OMB Number: 4040-0004
Expiration Date: 11/30/2025

Application for Federal Assistance SF-424

* 1. Type of Submission:
- [ ] Preapplication
- [x] Application
- [ ] Changed/Corrected Application

* 2. Type of Application:
- [x] New
- [ ] Continuation
- [ ] Revision

* If Revision, select appropriate letter(s):

* Other (Specify):

* 3. Date Received:
Completed by Grants.gov upon submission.

4. Applicant Identifier:

5a. Federal Entity Identifier:

5b. Federal Award Identifier:

State Use Only:

6. Date Received by State:

7. State Application Identifier:

8. APPLICANT INFORMATION:

* a. Legal Name: City of Keene, NH

* b. Employer/Taxpayer Identification Number (EIN/TIN): 02-6000441

* c. UEI: YYAFC9KA35K1

d. Address:

* Street1: 3 Washington Street
Street2:
* City: Keene
County/Parish:
* State: NH: New Hampshire
Province:
* Country: USA: UNITED STATES
* Zip / Postal Code: 03431-3124

e. Organizational Unit:

Department Name: Public Works

Division Name:

f. Name and contact information of person to be contacted on matters involving this application:

Prefix: Mr.
* First Name: Donald
Middle Name: R.
* Last Name: Lussier
Suffix:

Title: Public Works Director

Organizational Affiliation: City of Keene, NH

* Telephone Number: 603-352-6550
Fax Number:

* Email: dlussier@keenenh.gov

Application for Federal Assistance SF-424

*** 9. Type of Applicant 1: Select Applicant Type:**

C: City or Township Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

69A345 Office of the Under Secretary for Policy

11. Assistance Listing Number:

20.933

Assistance Listing Title:

National Infrastructure Investments

*** 12. Funding Opportunity Number:**

DTOS59-25-RA-RAISE

* Title:

FY 2025 National Infrastructure Investments

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

Add Attachment | Delete Attachment | View Attachment

*** 15. Descriptive Title of Applicant's Project:**

Revitalizing Downtown Keene

Attach supporting documents as specified in agency instructions.

Add Attachments | Delete Attachments | View Attachments

Application for Federal Assistance SF-424

16. Congressional Districts Of:

* a. Applicant: NH-002

* b. Program/Project: NH-002

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment | Delete Attachment | View Attachment

17. Proposed Project:

* a. Start Date: 09/01/2025

* b. End Date: 06/01/2029

18. Estimated Funding ($):

* a. Federal	15,861,760.00
* b. Applicant	6,816,440.00
* c. State	0.00
* d. Local	0.00
* e. Other	0.00
* f. Program Income	0.00
* g. TOTAL	22,678,200.00

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

☒ a. This application was made available to the State under the Executive Order 12372 Process for review on 02/28/2024.

☐ b. Program is subject to E.O. 12372 but has not been selected by the State for review.

☐ c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**

☐ Yes ☒ No

If "Yes", provide explanation and attach

Add Attachment | Delete Attachment | View Attachment

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 18, Section 1001)**

☒ ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix:

* First Name: Donald

Middle Name: R.

* Last Name: Lussier

Suffix:

* Title: Public Works Director

* Telephone Number: 603-352-6550

Fax Number:

* Email: dlussier@keenenh.gov

* Signature of Authorized Representative: Completed by Grants.gov upon submission.

* Date Signed: Completed by Grants.gov upon submission.

ATTACHMENTS FORM

Instructions: On this form, you will attach the various files that make up your grant application. Please consult with the appropriate Agency Guidelines for more information about each needed file. Please remember that any files you attach must be in the document format and named as specified in the Guidelines.

Important: Please attach your files in the proper sequence. See the appropriate Agency Guidelines for details.

1) Please attach Attachment 1	Keene_FY 2025 BUILD Project I	Add Attachment	Delete Attachment	View Attachment
2) Please attach Attachment 2	Keene_BUILD Grant Application	Add Attachment	Delete Attachment	View Attachment
3) Please attach Attachment 3	Keene_BUILD Grant Application	Add Attachment	Delete Attachment	View Attachment
4) Please attach Attachment 4	Keene_BUILD Grant Application	Add Attachment	Delete Attachment	View Attachment
5) Please attach Attachment 5	Keene_Funding Commitment Docu	Add Attachment	Delete Attachment	View Attachment
6) Please attach Attachment 6	Keene_BUILD Grant Application	Add Attachment	Delete Attachment	View Attachment
7) Please attach Attachment 7	Keene_BUILD Grant Application	Add Attachment	Delete Attachment	View Attachment
8) Please attach Attachment 8	Keene_BCAReport_BUILD_2025_20	Add Attachment	Delete Attachment	View Attachment
9) Please attach Attachment 9	USDOT BCA Spreadsheet Templat	Add Attachment	Delete Attachment	View Attachment
10) Please attach Attachment 10	Keene_Letters of Support.pdf	Add Attachment	Delete Attachment	View Attachment
11) Please attach Attachment 11	Keene_Project Location File.k	Add Attachment	Delete Attachment	View Attachment
12) Please attach Attachment 12		Add Attachment	Delete Attachment	View Attachment
13) Please attach Attachment 13		Add Attachment	Delete Attachment	View Attachment
14) Please attach Attachment 14		Add Attachment	Delete Attachment	View Attachment
15) Please attach Attachment 15		Add Attachment	Delete Attachment	View Attachment

The following attachment is not included in the view since it is not a read-only PDF file.

Upon submission, this file will be transmitted to the Grantor without any data loss.

Keene_FY 2025 BUILD Project Information Form.xlsx

A. PROJECT DESCRIPTION

A.1. OVERVIEW

The City of Keene is requesting $13,665,760 in Better Utilizing Investments to Leverage Development (BUILD) funds for the Revitalizing Downtown Keene Project ("Project"). This project will complete a 3-year community-driven planning and design process leading to the construction of a project that will:

- Allow Downtown to better accommodate entertainment-oriented activities that bring the community together and enhance the downtown's economic vibrancy
- Prioritize the pedestrian environment and non-vehicular modes of travel
- Create a mobility hub that connects the area's trail network, bringing more people to Keene's downtown businesses
- Connect APP communities in Keene and beyond to the downtown
- Support a more sustainable environment that sets precedent for the community's climate resilience by integrating innovative green infrastructure for stormwater management, mitigating heat island effect, and introducing solar powered street lighting, EV charging and a downtown electrical circuit for public event use
- Deliver on the primary project purpose of creating an opportunity corridor to promote local inclusive economies and entrepreneurship by defining the Gilbo Avenue corridor and the expansion of downtown development for long-term economic growth

A.2. STATEMENT OF WORK

The project will enhance downtown utility infrastructure resilience by upgrading the existing utility systems to better withstand needs and environmental challenges. It will further define and revitalize connections to Keene's downtown district by improving access to multimodal transportation and facilitating a more pedestrian-friendly environment. The project will create more open, flexible, safe, and accessible spaces to expand community event opportunities. Collectively, the project's components aim to promote a sustainable and resilient built environment that offers alternatives to occupied vehicles, reduces carbon emissions, creates safer streets, and implements green stormwater and sustainable infrastructure within Keene's downtown core.

The primary components of the project's scope will include:

- **Community engagement and final design**. A creative and proactive community engagement approach was a top priority through the project's engineering study and design development phases. Hands-on workshops, partnering with community groups, and stakeholder collaboration informed the final design.
- **Final design and NEPA process.** Keene completed an extensive Keene Downtown Improvements Planning Study which informed the design development phases. Final design is currently underway and is expected to be complete in March 2025. NEPA evaluation in underway and project determinations are expected to be complete by March 2025. This project will include final NEPA documentation and right-of-way (ROW) certification well within the BIL funding obligation deadline.
- **Construction.** The Project will include utility upgrades, the addition of pedestrian and bicycle infrastructure, reconstruction of roadways, and expansion and improvement of sidewalks for accessibility.

The proposed improvements include elements that fall across the following categories: downtown corridor operations, intersection operations, crosswalk improvements, flexible sidewalk space, bike lanes, environmental resilience, sustainable infrastructure, and enhanced tree canopy management. Each project element contributes to the overall goal of revitalizing and creating alternative connections to downtown, enhancing connectivity and access to the regional trail network, especially for members of APP communities, and in reinforcing Keene as a sustainable economic and cultural hub within the Monadnock region.

FIGURE A-1: PROJECT OVERVIEW

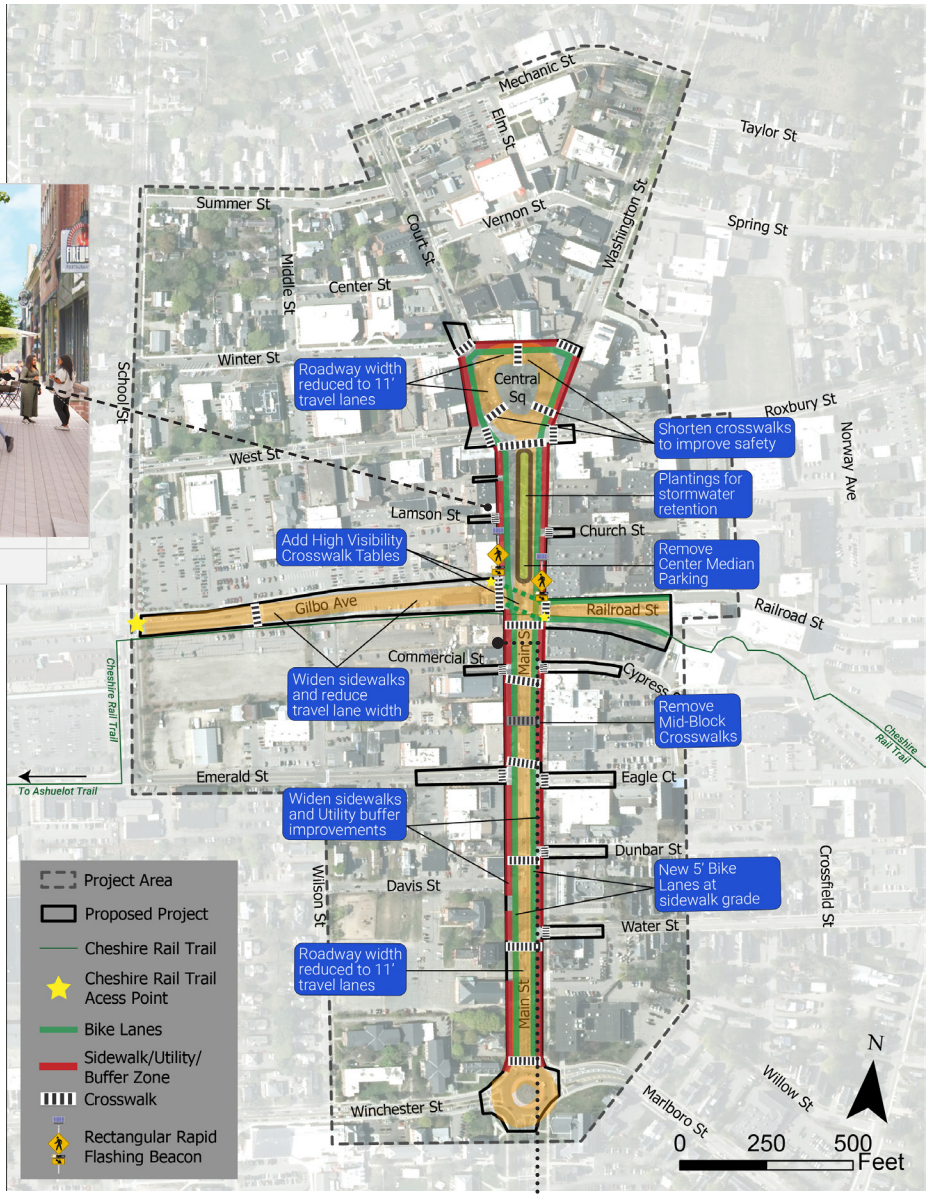


FIGURE A-2: PROPOSED CORRIDOR IMPROVEMENTS ON MAIN STREET

Perspective rendering on Main Street.

FIGURE A-3: PROPOSED CORRIDOR SITE PLAN

Proposed improvements on Main Street, Gilbo Avenue, and at Central Square and Railroad Square

A.3. TRANSPORTATION CHALLENGES THE PROJECT ADDRESSES

Keene's downtown and project area faces several challenges that were identified by the project design team and raised by community members through an extensive public engagement process as part of the Keene Downtown Improvements Planning Study. In addition to reliability and capacity issues relating to the City's aging utility infrastructure, there are concerns about pedestrian and bicycle safety, traffic congestion, the accessibility of downtown, and the environment that have direct implications on downtown's residents, visitors, and local businesses.

Pedestrian and Bicycle Safety

Crosswalks lengths do not allow ample time for pedestrians to cross the street. Additionally, areas of the downtown project area have limited street lighting, signage, and poorly maintained sidewalks, which limit visibility and compromise pedestrian safety. Limited to no dedicated bike lanes and bike routes through the downtown, in combination with limited bicycle storage and racks, also discourage cycling as a viable transportation option.

Traffic Congestion

Aged and inefficient traffic signal systems downtown create traffic congestion, especially during commuting hours that lead to delays, increased travel times, and added stress for drivers. This creates conditions that take away from the pedestrian environment of downtown and can also impede emergency vehicle access.

Accessibility

The public realm in Keene's downtown project area does not currently meet universal accessibility standards making it less accessible to individuals with disabilities and those with limited mobility. Several portions of sidewalks and 29 building entrances are in need of adequate curb cuts, tactile paving, ramps, and other ADA compliant infrastructure. Similar interventions are also needed to make many of Keene's businesses accessible. Reducing physical barriers to business and building entrances through ramp installation, automatic doors, clear signage, and educating businesses on accessibility will go a long way in making Keene's downtown more welcoming and usable for all.

Environment

Sections of downtown experience flooding during frequent and intensive rain events which can cause significant property damage and put lives at risk. Concentrated amounts of greenhouse gas emissions from traffic congestion contribute to greater air pollution and related health impacts. Downtown areas contain considerable amounts of impervious surfaces that amplify heat during the summer, leading to higher temperatures and health impacts. Trees are integral players in enhancing climate resiliency as they help to manage stormwater, purify air, regulate temperature, and provide shade. Downtown Keene's tree canopy is in fair condition, but preservation and replacement is needed to ensure the environmental health of the City. Reducing the community's energy footprint is a top priority and the project includes solar powered street lighting, EV charging and downtown electrical circuits.

A.4. PROJECT HISTORY

A strong history of innovative planning in Keene has allowed the City to cultivate an engaged community with a distinctive identity and a high quality of life. Despite being the heart of the region, downtown Keene's last major revitalization occurred in 1988. Since then, the City has planned and implemented several plans that have included improvements for its streets and downtown. Increasingly, its focus is on transforming streets and downtown infrastructure to better accommodate the modern needs and preferences of its residents and businesses and support a more accessible, livable, and better-connected multi-modal transportation system.

These efforts have included the following plans and initiatives:

Keene Comprehensive Plan (2010): Plan for six vision areas: a quality-built environment, a unique natural environment, a vibrant economy, a strong citizenship and proactive leadership, a creative learning culture, and a health community.

Complete Streets (2015): Adopted complete streets resolution for well-balanced and connected transportation infrastructure that is safe, more livable, and welcoming for all users.

Downtown Revitalization Study (2018): Review of economic state of downtown and study how the streetscape could better accommodate a modern downtown.

Strengthening Connections: Downtown and Trails (2021): Report leveraging the City's natural assets for economic vibrancy, specifically related to better connecting trails/rail trails with the downtown.

Strategic Parking Plan (2021): A strategy plan for improving and optimizing parking to better meet the diverse needs to Keene's residents, visitors, and workforce.

Housing Needs Assessment & Strategy (2023): Needs assessment and strategy study to identify markets and forces that affect the City's housing supply and demand over the next 10 years.

Safe Streets and Roads for All (2024): Report resulting in the development of a Roadway Safety Action Plan (RSAP) to reduce fatalities and injuries from roadway crashes.

Vision Keene 20-Forward Master Plan (2025): Master Plan update defining the six pillars in the Community Vision Report noting the Downtown as a key economic driver of the community and opportunities for future development.

A.5. RELATED PROJECTS

The project follows several other planning and infrastructure projects the City has taken on and reflects its forward-thinking approach to transportation choice and connectivity within Keene and beyond.

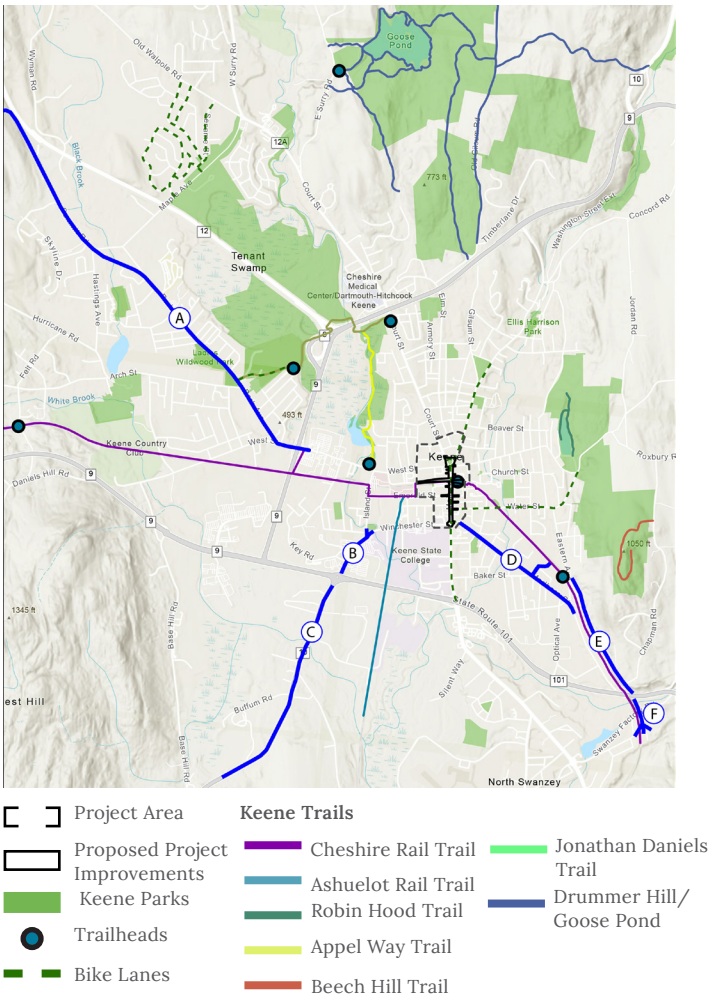
In addition to the plans referenced in Section 1.4, the project directly relates to Keene's Complete Streets Design Guidelines and its accompanying Rethink Marlboro Street initiative as well as the goals of its Climate Adaptation and Climate Action Plans and its Greenhouse Gas Emissions Inventory. It also complements the Marlboro Street Corridor Economic Revitalization Zone, RSA 79-E, Marlboro Street Rezoning Initiative, Cottage Court Overlay, and Neighborhood Parking Plan which focus on regulatory changes for infill development and economic development near downtown.

The project also ties into six other planned infrastructure projects that are expanding multimodal opportunities, creating complete streets, and developing more formal connections to the regional rail trail network. These include the Cheshire Rail Trail Phase 3 Project (A), the Upper (B) and Lower (C) Winchester Street Reconstruction Projects, the Marlboro Street Corridor Project (D), and Phase 1 (E) and future phases (F) of the Transportation Heritage Trail Project (Shown in Figure 1-4 below).

A.6. PROJECT LOCATION

The Project is located in downtown Keene, New Hampshire (NH) and includes areas within and just north of Central Square (up to Vernon Street), Railroad Street to 93rd Street, Gilbo Avenue to School Street, Main Street south to the Main Street, Marlboro Street, and Winchester Street intersection, portions of West Street, and Roxbury Street to Roxbury Plaza. The Main/Marlboro/Winchester roundabout and Central Square anchor the southern

FIGURE A-4. LEVERAGED PROJECTS

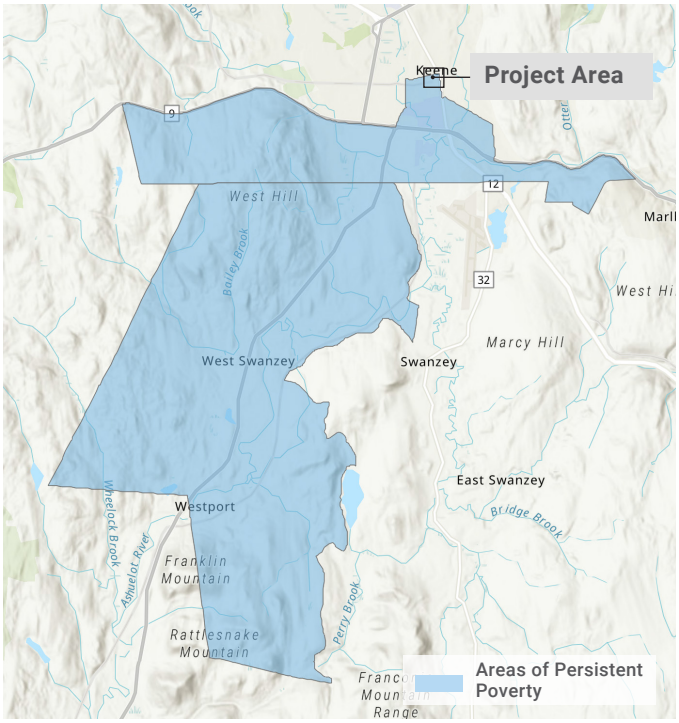


and northern ends of the project area, respectively. The Cheshire Rail Trail intersects the project area on Main Street at the Gilbo Avenue/Railroad Street intersection and serves as a prominent downtown connection to other neighborhoods and surrounding communities. See Section B. Project Location for the Project Location File.

There are 3 distinct census tracts (CT) as defined by the U.S. Census Bureau (CT 9714.03, CT 9711, and CT 9713. CT 9714.03) which run along the western side of Main Street that are designated as an Area of Persistent Poverty (APP) as defined per US DOT'S definition of Area of Persistent Poverty[1]. Additionally, three other APP CTs are located just south (CT 9709.02 and 16 miles southwest (CT 9684 and 9685) of the project site. The Ashuelot and Cheshire Rail Trails and NH Route 10 connect these communities to downtown Keene.

As noted in the recent Keene Housing Needs Assessment and Strategy (2023), nearly 12% of Keene's population lives in poverty which is higher than the Cheshire County average (10%) and NH state average (7%). Many of those afflicted are children, placing Keene's percentage of children in poverty higher than the county and state averages. There is one Persistent Poverty Census tract within Keene, and it overlaps with and borders the proposed project area. Additional Areas of Persistent Poverty (APP) are located to Keene's west, southwest, and northwest in the nearby communities of Winchester, Brattleboro, and Springfield.

FIGURE A-5: AREAS OF PERSISTENT POVERTY



A.7. CURRENT DESIGN STATUS

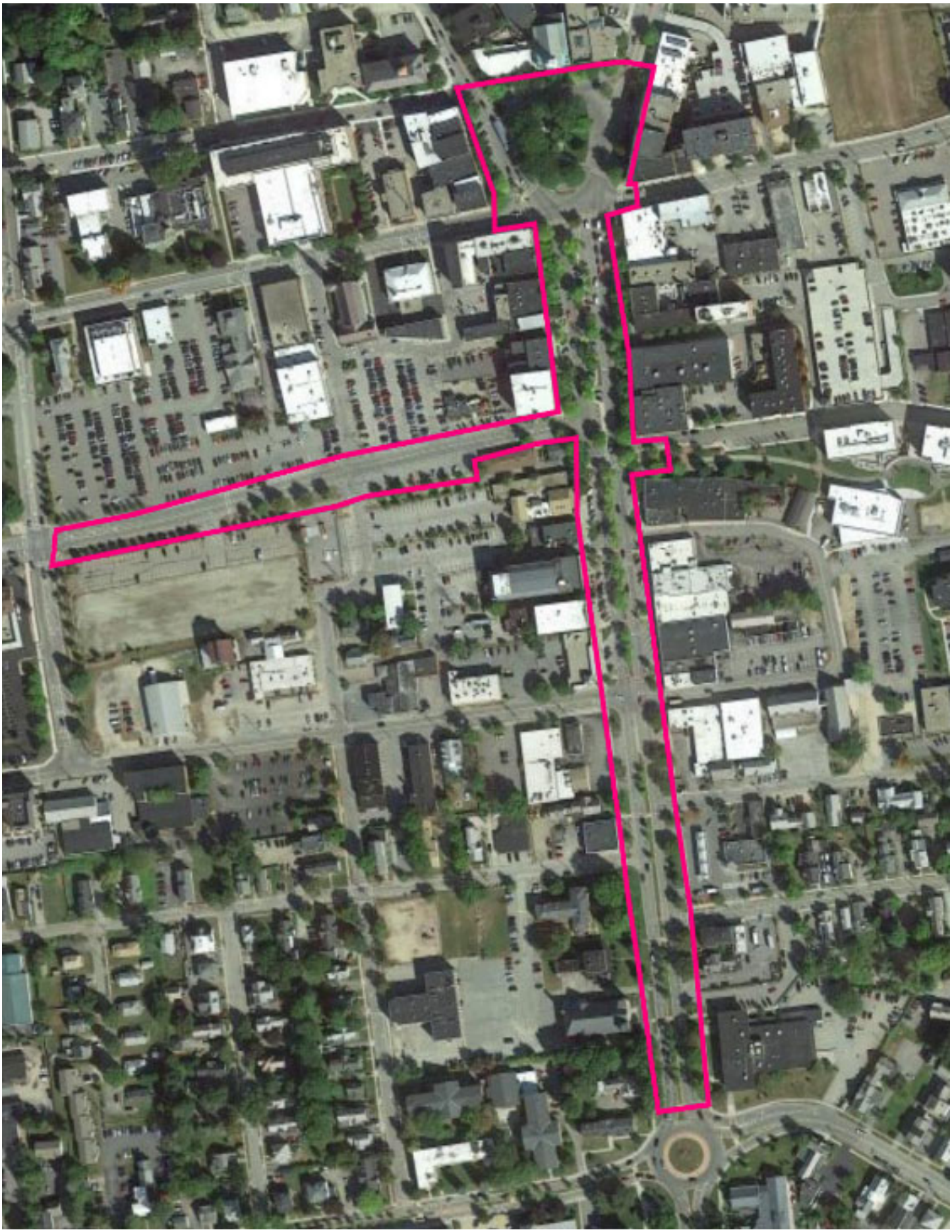
Acknowledging the significance of Downtown Keene as the community's economic engine with a commitment to maintaining its vibrancy, relevance, and functionality, the City of Keene sought out to plan and study its downtown through the comprehensive Downtown Infrastructure Improvement and Reconstruction Project. Ensuring broad community input, the project established an Ad-Hoc Steering Committee, a Technical Advisory Committee, coordinated with key City departments, and collaborated with Council Advisory Committees. The 16-month planning phase included two (2) open public workshops amongst seven (7) public Ad-Hoc Steering Committee meetings where preliminary design alternatives for Main Street, Central Square, and Gilbo Avenue/Railroad Square were presented. The Committee's efforts resulted in a preferred alternative recommendation to City Council.

