comprehensive multi-modal transportation system.

Ready to partner with us on these goals?

Here's Lebanon's Walk, Bike, and Ride Related Accessibility and Place-Making Wishlist