In an effort to clarify the recommendations by the Ad-Hoc Steering Committee, Keene City Council expanded the project engagement process and hosted additional open public informational meetings and open public design workshops amongst Council Advisory Committee meetings and full City Council meetings.

A final design alternative was selected by City Council in July 2023 and the final design phases are underway. Preliminary design was completed in August 2024 (30% design) and final design is underway (60% plan milestone delivered December 2024). Final design will be completed in March 2025. See Project Webpage for current design status and latest information). See **Project Schedule** in Section E, Project Readiness, for BUILD Grant schedule.

1 Areas of Persistent Poverty & Historically Disadvantaged Communities tool, US DOT, https://maps.dot.gov/BTS/GrantProjectLocationVerification/.

FIGURE B-1: PROJECT AREA BOUNDARY



C. PROJECT BUDGET

C.1. SOURCES, USES, AND AVAILABILITY

The City of Keene is requesting **$13,665,760** in Better Utilizing Infrastructure to Leverage Development (BUILD) funds for the Revitalizing Downtown Keene Project. This project will commence following a 2-year community-driven planning and design process leading to its construction. The overall project is estimated to cost **$22,678,200**, including final design, public engagement, permitting, construction and contract administration. The total project cost estimate includes a nominal contingency of about 8%.

Table C-1 provides a high-level breakdown of costs by major project component and phase. Major project components include final design and permitting, water and sanitary sewer sustainability improvements, mobility and resiliency improvements, traffic control, mobilization, project and construction administration, and a project contingency. The water and sanitary sewer replacement improvements are **funded 100% by local water and sewer funds** and will not be participatory in the BUILD Grant federal fund request.

This project was first introduced as a **high priority utility replacement project** given age and poor condition of the downtown utility infrastructure. The project includes the replacement of underground water and sanitary sewer utility mains and services. Appurtenant structure including valves, hydrants, manholes and service stops are included. Some sections of pipe will be upsized to account for future needs of the downtown corridor. This project has been planned for some time but unfortunately had been deferred through several budget cycles. The project is now prioritized for final design and construction is scheduled for late 2025. Funding for the utility replacement project have been documented in the Keene Capital Improvement Program and **fully funded by Keene City Council.**

In 2022, Keene City Council began a series of discussions with staff and key stakeholders to the utility replacement project to consider streetscape improvements following restoration from the water and sewer replacement project. Those discussions resulted in the solicitation for planning, engagement and engineering services to engage the broader Keene community and determine just how the top-side infrastructure would be restored. The Downtown Infrastructure Improvement Project completed a comprehensive study that now informs the **Revitalizing Downtown Keene project**.

The existing roadway sections along Main Street, Court Street, Washington Street, and Gilbo Avenue will be reinvented as complete street facilities, free of accessibility issues, added safety features designed to reduce vehicle crash incidents, and wider sidewalks to accommodate a generous pedestrian space and protected bicycle facilities. Innovative stormwater infrastructure will include Silva Cells and structural planting soils along Main Street, Central Square and Railroad Square. Bioretention and rain garden systems will be featured in open spaces and landscaped areas throughout the project area. Traffic signal upgrades will be required at the Main/West/Roxbury intersection to support better signal coordination, fire/police preemption, transit priority and improved pedestrian crossings. Other project costs include

DOWNTOWN INFRASTRUCTURE IMPROVEMENT AND RECONSTRUCTION PROJECT
CONSOLIDATED FUNDING OVERVIEW

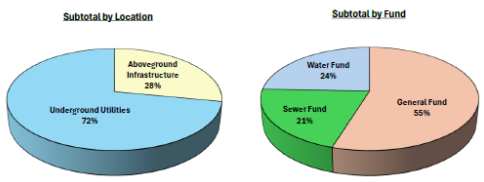
Corrected

The proposed Downtown Infrastructure Improvements and Reconstruction project will combine funding from a number of general fund programs as well as funds from the water and sewer funds. The table below summarizes the source of funds and the year that funding is requested. Since the project is planned to occur in three separate construction phases, the timing of expenditures may be different than the schedule shown below, based on the development of final phasing plans.

Description	Fund	Prior Yr.	FY25	FY26	FY27	Subtotal by Program
Street/Sidewalk/Other Improvements	General	$780,000	$1,204,000	$1,240,000	$1,277,000	$4,501,000
Traffic Signal Replacement	General	$196,800	$202,700			$399,500
Stormwater Resiliency Program	General	$128,970	$1,669,000	$1,311,900	$1,537,700	$4,647,570
Sewer Improvements	Sewer	$433,375	$615,300	$1,267,600	$1,305,600	$3,621,875
Water Distribution Improvements	Water	$453,246	$1,299,300	$1,911,800	$590,800	$4,255,146
Subtotal by Annual Funding		*$1,992,391*	*$4,990,300*	*$5,731,300*	*$4,711,100*	
Project Grand Total						$17,425,091

Subtotal by Location	
Aboveground Infrastructure	*$4,900,500*
Underground Utilities	*$12,524,591*

Subtotal by Fund	
General Fund	*$9,548,070*
Sewer Fund	*$3,621,875*
Water Fund	*$4,255,146*



Keene Capital Improvements Program funding.

TABLE C-1: PROJECT BUDGET SUMMARY BY PHASE

Funding Source	Design + Permitting	Phase 1	Phase 2	Phase 3	Project Total		
	Amount	Amount	Amount	Amount	Amount	BUILD	Local/Other
Utility Infrastructure *(100% Local)*							
Water Infrastructure	$0	$744,000	$558,000	$558,000	$1,860,000	$0	$1,860,000
Sanitary Sewer Infrastructure	$0	$616,000	$462,000	$462,000	$1,540,000	$0	$1,540,000
Central Solar Power	$366,000	$1,830,000	$0	$0	$2,196,000	$0	$2,196,000
Streetscape Improvements *(80/20% Share)*							
NEPA/ Permitting	$250,000	$0	$0	$0	$250,000	$200,000	$50,000
Mobility							
Streetscape Improvements	$0	$1,005,000	$1,999,800	$1,207,800	$4,212,600	$3,370,080	$842,520
Roadway/ Sidewalks/ Signals	$0	$2,340,000	$1,780,000	$1,425,000	$5,020,000	$4,436,000	$1,109,000
Resiliency							
Stormwater/ Resiliency Infrastructure	$0	$685,000	$540,000	$675,000	$1,900,000	$1,520,000	$380,000
Traffic Control/MOT	$0	$611,400	$540,000	$465,600	$1,617,000	$1,293,600	$323,400
Mobilization/Project Administration	$0	$615,000	$510,000	$500,000	$1,625,000	$1,300,000	$325,000
Contingency (5%)	$0	$322,400	$345,600	$264,600	$932,600	$746,080	$186,520
Construction Administration	$0	$400,000	$300,000	$300,000	$1,000,000	$800,000	$200,000
Project Total	$616,000	$9,168,800	$7,035,400	$5,858,000	$22,678,200	$13,665,760	$9,012,440
						60.3%	39.7%
BUILD Funds	$200,000	$4,783,040	$4,812,320	$3,870,400	$13,665,760		
Other Federal Funds - NBRC Timber for Transit	$366,000	$1,830,000	$0	$0	$2,196,000		
Non-Federal Funds	$50,000	$2,555,760	$2,223,080	$1,987,600	$6,816,440		
Total Project Costs	**$616,000**	**$9,168,800**	**$7,035,400**	**$5,858,000**	**$22,678,200**		

TABLE C-2A: 2020 CENSUS TRACT - PROJECT COST PER CENSUS TRACT

2020 Census Tract(s)	Total Costs per Census Tract
9713 (Central Square - North)	**$8,390,934**
9714.03 (Main Street - West)	**$7,257,024**
9711 (Main Street - East)	**$7,030,242**
Total Project Costs:	**$22,678,200**

TABLE C-2B: CENSUS-DESIGNATED PROJECT COSTS

Urban/Rural	Project Costs
Urban (2020 Census-designated urban areas with a population greater than 200,000)	**$0**
Rural (Located outside of a 2020 Census-designated urban area with a population greater than 200,000)	**$22,678,200**
Total Project Costs:	**$22,678,200**

raised crosswalk tables, Rapid Rectangular Flashing Beacons (RRFB's) at critical crossing locations.

Resiliency improvements such as new tree plantings, a reduction in overall impervious areas throughout the downtown corridor and expanded plaza and park spaces round out the proposed improvements.

The streetscape portion of the infrastructure improvement project will be funded by a request for BUILD grant funding to supplement a local cost share of 20% for the improvements. **Local matching funds for the streetscape portion is $3,432,400**. These funds have also been documented in the Keene Capital Improvement Program and fully funded by Keene City Council.

Table C-2a and **C-2b** summarize project fund expenditures based on Census Tract (CT) location for both the 2020 and 2010 census. In the case of Keene, census tracks have not changed. It is noted that CT 9714.03, which runs along the western side of Main Street is designated as an Area of Persistent Poverty (APP) as defined per US DOT'S definition of Area of Persistent Poverty and grant project location verification tool. Additionally, three other APP CTs are located just south (CT 9709.02 and 16 miles southwest (CT 9684 and 9685) of the project site. The Ashuelot and Cheshire Rail Trails and NH Route 10 connect these communities to downtown Keene. The City of Keene is a Census-designated rural area.

C.2. CONTINGENCY AMOUNT

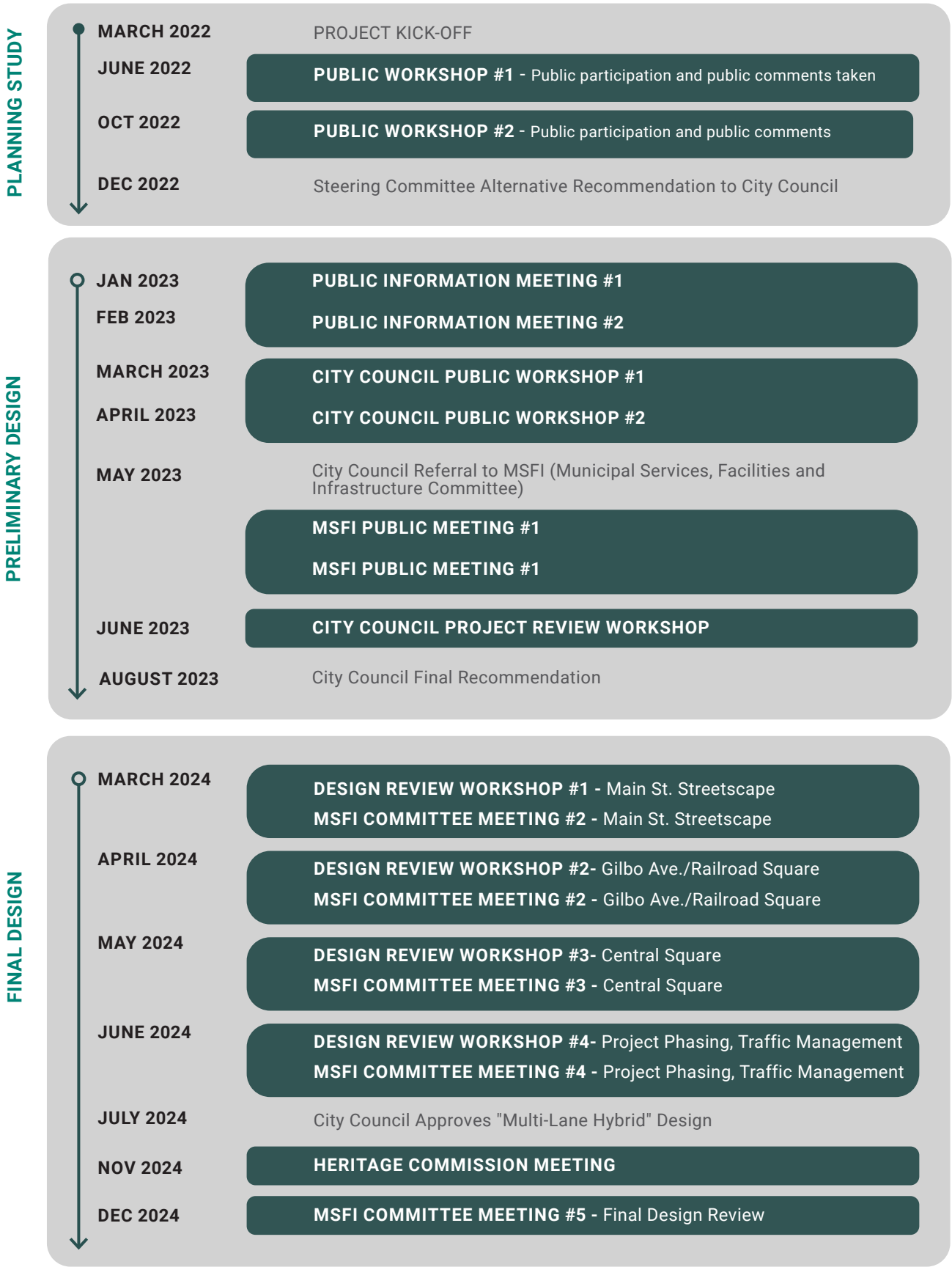
An 8% contingency has been added on all construction components and phases of work. Based on latest project cost estimates and related projects, this contingency amount is adequate to support overall project costs through final design. At the conclusion of final design that is nearly complete, revised project estimates will be adjusted to reflect 100% design completion.

C.3. LEVEL OF DESIGN

Acknowledging the significance of Downtown Keene as the community's economic engine with a commitment to maintaining its vibrancy, relevance, and functionality, the City of Keene, informed by previous planning initiatives including downtown infrastructure, utilities, housing, resiliency, and sustainability, sought to plan and study the comprehensive Downtown Infrastructure Improvement Project.

Ensuring broad community input, the Keene Mayor established an Ad-Hoc Steering Committee, a Technical Advisory Committee, coordinated with key City departments and collaborated with Council Advisory Committees. Originally planned as a 9-month project selection process, the **16-month planning phase** included two (2) open public workshops amongst seven (7) public Ad-Hoc Steering Committee meetings where six (6)

FIGURE C-1: PROJECT TIMELINE AND LEVEL OF EFFORT IN PROJECT DESIGN PROCESS



The Complete Public Participation Timeline is available on the City's website.

preliminary design alternatives for Main Street, three (3) preliminary design alternatives for Central Square, and three (3) preliminary design alternatives for the Gilbo Avenue/Railroad Square were presented. The Committee's efforts resulted in a preferred alternative recommendation to City Council.

In an effort to clarify the recommendations by the Ad-Hoc Steering Committee, Keene City Council expanded the project engagement process and hosted two (2) open public informational meetings and two (2) open public design workshops amongst three (3) City Council meetings, resulting in forwarding project recommendations to the Municipal, Services, Facilities, and Infrastructure (MSFI) Committee. MSFI hosted two (2) open public advisory committee meetings where a design alternative recommendation was returned to City Council for consideration.

A final design alternative was selected by City Council in August 2023 and the preliminary design phase of the project is underway. Preliminary design (30% design) is scheduled to be completed by August 2024 (see link to Project Webpage for current design status and latest information). Final design, included in the Revitalizing Downtown Keene project, will start shortly thereafter. See **Project Schedule** in Section E, Project Readiness, for BUILD Grant schedule.

C.4. COST ESTIMATES

Construction costs were estimated based on a corridor concept and New Hampshire Department of Transportation (NHDOT) average unit costs generally from 2023 to reflect recent cost escalations. Quantity assessments were derived from the corridor concept designs and preliminary design for most of the largest items. Estimates for smaller items were based on total corridor length and concept quantities. **Cost estimate worksheets** are provided in NHDOT format for detailed review.

C.5. COST SHARE OF NON-FEDERAL FUNDING MATCH

As outlined in Table C-1, total project cost is estimated at $22,678,200. The City of Keene seeks $13,665,760 or about 60.3% of the streetscape portion of the project costs with BUILD grant funding. The City has secured the funding commitment total of $6,816,440 or about 39.7% of the remaining project costs through the City's Capital Improvement Program (CIP). The City was recently awarded a Northern Border Regional Commission (NBRC) Timber for Transit Grant of $2,196,000 for the centralized solar PV canopy structure.

Local funding sources include Water Fund and Sewer Fund Bonds for 100% of the utility replacement improvements ($3,400,000) through the project funding years FY25, FY26, and FY27 (7/1/2024 though 6/30/2027). At current time, total water and sewer funds appropriated and approved are $2,801,221 with additional appropriations in FY26, providing adequate funding for the anticipated locally-funded project components of this project. Local funding sources include General Fund Obligation Bonds for the streetscape improvements totaling $4,181,470 in the same funding years outlined above. Additional appropriations for streetscaping are planned for FY26 and FY27. At current time, total general funds appropriated and approved are $9,548,070, again providing adequate available funding for this project. This is a significant buffer if needed to support any unanticipated costs not covered by the contingency.

As noted in the BUILD Grant Notice of Funding Opportunity (NOFO), projects located within rural areas as well as projects located within Areas of Persistent Poverty (APP) required no local funding match. In this case, the City of Keene is well prepared and has committed to over 34% of the costs of this project.

It is also important to note that the City of Keene has invested about $2.0 M in the planning study and final design development effort in order to ready this project for the 2025 grant appropriations.

CITY OF KEENE
NEW HAMPSHIRE

January 30, 2025

The Honorable Sean Duffy, Secretary
United States Department of Transportation
1200 New Jersey Avenue, S.E. Washington, DC 20590

RE: ***Revitalizing Downtown Keene***
2025 BUILD Grant Application
Funding Commitment Documentation

Secretary Duffy,

This letter is intended to serve as documentation of the City of Keene's commitment of local matching funds for the above referenced grant application.

As outlined in Section C. Project Budget, Table C-1, total project cost is estimated at $22,678,200 for the ***Revitalizing Downtown Keene*** project. The City of Keene seeks $13,665,760 or about 60.3% of the project total costs with 2025 BUILD grant funding. The City has secured funding for project costs totaling $6,816,440 or about 39.7% of the total project costs through funds secured in the City's Capital Improvement Program (CIP).

Local funding sources include Water Fund and Sewer Fund capital reserves and bonds totaling 100% of the utility replacement improvements (estimated $3,400,000). Total water and sewer funds appropriated to date are $2,801,221. Additional funds will be appropriated in FY 26 (7/1/25), providing adequate funding for the anticipated locally-funded project components of this project. Other local funding sources include Tax Incremental Financing Funds and General Fund Obligation Bonds for the streetscape improvements, mobility and stormwater resiliency and other related project elements (estimated $19,278,200) in the same funding years FY25 - FY27. To date, total general funds appropriated and approved are $4,181,470, Additional funds will be appropriated in FY 26 & FY27, providing adequate available funding for this project. The City has planned a significant financial buffer if needed to support any unanticipated costs not covered by the contingency outlined in the BUILD Grant application.

This communication confirms the availability of funds noted above and affirms the City of Keene's capability to raise and fund our obligations to this project.

Sincerely,

Elizabeth Ferland

Elizabeth A. Ferland
City Manager

CITY OF KEENE
PUBLIC WORKS DEPARTMENT
350 Marlboro Street
Keene, NH 03431
(603) 352-6550
KeeneNH.gov

D. MERIT CRITERIA

D.1 SAFETY

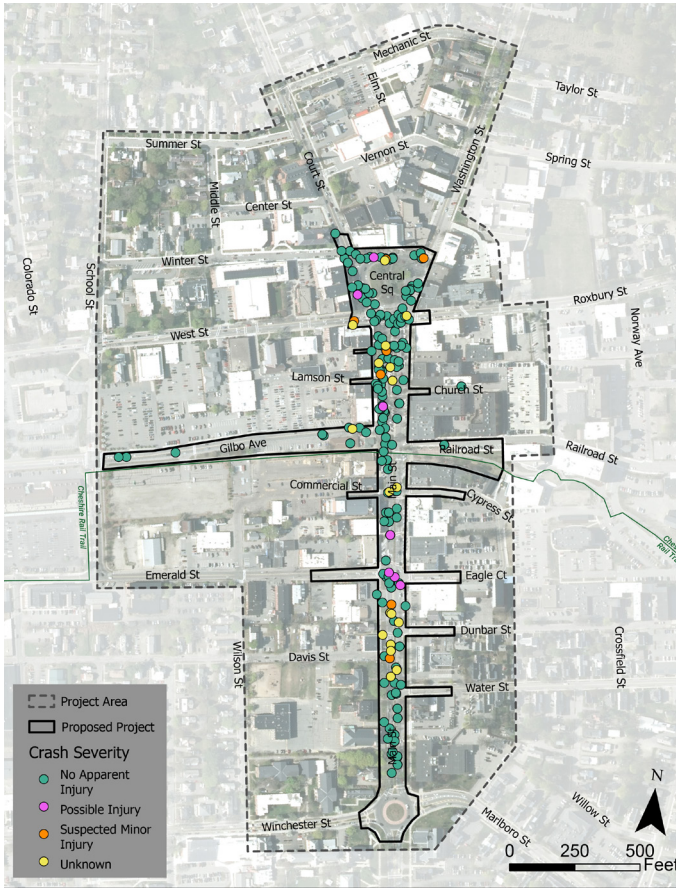
KEY IMPACTS TO SAFETY:

- ***Pedestrian and bicycle focused complete streets improvements increase access for people walking, biking, rolling, and taking transit in this underserved community***
- ***By reallocating space within the public right-of-way, Downtown Keene has shifted its top priority to pedestrian and bicycle safety by introducing NH's first sidewalk grade bicycle cycle track***

According to the Keene Public Works Department, analysis of City streets as part of the Vision Zero Plan, Main Street as well as the area within Central Square (Washington Street and Court Street) are among the highest crash corridors within the City of Keene. Multi-lane roadways, wide lanes within Central Square, as well as center median parking along Main Street from the intersection with West Street and Roxbury Street to the intersection with Gilbo Avenue creates additional conflict points within the corridor and invites mid-block "jay walking" pedestrian crossings. The existing downtown corridor has no bike lanes nor dedicated bicycle facilities, and the lack of pavement markings and adequate lighting, pedestrian and bicycle safety has become a top priority. Additionally, the Cheshire Rail Trail crosses Main Street at the Gilbo Avenue/Railroad Street intersection where sight distance is compromised by a sharp deflection in the Main Street corridor alignment and the shared use path crossing is understated and a concern for safety.

The Project is designed to narrow or reduce travel lanes, slow traffic and improve access for people walking, biking, and rolling within the Downtown corridor. The project introduces complete streets elements that slow traffic and provide protected and higher-visibility bike paths and pathways for vulnerable uses. Additional benefits will be realized by:

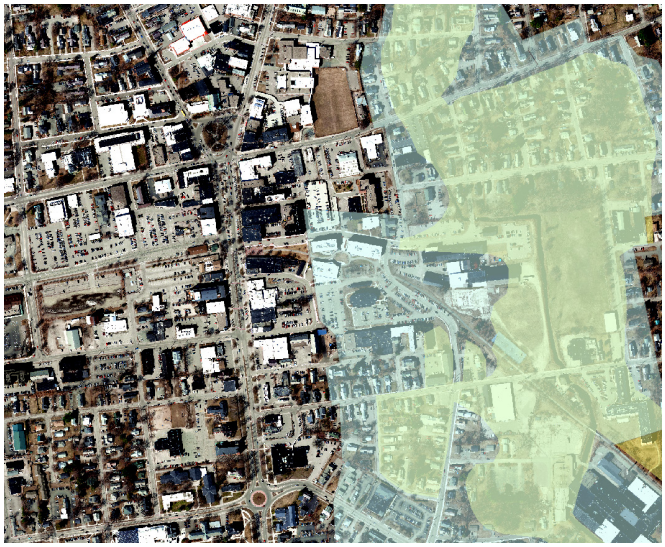
FIGURE D-1. CRASHES



- Roadway travel lanes will be reduced to **improve pedestrian visibility and shorten crosswalks**
- Center median parking will be removed to **eliminate the conflict threat of vehicles** entering and exiting spaces opposite from one another, as well as frequency of pedestrians "jay walking" to get to sidewalks.
- With the reallocation of space within the right-of-way by eliminating center median parking, the sidewalk panel can be widened **to introduce wider flexible sidewalk space as well protected bike lanes at the sidewalk grade**.
- The inclusion of **protected bike facilities** at the sidewalk grade **will be a first in a NH community** and will have a transformative safety benefit. Municipalities with protected bike facilities experience, on average, 44% fewer deaths and 50% fewer serious injuries across all user groups (not just bicyclists) than cities without such facilities.
- The introduction of bollards for added sidewalk and pedestrian safety

- According to the BCA, the addition of improved bike/ped infrastructure will result in an annual reduction of 19.51 No Injury (O) crashes per year, 0.17 Possible Injury (C) crashes per year, and 0.67 Non-incapacitating (B) crashes per year.
- **Pedestrian-focused safety improvements** include **raised crosswalks/bike lanes** to sidewalk grade at all side street intersections with Main Street that will benefit walkers and cyclists alike.
- Recognizing the significance of the Cheshire Rail Trail crossing on Main Street at Gilbo Avenue and Railroad Street, a Main Street wide raised crossing table with activated **rapid flashing beacons (RRFB's)** will be added to improve crossing sight lines and prioritize crossings. This location will become the hub to Main Street and downtown Keene from locations hundreds of miles away.
- Added bus stop locations offer transit riders the benefits of more stop frequency and **shaded sheltered waiting areas**.
- Signal phasing improvements and approach lane modifications are designed to reduce conflicts and **decrease angle-crash conflicts**.

FIGURE D-2. STORMWATER FLOODING ALONG BEAVER BROOK



Nuisance flooding at the intersection of Eagle Ct. and Main Street.

D.2 ENVIRONMENTAL SUSTAINABILITY

KEY IMPACTS TO SUSTAINABILITY:

- *Preservation and increase in tree canopy will provide natural air and water quality benefits*
- *Increase in beneficial green infrastructure elements and stormwater improvements will reduce flooding in high-risk areas*
- *Reducing the effects of heavy precipitation events reduces flood risk and flood-related damage to transportation-related infrastructure and other critical infrastructure*
- *High quality multimodal facilities will induce people to other modes of transportation resulting in reducing vehicle miles traveled and carbon emissions*

Like many cities, Keene is facing the consequences of a changing climate, including extreme temperatures, heavy and prolonged precipitation, and inland storms. According to recent experiences, stormwater flooding already impacts the downtown areas including roadways, sidewalks and transit routes along Main Street, Gilbo Avenue and Central Square. In fact, Main Street and Gilbo Avenue will be impacted by long-term flooding as noted in Figure D-2.

The Project seeks to improve environmental sustainability and quality of life in this underserved and overburdened neighborhood through focused interventions in two major areas: transportation and resiliency.

Specific strategies that the City will pursue include:

Transportation

- With a focus of prioritizing the reallocation of ROW space, the safety opportunities introduced through complete street solutions result in a modal shift from dependency on motor vehicles to walking, bicycling and the use of transit According to the BCA analysis, we can expect a reduction of 33,336 annual vehicle miles traveled.
- Redesigning these corridors to prioritize people walking, biking, and taking transit will further reduce the release of air pollutants from private vehicle travel. By providing wider sidewalks, protected bicycle facilities and improving the regional trail network connectivity, this project will reduce transportation-related environmental impacts associated with the City's growing economy. Based on the reduction of 33,336 vehicle miles traveled, we expect a reduction of 29,397 pounds of annual CO2 greenhouse gas emissions.
- Installing infrastructure for electric vehicle (EV) charging in the public right of way will promote greener transportation choices for others while supporting existing EVs.

Resiliency

With opportunity to repurpose space in the public right-of-way, this project will include resilient green infrastructure solutions, landscaped medians, stormwater bumpouts, and silva cell treatments that store, treat, and mitigate stormwater runoff flows and aid in water quality filtration. Innovative stormwater solutions include bio-swales, permeable pavements, and infiltration systems allow the recharge of water back into the ground.

Preservation of street trees is a clear priority for the community and the addition of street trees to provide shade and reduce the heat risk to residents is critical. The Downtown features 76 trees today and the final design will add 145 trees for a tree canopy total of 221. The expanded tree canopy reduces air-borne, transportation-related pollutants that cause health issues and improve livability.

To promote energy efficiency and reduce the amount of energy used to support downtown infrastructure, the project will include co-locating a centralized solar system on a multi-purpose canopy structure to provide solar energy offsets to downtown lighting and electrical services, while also serving the needs for heat cover and downtown events.

There are 30 stormwater bumpouts proposed in the downtown corridor. Each bumpout will treat approximately 0.25 acres of impervious surface for a total of 7.5 acres of managed impervious surface. The stormwater bumpouts will support vegetation that will not only provide air quality benefits but also reduce heat island effects in the area.

Along the Main Street raised island, a band of Silva Cells is proposed which will provide storage for stormwater and contribute to tree growth. As a result of the Silva Cells the trees will grow faster with a larger canopy which will increase their potential for managing stormwater and provide much needed shade.

D.3 QUALITY OF LIFE

KEY IMPACTS TO QUALITY OF LIFE:

- ***Total shift in focus by reallocating downtown right-of-way space from auto-centric design to prioritize pedestrian and bicycle safety through complete streets design***
- ***Pillars of the Vision 20-Forward project including vibrant neighborhoods, connected mobility, and livable housing, will integrate the downtown transportation systems and drive future mixed-use growth***
- ***Balancing transportation design with environmental resiliency will reduce impervious cover, reduce heat island effect, and mitigate flooding while improving stormwater quality in the Downtown***

Downtown Keene is the economic center of the community and the southwestern New Hampshire region. The downtown is home to many community assets such as community centers, minority-owned businesses, artist communities, business incubators,

historic homes, and popular to recent immigrant communities. The majority (57%) of the residents within the Project Area are low-income and rely more heavily on transit and alternative active modes of transportation in commuting to work. About 7% of residents are people of color, 12% have a disability, and 10% are seniors age 65 or older. About 6% have no vehicle access which is greater than that of Keene residents as a whole, Cheshire County, and the State.

A community's social vulnerability is influenced by a variety of social conditions that impact its ability to prevent or adapt to economic crises and climate change. The CDC/ATSDR Social Vulnerability Index ranks Keene's census tracts at a high level of vulnerability compared to state and national averages. This indicates that the local population faces a higher proportion of socioeconomic, household, minority, and/or housing conditions that can compromise quality of life. This project prioritizes improvements that will redefine the downtown's transportation network, establish livability standards for future development, and create new ways to protect environmental resources in the downtown.

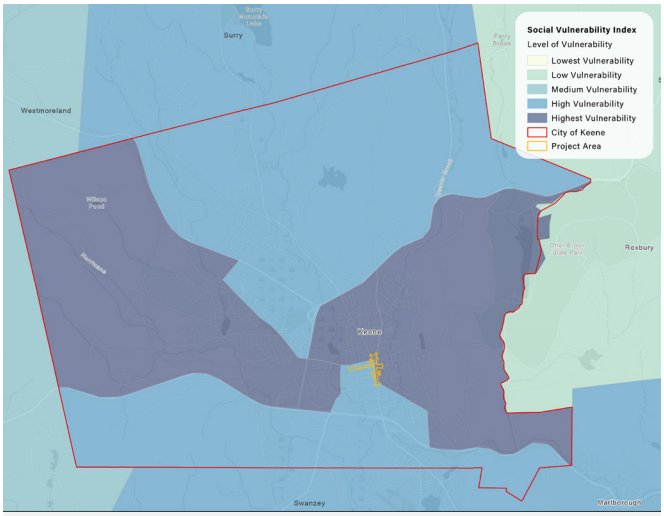
Transportation Quality

The Keene Downtown project increases quality of life primarily by increasing transportation choice for individuals that rely on alternative means to get around. Through the public review process, participants continued to remark that the current downtown "seems to be focused on cars and parking." **This project is a total shift in focus by prioritizing the reallocation of public space for pedestrian and bicycle safety**. Reduced lane widths and mid-street parking give way to widened sidewalks, protected bicycle lanes, and raised crosswalks. **Some 33,336 annual vehicle miles traveled** will be reduced resulting in less barriers to access, less traffic congestion and delay, and more opportunity for safe, protected alternative access to downtown, the place where residents and workers live, work, worship, learn, and play.

Creating a More Livable Community

Not only can the reallocation of public space offer a better transportation corridor, designing a more livable corridor that integrates transportation needs and land use opportunities can be the catalyst to new integrated mixed-use development that offers a diversity of housing types and new commercial space.

FIGURE D-3. SOCIAL VULNERABILITY



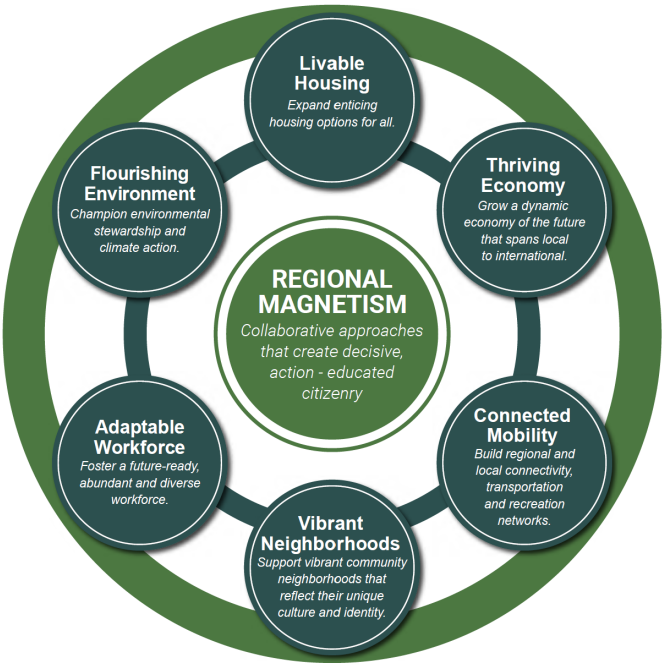
Map generated from the CDC/ATSDR Social Vulnerability Index. The social factors used to determine vulnerability include socioeconomic status, household characteristics, racial and ethnic minority status, housing type, and access to transportation.

The Vision Keene 20-Forward project is a robust, inclusive, and forward-looking planning process which aims to position the city on a continued path of becoming a diverse, resilient, and vibrant community. A fundamental premise is that the world is changing fast, and the city needs collaborative and decisive thinking to help envision how it will thrive over the next 10-15 years.

Running parallel to the Downtown Improvement project, the Vision 20-Forward project identifies critical housing shortages in Keene as a major impediment to growth and resident attraction. The issue is a combination of the lack of available residential units, and a mismatch between the type of units people want and the units available. Housing availability and affordability is not a local issue, driven by growing populations in urban and regional centers, and the increasing number of smaller households. Keene has an opportunity to use its collaborative approach to take some bold actions to address the current and future housing needs.

The Gilbo Avenue corridor is located centrally in the downtown project area and represents the

FIGURE D-4. VISION KEENE 20- FORWARD STRATEGIC PILLARS



largest opportunity for future redevelopment in the downtown. The City has recognized this for years and now with support by the six (6) pillars of the Vision 20-Forward project and recent zoning amendments that allow for increased density, building heights and mixed-use development, the Keene Downtown project will be the catalyst to launch future development in the corridor.

Currently, vacant and under-developed properties along Main Street, Gilbo Avenue and Emerald Street total about $3,381,500 in assessed value. With continued **careful planning, focus on vibrant neighborhoods, connected mobility, and livable housing; and investment in the Main Street, Gilbo Avenue and Emerald Street core through this BUILD grant**, the City expects these areas will support some 1,515 diverse residential units with up to 450,900square feet of new commercial space in the next 20 years. **Total value would be upwards to $151,337,500 in assessed value.**

Creating a Flourishing Environment

Climate adaptation is one of the defining issues of the coming decades and in Keene it will require rethinking some aspects of urban design and development to include greater environmental buffers and protection of resources.

A safe environment for those with health risks are key to the quality of life for all. The design includes reducing and narrowing lane widths to create space for an expanded tree canopy of 221 total trees. By adding 145 new trees to the previous 76 trees in place, the expanded canopy will create added shade, reduce overall heat island effect, and promote a welcoming and safe environment downtown.

The project will improve the quality of life of residents in a number of ways, including:

- Safer connections to transportation alternatives including walking, biking and bus transit, enhancing residents' connection to major employment centers, vital healthcare institutions, retail sites, and other critical destinations at the regional level.
- Increase in tree canopy, green infrastructure to increase health and safety of area residents and provide cooling benefits and additional street buffer for all users.
- Reducing the effects of high heat days, which in turn reduces the amount of fatigue associated with travel during hotter days, helping more people to choose walking, rolling, and biking to community destinations.
- Additional transit stops along Main Street will encourage more use and improve current service levels in Downtown.
- Landscaped bump outs, protected crossings, and improved mid-block crossings with rapid flashing beacons increase safety for non-motorized travelers.

Proposed crossing at Central Square.

Additional 360-degree views of the proposed project are available on the project website here.

D.4 MOBILITY AND COMMUNITY CONNECTIVITY

KEY IMPACTS TO MOBILITY AND COMMUNITY CONNECTIVITY:

- *Better connections to sections of downtown that are not on Main Street*
- *Improves the streetscape and pedestrian environment supporting local businesses and supports revitalization of the downtown corridor*
- *Provides residents with better connections to educational, training, and workforce development opportunities*

The Downtown corridor is challenged by a lack of safe pedestrian and bicycle accommodations. Figure D-5 illustrates only limited portions of the corridor that have dedicated bicycle lanes which is Washington Street north of Central Square. This section is disconnected from the rest of the Downtown neighborhood to the south.

The Revitalizing Downtown Keene Project will include a range of improvements for downtown vehicle traffic, parking, bus access, pedestrians, and bicycles. In addition, the majority of the downtown corridor does not have reliable ADA accessible sidewalk sections and curb ramps at street crossings further hindering accessibility to individuals with limited mobility.

Overall project universal design features will include:

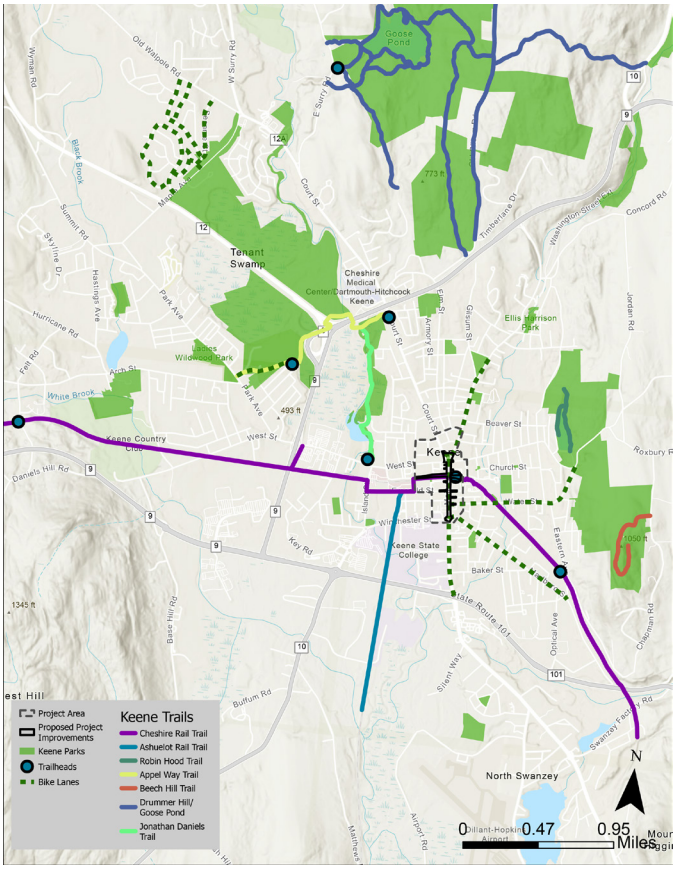
- Wide sidewalks and pathways
- Shaded bus shelters
- Micro parks and areas off main paths for respite
- Well-lit and consistent lighting
- Green infrastructure including street trees and bioswales to reduce heat, buffer street noise, and reduce glare
- Upgrade signalized intersections with audible warnings
- Added pedestrian activated rectangular rapid flashing beacons (RRFB's) at mid-block crosswalks

The Project will enhance pedestrian and bicyclist connectivity, access, and safety throughout the downtown corridor, home to schools, the library, City Hall, Keene State College, the community center for every stage of life, grocery stores, cultural and entertainment sites, and centers of learning and worship. This in turn encourages thriving communities where people can truly work, live, and play without a car.

The project will proactively incorporate the latest in universal design, including targeting improvements at intersections and mid-block crosswalks. This includes use of detectable warning strips, audible crossing cues, and pedestrian-level lighting. In addition, the Project provides these additional community connectivity benefits:

- Safe pedestrian and bicycle connections to all downtown areas from the Cheshire Rail-Trail to the rest of Keene areas to the north, south, east and west.
- Reconstructed sidewalks including ADA-accessible curb ramps and pedestrian-scale lighting for better visibility.
- Dedicated bicycle lanes at sidewalk grade along Main Street, Gilbo Avenue, Washington

FIGURE D-5. EXISTING RAIL TRAIL AND PATHWAYS FACILITIES



Street and Court Street transforming this downtown corridor into a multimodal hub that allows people to access downtown through a variety of transportation choices.

- Safer mid-block crossings with cross walk lane markings and rectangular rapid flashing beacons (RRFB's) helping to provide safe cross-neighborhood connections throughout the corridor.

D.5 ECONOMIC COMPETITIVENESS AND OPPORTUNITY

KEY IMPACTS TO ECONOMIC COMPETITIVENESS:

- *Addresses a principal project concern by integrating expanded transportation choice and universal design principals to downtown neighborhoods experiencing impacts that limit access*
- *Delivers primary project purpose of creating an opportunity corridor to promote local inclusive economies and entrepreneurship by defining the Gilbo corridor and the expansion of downtown and long-term economic growth*
- *Recognizes the importance of Keene's rail trails and pathways and the economic significance of having a downtown center connection*

Today's downtown corridor essentially serves as a barrier to connectivity, from measurable threats such as crashes and lack of protected pedestrian and bicycle facilities, to qualitative issues such as heat island effects, a threatened tree canopy and excessive roadway width. Area residents need a reliable transportation system for access to jobs and activities. Further, the project area is one with lower income residents, for whom owning a vehicle is likely a large financial burden. However, the built environment is not friendly to other modal choices besides driving, despite the expense.

The Project will transform the downtown corridor to contribute to the local economy. The design will be safer and more convenient for residents and visitors to walk and bike between destinations, improving the viability of small local businesses.

In a historic city such as Keene, there are limited areas of developable land remaining in the Downtown near major economic destinations and potential transit hubs. The City needs to encourage development to remain competitive, attract new jobs, and increase the tax base to provide necessary City services for the current residents, while steering development to the right locations.

However, opportunities for Keene's economic success is limited given its outdated transportation infrastructure. This BUILD grant project enhances economic competitiveness by creating opportunity to expand transportation choice and unlock the potential for redevelopment within the downtown core, essentially expanding the footprint of Downtown Keene.

Economic Growth and Development in Downtown Keene

The Gilbo Avenue corridor is about a 13-acre area located in the core of downtown Keene. The corridor is primarily made up of streets, large parking lots and unused open and vacant space. The Cheshire Rail Trail crosses through the area running south of Gilbo Avenue and connects to abutting communities to the east and west of Keene.

Also known as the Arts Corridor (as outlined in the Arts and Culture Corridor Study), the corridor is an ambitious and visionary project looking to reinvent a core portion of downtown Keene. The corridor will define the City as an active and vibrant neighborhood connected to downtown businesses and residences as a walkable community.

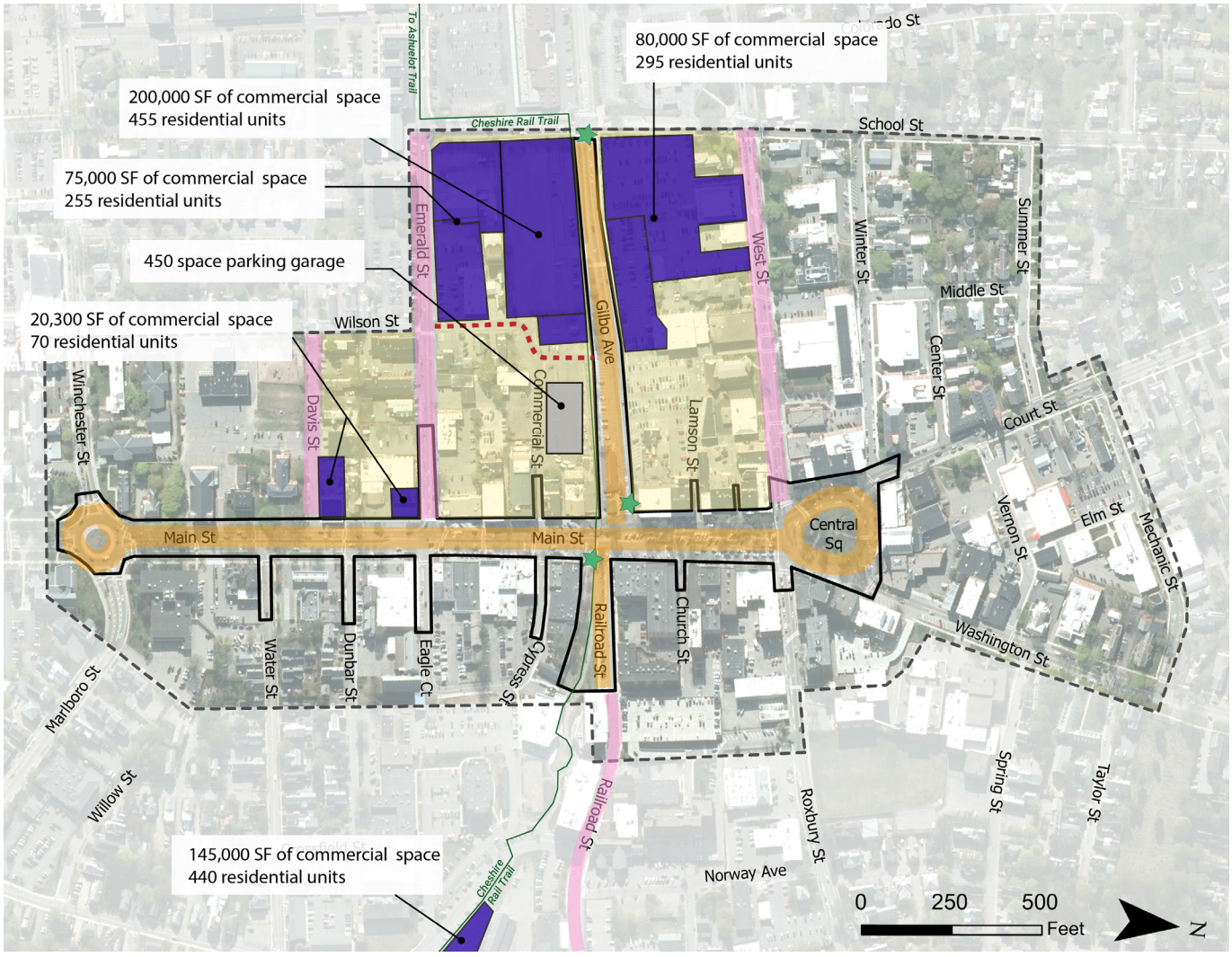
Since the completion of the corridor study in 2020, the project has not advanced given limited resources. The **Revitalizing Downtown Keene** project presents an incredible opportunity to invest in the Gilbo corridor as a jump-start to expanded development. New utility infrastructure and a multi-modal streetscape along Gilbo Avenue will create a defined shared-use boulevard where wide pavement widths will be reduced making way for wider sidewalks, bicycle facilities, and flexible plaza and open spaces. Connecting both east sides and west sides of Main Street create instant depth to downtown Keene and abundant opportunity to create new and exciting spaces and destinations.

Recently, the Vision 20-Forward project identified critical housing shortages in Keene as a major

impediment to growth and resident attraction. Housing availability and affordability is not a local issue, driven by growing populations in urban and regional centers, and the increasing number of smaller households. Keene has an opportunity to use its collaborative approach to take some bold actions to address the current and future housing needs. The Gilbo Avenue corridor represents the catalyst for opportunity for future redevelopment in the downtown. The City has recognized this for years and now with support by the six (6) pillars of the Vision 20-Forward project and recent zoning amendments that allow for increased density, building heights and mixed-use development, the Keene Downtown project will be the start to future development in the corridor.

Currently, vacant and under-developed properties along Main Street, Gilbo Avenue and Emerald Street total about $3,381,500 in assessed value. With continued careful planning, focus on vibrant neighborhoods, connected mobility, and livable housing; and investment in the Main Street, Gilbo Avenue and Emerald Street core through this BUILD grant, the City expects these areas will support some 1,515 diverse residential units with up to 450,900 square feet of new commercial space in the next 15-20 years. **Total value would be upwards to $151,337,500 in assessed value.**

FIGURE D-5. GILBO AVENUE CORRIDOR AS A CATALYST FOR FUTURE DEVELOPMENT



Creation of Jobs and Opportunity

Funding the Revitalizing Downtown Keene project will bring immediate job creation and near-term economic activity associated with the design and construction of the streetscape improvements and is essential to the long-term development of jobs and economic growth in the Keene community. With about 8-months of design coordination and permitting and three (3) seasons for construction, the project will result in direct employment for a number of workers, will expand the current employment base in Keene and the region, and infuse much needed income to the area. Design and construction-oriented employment includes all jobs created by respective design and construction firms and material and equipment suppliers that work directly on the project. There have been several studies that predict short-term direct job creation from construction projects, including data provided by the Federal Highway Administration (FHWA). A more recent study by the Political Economy Research Institute (PERI) in conjunction with the University of Massachusetts Amherst concluded that roadway infrastructure projects that include pedestrian and bicycle facility components create a considerable number of jobs. The report includes case study analysis of the City of Keene and its continued investment in complete streets. Total construction related jobs expected are 13,000 per billion (13 per million). **This $22 million project is expected to create 260 direct jobs.**

In addition to jobs created as a result of construction projects, public investments create indirect and induced long-term jobs supporting the project. Utilizing FHWA and PERI values for the estimation of indirect and induced jobs, it is expected that this project will generate 3.3 indirect jobs per million and 5.7 induced jobs per million in the community, **totaling 182 indirect and induced jobs**. **The total value of all created jobs is estimated at $87 million over the projects' 3-year life cycle.**

The project is expected to generate more than 442 jobs during construction. In that, the City of Keene's purchasing and procurement policies require that projects must promote the creation of job opportunities for low-income workers. Many of the jobs created as a result of the construction effort are generally for lower income, lower-skilled general laborers. Additionally, Keene policy requires that projects must provide opportunity for small businesses, minority and disadvantaged business enterprises, and disabled veteran-owned businesses. Keene's policies also require the hiring of contractors with proven performance in labor practices, and the adherence of project practices that are consistent with American civil rights and equal opportunity laws.

Studies have also shown the creation of permanent jobs based upon the development square foot potential. The Local Planning Handbook by the Metropolitan Council of St. Paul, MN concluded that based upon a development potential of 450,900 square feet of new commercial space in Downtown Keene, 490 permanent jobs would be created. **The total value of all created jobs is estimated at over $31 million.**

Benefits to Downtown Tourism

Most notably to mention is the unique connections to downtown by its area rail-trails and pathways and the positive economic impacts it can drive. The Strengthening Connections: Downtowns & Trails report completed by the University of NH Cooperative Extension on behalf of the City of Keene outlined that trails and natural spaces provide many benefits and services - some of which are quantifiable (such as spending on recreation) and others, such as improving water quality and flood control, as less easily quantified but nonetheless important. These "ecosystem services," which are essentially benefits humans receive from nature, all contribute to community wellbeing and quality of life.

In 2017, the Outdoor Industry Association reported significant economic benefits from the outdoor recreation economy and when outdoor recreation intersects with a community's downtown center, strong economic outcomes follow. The outdoor recreation economy accounts for $887 billion in annual spending, supports nearly 7.6 million jobs, and generates $124.5 billion in annual federal, state and local tax revenue.

By focusing on rail trail and pathway connectivity to downtown, the **Revitalizing Downtown Keene** project will incorporate features like a raised table crosswalk with high visibility signage and pavements to recognize the importance of the trail crossing resource. Connecting Railroad Square to

the Gilbo corridor now provides a pedestrian and bicyclist priority connection to downtown and its new protected bike lanes and widened sidewalks. The vast network of City rail trails and pathways that stretch hundreds of miles to and from the Keene community now connect to downtown Keene and can serve as an alternative transportation and recreation corridor. While difficult to estimate, we expect a share of the outdoor recreation economy in Keene.

D.6 STATE OF GOOD REPAIR

KEY IMPACTS TO STATE OF GOOD REPAIR:

- *The Project prioritizes the replacement of core water and sanitary sewer utilities throughout the downtown area while reallocating space within the right-of-way to prioritize safety, expansion of multimodal access, and resilient and sustainable design for stormwater management*
- *The projects' focus on state of good repair is centered on smart design that promotes ease and consistency to reduce operations and maintenance costs*

Keene's downtown serves as an economic, social, and cultural hub for the City and surrounding Monadnock Region. Over the last 10-15 years, it has seen a transformation from retail to more entertainment-oriented activities as residents, visitors, and other users' needs and interests have changed alongside economic shifts. Meanwhile, the last major downtown revitalization in Keene occurred in 1988 and this work has supported the Downtown for the last 30 years.

Most of the existing underground utility infrastructure services date back over 120 years, and roadway, sidewalk and open space areas have not been fully universally designed. Revitalization efforts in 1988 only included limited improvements and as such, Downtown infrastructure has seen failures and issues with capacity that are expected to continue and to increase. Operations and maintenance costs have never been higher to keep up with aging infrastructure. Keene's existing downtown environment and aging infrastructure pose several issues and concerns

Keene's existing downtown environment and aging infrastructure pose several issues and concerns surrounding utility reliability, environmental impacts, traffic congestion, pedestrian and cyclist safety, limited access to public transit, and universal accessibility to the downtown's public realm and businesses. Recognizing conditions are critical, the City has prioritized the replacement of underground water and sanitary sewer infrastructure to ensure it can effectively address future demand and development needs. With this comes the opportunity to transform the downtown streetscape into a dynamic corridor that accommodates expanding community uses, prioritizes multimodal and active transportation access, expands connections to downtown, and integrates climate adaptation and resiliency measures. New infrastructure can address traffic and public safety issues, create a universally accessible downtown, support a changing climate, and meet the demands on infrastructure that support the needs of Keene's community over the next fifty years.

The Revitalizing Downtown Keene Project will replace core utility infrastructure to a state of good repair to serve the downtown's evolving resident and business population, improve intersection operations, upgrade the walking and cycling environment, create new flexible community spaces, and incorporate resiliency elements that will reduce flooding, support better air quality, and reduce the impacts of heat island effect. Reduction in roadway widths, crosswalk and sidewalk improvements, and new sidewalk grade bike lanes will prioritize people over cars and support the wider use of multi-modal transit across a greater diversity of groups including those with high social vulnerabilities. Furthermore, the project will cement Keene's downtown as a hub within the regional trail network that threads through different neighborhoods and connects to areas of persistent poverty (APP) communities within and surrounding Keene. The increased accessibility provides alternative transportation choices for people to connect to downtown and the wider region.

The existing conditions of Downtown infrastructure including water and sanitary sewer

TABLE D-2. HOW PROJECT IMPACTS COMMUNITY CHALLENGES

Downtown Keene Challenges Today	Community Impact	Project Corridor Benefits	Community Impact
Aging utility infrastructure	Service disruptions and water quality issues	Upgraded water, sanitary sewer, drainage, and private utility infrastructure	High-quality and consistent utility services for residents and businesses that can withstand environmental challenges
Traffic congestion and delays	Increased travel times; Concentrated vehicle emissions and degraded air quality	Dedicated bike lanes increase safety and feasibility of non-vehicular transit to and from downtown	Reduced travel times for commuters and alternative mobility options for residents and visitors accessing downtown
Flood-prone areas	Creates delays and property damage	Improved drainage and stormwater management features manage excess water during heavy rain events	Safer environment for all users and less infrastructure and property damage
Lack of accessibility for all users	Creates barriers to the public realm and businesses for users of different abilities	Universal design features, wide paths, ADA-accessible street crossings and curb cuts	Increased use by everyone, including children, people with disabilities, and seniors
Wide streets	Creates unsafe pedestrian environment	Reduced street widths on Main Street and Central Square	More comfortable environment for pedestrians to walk along and cross Main Street
Narrow sidewalks	Limits pedestrian travel and does not accommodate outdoor dining or public realm amenities	Flexible space and expanded sidewalk area added along Main Street	Creates space for sidewalk commerce and a safer, more enjoyable walking environment
Limited to no bicycle facilities	Makes biking downtown dangerous and deters cycling as a viable transportation option	Separated bike lanes at sidewalk grade and connections to regional rail trail network	Safer and more inviting conditions for biking that can connect users to downtown Keene and beyond
Busy intersections with dangerous pedestrian crossings	Creates congestion, an unsafe environment for users, and a higher likelihood of crash occurrences	Crosswalk improvements, signalized intersection upgrades, flashing pedestrian beacons at mid-block crossings, and improved lighting	A safer environment for all users that reduces total downtown crash occurrences and the likelihood of fatal or serious injuries.

mains, storm drainage systems, street pavements, sidewalks, and crosswalk ramps all contribute to high annual operations and maintenance costs. To manage its assets city-wide, the City maintains an extensive asset management data-base on street pavement and sidewalk conditions that support its comprehensive Capital Improvement Plan. The following infrastructure assessments are summarized.

Main Street:

- Ramps: 50% of the ramps on Main Street are ADA non-compliant.
- Sidewalks: Sidewalks are in fair condition with a Sidewalk Condition Index (SCI) of 75. Sidewalk grades, irregularities and tripping hazards reduce overall effectiveness.

Pavements: Pavement areas for Main Street is in fair condition with a Pavement Conditions Index (PCI) of 68. Sections of Main Street are on the verge of deteriorating into poor condition and requiring restoration beyond resurfacing in the next few years.

Washington Street:

- Ramps: 25% of the ramps on Washington Street are ADA non-compliant.
- Sidewalks: Sidewalks are in good condition with an SCI of 89.
- Pavements: Pavement area for Washington Street (within the Central Square area) is in fair condition with a PCI of 58. Sections of pavement area from Roxbury Street to Washington Street is in poor condition and needs to be reconstructed.

Court Street:

- Ramps: 50% of the ramps on Court Street are ADA non-compliant.
- Sidewalks: Sidewalks are in good condition with an SCI of 83. However, some sidewalk grades, irregularities and tripping hazards reduce overall effectiveness.
- Pavements: Pavement area for Court Street is in fair condition with a PCI of 56. Sections along Court Street as well as West Street are in poor condition and need to be reconstructed.

Gilbo Avenue:

- Ramps: 25% of the ramps on Gilbo Avenue are ADA non-compliant.
- Sidewalks: Sidewalks are in good condition with an SCI of 80.

- Pavements: Pavement area for Gilbo Avenue is in fair condition with a PCI of 58. Sections along Gilbo Avenue are excessively wide and will be narrowed to provide traffic calming.

Water Infrastructure:

- Based on 2022 unaccounted water loss, 121.34 million gallons of water has been lost due to leaks system wide, Downtown water systems account for about 1.37% of the total network pipe area. The estimated lost water from leakage is about 2,223 HCF. Proposed replacement of water mains and services assumes loss rate will reduce from 1.8% to 2% within the project area.

This project will address the non-compliant and substandard conditions throughout the Downtown corridor. In addition to maintaining the performance of the infrastructure within the downtown corridor in a state of good repair, it's critical to invest in and modernize the assets to be prepared for the impacts of climate change, so that the same or better level of service can be provided, and more climate friendly modes can be prioritized. Furthermore, by increasing access to alternative modes of transportation (bus transit, walking, rolling, and biking) this project will help to reduce single occupancy vehicle traffic thereby reducing wear and tear on roads from personal vehicle use.
The City of Keene has the necessary equipment and budget to maintain this infrastructure once it is reconstructed. In addition to standard snow removal, the addition of bioswales and green infrastructure will require yearly inspection and period maintenance but is anticipated to reduce costs related to stormwater flooding and related damage, resulting on overall net decrease in ongoing costs. This net decrease in future Operations and Maintenance expenses is reflected in the negative ongoing costs in the BCA analysis.

Keene's strong history of planning and civic engagement has contributed to the vibrancy of its downtown as a cultural and economic center for the City and surrounding communities.
Source: City of Keene

D.7 PARTNERSHIP AND COLLABORATION

KEY IMPACTS TO PARTNERSHIPS AND COLLABORATION:

- *Identifies the key outcomes to partnering with stakeholders and the public on visioning and setting goals for the future of the community*
- *Keene's approach to building a framework for the community to "inform every decision made" proves quite successful in this project*

The City of Keene has completed the pre-engineering and design of this project using an inclusive and consensus-based approach in its comprehensive public involvement and partnering program. Much like the **USDOT's Promising Practices for Meaningful Public Involvement in Transportation Decision-Making**, Keene's approach established a framework for the community to "inform every decision made" and included core values **like transparency, mutual accountability, easy participation, meaningful engagement, inclusiveness and equity, respect, and evaluation**. Project team members and managers considered impacts and equity before deciding on and implementing a public outreach plan and that plan will continue through the project lifecycle.

Meaningful public involvement is only successful if it has a strong understanding of the community's demographic, it's inclusive and builds on durable relationships with diverse community members and is proactive in involving broad representation of the community. For this program, the public is considered stakeholders who should have meaningful opportunity to shape, alter, and inform all major projects considered.

Working closely with diverse community partners and local agencies, a comprehensive planning study has been completed and final design is nearly complete. The robust planning and engagement program included 39 meetings, public workshops and City Council meetings where community members met, shared thoughts, provided guidance and took part in an open and collaborative process that included community members, stakeholders and elected officials alike. This includes a diverse range of partners including, but not limited to:

- Monadnock Region Chamber of Commerce
- Keene Downtown Merchants Association
- Southwest Regional Planning Commission
- Southwestern Community Services
- City Express Transit & Community Services
- Hannah Grimes Center for Entrepreneurship
- NH Governor Chris Sununu
- NH Department of Transportation
- Keene State College
- Colonial Theater
- Cheshire Medical Center
- Art's Alive
- Keene Bicycle, Pedestrian, Pathways Advisory Committee
- Keene Energy and Climate Advisory Committee

The City will continue its partnership with local businesses, residents, and visitors. One such relationship worth noting is the ongoing collaboration with the Hannah Grimes Entrepreneurial Center and its Radically Rural program.

Radically Rural (RR) is a grassroots movement founded in Keene, NH, that aims to amplify collective rural impact by connecting folks with each other and with ideas. Through virtual Roundtables, an annual September summit, chat groups, and more, RR offers a platform for rural leaders across the country to learn from each other. Every year, the RR summit in New Hampshire convenes hundreds of diverse and interesting people, cultivates engaging and memorable sessions, and offers great local food and entertainment — all wrapped up in an amazing small New England town experience. Attendees leave the Radically Rural Summit overflowing with great ideas and filled with inspiration.

Hannah Grimes latest approach and concept of CONNECT showcases the innovation and entrepreneurship in the Monadnock Region and drew crowds of 400 to network in a fusion of art, food, and music. This success suggested something bigger was possible: A small-town summit at which experts in the arts, downtowns, entrepreneurship, land use, clean energy, healthcare, and journalism could gather and share thoughts on sustainable, thriving rural communities. Radically Rural was born with an emphasis, as its name suggests, on inventive, contemporary approaches that attendees could absorb and take home.

The program grows every year and the City of Keene coordinates all of its downtown event planning through this program. With added flexible space in the downtown, event opportunities have grown each year and will continue to grow and expand.

D.8 INNOVATION

KEY IMPACTS TO INNOVATION:

- ***Addresses equity as a principal project goal by integrating innovative heat island and stormwater resilience to defend against impacts of climate change***
- ***Incorporates innovative technologies like a first in Keene centralized solar power timber structure to power the needs of downtown lighting and electrical systems***

Innovative Technologies

The project will establish a **centralized solar power and battery storage source** to power downtown street lighting, downtown electrical circuit for events, and electric vehicle (EV) charging stations. The solar power system will be supported on an innovative structural timber pavilion that will **serve as a solar power platform but function as a covered event pavilion**.

Located along Gilbo Avenue, the structure will anchor a new development corridor known as the Arts and Culture Corridor. Rooftop photovoltaic (PV) panels supported by a battery storage source will contribute to the downtown electrical power needs including on-street and plaza space lighting, downtown electrical power circuit for event uses and EV charging stations. The innovative centralized solar power source, a first in Keene, will help the community achieve its **net zero goals** The timber structure will be funded by a Timber for Transit Program grant through the Northern Border Regional Commission.

Innovative stormwater strategies offer multiple benefits, addressing both flooding and water quality improvement challenges. As technologies continue to improve, the use of innovative stormwater strategies have become more common and as part of this project stormwater treatment measures will be implemented to improve tributary runoff water quality.

Low Impact Development (LID) is designed to mimic natural water balances by combining infiltration, evaporation, and transpiration while limiting runoff. Revitalizing Downtown Keene will introduce state-of-the-art LID technologies including porous concrete or permeable pavers that allow water to pass through, reducing runoff.

Green Infrastructure (GI) integrates natural features into urban areas to manage stormwater including bioretention areas or rain gardens. This project will include planted depressions that capture and treat stormwater, bioswales and subsurface bio-treatment areas will improve water quality and reduce runoff. When design in unison with a robust tree canopy plan, benefits can be measurable. The project includes some 30 locations where Silva Cells can be installed to mitigate runoff flows and provide a good water source for trees, limiting the use of municipal water to support irrigation systems.

Innovative Approach to Downtown Safety

With a project priority to reallocate space within the public right-of-way to widen sidewalks for pedestrian and bicycle safety, the project will introduce an **at-sidewalk grade bicycle cycle track. This new bike facility is a first in Keene, and will be NH's first at-sidewalk grade bicycle cycle track in a downtown**. With a clear priority to consider and include design features for pedestrians and bicyclists, Keene uses innovative approaches to achieve results.

A New Way to Engage the Community

Public engagement is critical to the success of any major project and when Keene sought out to transform it downtown, they knew it would take the entire community to guide that process. With over 39 public meetings, design workshops, visioning sessions and City Council meetings, Keene's innovative approach to engage as many community members as possible took a broad approach. A first in this community, the comprehensive public engagement program brought project partners, stakeholders, residents, business owners and visitors to the open table to collaborate and inform the design. Each step allowed for public comment and follow-up. As final design wraps up, the City has committed to hiring a project ombudsman to communicate construction schedules, closures and impacts on a day-to-day real-time basis.

D.9 KEY BENEFITS

As detailed in the Benefit-Cost Analysis Report and summarized in Table D-3, the project will generate total benefits of $42,085,222 over its 20-year life cycle. As a result of a truly transformative reallocation of right-of-way space in the downtown, benefits include improved traffic safety, vehicle travel times savings, emission reductions, reduced vehicle use and operating costs, and job creation. Benefits resulting in the reallocation of right-of-way space through lane reductions, widening sidewalks and adding protected bikes represents about 70% of all benefits.

A significant increase in bicycling, walking/rolling is anticipated as a result of the new bicycle and pedestrian infrastructure including an estimated 11,688 new trips by bike annually as a result of the Project. Additional benefits include but are not limited to reductions in stormwater runoff, public health, reduced pavement damage avoidance round out the benefits.

The multimodal infrastructure that includes new pedestrian and bicycle facilities will enhance safety for all users. Raised crosswalks at sidewalk

TABLE D-3: SUMMARY OF QUANTITATIVE BENEFITS OVER PROJECT LIFE CYCLE

(in units of 2023$ (rounded), discounted by prescribed 3.1%, with the exception of emissions reductions at 2%)

Description	Value
Benefit 1: Improved Traffic Safety and Crash Reduction	$5,143,437
Benefit 2: Travel Time Savings	$201,830
Benefit 3: Vehicle Operating Cost Reduction	$236,229
Benefit 4: Emissions Reduction	$59,792
Benefit 5: Avoided Highway Externalities	$68,670
Benefit 6: Mobility Amenity Benefits	$13,076,113
Benefit 7: Public Health Benefits	$5,372,322
Benefit 8: Pavement Damage Reduction	$21,092
Benefit 9: Stormwater Runoff Avoided Infrastructure Costs	$523,646
Benefit 10: Job Creation	$14,769,056
Total Benefits	**$42,085,222**
Capital Costs	$20,183,797
Ongoing Costs	($2,620,851)
Residual Value	$0
Total Costs	$20,183,797
BENEFIT COST RATIO (BCR)	**2.09**
NET PRESENT VALUE (NPV)	**$21,909,331**

grade on all side streets as well as crosswalks on Main Street that are raised tables with crossing signals allow non-vehicle users including seniors and people with restricted mobility, to have safe passage across streets.

In addition to improving opportunities to expand transit use, the project is anticipated to greatly expand walking and biking. The addition of healthy transportation options for residents will also have qualitative benefits in helping to provide healthy exercise options in the neighborhood.
In addition to quantitative benefits, the project will also realize the following qualitative benefits:

- Long-term vitality of the commercial corridor, which lies within an area of persistent poverty, by reducing air quality impacts and providing pedestrian and bicycle infrastructure
- Creates an opportunity to expand downtown through investment on Gilbo Avenue and the Cheshire Rail Trail connecting the east and west sides of main Street
- Increased appeal and use of active transportation modes, which improve public health outcomes while minimizing transportation-related environmental impacts
- Opportunities for higher income jobs for local residents by providing direct, safe connections between the educational institutions and workforce development centers on the Corridors and regional job centers
- Minimized health and economic impacts of climate change and high heat indices for those living along the corridors through the employment of resiliency design features and innovative green stormwater management

A healthy, safe and vibrant downtown creates opportunity for future mixed-use development that can offer a diverse range of housing options, new commercial and office space; all within a connected walking and biking community. This project will serve as a catalyst to targeted redevelopment within the project area that will benefit the community for year to come.

E. PROJECT READINESS

E.1. PLANNING AND CONSTRUCTABILITY

STIP/TIP and Consistency with Other Plans

A strong history of innovative planning in Keene has allowed the City to cultivate a highly engaged community with a distinctive identity and a high quality of life. Despite being the heart of the region, downtown Keene's last major revitalization occurred in 1988. Since then, the City has planned and implemented several plans that have included improvements for its streets and downtown.

Increasingly, related studies continue to recognize Keene's downtown as the community's economic engine with its focus on transforming streets and downtown infrastructure to better accommodate the modern needs and preferences of its residents and businesses and support a more accessible, livable, and connected multi-modal transportation system.

Consistently, the efforts noted below all come back to the downtown and its priority to improve and grow with the community.

Keene Comprehensive Plan (2010): Plan for six vision areas: a quality-built environment, a unique natural environment, a vibrant economy, a strong citizenship and proactive leadership, a creative learning culture, and a health community.

Complete Streets (2015): Adopted complete streets resolution for well-balanced and connected transportation infrastructure that is safe, more livable, and welcoming for all users.

Downtown Revitalization Study (2018): Review of economic state of downtown and study how the streetscape could better accommodate a modern downtown.

Strengthening Connections: Downtown and Trails (2021): Report leveraging the City's natural assets for economic vibrancy, specifically related to better connecting trails/rail trails with the downtown.

Strategic Parking Plan (2021): A strategy plan for improving and optimizing parking to better meet the diverse needs to Keene's residents, visitors, and workforce.

Housing Needs Assessment & Strategy (2023): Needs assessment and strategy study to identify markets and forces that affect the City's housing supply and demand over the next 10 years.

2025 Roadway Safety Action Plan as part of the Safe Streets and Roads for All Program (2025): Report resulting in the development of a Roadway Safety Action Plan (RSAP) to reduce fatalities and injuries from roadway crashes.

Vision Keene 20-Forward Master Plan (2025): Master Plan update defining the six pillars in the Community Vision Report noting the Downtown as a key economic driver of the community and opportunities for future development.

Although not listed at this time, the project will be added to the New Hampshire State Transportation Improvement Plan (STIP) as well as the Southwest Region Planning Commission (SWRPC) Regional Transportation Improvement Plan (TIP). Letters of support for this project from State and Regional officials have been included in the Letters of Support section for this project.

ROW and Construction Approach

Where this project is located within the public right-of-way (ROW) within the downtown core of Keene, no ROW acquisition is required to complete this project. Final ROW certificate from FHWA is expected.

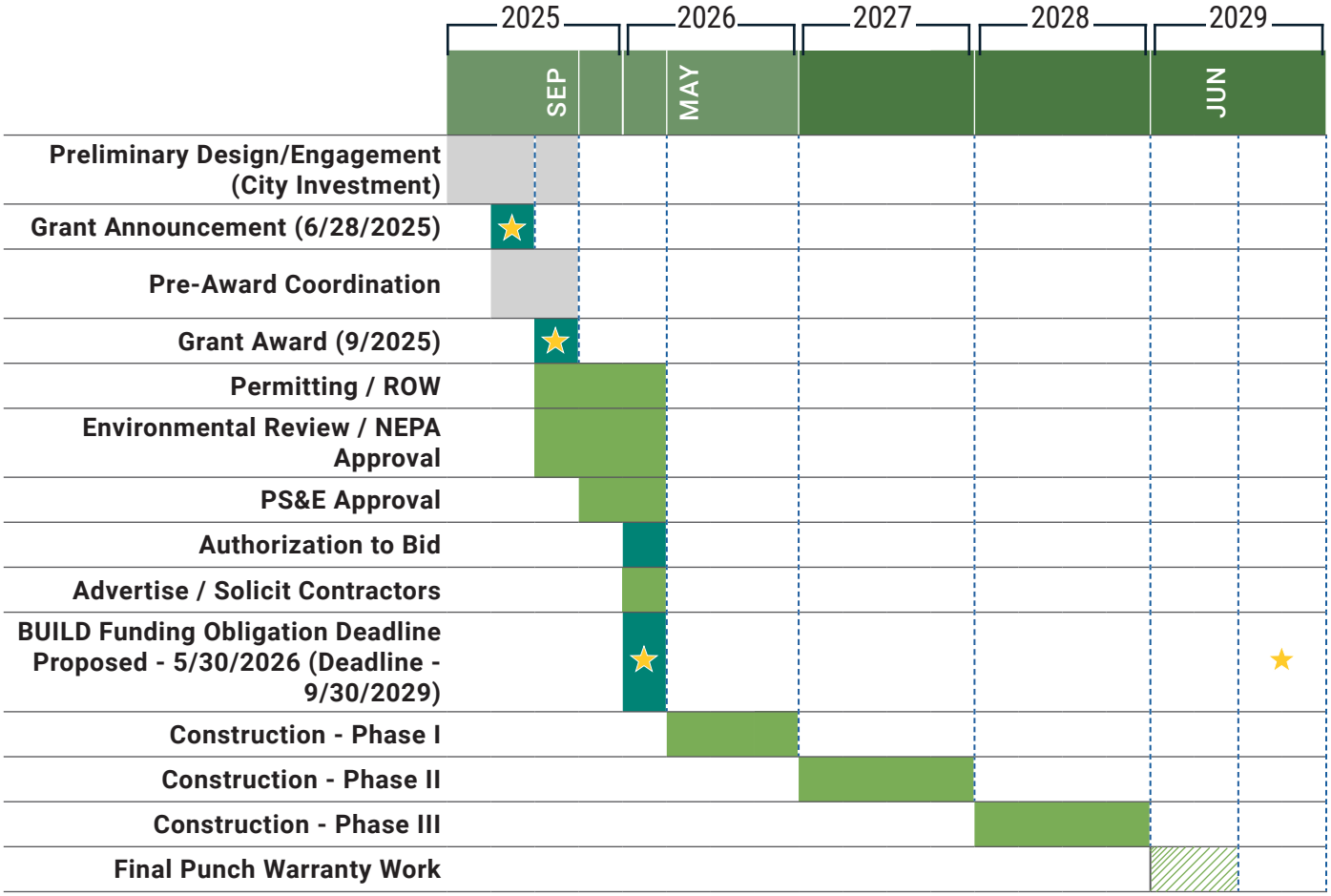
The project will be a traditional design/bid/build approach.

E.2. PROPOSED SCHEDULE

As outlined in Section C.3, Project Budget, Level of Design, the City of Keene completed an extensive Keene Downtown Improvement Project planning phase in 2023 with preliminary design and final design following. Preliminary design was approved by City Council in July 2024 and final design is well underway (60% plan milestone set delivered in December 2024). Final design will be complete in March 2025. Final NEPA documentation and right-of-way certificate is included in the BUILD Grant scope of work and is expected to commence following successful award of this grant and agreement with FHWA.

If awarded in June 2025, we expect final FHWA Grant Agreement to be complete and in place by September 2025 and final NEPA documentation

FIGURE E-1: PROJECT SCHEDULE



will begin in October 2025. As noted, final plans, specifications, and estimates (PS&E) will be completed in March 2025, essentially shelf-ready, and final NEPA documentation and right-of-way certificate is expected by April 2026. With a Construction Contract Agreement and Notice to Proceed award by April 2026, this is **well in advance of the statutory BIL Funding Obligation deadline of September 30, 2029 for obligation of project funds**. This favorable timeline is possible given the City's commitment to the Revitalizing Downtown Keene project, its extensive public partnership in completing a comprehensive planning study for this project and commissioning its design development well in advance of the BUILD Grant award.

The project includes three (3) phases of construction:

- Phase I – Central Square,
- Phase II - Main Street (North),
- Phase III – Main Street (South).

Inclusive of the work is replacement of water and sanitary sewer main and services throughout the downtown project area. Where this work is funded with City water and sewer enterprise funds, the water and sewer replacement work is non-participating in the Federal grant request. The PV Solar Pavilion structure is funded by a Northern Border Regional Commission grant and will also be non-participating in the Federal grant request. Both of these elements will be part of the overall downtown improvement project. A detailed construction phasing plan will be developed to coordinate the work throughout downtown. It is expected that each phase will be completed in its entirety in each phase year. An extensive stakeholder communication program will be development for critical communications during construction. The City of Keene has committed to its community to hire a full-time ombudsman to lead communications during construction.

E.3. NEPA AND PERMITTING

The environmental risks for the Project are minimal. Federal environmental approvals for construction of this project would be required under the National Environmental Protection Act (NEPA) and Section 106 of the National Historic Preservation Act. It is expected that the FHWA would approve a Categorical Exclusion, as this project would take place entirely within the existing operational right-of-way (23 C.F.R. §771.117 (c) (3)). A Categorical Exclusion does not require documentation and normally requires a simple administrative approval. The NEPA process for this project is straight-forward because the project is contained within the existing right-of-way in the downtown corridor

The primary vertical elements limited to a transit shelters and signage would be located along the roadways thereby limiting visual effects to the surrounding area. It does not have potential to affect natural resources or to adversely impact air or noise thresholds, or Environmental Justice (EJ) populations. In fact, the Project will result in an improvement of natural resources and water quality through the extensive green infrastructure planned to minimize stormwater flows and improve water quality. Where every effort to minimize impacts to trees will be prioritized, the net count of trees will be significantly increased because of the project.

As part of the ARPA/SRF funded water and sewer infrastructure improvements, a Water Infrastructure Project Environmental Review Form for the proposed project has been submitted to NH Department of Environmental Services (NHDES) and is currently under review. The environmental review was triggered as the project has received funding assistance through the ARPA and CWSRF programs. As part of the environmental review process, NHDES will coordinate the Intergovernmental Review Process required for projects receiving federal funding. The Intergovernmental Review Process provides an opportunity to state and local agencies to review projects and activities being undertaken in the state that are utilizing state or federal funds. Environmental resource documentation and agency coordination required under the National Environmental Policy Act (NEPA) will be completed as part of the environmental review, including the following:

- Plants and Wildlife. Information has been gathered from the NH Natural Heritage Bureau Data Check Tool, US Fish and Wildlife Service's Information for Planning and Consultation (IPaC) tool, and the National Oceanic and Atmospheric Administration (NOAA) ESA Section 7 Mapper. An Fis 1004 Consultation Request has been submitted to the NH Fish and Game Department.
- Cultural Resources and Land Based Resources. A Request for Project Review and accompanying report has been submitted to the NH Division of Historical Resources, and the project has been presented to the City of Keene's Heritage Commission. Public and conserved lands, as well as any Section4(f) or 6(f) resources, will be identified.
- Water Quality/Wetlands/Floodplains. The project will require an NHDES Alteration of Terrain permit, and a Construction General Permit. There are no surface waters within the project limits and the project is not located within the 100-year floodplain. Identification of wetland resources within the project limits is not anticipated.
- Social and Economic Resources. Social and economic benefits of the project for the community served will be identified. An environmental justice population analysis will be developed.
- Contamination and Hazardous Waste Sites. Information on known contaminated sites has been gathered from the NHDES One Stop Data Mapper. Contract documents will include provisions for preparation of a soil and groundwater management plan.
- Air/Noise. This project is not anticipated to require air quality or noise analysis or mitigation.

The project will not result in any residential or non-residential displacements or acquisition of land or property rights, nor will it result in capacity expansion of a roadway or change in roadway access.

Agency correspondence and data review will be ongoing during the spring of 2025. We expect that NHDES/SHPO will issue a certificate of

completeness and grant approval for the project. By April 2025.

It is not anticipated that the FHWA will determine that there is a Section 4(f) Use of the USDOT Act. It is possible that the current trail along Cheshire Rail Corridor, which is the paved trail that travels east/west through Main Street, could be considered a Section 4(f) property. As this Project will improve the recreational use of this property, it is anticipated if a Section 4(f) determination is made, it would result in a de-minimis determination, which requires no further action. Should a Section 4(f) determination be required, the City would provide FHWA with the documentation necessary to support issuing a determination.

Where the Water Infrastructure Project Environmental Review Form is very similar to the NEPA permitting requirements for the BUILD grant, these findings will be used to support the NEPA effort for the BUILD grant approval and CE action findings. We expect that final NEPA approvals and ROW certificate can be granted by May 2026.

E.4. PROJECT SUPPORT

Acknowledging the significance of Downtown Keene as the community's economic engine with a commitment to maintaining its vibrancy, relevance, and functionality, the City of Keene, informed by previous planning initiatives including downtown infrastructure, utilities, housing, resiliency, and sustainability, sought out to plan and study the comprehensive Downtown Infrastructure Improvement Project.

The City of Keene has completed this project using an inclusive and consensus-based approach in its comprehensive public involvement and partnering program. Much like the USDOT's Promising Practices for Meaningful Public Involvement in Transportation Decision-Making, Keene's approach established a framework for the community to "inform every decision made" and included core values like transparency, mutual accountability, easy participation, meaningful engagement, inclusiveness and equity, respect, and evaluation. Project team members and managers considered impacts and equity before deciding on and implementing a public outreach plan and that plan will continue through the project lifecycle.

Meaningful public involvement is only successful if it has a strong understanding of the community's demographic, it's inclusive and builds on durable relationships with diverse community members and is proactive in involving broad representation of the community. For this program, the public is considered stakeholders who should have meaningful opportunity to shape, alter, and inform all major projects considered.

Strategies to ensure broad community input, the project established an Ad-Hoc Steering Committee, a Technical Advisory Committee, coordinated with key City departments, and collaborated with City Council and several of its Advisory Committees.

Working closely with diverse community partners and local agencies, a comprehensive planning study has been completed and final design is nearly complete. The robust planning and engagement program included 39 meetings, public workshops and City Council meetings where community members met, shared thoughts, provided guidance and took part in an open and collaborative process, community members, stakeholders and elected officials alike. This includes a diverse range of partners such as:

- Monadnock Region Chamber of Commerce
- Keene Downtown Merchants Association
- Southwest Regional Planning Commission
- Southwestern Community Services
- City Express Transit & Community Services
- Hannah Grimes Center for Entrepreneurship
- NH Governor Chris Sununu
- NH Department of Transportation
- Keene State College
- Colonial Theater
- Cheshire Medical Center
- Art's Alive
- Keene Bicycle, Pedestrian, Pathways Advisory Committee
- Keene Energy and Climate Advisory Committee

The City will continue its partnership with local businesses, residents, and visitors. The City will partner with FHWA and NHDOT to coordinate this project with other area roadway reconstruction projects as needed.

Letters of support from project stakeholders and State and Regional officials have been included in the **Letters of Support** section for this project.

E.5 RISKS AND MITIGATION STRATEGIES

The proposed project does not include any significant material risks. The proposed project does not require the acquisition of any land, vehicles, or abnormal construction materials. The City has already engaged private utility companies that have infrastructure in the project area - all of which is underground. The utilities are on board with the project and will be collaborating with the City to upgrade some of their infrastructure along with this project. No aerial relocations will be necessary.

The greatest risks that the proposed project faces are continued escalation of construction costs and unanticipated shortages of construction labor or materials. While these risks are difficult to prevent, steps have been taken to mitigate the potential impacts of these risks. Conservative estimates for construction unit costs have been utilized to determine the overall project cost estimate and appropriate annual inflation rates have been applied to the costs. Additionally, the proposed project schedule is relatively conservative and would allow ample time for bidding and Contractor procurement of necessary materials.

E.6 TECHNICAL CAPACITY ASSESSMENT

The City of Keene is the largest community in Cheshire County and is the center of western New Hampshire's commerce and transportation networks. The City staff manage the 37 square miles of land area and have a depth of experience and resources to both understand and adhere to the regulations and oversight requirements associated with a project of this magnitude. The City is responsible for the maintenance of 121 miles of roads within the community, which include several State routes and designated truck routes carrying large volumes of traffic, and 8.4 miles of formal shared street bicycle facilities (sharrows and bike lanes). The City also features an extensive rail-trail and pathway network totaling over 12 miles. There are also 12.3 miles of unimproved bike trails on City-owned land.

The City of Keene regularly completes State and Federally aided projects and possesses the technical experience to undertake this project, the practical experience (and legal capacity) to ensure that it meets state and federal requirements and that legal remedies are sought for noncompliance with specifications and/or construction deadlines, and the financial capacity to carry out this project to completion. Staff have been trained to manage Federally funded projects through the Office of Federal Compliance administered by the NHDOT.

The Keene Public Works Department and Finance Department have the financial accounting and audit systems in place and has substantial experience effectively managing large federal grants and executing large-scale transportation projects. The Keene Purchasing Department has developed an array of standardized participating and non-participating Federal contract documents including the use of requirements such as Buy American, Davis-Bacon Wage Rates; and follows the Brooks Act for qualification-based selection processes for its service providers.

As the steward of the public right-of-ways in question, the City prioritizes accessible and inclusionary public outreach efforts during project design, allowing opportunity for all community members to participate. Through a qualifications-based selection process, the City of Keene has engaged a consulting design team to support both the planning study and preliminary design of this project. It is expected that consulting design and construction administration teams will be assigned to complete final design and construction services for this project.

Rendering of proposed improvements at Central Square.

Additional 360-degree views of the proposed project are available on the project website here.

Stantec

BENEFIT-COST ANALYSIS
TECHNICAL MEMORANDUM
Revitalizing Downtown Keene

January 29, 2025

Prepared for:
BUILD Grant Program

Prepared by:
The City of Keene with Stantec Consulting, Inc.

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EXECUTIVE SUMMARY

The City of Keene is requesting **$13,665,760** in fiscal year 2025 BUILD discretionary grant funds for construction of the "Revitalizing Downtown Keene" Project (hereafter referred to as "the Project"). A benefit cost analysis was completed for the Project on behalf of the City of Keene in accordance with the benefit-cost analysis (BCA) methodology as outlined by the U.S. Department of Transportation (USDOT) in the Benefit-Cost Analysis Guidance for Discretionary Grant Programs dated December 2023.

The analysis estimates that the total discounted project benefits will be **$42,093,128** 2023$ over 20 years, shown in Table 1. The benefit cost ratio (BCR) is estimated at **2.09** and the net present value (NPV) at **$21,909,331** 2023$ for the Project. Paired with a qualitative assessment of the project, it is clear community benefits from the Project far exceed project costs.

The Project will reshape two of the most important corridors in Downtown Keene - Main Street and Gilbo Avenue - into multimodal links which offer safer, more comfortable, and faster connections for all users.

Table 1 – Project Benefits Summary

Benefit #	Benefit Description	Merit Criteria	Monetized Benefits (Discounted at 3.1%)
1	**Safety**: Improved traffic safety and crash reduction	Safety Improved Mobility & Community Connectivity	$5,143,437
2	**Vehicle Travel Time Savings**	Quality of Life Improved Mobility & Community Connectivity	$201,830
3	**Vehicle operating cost** reduction	Economic Competitiveness Environmental Sustainability	$236,229
4	**Emissions reduction**: (a) non-CO2 and (b) CO2	Environmental Sustainability	Non-CO2: $5,484 CO2: $54,308 (note that CO2 emissions are discounted at 2%)
5	**Avoided Highway Externalities**: (a) reduced congestion, (b) reduced noise pollution, (c) improved safety resulting from overall reduction in vehicle travel	Quality of Life State of Good Repair Safety Improved Mobility & Community Connectivity	$68,670
6	**Mobility amenity benefits**: (a) Expand sidewalk, (b) Reduce traffic speed, (c) New dedicated cycling lane	Quality of Life Improved Mobility & Community Connectivity	$13,076,113
7	**Public health benefits** (improved health): (a) related to	Quality of Life	$5,372,322

Benefit #	Benefit Description	Merit Criteria	Monetized Benefits (Discounted at 3.1%)
	walking and (b) related to cycling		
8	**Pavement Damage Reduction**	Economic Competitiveness Environmental Sustainability	$21,092
9	**Stormwater Avoided Infrastructure Costs**	Economic Competitiveness Environmental Sustainability	$523,646
10	**Job Creation**	Economic Competitiveness	$14,769,056
	Operations and Maintenance Savings	*NA*	($2,620,851) *Negative number*
All Benefits			**$42,093,128***
**Note that this number is not the same as the sum of the benefits because of order of operations. To calculate the total discounted benefits, benefits (including O&M) are aggregated by year, discounted by year, then summed together for all years of the analysis period.*			

In comparison, the monetized and discounted costs are summarized in Table 2. The full **$22,678,200** in capital costs was converted to the discounted cost, **$20,183,797**, by applying a 3.1% discount rate. The ongoing Operations and Maintenance Costs are estimated to be a savings (negative cost) because the new roadways will cost less to maintain than it would cost to continue to maintain the existing aging infrastructure. The residual value is calculated to be $0 because the design life of the project is assumed to be the same as the analysis period of this BCA, 20 years.

Table 2 – Project Costs

Cost Description	Monetized Costs* (Discounted)
Capital Costs	$20,183,797
Operations and Maintenance Costs	($2,620,851)
Residual Value	$0
All Costs	**$17,562,946**

The following project benefits were modeled quantitatively within the BCA:

1. **Safety** due to multimodal safety improvements
    a. Leveraging historical 5-year crash data, traffic safety benefits were modeled by forecasting collision reduction as a result of the following safety countermeasures:
        i. Reduce Lane Width
        ii. Install Bicycle Lane
        iii. Upgrade to High Visibility Crosswalk
        iv. Install raised Ped Crosswalks
2. **Vehicle Travel Time Savings** due to operational improvements at the intersection of Main Street at West Street/Roxbury Street
    a. Vehicle travel time savings were estimated by aggregating peak hour intersection delay improvements, converting to person trips, and scaling to an annual estimate
3. **Vehicle Operating Cost Reduction** due to mode shift

   a. Vehicle operating cost savings were modeled by estimating the reduction in vehicle-miles travelled (VMT) as a result of the mode shift from driving to walking or biking, induced by the enhanced walking and biking facilities provided by the Project
4. **Emissions Reduction** due to mode shift
   a. Emissions reduction benefits were modeled by applying the emissions costs per VMT to the reduction in VMT, as a result of the mode shift from driving to walking or biking, induced by the enhanced walking and biking facilities provided by the Project. Modeled for both:
      i. **non-CO2 emissions**
      ii. **CO2 emissions**
5. **Avoided Highway Externalities** due to mode shift
   a. Highway externality benefits were modeled by estimating the reduction in VMT as a result of the mode shift from driving to walking or biking, induced by the enhanced walking and biking facilities provided by the Project. Modeled externalities include:
      i. **Congestion**
      ii. **Noise**
      iii. **Safety**
6. **Amenity Benefits** for people walking and cycling due to improved amenities and facilities
   a. Pedestrian and bicyclist mobility amenities benefits were modeled by estimating the existing plus new/induced person-miles of walking or cycling on segments associated with the following benefits:
      iii. **Expand sidewalk**
      iv. **Reduce traffic speed**
      v. **New dedicated cycling lane**
7. **Health Benefits** due to an increase in active transportation miles travelled
   a. Public health benefits were modeled by estimating the new/induced person-miles of active transportation, induced from driving, within the appropriate age ranges for both:
      vi. **Walking**
      vii. **Cycling**
8. **Pavement Damage Reduction** due to mode shift
   a. Pavement damage benefits were modeled by estimating the reduction in VMT as a result of the mode shift from driving to walking or biking, induced by the enhanced walking and biking facilities provided by the Project
9. **Stormwater Runoff Reduction** due to Green Infrastructure
   a. Calculated using the Triple Bottom Line (TBL) Green Stormwater Infrastructure (GSI) Tool developed by the Water Research Foundation as part of project 4852, Economic Framework and Tools for Quantifying and Monetizing the Trible Bottom Line Benefits of Green Stormwater Infrastructure

The quantitative benefits of the project were modeled to determine their contribution to the BCR. This BCA report describes the detailed methodology for how these benefits were determined, including sample calculations.

For further information on the calculations and assumptions, you are invited to review in detail the enclosed unlocked Excel workbook containing the full BCA Model (Attachment 10 of the grant submittal).

1 INTRODUCTION

The City of Keene is requesting **$13,665,760** in fiscal year 2025 BUILD discretionary grant funds for construction of the Keene: Revitalizing Downtown Keene Project (hereafter referred to as "the Project"). The City will provide **$9,012,440** in local funds and other Federal funds to support this project, which will cost **$22,678,200** in total. This project will complete a 3-year community-driven planning and design process leading to the construction of a project that will:

- Allow Downtown to better accommodate entertainment-oriented activities that bring the community together and enhance the Downtown's vibrancy
- Prioritize the pedestrian environment and non-vehicular modes of travel
- Create a mobility hub that connects the area's trail network, bringing more people to Keene's Downtown businesses
- Connect Areas of Persistent Poverty (APP) communities in Keene and beyond to the Downtown
- Support a more sustainable built environment that shapes/sets precedent for the community's climate resilience by integrating innovative green infrastructure for stormwater management, mitigating heat island effect, and introducing solar powered street lighting, EV charging and a Downtown electrical circuit for public event use
- Deliver on the primary project purpose of creating an opportunity corridor to promote local inclusive economies and entrepreneurship by defining the Gilbo Avenue corridor and the expansion of Downtown for long-term economic growth

The project will enhance Downtown utility infrastructure resilience by upgrading the existing utility systems to better withstand needs and environmental challenges. It will further define and revitalize connections to Keene's Downtown district by improving access to multimodal transportation and facilitating a more pedestrian-friendly environment.

The project will create more open, flexible, and accessible spaces to expand community event opportunities. Collectively, the project's components aim to promote a sustainable and resilient built environment that offers alternatives to single-occupied vehicles (SOV), reduces carbon emissions, creates safer streets, and implements green stormwater and sustainable infrastructure within Keene's Downtown core.

A benefit cost analysis was completed for the Project on behalf of the City of Keene in accordance with the BCA methodology as outlined by the USDOT in the Benefit-Cost Analysis Guidance for Discretionary Grant Programs dated December 2023. The analysis estimates the BCR at 2.09 and the NPV at **$21,909,331.** This analysis gives a clear indication that the project should proceed as the BCR is significantly higher than 1.00. Paired with a qualitative assessment of the project, it is clear that there are benefits in each of the merit criteria areas.

The Project is described in the Narrative, and Table 3 below provides an overview of key proposed design elements compared to existing characteristics that are relevant to the BCA analysis. The project includes corridor improvements at Central Square and on Main Street and Gilbo Avenue; corridors that facilitate and provide circulation to and through Downtown Keene.

Table 3 – Proposed Street Profile Changes

Location	Element	Existing	Proposed
Central Square	Vehicle	Average lane width of greater than 11 feet	Average lane width of 11 feet
	Bicycle	No bicycle facility	Add new 5-foot sidewalk-level protected bike lane
	Walking	Faded crosswalks	Moderate change to sidewalk width Shorten crossing distances Upgrade to high visibility and raised crosswalks at all side streets
	Parking	*No Change*	*No Change*
	Plantings	Thinning tree canopy, shrubs, and plants, failing irrigation system	Significant tree and plantings plan, preservation of priority trees, replace irrigation system
	Stormwater Management	Aging drainage systems, under capacity, prone to flooding	Replace drainage systems, reduce impervious area, infiltration systems to reduce runoff
Main Street (Central Square to Winchester Street)	Vehicle	Average lane width of 13 feet	Average lane width of 11 feet
	Bicycle	No bicycle facility	Add new 5-foot sidewalk-level protected bike lane
	Walking	Average sidewalk width of 11.1 feet Faded crosswalks	Average sidewalk width of 13 feet Upgrade to high visibility and BUILDd crosswalks at all side streets Add Rectangular Rapid Flashing Beacon (RRFB) to Main Street at Gilbo Avenue / Railroad Avenue crossing
	Parking	Angled parking on center median and adjacent to curb	Remove center median angled parking
	Plantings	Thinning tree canopy, shrubs, and plants, failing irrigation system	Significant tree and plantings plan, preservation of priority trees, replace irrigation system
	Stormwater Management	Aging drainage systems, under capacity, prone to flooding	Replace drainage systems, introduce bio-treatment, Silva Cells, infiltration systems to reduce runoff

Location	Element	Existing	Proposed
Gilbo Avenue (Main Street to School Street)	Vehicle	Average lane width of 21 feet	Average lane width of 11 feet
	Bicycle	*No Change*	*No Change*
	Walking	Average sidewalk width of 8 feet	Average sidewalk width of 12 feet
	Parking	*No Change*	*No Change*
	Plantings	Thinning tree canopy, shrubs, and plants, failing irrigation system	Significant tree and plantings plan, preservation of priority trees, replace irrigation system
	Stormwater Management	Aging drainage systems, under capacity, prone to flooding	Replace drainage systems, reduce impervious area, introduce bio-treatment, Silva Cells, infiltration systems to reduce runoff

The table below describes the quantified project benefits and costs:

Table 4 – Project Benefits Matrix

Benefit #	Section Reference in BUILD BCA Report	Benefit Description	Change causing benefit	Type of Impacts	Population Affected by Impacts	Economic Benefit	Monetized Benefits (Discounted at 3.1%)
1	4.2.1	**Safety**: Improved traffic safety and crash reduction	Implementation of the following safety countermeasures: • Reduce Lane Width • Install Bicycle Lane • Upgrade to High Visibility Crosswalk • Install raised Ped Crosswalks	Reduced collisions involving people walking, bicycling, and driving	All future users walking, bicycling, or driving on the study corridors	Monetized value of collision reduction	$5,143,437
2	4.2.2	**Vehicle Travel Time Savings**	Improved signal operations at Main Street at West Street/Roxbury Street	Improved vehicle travel time through reduced delay at the signalized intersection	All future drivers or passengers who travel through this intersection in a vehicle	Monetized value of time spent travelling	$201,830
3	4.2.3	**Vehicle operating cost** reduction	Reduction in VMT due to mode shift due to enhanced walking and biking facilities	Reduced user vehicle operating costs because of fewer VMT	All future users walking or biking on the study corridors (directly) and local business owners (indirectly)	Monetized value of additional investment into the local economy permitted by user cost savings	$236,229

Benefit #	Section Reference in BUILD BCA Report	Benefit Description	Change causing benefit	Type of Impacts	Population Affected by Impacts	Economic Benefit	Monetized Benefits (Discounted at 3.1%)
4	4.2.4	**Emissions reduction**: (a) non-CO2 and (b) CO2	Reduction in VMT due to mode shift due to enhanced walking and biking facilities	Reduced emissions because of fewer VMT	Residents, employees, and visitors of Downtown Keene	Monetized value of reduced emissions	Non-CO2: $5,484 CO2: $54,308 (note that CO2 emissions are discounted at 2%)
5	4.2.5	**Avoided Highway Externalities**: (a) reduced congestion, (b) reduced noise pollution, (c) improved safety resulting from overall reduction in vehicle travel	Reduction in VMT due to mode shift due to enhanced walking and biking facilities	Reduced congestion, noise pollution, and collisions because of fewer VMT	Residents, employees, and visitors of Downtown Keene	Monetized value of reduced congestion, reduced noise pollution, and improved safety	$68,760
6	4.2.6	**Mobility amenity benefits**: (a) Expand sidewalk, (b) Reduce traffic speed, (c) New dedicated cycling lane	(a) Expanded sidewalk, (b) Reduced traffic speed due to lane narrowing, (c) New dedicated cycling lane	Enhanced cycling and walking experiences on the study corridors	All future users walking or biking on the study corridors	Monetized value of improvement bike and pedestrian infrastructure	$13,076,113
7	4.2.7	**Public health benefits** (improved health): (a) related to walking and (b) related to cycling	Increase in active mode trips due to enhanced walking and biking facilities	Improved public health as a result of more active lifestyles (increase in active mode trips)	New users walking or biking on the study corridors	Monetized value of health benefits and a lesser burden on the local healthcare system	$5,372,322
8	4.2.8	**Pavement Damage Reduction**	Reduction in VMT due to mode shift due to enhanced walking and biking facilities	Reduced pavement damage as a result of fewer VMT	All future road users (directly) and all local taxpayers (indirectly)	Monetized value of pavement damage avoidance	$21,092
9	4.2.9	**Stormwater Avoided Infrastructure Costs**	New Green Infrastructure, Reconnect roof drainage from sewer system to	Reduced Stormwater Runoff and reduced treatment of stormwater at	City of Keene (direct) taxpayers (indirect)	Monetized value of savings in stormwater infrastructure	$523,646

Benefit #	Section Reference in BUILD BCA Report	Benefit Description	Change causing benefit	Type of Impacts	Population Affected by Impacts	Economic Benefit	Monetized Benefits (Discounted at 3.1%)
			drainage system	sewer facilities.			
10	4.2.10	**Job Creation**	Job created as a result of development catalyst.	New jobs as a result of new mixed-use development within the Gilbo corridor	City of Keene (direct taxpayer benefit)	Monetized values of jobs created in Years 10-20	$14,769,056

The final BCR of 2.09 and NPV of $21,909,331 indicates that the Project will generate a significant return on investment, with respect to safety, quality of life, and environmental sustainability for the local community along the project corridor.

2 GENERAL ASSUMPTIONS

The BCA for the Revitalizing Downtown Keene project was completed as described below to assess the level to which the expected benefits of the project justify the costs. The BCA compared a “No-Build” scenario with the proposed “Build” Scenario to document the expected benefits.

The detailed BCA was conducted for the Project using best practices for BCAs in transportation planning and reflecting current BUILD BCA guidance (USDOT BCA Guidance for Discretionary Grant Programs – December 2023). All calculations were made using a BCA spreadsheet template, provided by USDOT. All dollar figures in the BCA are expressed in constant 2023 US Dollars (2023$). Detailed values are provided in the BCA model spreadsheet.

Values within the BCA model are subjected to a 3.1% discount rate, except for carbon emission reduction benefits which use a 2% discount rate, in accordance with BCA best practices and the BUILD BCA guidelines. However, values within this memo, such as sample calculations, may be reported in undiscounted dollars to show consistency with source data and make the underlying calculations easier to understand. Where values are discounted within the memo, it will be indicated.

The analysis was performed over the period from 2026 to 2048 (inclusive), with 2026-2029 being the design/construction years and 2029-2048 being the 20-year analysis period in which all project elements are open to the public and realize societal benefits.

The 20-year analysis period was used for this BCA analysis because it matches the expected useful service life of the roadway. The BUILD BCA guidelines recommend a 30-year analysis period for the initial construction or full reconstruction of highways or similar facilities and a 20-year analysis period for projects aimed at capacity expansion or to address other operating deficiencies of existing facilities.

3 PROJECT COSTS

3.1 CAPITAL COSTS

The costs associated with the project include final design, continued community engagement, engineering costs, pre-construction activities, construction costs, and construction inspections. These costs are reported in 20 in undiscounted (2023$) dollars and in discounted (at 3.1%) dollars. The cost that uses 2023$ were discounted to present value and are used in the BCR calculation.

Construction costs were estimated based on a variety of sources including the New Hampshire Department of Transportation (NHDOT) weighted bid unit prices, recent bids for work in the City of Keene and surrounding municipalities. Estimates generally draw on pricing from 2024 to reflect recent cost escalations. Quantity assessments were derived from the corridor schematic designs and initial preliminary design for most of the largest items. Estimates for smaller items were based on total corridor length or area. For more information on specific items, see Attachment 5, project cost estimate and Attachment 3, Project description.

Corridor preliminary design assumptions include:

- Costs for drainage were based on required inlet spacing and changes to inlet locations.
- Repaving of approximately 1.6 miles of roadway.
- Signal upgrades will be required at the Main Street at West Street/Roxbury Street intersection to support lane configuration changes, signal coordination, and improved pedestrian crossings.
- Mobility upgrades such as Bump Outs/Bulbs, raised tabled crosswalks, and a Rapid Rectangular Flashing Beacon (RRFB)
- Protected sidewalk-level bicycle lanes along Main Street and Central Square
- Full Reconstruction of Railroad Square and expansion of Central Square

Contingency, traffic control, and mobilization/demobilization were incorporated using the percentages listed below. Contingency is included to plan for anticipated inflation costs as well as any potential tweaks to the design. Given that preliminary design is underway, a reduced 8% contingency accounts for potential changes including anticipated inflation in costs.

- Contingency – 8%
- Traffic Control – 10%
- Mobilization/Demobilization – 10%

Table 5 – Project Costs

	Design Cost (BUILD)	Design Cost (Non-Par)	Construction Cost (BUILD)	Construction Cost (Non-Par)	Annual Totals
2026	$200,000.00	$416,000.00	$4,783,040.00	$4,385,760.00	**$9,784,800.00**
2027	$0	$0	$4,812,320.00	$2,223,080.00	**$7,035,400.00**
2028	$0	$0	$3,870,400.00	$1,987,600.00	**$5,858,000.00**
Total Project Costs	**$200,000.00**	**$416,000.00**	**$13,465,760.00**	**$8,596,440.00**	**$22,678,200.00**

For the BCA ratio calculation, the costs (like the benefits) are discounted at 3.1% to calculate the present value. The undiscounted and discounted capital costs are both shown in Table 5 for each ear of the preconstruction and construction periods.

3.2 OPERATIONS AND MAINTENANCE

Operations and Maintenance costs incorporated into the BCA represent the difference between maintenance that would be required under a No Build scenario and the maintenance required in the Build scenario. The estimated maintenance in the Build scenario, with the implementation of the Project, is less than the estimated maintenance in the No Build scenario, if the current aging infrastructure would need to be maintained for the next 20 years. Therefore, over the analysis period and design life of the project (20 years) the implementation of the project results in an Operations and Maintenance savings (or a net negative Operations and Maintenance cost) of ($207,116) annually, undiscounted.

Table 6 – Operations and Maintenance Costs

Description of Cost Element	Annual No-Build Estimated O&M Cost	Annual Proposed Build Estimated O&M Cost	Basis of Estimate
Infiltration and Inflow (I&I) flow from leaking sewer mains	$33,393.00	$3,339.30	Current conditions volumes of I&I based on 2015 I&I Study. Subbasin #1 included all of the project area (plus additional areas surrounding the project). The Downtown footprint includes approximately 6.22% of Subbasin #1 pipes. Estimated Infiltration from leaking pipes within the project limits total 5,309 HCF. For the purposes of this analysis, it was assumed that all CIPP pipes in the system (including those within the project limits) have a 0% Infiltration rate. In the proposed condition, infiltration should be <10% of existing I&I, as all pipes and structures are pressure tested as part of construction QA/QC.

Description of Cost Element	Annual No-Build Estimated O&M Cost	Annual Proposed Build Estimated O&M Cost	Basis of Estimate
Lost Water cost	$11,892.00	$1,321.00	Based on 2022 "unaccounted water" of 121.34 million gallons system wide and approximately 1.37% of network pipe wall area being within the project footprint. Downtown estimated lost water from leakage equals approximately 2,223 HCF, at a rate of $5.35 cost to produce. Proposed condition assumes loss rate will reduce from current 18% to 2% within the project footprint.
I&I flow from connected roof drains	$83,900.00	$12,585.00	Runoff from all Downtown building roofs enters the sanitary sewer system. Drainage stubs will be installed to connect roof drainage. Assume 85% of private property owners take advantage of project to re-plumb their buildings so that stormwater runoff enters the stormwater system. The City will no longer incur costs to treat this runoff as sewage at the treatment plant
Downtown electricity use, mostly for street lighting, some for decorative lights and power pedestals	$13,126.00	$3,000.00	Assume all Downtown power needs will be provided by a central solar power system following construction. Assume minimal annual maintenance costs for central power bank.
Streetlight pole replacement from damage	$10,000.00	$10,000.00	Likely no improvement for streetlight replacement from driver damage
Irrigation system Repairs	$9,000.00	$-	Highway Division records
Response to street flooding	$500.00	$-	Highway Division records
Drainage system emergency repairs	$628.00	$-	Extracted from Cartegraph; Stormwater Pipe and Inlet tasks of within an activity of repair, replace or rebuild, averaged over a 5-year period. No emergency repairs expected over 20-year design life.
Tree Trimming	$2,500.00	$1,000.00	Highway Division records
Tree Removal	$5,000.00	$-	Highway Division records
Tree pest control treatment	$1,500.00	$-	Highway Division records
Traffic Signal Repair services	$3,000.00	$1,500.00	Highway Division records

Description of Cost Element	Annual No-Build Estimated O&M Cost	Annual Proposed Build Estimated O&M Cost	Basis of Estimate
Electrical pedestal repair & maintenance	$15,000.00	$1,000.00	Highway Division records
Community event protocols	$79,720.00	$59,790.00	No Build budget based on 2023 actual costs to operate 9 annual community events in the Downtown. Proposed costs assume that engineered approaches to streamline and simplify the work required to barricade roads, provide security, waste collection, etc. will reduce the cost of hosting events by 25%.
Water Main Emergency Repairs	$5,000.00	$-	Extracted from Cartegraph. 2 Water main breaks on Main St./Lamson St. in 2023. Assume regular responses to breaks on Lamson St. and other Main St. properties in No Build scenario.
Sewer main / manhole emergency repairs	$1,082.00	$-	Extracted from Cartegraph. 5 Year average from 2018-2022. Respond to breaks on Lamson St. and Central Square.
Rim list routine maintenance	$26,140.00	$730.00	Labor & equipment estimates in January 2024. New sewer mains are cleaned and inspected on a 5-year cycle. Proposed condition cost assumes Vacon (vactor truck - a large vacuum for catch basins and pipes) with crew of 2 will spend 2 days to clean the mains within the project limits. Averaged over 5 years.
Total	***$301,381.00***	***$94,265.30***	

Elements with substantially identical costs in Build and No Build:

- Trash collection
- Sweeping
- Street Plowing
- Sidewalk Plowing
- Streetlight replacement due to driver damage

3.3 RESIDUAL VALUE

The project's design life is equivalent to the length of the analysis period (20 years), so the residual value is calculated to be zero dollars ($0) at the end of the analysis period.

4 PROJECT BENEFITS

Six benefits categories were quantified for the Project. They are indicated in Table 7 below, along with the corresponding BUILD grant primary merit criteria:

Table 7 – Project Benefits Summary

Benefit #	Benefit Description	Merit Criteria	Monetized Benefits (Discounted at 3.1%)
1	**Safety**: Improved traffic safety and crash reduction	Safety Improved Mobility & Community Connectivity	$5,143,437
2	**Vehicle Travel Time Savings**	Quality of Life Improved Mobility & Community Connectivity	$201,830
3	**Vehicle operating cost** reduction	Economic Competitiveness Environmental Sustainability	$236,229
4	**Emissions reduction**: (a) non-CO2 and (b) CO2	Environmental Sustainability	Non-CO2: $5,484 CO2: $54,308 (note that CO2 emissions are discounted at 2%)
5	**Avoided Highway Externalities**: (a) reduced congestion, (b) reduced noise pollution, (c) improved safety resulting from overall reduction in vehicle travel	Quality of Life State of Good Repair Safety Improved Mobility & Community Connectivity	$68,670
6	**Mobility amenity benefits**: (a) Expand sidewalk, (b) Reduce traffic speed, (c) New dedicated cycling lane	Quality of Life Improved Mobility & Community Connectivity	$13,076,113
7	**Public health benefits** (improved health): (a) related to walking and (b) related to cycling	Quality of Life	$5,372,322
8	**Pavement Damage Reduction**	Economic Competitiveness Environmental Sustainability	$21,092
9	**Stormwater Avoided Infrastructure Costs**	Economic Competitiveness Environmental Sustainability	$523,646
10	**Job Creation**	Economic Competitiveness	$14,769,056
	Operations and Maintenance Savings	*NA*	($2,620,851) *Negative number*
All Benefits			**$42,085,222***
**Note that this number is not the same as the sum of the benefits because of order of operations. To calculate the total discounted benefits, benefits (including O&M) are aggregated by year, discounted by year, then summed together for all years of the analysis period.*			

4.1 BASELINE ASSUMPTIONS

Benefits 3, 4, 5, 6, and 7 of the BCA build on the following baseline assumptions: (1) growth in demand for walking/rolling and biking based on significant improvements to facilities for those modes, and/or (2) a corresponding reduction in vehicle miles traveled (VMT). This section walks through how the BCA estimates those two variables and how daily estimates are converted into annual estimates.

4.1.1 Baseline Existing & Growth in Demand by Mode

Baseline existing multimodal counts were taken in July 2022 as part of the Keene Improvements Downtown Existing Conditions (2022) analysis. Details on the types and locations of counts are summarized in Table 8.

Note that Keene State College is located immediately southwest of Downtown and the project area, and that counts were collected during the summer (July), while school was ***not*** in session. This means that the baseline estimates, particularly for people walking and biking, are likely lower than the true annual averages. Therefore, the multimodal trip and VMT shift estimates are conservative and likely underestimated.

Estimated percentage increases over baseline existing multimodal counts were applied to the baseline daily estimates to estimate the new/induced multimodal trips. The research-based information used to estimate a realistic increase in demand for each mode is summarized in Table 8.

Table 8 – Assumptions to Estimate Increase in Multimodal Trips, by Mode

Mode	Baseline Existing Daily Estimate	Baseline Existing Estimate Source	Estimated Increase (over Baseline)	Estimated Increase Source
People Walking/ Rolling	• Main Street: 1,710 • Railroad Avenue: 740 • Gilbo Avenue: 490	Peak-hour Turning Movement Counts (TMC); Keene Improvements Downtown Existing Conditions (2022) Midday peak hour counts scaled to daily estimates using a 10% peak-hour factor. Representing selected crossing locations as follows: • Main Street: Main Street & Commercial Street/Cypress Court west leg (25 pedestrians) and east leg (146 pedestrians) crosswalks • Railroad Avenue: Main Street & Gilbo Avenue/Railroad Street east	5.7%	WRCOG SB 743 Implementation Pathway Document Package[1]

[1] Fehr & Peers, *WRCOG SB 743 Implementation Pathway Document Package* (California: 2019), 94, accessed February 5, 2024, https://www.fehrandpeers.com/wp-content/uploads/2019/12/WRCOG-SB743-Document-Package.pdf

Mode	Baseline Existing Daily Estimate	Baseline Existing Estimate Source	Estimated Increase (over Baseline)	Estimated Increase Source
		leg crosswalk (74 pedestrians) *(closest approximation)* • Gilbo Avenue: Main Street & Gilbo Avenue/Railroad Street west leg crosswalk (49 pedestrians) *(closest approximation)*		
People Biking	Main Street to Central Square Corridor: 40	24-hour Multimodal Automatic Traffic Recorder (ATR) Counts Data Representing a single screenline location derived from an average of the following screenline locations: • Main Street South of Dunbar Street (two days of data collection: 7/20 and 21/2022) • Court Street north of Central Square (two days of data collection: 7/20 and 21/2022) • Washington Street north of Central Square (three days of data collection: 7/19, 20 and 21/2022)	80%	Estimating the effect of protected bicycle lanes on bike-share ridership in Boston: A case study on Commonwealth Avenue. *Case Studies on Transport Policy*.[2]

4.1.2 Annualization

To convert **daily** estimates of multimodal trips into **annual** estimates the following assumptions were applied to walking and biking trips: weekday and weekend are assumed to be the same; estimates multiplied by 365.25 (to account for leap years). This assumption seeks to balance the fact that more utility walking and biking trips are likely on weekdays while more recreational walking and biking trips are likely on the weekend days.

4.1.3 New/Induced Annual Person Trips

Based on the assumptions presented above, the estimated New/Induced Annual Person Trips are presented below. Different benefits calculations use different subsets of these values. The values below represent the new walking trips across the Main Street, Railroad Avenue, and Gilbo Avenue corridors, and new bike trips along the Main Street corridor.

[2] Karpinski, E. (2021). Estimating the effect of protected bike lanes on bike-share ridership in Boston: A case study on Commonwealth Avenue. *Case Studies on Transport Policy, 9*(3), 1313-1323. Accessed February 15, 2024, https://www.sciencedirect.com/science/article/abs/pii/S2213624X21001097?dgcid=author

New bicycling trips are computed only for Main Street, where a new bike lane will be installed. There is no change in bicycling trips calculated for the other project corridors, where there is already a parallel bicycle facility, the Cheshire Rail Trail.

Table 9 – Growth in trips, by Mode and Location

Mode	Location	Existing Annual Person Trips	New/Induced Annual Person Trips
Bike	Main Street	14,610	11,688
Pedestrian	Main Street	624,578	35,601
Pedestrian	Railroad Avenue	270,285	15,406
Pedestrian	Gilbo Avenue	178,973	10,201

4.1.4 VMT Reduction

To estimate a reduction in vehicle-miles travelled (VMT) based on the increases in multimodal trips, first, the share of new multimodal trips, presented in Table 9, diverted from driving was estimated. Table 10 enumerates the assumptions used to estimate new multimodal trips that will be diverted from driving.

Next, the BCA estimates VMT reduction by multiplying the new/induced daily person trips diverted from driving, by mode, by both a corresponding estimate of average trip length for the new mode of transportation, and then dividing by an average vehicle occupancy (AVO) variable to account for carpooling and to avoid over-estimating. Sources and assumptions for this calculation are shown in Table 10.

Note that the average trip lengths, shown below used in this BCA, and sourced from the US DOT BCA Methodology, are longer than the project corridors. Nonetheless these trip lengths were used to reflect individuals' full trips both on and off of the project corridors.

Table 10 – Assumptions to Estimate VMT Reduction, by Mode

Variable	Assumption	Source
Share of New Walking Trips Diverted from Driving	100%	WRCOG SB 743 Implementation Pathway Document Package[3] *(This source presents a reduction in VMT due to pedestrian improvements. This reduction in VMT was used in Table 8 to estimate increase in pedestrian trips over the baseline; a conservative estimate of new pedestrian trips because not all new pedestrians on the corridors would be*

[3] Fehr & Peers, *WRCOG SB 743 Implementation Pathway Document Package* (California: 2019), 94, accessed February 5, 2024, https://www.fehrandpeers.com/wp-content/uploads/2019/12/WRCOG-SB743-Document-Package.pdf

Variable	Assumption	Source
		diverted from driving. Therefore 100% of the new pedestrian trips estimated using this factor can be assumed to be trips diverted from driving.)
Share of New Biking Trips Diverted from Driving	10.9%	Quantifying Reductions in Vehicle Miles Traveled from New Bike Paths, Lanes, and Cycle Tracks[4]
Average Walking Trip Length	0.86	US DOT BCA Methodology, Dec 2023
Average Biking Trip Length	2.38	US DOT BCA Methodology, Dec 2023
AVO	1.67	US DOT BCA Methodology, Dec 2023 Passenger Vehicles (All Travel)

Based on the assumptions presented above, the total annual reduction in VMT due to the projects improvements to facilities for walking and bicycling is estimated at 32,680 VMT per year.

4.1.5 No Build VMT

Most of the calculations used in this BCA monetize the ***change*** value, that is, ***reduction*** in VMT or ***increase*** in active mode trips, for example. However, for ease of use of the existing formula and structure in the BCA spreadsheet template, a No Build Annual VMT was estimated. These calculations are depicted below in Table 11. The baseline existing daily vehicle trips for this calculation reflect a screenline location on all three of the impacted corridors: Main Street, Gilbo Avenue, and Railroad Avenue. While the No Build VMT is provided, please note that this variable does not have an impact on the BCA results whatsoever. This variable is simply a placeholder from which the ***change*** values were subtracted, to ultimately report the ***change*** values for the BCA calculations.

Table 11 – No Build VMT

Metric	Value
Average Trip Length (mi)[5]	10.53
Existing Daily Aggregate Vehicle Trips	22,539
Annualization Factor	365.25
Existing Annual Aggregate Vehicle Trips	8,232,370
Existing Annual VMT	**86,686,853**

4.2 BENEFIT CALCULATIONS

The sections below provide descriptions of each benefit included in the BCA. Benefits enumerated below are grouped by sheet (also referred to as “tab”) of the BCA spreadsheet. At least one sample calculation

[4] Volker et al, *Quantifying Reductions in Vehicle Miles Traveled from New Bike Paths, Lanes, and Cycle Tracks* (California: 2019), 40, accessed February 21, 2024, https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/bicycle_facilities_technical_041519.pdf
[5] USDOT Federal Department of Transportation, *Summary of Travel Trends: 2017 National Household Travel Survey* (2017), accessed February 5, 2024, https://nhts.ornl.gov/assets/2017_nhts_summary_travel_trends.pdf (Table 3b)

is provided below for each group of benefits. Sample calculations may not match exactly because of rounding.

4.2.1 Safety: Crash Reduction

The safety benefits incurred by this project include reductions in crash costs resulting directly from the Project. The City of Keene is concurrently working on a Safety Action Plan funded by the US DOT Safe Streets and Roads for All (SS4A) Grant Program. Crash data compiled and categorized by the City as part of that plan was used to inform the crash analysis for this BCA.

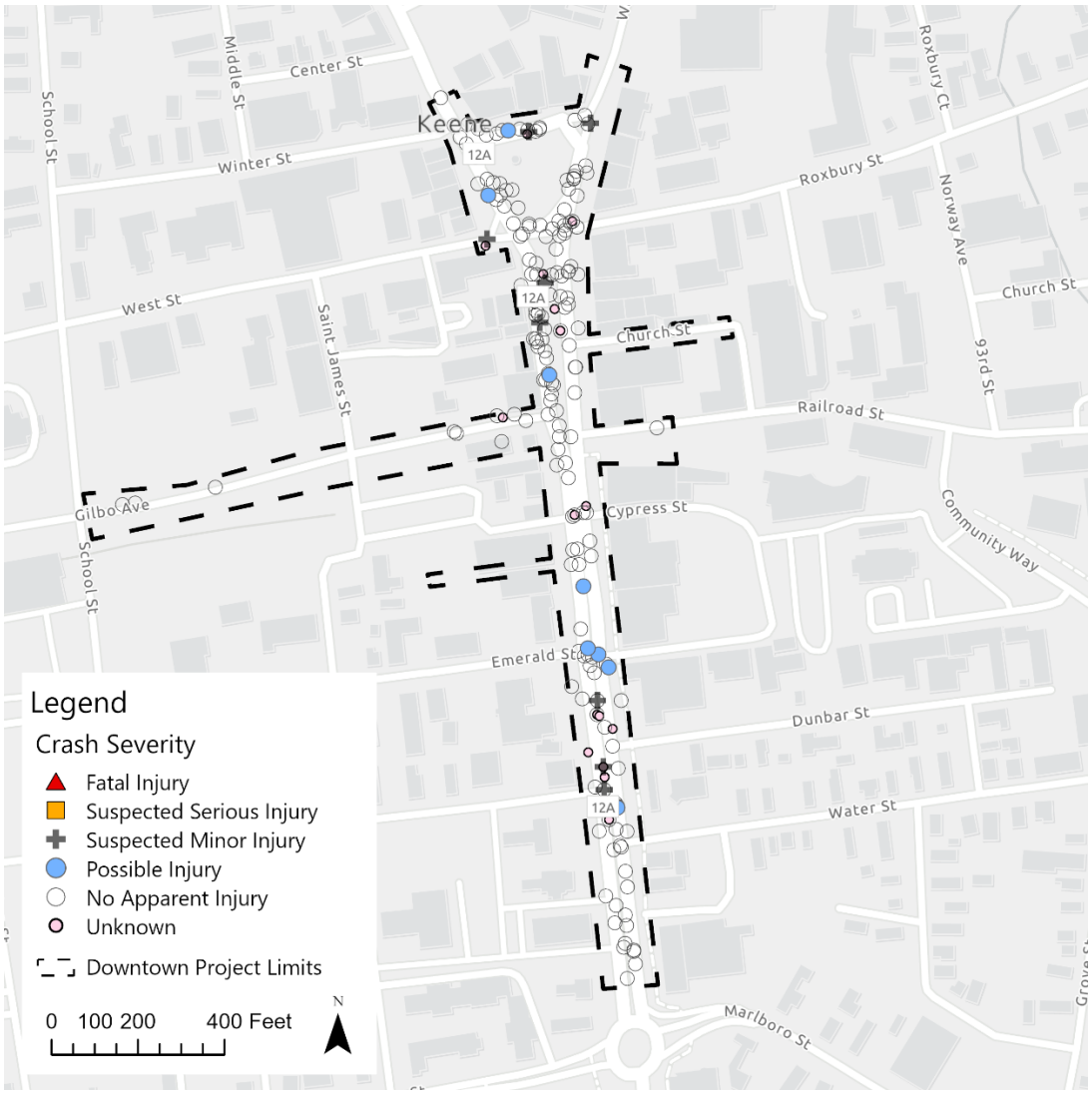
The conflicts between people walking/rolling, people on bikes, and people driving on the corridors and the high rates of incidents within the Project area indicate a lack of appropriate infrastructure to ensure the safety of roadway users. The crash data reflects a five-year period, 2018 to 2022, inclusive. Over the past five years for which data was available, there were 248 crashes in the study area. Crash data from the Safety Action Plan was loaded into ArcGIS (Figure 1), to match crashes to various components of the project.

The crash severity categories available from the Keene Safety Action Plan include severity classifications that do not exactly match the KABCO scale, for which the BCA guidance provides monetization values. Therefore, Table 12 summarizes how the severities in the Safety Action Plan crash data were matched with the severities and costs in the KABCO scale. Note that there were no fatal or suspected serious injury crashes within the study area in the last five years.

Table 12 – Crash Severity Categories

SEVERITY- from Keene	SEVERITY - BCA	Crashes (2018-2022)
No Apparent Injury	O - No Injury	220
Unknown	O - No Injury	18
Possible Injury	C - Possible Injury	2
Suspected Minor Injury	B - Non-incapacitating	8
TOTAL		***248***

Figure 1 – Corridor crash data visualized in ArcGIS



The crash reduction analysis uses crash modification factors (CMFs) from the USDOT's CMF Clearinghouse database related to the project types to calculate their estimated reduction in incidents related to the project improvements. Table 13 enumerates the project types, their locations, the average annual crashes, by severity, each location, the applicable CMF, and the types of crashes to which the CMF is applied. Note that no crashes are double counted; each crash is assigned to only one of the project groups in Table 13. Note that annual crashes were computed by dividing the total crashes over the five-year period by five.

Table 13 – Crash Reduction Inputs

Location	CMF ID	Counter Measure	CMF	Combined CMF	Combined CRF	Applicable Crash Types	Annual No Injury (O) Crashes	Annual Possible Injury (C) Crashes	Annual Non-incapacitating (B) Crashes
Main Street	CMF ID: 7825	Reduce Lane Width	0.76	0.57	43%	All modes	24.20	0.00	0.80
	CMF ID: 10743	Install Bicycle Lane	0.649			All modes			
Main Street & Gilbo Avenue/ Railroad Street	CMF ID: 4124	Upgrade to High Visibility Crosswalk	0.81	0.58	42%	Angle, Head on, Left Turn, Rear End, Rear to Rear, Right Turn, Sideswipe	3.20	0.00	0.00
	CMF ID: 135	Install BUILDd Ped Crosswalks	0.64			All modes			
Gilbo Avenue	CMF ID: 7825	Reduce Lane Width	0.76	-	24%	All modes	2.40	0.00	0.00
Central Square	CMF ID: 4124	Upgrade to High Visibility Crosswalk	0.81	0.60	40%	Angle, Head on, Left Turn, Rear End, Rear to Rear, Right Turn, Sideswipe	13.80	0.00	0.60
	CMF ID: 7825	Reduce Lane Width	0.76			All modes			
	CMF ID: 10743	Install Bicycle Lane	0.649			All modes			
Main St Side Streets: ▪ USPS and Edward Jones parking lot entrance ▪ Water Street ▪ Davis Street ▪ Dunbar Street ▪ Church Street	CMF ID: 4124	Upgrade to High Visibility Crosswalk	0.81	0.58	42%	Angle, Head on, Left Turn, Rear End, Rear to Rear, Right Turn, Sideswipe	1.00	0.00	0.20
	CMF ID: 135	Install BUILDd Ped Crosswalks	0.64			All modes			
Main St Intersections (side streets plus unsignalized Main Street crossing): ▪ Eagle Court / Emerald Street ▪ Commercial Street / Cypress Street	CMF ID: 4124	Upgrade to High Visibility Crosswalk	0.81	0.58	42%	Angle, Head on, Left Turn, Rear End, Rear to Rear, Right Turn, Sideswipe	3.00	0.40	0.00
	CMF ID: 135	Install BUILDd Ped Crosswalks	0.64			All modes			

MAIN STREET

Along Main Street south of Central Square, a protected sidewalk-level bicycle lane will be installed, and the travel lanes will be reduced as detailed below.

- No Build average lane width: 13 feet
- Build average lane width: 11 feet
- Lane width reduction: 2.7 feet

The highest-quality and most applicable CMF noted in the CMF Clearinghouse database indicates a CMF of 0.76 (CMF ID: 7825) for a lane narrowing, with three stars, indicating moderate high confidence in the CMF value. This CMF represents *convert 12-foot lanes to 11-foot lanes*, although the Project corridor's starting width is wider at 13 feet on Main Street. There were no CMFs that reflected the 13-foot to 11-foot narrowing differential, meaning that this approach **likely results in an underestimate of the safety benefits of this lane narrowing.**

In addition, separated sidewalk-level bicycle lanes, provide an additional traffic safety treatment and associated CMF to the analysis. The CMF Clearinghouse database provides a CMF of 0.649 (CMF ID: 10743) for installation of bicycle lanes, with four stars. Note that this CMF represents a generalized installation of bicycle lanes, not sidewalk-level bicycle lanes in particular (a newer and less studied countermeasure in the US), meaning that this approach likely results in an underestimate of the safety benefits of this bicycle facility.

With both lane narrowing and bicycle lanes installed, the two CMFs were combined. To calculate the new CMF values, combining these two CMF treatments, guidance from the Clearinghouse[6] was followed with the Systematic Reduction of Subsequent CMFs Method (Method 4.3) being selected as only two variables needed to be combined. Upon calculation, this method produced the following combined CMF:

$$CMF_{combined} = 0.649 \times \left(\frac{1 - 0.76}{2} + 0.76\right) = 0.57$$

The corresponding reduction in both total crashes is therefore estimated to be 43%.

This corridor will incur **additional benefits not captured in this safety analysis**. As noted above, the lane narrowing is more significant than captured in the 12-foot to 11-foot lane narrowing countermeasure. In addition, by removing the angled parking in the median, a significant source of vehicle-to-vehicle conflict will be removed, plus there will be less demand for pedestrians to cross outside of crosswalks to access parked cars. Lack of research and precedent for this type of countermeasure in the CMF Clearinghouse means that these safety benefits cannot be reliably quantified.

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[6] CMF Clearinghouse, *Investigation of Existing and Alternative Methods for Combining Multiple CMFs* (June 30, 2011), accessed February 21, 2024, http://www.cmfclearinghouse.org/collateral/Combining_Multiple_CMFs_Final.pdf

MAIN STREET & GILBO AVENUE/RAILROAD STREET

Pedestrian improvements at Main Street & Gilbo Avenue/Railroad Street include upgrading to high visibility crosswalks and installing raised crosswalks. For high visibility crosswalks, a CMF of 0.81 (CMF ID: 4124) was selected, two-star rating, as this CMF applies more broadly to all crashes.

In addition, the CMF Clearinghouse database provides a CMF of 0.64 (CMF ID: 135) for implementation installing raised crosswalks. This CMF, three-star rating, was selected because it applies broadly to all crashes.

To combine these CMF treatments, the same guidance described above, from the CMF Clearinghouse, was followed and the method produced the following combined CMF:

$$CMF_{combined} = 0.64 \times \left(\frac{1 - 0.81}{2} + 0.81\right) = 0.58$$

The corresponding reduction in both total pedestrian crashes is therefore estimated to be 42%.

This corridor will incur **additional benefits not captured in this safety analysis**. In addition to the countermeasures described above, this location also includes a Rectangular Rapid Flashing Beacon (RRFB). The CMF for this countermeasure was not included because it applies to pedestrian-only crashes while the other CMFs applied to this location apply to all crashes, so CMFs with different applicability were not mixed.

GILBO AVENUE

Along Gilbo Avenue west Main Street, a protected sidewalk-level bicycle lane will be installed, and the travel lanes will be reduced as detailed below.

- No Build average lane width: 21 feet
- Build average lane width: 11 feet
- Lane width reduction: 10 feet

The highest-quality and most applicable CMF noted in the CMF Clearinghouse database indicates a CMF of 0.76 (CMF ID: 7825) for a lane narrowing, with three stars, indicating moderate high confidence in the CMF value. This CMF represents *convert 12-foot lanes to 11-foot lanes*, although the Project corridor's starting width is wider at 21 feet on Gilbo Avenue. There were no CMFs that reflected the 21-foot to 11-foot narrowing differential, meaning that this approach **likely results in an underestimate of the safety benefits of this significant lane narrowing.**

The corresponding reduction in both total crashes is therefore estimated to be 24%.

CENTRAL SQUARE

Safety improvements at Central Square include upgrading to high visibility crosswalks, reducing lane widths, and installing bicycle lanes.

For high visibility crosswalks, a CMF of 0.81 (CMF ID: 4124) was selected, two-star rating, as this CMF applies more broadly to all crashes.

The highest-quality and most applicable CMF noted in the CMF Clearinghouse database indicates a CMF of 0.76 (CMF ID: 7825) for a lane narrowing, with three stars, indicating moderate high confidence in the CMF value. This CMF represents *convert 12-foot lanes to 11-foot lanes*.

In addition, separated sidewalk-level bicycle lanes, provide an additional traffic safety treatment and associated CMF to the analysis. The CMF Clearinghouse database provides a CMF of 0.649 (CMF ID: 10743) for installation of bicycle lanes. Note that this CMF represents a generalized installation of bicycle lanes, not sidewalk-level bicycle lanes in particular (a newer and less studied countermeasure in the US), meaning that this approach likely results in an underestimate of the safety benefits of this bicycle facility.

To combine these CMF treatments, guidance from the CMF Clearinghouse was followed with the Turner Method (Method 4.4) being selected as multiple values needed to be combined. Upon calculation, this method produced the following combined CMF:

$$CMF_{combined} = 1 - \left(\left(\frac{2}{3}\right) \times (1 - (0.681 \times 0.76 \times 0.649))\right) = 0.60$$

The corresponding reduction in total crashes is therefore estimated to be 40%.

MAIN STREET SIDE STREETS

Pedestrian improvements at the five Main Street side streets listed below include upgrading to high visibility crosswalks and installing raised crosswalks.

1. USPS and Edward Jones parking lot entrance
2. Water Street
3. Davis Street
4. Dunbar Street
5. Church Street

For high visibility crosswalks, a CMF of 0.81 (CMF ID: 4124) was selected, two-star rating, as this CMF applies more broadly to all crashes.

In addition, the CMF Clearinghouse database provides a CMF of 0.64 (CMF ID: 135) for implementation installing raised crosswalks. This CMF, three-star rating, was selected because it applies broadly to all crashes.

To combine these CMF treatments, the same guidance from the CMF Clearinghouse was followed and the method produced the following combined CMF:

$$CMF_{combined} = 0.64 \times \left(\frac{1 - 0.81}{2} + 0.81\right) = 0.58$$

The corresponding reduction in total crashes is therefore estimated to be 42%.

MAIN STREET SIDE STREETS (SIDE STREETS PLUS UNSIGNALIZED MAIN STREET CROSSING)

Pedestrian improvements at the two Main Street side streets listed below include upgrading to high visibility crosswalks and installing raised crosswalks on both the side streets and the unsignalized crossing across Main Street.

1. Eagle Court / Emerald Street
2. Commercial Street / Cypress Street

For high visibility crosswalks, a CMF of 0.81 (CMF ID: 4124) was selected, two-star rating, as this CMF applies more broadly to all crashes.

In addition, the CMF Clearinghouse database provides a CMF of 0.64 (CMF ID: 135) for implementation installing raised crosswalks. This CMF, three-star rating, was selected because it applies broadly to all crashes.

To combine these CMF treatments, the same guidance from the CMF Clearinghouse was followed and the method produced the following combined CMF:

$$CMF_{combined} = 0.64 \times \left(\frac{1 - 0.81}{2} + 0.81\right) = 0.58$$

The corresponding reduction in total crashes is therefore estimated to be 42%.

SUMMARY

This analysis results in an annual reduction of 19.51 No Injury (O) crashes per year, 0.17 Possible Injury (C) crashes per year, and 0.67 Non-incapacitating (B) crashes per year.

The CMFs are applied to existing crash patterns and do not include an assumption that the project would induce more walking and biking trips therefore exposing more people walking and biking to potential risk. As a result, the crash reductions use a conservative estimate, as assuming walking and bicycle traffic growth would yield higher crash reductions.

Table 14 – Sample Calculations of Monetized Benefits of Crash Reduction (Annual, Undiscounted)

Measure	Equations	Value
Average Annual No Injury (O) Crashes on Gilbo Avenue (reduced lane width location), baseline	(a)	2.40
Crash Reduction Factor - Convert 12-foot lanes to 11-foot lanes	(b)	24%
Annual Reduction in No Injury (O) Crashes on Gilbo Avenue (reduced lane width location), baseline	(c) = (a) * (b)	0.58
Monetized value of one No Injury (O) crash	(d)	$5,000
Monetized value of annual collision reductions on Gilbo Avenue (reduced lane width location), baseline	(e) = (c) * (d)	$2,880.00

4.2.2 Vehicle Travel Time Savings

The project will result in marginal travel time savings for people driving through the signalized intersection on the southside of Central Square: Main Street at West Street/Roxbury Street due to shorter crossing distances (causing shorter cycle lengths) and more space for right turns. The vehicle travel time savings is based on a level-of-service intersection analysis conducted using the Synchro software. This peak hour intersection analysis was prepared as part of the Traffic Data and Operations Memorandum, for the Downtown Infrastructure Improvement and Reconstruction project (June 26, 2023).

To convert the intersection analysis into person-hours saved per year due to the Project, the BCA included the following steps:

1. **Delay per vehicle**, per approach (northbound, southbound, eastbound, and westbound) output from the Synchro analysis was summed to obtain the following total intersection peak delay estimates per vehicle:
    a. AM Peak
        i. No Build: 116.30 seconds per vehicle
        ii. Build: 109.10 seconds per vehicle
    b. PM Peak
        i. No Build: 120.80 seconds per vehicle
        ii. Build: 120.80 seconds per vehicle
        iii. *This means that there was **no change in delay in the PM Peak**, therefore the PM peak was not part of this vehicle travel time savings analysis.*
2. **Total vehicle delay** was obtained by multiplying the peak intersection delay per person by the vehicle volumes, for each intersection approach. These vehicle volumes were the same volumes used to calculate the delays in Synchro, reported in step 1. The vehicle volumes were the same

for both No Build and Build. This calculation results in the following total intersection peak vehicle delay estimates:

   a. AM Peak: No Build: 49,516.70 seconds

   b. AM Peak: Build: 47,748.70 seconds

3. **Total person delay** was obtained by multiplying the peak intersection delay by an average vehicle occupancy (AVO). An AVO of 1.48 was used to reflect weekday ***peak*** vehicle occupancy for passenger vehicles, as provided in the BCA Guidance. This calculation results in the following total intersection peak person delay estimates:

   a. AM Peak: No Build: 73,284.72 seconds

   b. AM Peak: Build: 70,668.08 seconds

4. The total intersection peak person delay estimates were then converted to **annual person delay** estimates. First a daily factor of 4 was applied, assuming a similar level of delay that occurs during the AM peak hour would occur during the entire four-hour AM peak period. Then an annualization factor of 260 was applied; the number of weekdays in a year. This calculation results in the following total intersection annual person delay estimates:

   a. AM Peak: No Build: 76,216,104.64 seconds or 21,171.14 hours

   b. AM Peak: Build: 73,494,799.04 seconds or 20,415.22 hours

The result is an estimated 755.95 person-hours saved per year due to the Project, which was multiplied by the monetization value for general travel time savings (All Purpose).

Table 15 – Sample Calculations of Monetized Benefits of Vehicle Travel Time Savings (Annual, Undiscounted)

Measure	Equations	Value
Total annual travel time savings, hours, baseline	(a)	755.95
Value of time for general travel time (All Purpose) ($/hr)	(b)	$19.60
Monetized value of annual travel time savings, baseline	(c) = (a) * (b)	$14,816.00

It is likely that the project will also provide **unquantified multimodal travel time benefits** by creating a completer and more connected bicycle network and removing the need to cross to median angled parking to access a parked car.

4.2.3 Vehicle Operating Cost Reduction

The project will prompt a mode shift by improving walking and biking conditions, which will lead to fewer vehicle operating costs, a lower cost burden on low-income people, and more money that can be invested

elsewhere in the local economy. To estimate monetized benefits associated with these positive outcomes, the BCA multiplies the decrease in VMT on each corridor by mode as outlined in the Baseline Assumptions section by the monetization value for vehicle operation costs for Light Duty Vehicles per mile (0.52 $2022/mile), provided in the BUILD BCA guidelines.

For this benefit and for other benefits calculated in a similar manner, the sample calculation in this memo illustrates the monetization value being applied to the ***change*** in VMT, whereas in the BCA spreadsheet, the monetization value is applied to the total No Build and total Build VMT values, then the difference is computed to yield the same monetized savings value included in this memo.

Table 16 – Sample Calculations of Monetized Benefits of Vehicle Operating Cost Reduction (Annual, Undiscounted)

Measure	Equations	Value
Reduction in annual car/motorcycle vehicle-miles (baseline)	(a)	33,336
Value of light-duty vehicle operating cost savings per vehicle-mile	(b)	$0.52
Monetized value of vehicle operating cost savings, baseline	(c) = (a) * (b)	$17,334.84

4.2.4 Change in Emissions

The project will prompt a mode shift by improving walking and biking conditions, which will lead to a reduction in vehicle emissions from a net decrease in use of auto travel. To estimate monetized benefits associated with these positive outcomes, the BCA multiplies the decrease in VMT on each corridor by mode as outlined in the Baseline Assumptions section, by the following emissions monetization values provided in the BUILD BCA guidelines:

1. Light Duty Vehicles – Urban: **CO2 Emission per mile** (0.107 $2022/mile)
2. Light Duty Vehicles – All Locations: **Non-CO2 Emission per mile** (0.012 $2022/mile)

Table 17 – Sample Calculations of Monetized Benefits of CO2 Emissions Reduction (Annual, Undiscounted)

Measure	Equations	Value
Reduction in annual car/motorcycle vehicle-miles, baseline	(a)	33,336
Value of light-duty vehicle-urban CO2 emissions per vehicle-mile	(b)	$0.107
Monetized value of annual CO2 emissions reduction, baseline	(c) = (a) * (b)	$3,566.98

This method of calculation does not require conversion from reduction in VMT to estimated emissions before monetization; rather the reduction in VMT is monetized directly, based on values provided in the BUILD BCA guidelines.

Non-CO2 emissions are calculated using the same method and are intended to represent local air pollutants generated by transportation activities, notably sulfur oxides (SOX), nitrogen oxides (NOX), and fine particulate matter (PM2.5).

4.2.5 Avoided Highway Externalities

The project will prompt a mode shift by improving walking and biking conditions, which will lead to a reduction in highway externalities from a net decrease in use of personal vehicles including:

1. Congestion
2. Noise pollution
3. Safety (Note that this benefit calculation related to safety is separate and apart from the safety benefits detailed in section 4.2.1 which covers safety improvements due to infrastructure safety countermeasures, whereas this benefit covers safety improvements due to a reduction in VMT.)

To estimate monetized benefits associated with these positive outcomes, the BCA multiplies the decrease in VMT on each corridor by mode as outlined in the Baseline Assumptions section, by the following highway externalities monetization values provided in the BUILD BCA guidelines:

1. Light Duty Vehicles – Urban: **Congestion Cost per mile** (0.138 $2022/mile)
2. Light Duty Vehicles – Urban: **Noise Cost per mile** (0.0019 $2022/mile)
3. Light Duty Vehicles – Urban: **Safety Cost per mile** (0.02 $2022/mile)

Table 18 – Sample Calculations of Monetized Benefits of Congestion Related Avoided Highway Externalities (Annual, Undiscounted)

Measure	Equations	Value
Reduction in annual car/motorcycle vehicle-miles, baseline	(a)	33,336
Value of congestion per vehicle-mile	(b)	$0.138
Monetized value of congestion reduction, baseline	(c) = (a) * (b)	$4,600.40

4.2.6 Mobility Amenity Benefits

The Project will provide mobility amenity benefits throughout Downtown Keene because of the improved multimodal facilities and amenities, including upgraded sidewalks, slower vehicle speeds, upgraded crossings, protected sidewalk-level bicycle facilities. These projects will improve the quality and comfort of people walking and biking on the project corridors, therefore reducing their implicit costs to travel. To estimate monetized benefits associated with these positive outcomes, the BCA multiplies the number of trips or miles travelled on impacted corridors, by mode, by monetization values presented below.

TRANSPORTATION CHOICE

The amenity benefits of (a) expanded sidewalks, (b) reduced speeds (due to reduced lane widths), and (c) new dedicated cycling lanes will benefit new and existing people walking and biking.

Although a new signal for a pedestrian crossing (Rectangular Rapid Flashing Beacon (RRFB)) will be installed at the Main Street & Gilbo Avenue/Railroad Street intersection, a separate amenity benefit associated with *Install Signal for Pedestrian Crossing on Roadway with Volumes ≥13,000 Vehicles per Day* was not included, because as noted in the BUILD BCA guidelines, "…to avoid double-counting, applicants should not include both estimates of pedestrian crash reduction benefits and the crosswalk and these intersection improvement values for the same project components."

The monetization values for active transportation were applied to the existing plus new trips induced by the project as both populations would incur these benefits, not just new/induced users.

The applied active transportation amenity benefit baseline monetization values provided in the BUILD BCA guidelines are summarized in Table 19.

Table 19 – Active Transportation Amenity Benefit Monetization, as Provided in BUILD BCA guidelines

Amenity	Monetization Value	Monetization Value Unit
Expand Sidewalk (per foot of added width)	0.11	2022$/person-mile walked/foot of added width
Reducing Traffic Speed by 1 mph (for speeds ≤45 mph)	0.09	2022$/person-mile walked/1 mph reduced
Dedicated Cycling Lane	1.86	2022$/person-mile cycled

Walking: Expand Sidewalk

The project plans to expand the sidewalk widths on Main Street and Gilbo Avenue; this change will improve pedestrian comfort and experience. This sidewalk expansion will benefit pedestrians by creating a more pleasant, comfortable, and attractive environment for walking. An average sidewalk expansion amount was used for each corridor and results in the following calibrated monetization values:

- Main Street:
    - No Build average sidewalk width: 11.1 feet
    - Build average sidewalk width: 13.8 feet
    - Added width of sidewalk: 2.7 feet
    - **Calibrated Monetization Value**: 0.30 2022$/person-mile walked (0.11 2022$/person-mile walked x 2.7 feet = 0.30 2022$/person-mile walked)

- Gilbo Avenue:
    - No Build average sidewalk width: 8 feet
    - Build average sidewalk width: 12 feet
    - Added width of sidewalk: 4 feet
    - **Calibrated Monetization Value**: 0.44 2022$/person-mile walked (0.11 2022$/person-mile walked x 4 feet = 0.44 2022$/person-mile walked)

To quantify these benefits, the person-miles walked values associated with each of the Main Street and Gilbo Avenue corridors were multiplied by the calibrated monetization values. To calculate the person-miles walked, the annual existing + new walking trips (projected using the factors in the Baseline Assumptions section) were identified for a single average screenline location representing each corridor. Both existing and new pedestrians incur this comfort and trip quality benefit.

These annual new walking trips were then multiplied by the average walking trip length provided in the BUILD BCA Guidelines, 0.86 miles. This trip length factor is longer than each of the improved corridors, but it reflects the full length of trips taken by pedestrians who use the corridors for part of their trips.

The total existing plus new person-miles walked is multiplied by the respective monetization value to estimate the mobility benefit to people walking/rolling.

Walking: Reduce Traffic Speed

The project plans to reduce the speed of travel on Main Street and Gilbo Avenue by narrowing the roadway width; this change will improve pedestrian comfort and experience. This speed reduction will benefit pedestrians by creating a more pleasant, comfortable, and attractive environment for walking. The lane narrowing will result in an estimated average speed reduction of 4 miles per hour (mph) on Main Street and 9 mph on Gilbo Avenue.

The change in travel speed was calculated based on a speed reduction of 2 mph per foot of lane narrowing. This speed reduction comes from a National Association of City Transportation Officials (NACTO) literature review that states, *"There is no consensus in the literature on the relationship between lane width and speed. Some studies have shown speed reductions of as much as 3 mph for every foot of lane narrowing; other studies show a more slight speed reduction of about 1 mph per foot of lane narrowing or no significant effect at all."* Based on this research the speed reduction of 2 mph was selected as a mid-point of the range provided in this literature review.[7]

[7] National Association of City Transportation Officials (NACTO), *Relationship Between Lane Width and Speed: Review of Relevant Literature* (February 2003), accessed February 5, 2024, https://nacto.org/docs/usdg/review_lane_width_and_speed_parsons.pdf

For Gilbo Avenue this speed reduction calculation (lane width reduction (9 feet) x speed reductions per foot of lane narrowing (2)) would yield a 20-mph speed reduction, which is unrealistic on a low speed urban roadway. Therefore, the average speed reduction for Gilbo Avenue was capped at 5 mph.

This results in the following calibrated monetization values:

- Main Street:
    - No Build average lane width: 13 feet
    - Build average lane width: 11 feet
    - Lane width reduction: 2.7 feet
    - Estimated average speed reduction: 4 mph
    - **Calibrated Monetization Value**: 0.36 2022$/person-mile walked (0.09 2022$/person-mile walked x 4 mph = 0.36 2022$/person-mile walked)
- Gilbo Avenue:
    - No Build average lane width: 21 feet
    - Build average lane width: 11 feet
    - Lane width reduction: 10 feet
    - Estimated average speed reduction: 5 mph
    - **Calibrated Monetization Value**: 0.45 2022$/person-mile walked (0.09 2022$/person-mile walked x 5 mph = 0.45 2022$/person-mile walked)

To quantify these benefits, the person-miles walked values associated with each of the Main Street and Gilbo Avenue corridors were multiplied by the calibrated monetization values. To calculate the person-miles walked, the annual existing + new walking trips (projected using the factors in the Baseline Assumptions section) were identified for a single screenline location representing each corridor. Both existing and new pedestrians incur this comfort and trip quality benefit.

These annual new walking trips were then multiplied by the average walking trip length provided in the BUILD BCA Guidelines, 0.86 miles. This trip length factor is longer than each of the improved corridors, but it reflects the full length of trips taken by pedestrians who use the corridors for part of their trips.

The total existing plus new person-miles walked is multiplied by the respective monetization value to estimate the mobility benefit to people walking/rolling.

Bicycling: Dedicated Cycling Lane

The project plans to add new separated sidewalk-level bicycle facilities along Main Street where there are no existing bicycling facilities. The new bicycle facility will benefit cyclists by creating a more pleasant, comfortable, and attractive environment for cycling. This bicycle connection will create a more complete cycling network in and around Keene by connecting to the Cheshire Rail Trail which intersects Main Street at Gilbo Avenue/Railroad Avenue.

To quantify these benefits, the person-miles cycled on Main Street were multiplied by the monetization value for a Dedicated Cycling Lane (1.86 $2022/cycling mile). To calculate the person-miles cycled, the annual new cycling trips (projected using the factors in the Baseline Assumptions section) were identified at a single screenline location on Main Street. These annual new cycling trips were then multiplied by the average cycling trip length. The BUILD BCA Guidelines recommend an average cycling trip length of 2.38 miles. The total person-miles cycled for the corridor is multiplied by the monetization value to estimate the mobility benefit to people biking. This calculation is shown in Table 20

Table 20 – Sample Calculations of Monetized Benefits for Improved Bicycling Amenities (Annual, Undiscounted)

Measure	Equations	Value
Existing + New/Induced cycling trips (Main Street), baseline	(a)	26,298
Average trip length, in miles	(b)	2.38
Existing + New/Induced active transportation person-miles cycled (Main Street), baseline	(c) = (a) * (b)	62,589
Value of cycling-miles (dedicated cycling lane), baseline	(d)	$1.86
Monetized value of cycling facility improvements (Main Street), baseline	(e) = (c) * (d)	$116,415.99

4.2.7 Health Benefits

The project will prompt increased active transportation, which in turn will benefit individual health and public health and reduce the burden on the healthcare system. Improved bicycle and pedestrian amenities in the project area will promote this benefit. To estimate monetized benefits associated with these positive outcomes, the BCA first estimates the share of new/induced walking and biking trips induced from driving, outlined in the Baseline Assumptions section, made by people within the applicable age ranges. Applicable age ranges are defined as follows:

1. Walking: Ages 20-74: 75% (American Community Survey 5-year estimates, 2022)[8]
2. Cycling: Ages 20-64: 65% (American Community Survey 5-year estimates, 2022)[9]

[8] US Census, American Community Survey 5-Year Estimates Subject Tables, 2022, https://data.census.gov/cedsci/
[9] US Census, American Community Survey 5-Year Estimates Subject Tables, 2022, https://data.census.gov/cedsci/

The age ranges are based on age data for the study area Census Tracts for which detailed age data was available: Census Tract 9711; Cheshire County; New Hampshire and Census Tract 9713; Cheshire County; New Hampshire (age distribution data was not available for Census Tract 9714.01; Cheshire County; New Hampshire).

Once the new/induced walking and biking trips induced from driving, made by people within the applicable age ranges was calculated, these values were multiplied by the following health benefit monetization values provided in the BUILD BCA guidelines:

1. Walking (7.73 $2022/induced trip)
2. Cycling (6.80 $2022/induced trip)

Table 21 – Sample Calculations of Monetized Benefits of Walking Health Improvements (Annual, Undiscounted)

Measure	Equations	Value
New/Induced walking trips, baseline	(a)	61,209
Local applicable age range (walking: 20-74)	(b)	75%
New/Induced walking trips within applicable age range, baseline	(c) = (a) * (b)	45,906
Value of health benefits per walking trip	(b)	$8.06
Monetized value of improved health benefits, baseline	(c) = (a) * (b)	$424,553.85

4.2.8 Pavement Damage Reduction

The project will prompt a mode shift by improving walking and biking conditions, which will lead to a reduction in pavement damage from the wear and tear on roads caused by personal vehicles. To estimate monetized benefits associated with these positive outcomes, the BCA multiplies the decrease in VMT on each corridor by mode as outlined in the Baseline Assumptions section by the monetization value for pavement damage avoidance per mile (0.05 $2022/mile), as recently reported by the Victoria Transport Policy Institute (2024)[10] as the cost of pavement damage per vehicle-mile of urban driving.

Table 22 – Sample Calculations of Monetized Benefits of Pavement Damage Reduction (Annual, Undiscounted)

Measure	Equations	Value
Reduction in annual car/motorcycle vehicle-miles (baseline)	(a)	33,336
Value of pavement damage per vehicle-mile of urban driving	(b)	$0.05
Monetized value of pavement damage avoidance, baseline	(c) = (a) * (b)	$1,666.81

[10] Victoria Transport Policy Institute, *Evaluating Active Transport Benefits and Costs (page 28)*, February 20, 2024, accessed February 25, 2024, https://www.vtpi.org/nmt-tdm.pdf

4.2.9 Stormwater Runoff Reduction

The project includes Green Infrastructure improvements such as Silva Cell tree pits which are intended to increase the cubic feet of stormwater managed along the Main Street corridor. Under existing conditions, other than existing street trees and planted medians which are not designed to specifically treat stormwater, there is no existing stormwater treatment infrastructure on the project corridors.

The project also includes sewer separation for roof runoff along the Main Street corridor from Emerald/Eagle Street to Central Square. Under existing conditions stormwater runoff is connected to the sewer main and will be separated to the drainage system. A sketch of the roof area is shown below in Figure 2 for reference. This roof area was factored at 85% to reflect a portion of the buildings which are already connected to the drainage system or buildings which may delay making the connection.

Figure 2 – Sewer Separation Extents

The stormwater benefit was calculated using the Triple Bottom Line (TBL) Green Stormwater Infrastructure (GSI) Tool developed by the Water Research Foundation as part of project 4852, Economic Framework and Tools for Quantifying and Monetizing the Trible Bottom Line Benefits of Green Stormwater Infrastructure (https://www.waterrf.org/research/projects/economic-framework-and-tools-q

uantifying-and-monetizing-triple-bottom-line). The tool analyzes stormwater benefits across a number of categories, customized based on location and other key factors such as climate zone and construction year. The input to the tool was an estimated amount of impervious areas managed for each green infrastructure practice associated with the Project. More detailed outputs from the tool can be found in Attachment A.

To be conservative, the estimate includes only some of the quantifiable benefits associated with the Project's proposed Green Infrastructure and Sewer Separation elements. Specifically, the estimates include benefits that the tool estimates as a result of Avoided Infrastructure Costs. Other excluded categories of quantifiable benefits include Energy Savings, Water Supply, Property Values, in other sections of the Tool, although there will be benefits to the community in these categories. See Figure 3 for the key outputs used in the BCA calculation from the tool. The proposed sewer separation and biofiltration facilities were determined to have a benefit of $655,725 (undiscounted) over the 20-year analysis period.

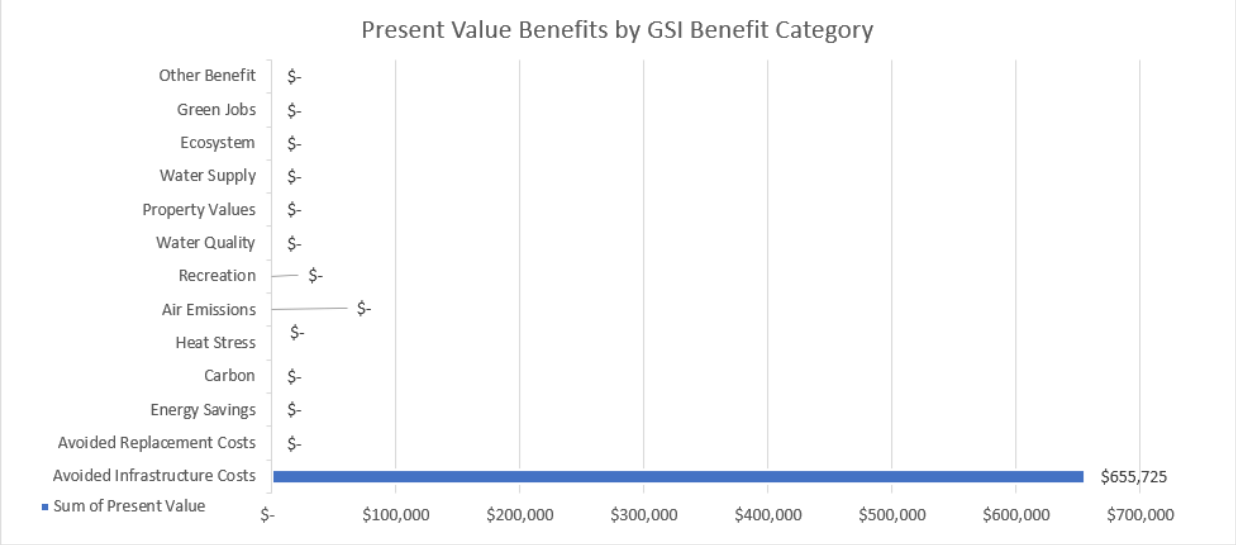


Figure 3 – TBL GSI Dashboard Sample Export

4.2.10 Job Creation

The Project will transform the downtown corridor to contribute to the local economy. The design will be safer and more convenient for residents and visitors to walk and bike between destinations, improving the viability of small local businesses.

The Gilbo Avenue corridor is a about a 13-acre area located in the core of downtown Keene. The corridor is primarily made up of streets, large parking lots and unused open and vacant space. The Cheshire Rail

Trail crosses through the area running south of Gilbo Avenue and connects to abutting communities to the east and west of Keene, serving as a regional transportation alternative to the downtown.

Currently, vacant and under-developed properties along Main Street, Gilbo Avenue and Emerald Street total about $3,381,500 in assessed value. With continued careful planning, focus on vibrant neighborhoods, connected mobility, and livable housing; and investment in the Main Street, Gilbo Avenue and Emerald Street core through this BUILD grant, the City expects these areas will support some 1,515 diverse residential units with up to 450,900 square feet of new commercial space in the next 15-20 years. Total value would be upwards to $151,337,500 in assessed value.

Funding the **Revitalizing Downtown Keene project** will bring immediate job creation and near-term economic activity associated with the design and construction of the streetscape improvements and is essential to the long-term development of jobs and economic growth in the Keene community. There have been several studies that predict short-term direct job creation from construction projects, including data provided by the Federal Highway Administration (FHWA). A more recent study by the Political Economy Research Institute (PERI) in conjunction with the University of Massachusetts Amherst concluded that roadway infrastructure projects that include pedestrian and bicycle facility components create a considerable number of jobs. The report includes case study analysis of the City of Keene and its continued investment in complete streets. Total construction related jobs expected are 13,000 per billion (13 per million). **This $22 million project is expected to create about 260 direct jobs.**

In addition to jobs created as a result of construction projects, public investments create indirect and induced long-term jobs supporting the project. Utilizing FHWA and PERI values for the estimation of indirect and induced jobs, it is expected that this project will generate 3.3 indirect jobs per million and 5.7 induced jobs per million in the community, **totaling 182 indirect and induced jobs.** The total value of all created jobs is estimated at over $87 million.

The project is expected to generate more than 442 jobs during construction. In that, the City of Keene's purchasing and procurement policies require that projects must promote the creation of job opportunities for low-income workers. Many of the jobs created as a result of the construction effort are generally for lower income, lower-skilled general laborers. Additionally, Keene policy requires that projects must provide opportunity for small businesses, minority and disadvantaged business enterprises, and disabled veteran-owned businesses. Keene's policies also require the hiring of contractors with proven performance in labor practices, and the adherence of project practices that are consistent with American civil rights and equal opportunity laws.

Studies have also shown the creation of permanent jobs based upon the development square foot potential. The Local Planning Handbook by the Metropolitan Council of St. Paul, MN concluded that based upon a development potential of 450,900 square feet of new commercial space in Downtown Keene, **490 permanent jobs would be created.** The total value of all created jobs is estimated at $31,299,632.

In this analysis, the total projected jobs created will begin in Year 10 of the project life cycle (2039) and grow to 490 new jobs by 2048. Total discounted value of the job creation benefit is $14,769,056.

5 SUMMARY

The project results in a final BCA ratio of **2.09**, with the full breakdown of benefits and costs described below:

Table 23 – BCA Results

BCA Component	Monetized Benefits (Discounted at 3.1%)
Benefit 1: Safety: Improved traffic safety and crash reduction	$5,143,437
Benefit 2: Vehicle Travel Time Savings	$201,830
Benefit 3: Vehicle operating cost reduction	$236,229
Benefit 4: Emissions reduction: (a) non-CO2 and (b) CO2	Non-CO2: $5,484 CO2: $54,308 (note that CO2 emissions are discounted at 2%)
Benefit 5: Avoided Highway Externalities: (a) reduced congestion, (b) reduced noise pollution, (c) improved safety resulting from overall reduction in vehicle travel	$68,670
Benefit 6: Mobility amenity benefits: (a) Expand sidewalk, (b) Reduce traffic speed, (c) New dedicated cycling lane	$13,076,113
Benefit 7: Public health benefits (improved health): (a) related to walking and (b) related to cycling	$5,372,322
Benefit 8: Pavement Damage Reduction	$21,092
Benefit 9: Stormwater Avoided Infrastructure Costs	$523,646
Benefit 10: Job Creation	$14,769,056
Operations and Maintenance Costs	($2,620,851) *Negative number*
Total Benefits	***$42,093,128****
Capital Costs	$20,183,797
Residual Value	$0
Total Costs	***$20,183,797***
Benefit/Cost (B/C) Ratio	***2.09***
Net Present Value (NPV)	***$21,909,331***
**Note that this number is not the same as the sum of the benefits because of order of operations. To calculate the total discounted benefits, benefits (including O&M) are aggregated by year, discounted by year, then summed together for all years of the analysis period.*	

The benefits of the project are many and are in excess of the costs, despite a conservative approach to estimating these benefits. The project shows a B/C ratio of 2.09 and is expected to result in significant benefits throughout the forecast period. Furthermore, there are additional unquantified benefits that would result from this project, including additional compounding crash reduction benefits and multimodal travel time benefits described above.

For further information on the calculations and assumptions, you are invited to review in detail the enclosed unlocked Excel workbook containing the full BCA Model (Attachment 10 of the grant submittal).

The following attachment is not included in the view since it is not a read-only PDF file.

Upon submission, this file will be transmitted to the Grantor without any data loss.

USDOT BCA Spreadsheet Template 11.18.24.xlsx

STATE OF NEW HAMPSHIRE
OFFICE OF THE GOVERNOR

KELLY A. AYOTTE
Governor

January 30, 2025

The Honorable Sean Duffy, Secretary
United States Department of Transportation
1200 New Jersey Avenue, S.E. Washington, DC 20590

Re: Support for the ***Revitalizing Downtown Keene*** RAISE Grant Application

Dear Secretary Duffy:

Please accept this letter of support for the *Revitalizing Downtown Keene* project to the U.S. Department of Transportation's RAISE Program. Acknowledging the significance of downtown Keene, New Hampshire, as the region's economic heart with a commitment to maintaining its vibrancy, relevance, and functionality for all, this multi-modal project brings increased access, resilient design, and improved quality of life to long underinvested communities.

Keene's downtown serves as an economic, social, and cultural engine for both the city and surrounding Monadnock Region. This opportunity will transform the downtown streetscape into a dynamic corridor that accommodates expanding community uses, prioritizes multimodal and active transportation access, expands connections to downtown, and integrates climate adaptation and resiliency measures.

This project would replace core utility infrastructure, upgrade the walking and cycling environment, create new flexible community spaces, and incorporate elements that will reduce flooding, support better air quality, and reduce the impacts of heat island effect. Reduction in roadway widths, crosswalk and sidewalk improvements, as well as new sidewalk grade bike lanes will prioritize people over cars and support the wider use of multi-modal transit across a greater array of groups.

Furthermore, the project would also cement Keene' s downtown as a hub within the regional trail network that runs through different neighborhoods and connects to communities with persistent poverty within Keene and the immediate area. This increased accessibility would allow alternative choices for people to connect to downtown and the wider region.

The proposed application represents a significant investment for New Hamps hire' s Monadnock Region that would maintain and enhance the quality of life for area residents and visitors as well as ensure the continued economic vitality of Keene and its surrounding towns. I am pleased to offer my support for this application and hope you will look upon it favorably.

If you have any questions, please do not hesitate to contact my office at (603) 271-2121.

Sincerely,

Kelly A. Ayotte
Governor

107 North Main Street, State House - Rm 208, Concord, New Hampshire 03301
Telephone (603) 271-2121 • FAX (603) 271-7640
Website: http://www.governor.nh.gov/ • Email: governorayotte@nh.gov
TDD Access: Relay NH 1-800-735-2964

THE STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION

William Cass, P.E.
Commissioner

David Rodrigue, P.E.
Assistant Commissioner

Andre Briere, Colonel, USAF (RET)
Deputy Commissioner

January 24, 2025

United States Department of Transportation
1200 New Jersey Avenue, S.E.
Washington, DC 20590

Re: Support for the ***Revitalizing Downtown Keene*** RAISE Grant Application

Dear Secretary:

Please accept this letter of support for the *Revitalizing Downtown Keene* project to the U.S. Department of Transportation's RAISE Program. The City of Keene, and specifically the Downtown area is the region's economic engine with a commitment to maintaining its vibrancy, relevance, and functionality for all. The outcome of this multi-modal project will bring increased and additional access, resilient design, and improved quality of life to a community and region deserving such investment.

Keene's downtown serves is an economic, social, and cultural hub for the city and surrounding Monadnock Region. This opportunity will transform the downtown streetscape into a dynamic corridor that accommodates expanding community uses, prioritizes multimodal and active transportation access, expands connections to downtown, and integrates climate adaptation and resiliency measures.

The project would replace core utility infrastructure, upgrade the walking and cycling environment, create new flexible community spaces, and incorporate elements that will reduce flooding, support better air quality, and reduce the impacts of heat island effect. Reduction in roadway widths, expansion and improvements to crosswalks and sidewalks, and new sidewalk grade bike lanes will prioritize people over cars and support the wider use of multi-modal transportation across a greater diversity of groups.

Furthermore, the project will cement Keene's downtown as a hub within the regional trail network that threads through different neighborhoods and connects to communities with persistent poverty within and surrounding Keene. The increased accessibility provides alternative choices for people to connect to downtown and the wider region.

For these reasons, I submit that the *Revitalizing Downtown Keene* project aligns with the grant program priorities and would be a useful investment in RAISE grant funding. Thank you for your consideration.

New Hampshire Department of Transportation (NHDOT) works closely with City of Keene to address regional transportation needs and has invested in several transportation projects in and around the City of Keene and continues to do so. The Downtown Keene Revitalization project would complement and build on those investments and is consistent with NHDOT goals advocating complete streets. NHDOT is happy to support the City's RAISE grant application and urges your favorable consideration.

Please do not hesitate to reach out to me with any questions.

Sincerely,

William Cass, PE
Commissioner

JOHN O. MORTON BUILDING • 7 HAZEN DRIVE • P.O. BOX 483 • CONCORD, NEW HAMPSHIRE 03302-0483
TELEPHONE: (603) 271-3734 • FAX: (603) 271-3914 • TDD: RELAY NH 1-800-735-2964 • DOT.NH.GOV

Keene STATE COLLEGE Wisdom to make a difference.
President's Office
229 Main Street, Keene, NH 03435

January 24, 2025

The Honorable Sean Duffy, Secretary
United States Department of Transportation
1200 New Jersey Avenue, S.E.
Washington, DC 20590

Dear Secretary Duffy:

Please accept this letter of support for the Revitalizing Downtown Keene project to the U.S. Department of Transportation's RAISE Program. The campus of Keene State College, New Hampshire's public liberal arts college, is in the heart of downtown Keene and our mutual thriving is inextricably linked. The RAISE grant provides the City of Keene with an invaluable opportunity.

Keene's downtown is the economic, social, and cultural hub for the city and surrounding Monadnock Region. This grant will allow us to reimagine and transform downtown Keene into a dynamic corridor that accommodates ever-expanding community uses, prioritize multimodal transportation access, and integrate climate adaptation and resiliency measures.

The project will cement Keene's downtown as a hub within the regional trail network that threads through different neighborhoods and connects to communities with persistent poverty within and surrounding Keene. With this funding, Keene can replace core utility infrastructure, upgrade walking and cycling environments, create new flexible community gathering spaces, and incorporate elements to reduce flooding, support better air quality, and lessen impacts of heat island effect. Keene can reduce roadway widths, improve crosswalks and sidewalks, and use new sidewalk grade bike lanes to prioritize people over cars and support the wider use of multi-modal transit.

The increased accessibility provides alternative choices for people to connect to downtown and the wider region. All these efforts will increase the sense of belonging in Keene across a greater diversity of groups.

Thank you for your consideration.

Melinda D. Treadwell, Ph.D.
President

January 22,2025

The Honorable Sean Duffy, Secretary
United States Department of Transportation
1200 New Jersey Avenue, S.E.
Washington, DC 20590

Re: Support for the RAISE Grant Application – *Revitalizing Downtown Keene*

Dear Secretary Duffy,

Please accept this letter in enthusiastic support for the selection of the *Revitalizing Downtown Keene* project by the **United States Department of Transportation's RAISE Program**.

Acknowledging the significance of Downtown Keene, New Hampshire as the region's economic epicenter with commitment to maintaining its vibrancy, relevance, and functionality for all, this multidimensional project supports equitable access, resilient design, and improved quality of life to long underinvested communities.

Keene's downtown is the economic, social, and cultural hub for the City of Keene and the surrounding Monadnock Region. This project expands downtown's streetscape as the dynamic and thriving corridor that establishes increasing community uses, prioritizes multifaceted transportation access, and extends connections to downtown from the wider region.

This project supports the next generation of business and business development in the heart of Keene and continues the path that previous generations invested in for the sustainability of our historic City of Keene downtown.

For these reasons, the *Revitalizing Downtown Keene* project aligns with the grant program priorities and is an impactful investment worthy of RAISE grant funding. Thank you for your consideration.

Sincerely,

Michelle DellaVita

Michelle DellaVita
Interim President & CEO and
Director of Development of Community Engagement
Greater Monadnock Collaborative – Regional Chamber of Commerce
48 Central Square
Keene NH 03431

The Senate of the State of New Hampshire

107 North Main Street, Concord, NH 03301-4951

January 30th, 2025

The Honorable Sean Duffy, Secretary
United States Department of Transportation
1200 New Jersey Avenue,
S.E. Washington, DC 20590

Re: Support for the ***Revitalizing Downtown Keene*** RAISE Grant Application

Dear Secretary Duffy:

Please accept this letter of support for the *Revitalizing Downtown Keene* project to the U.S. Department of Transportation's RAISE Program. Acknowledging the significance of Downtown Keene as the region's economic engine with a commitment to maintaining its vibrancy, relevance, and functionality for all, this multi-modal project brings equitable access, resilient design, and improved quality of life to long underinvested communities.

Keene's downtown serves as an economic, social, and cultural hub for the city and surrounding Monadnock Region. This opportunity will transform the downtown streetscape into a dynamic corridor that accommodates expanding community uses, prioritizes multimodal and active transportation access, expands connections to downtown, and integrates climate adaptation and resiliency measures.

The project would replace core utility infrastructure, upgrade the walking and cycling environment, create new flexible community spaces, and incorporate elements that will reduce flooding, support better air quality, and reduce the impacts of heat island effect. Reduction in roadway widths, crosswalk and sidewalk improvements, and new sidewalk grade bike lanes will prioritize people over cars and support the wider use of multi-modal transit across a greater diversity of groups.

Furthermore, the project will cement Keene's downtown as a hub within the regional trail network that threads through different neighborhoods and connects to communities with persistent poverty within and surrounding Keene. The increased accessibility provides alternative choices for people to connect to downtown and the wider region.

The project will provide needed improvements to downtown Keene that will address the economic, environmental, and infrastructural needs of the community. The project simultaneously addresses community health and climate change by encouraging alternative means of travel and supporting a healthy environment, in addition to addressing regional poverty concerns by removing barriers to opportunity and making downtown Keene more accessible for all.

For these reasons, I submit that the *Revitalizing Downtown Keene* project aligns with the grant program priorities and would be a useful investment in RAISE grant funding. Thank you for your consideration.

Please do not hesitate to reach out to us with any questions. Please contact Sophie Walsh at (603) 271-3469.

Sincerely,

Senator Donovan Fenton

Philip M. Jones
40 Stonehouse Lane
Keene, NH 03431
(603) 491-3967

January 28, 2025

The Honorable Sean Duffy, Secretary
United States Department of Transportation
1200 New Jersey Avenue, S.E.
Washington, DC 20590

Re: Support for the ***Revitalizing Downtown Keene*** BUILD Grant Application

Dear Secretary, Duffy:

Please accept this letter of support for the *Revitalizing Downtown Keene* project to the U.S. Department of Transportation's BUILD program. Acknowledging the significance of Downtown Keene as the region's economic engine with a commitment to maintaining its vibrancy, relevance, and functionality for all, this multimodal project brings equitable access, resilient design, and improved quality of life to long underinvested communities.

Keene's downtown serves as an economic, social, and cultural hub for the city and surrounding Monadnock Region. This opportunity will transform the downtown streetscape into a dynamic corridor that accommodates expanding community uses, prioritizes multimodal and active transportation access, expands connections to downtown, and integrates climate adaption resiliency measures.

The project would replace the core utility infrastructure, upgrade the walking and cycling environment, create new flexible community spaces, and incorporate elements that will reduce the flooding, support better air quality, and reduce the impacts of heat island effect. Reduction in roadway widths, crosswalk and sidewalk improvements, and new sidewalk grade bike lanes will prioritize people over cars and support the wider use of multi-modal transit across a greater diversity of groups.

Furthermore, the project will cement Keene's downtown as a hub within the regional trail network that threads through different neighborhoods and connects communities with persistent poverty within and surrounding Keene. The increased accessibility provides alternative choices for people to connect to downtown and the wider region.

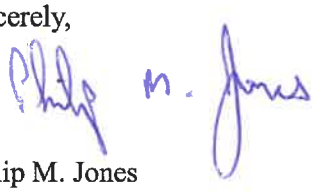
For these reasons, I submit that the Revitalizing Downtown Keene project aligns with the grant program priorities and would be a useful investment in BULD grant funding.

As a member of the House of Representatives- this project is an important infrastructure to support the economy of the Monadnock Region. As a City Council member- this grant is vital to help reduce the tax burden on our taxpayers.

Thank you for your consideration.

Please do not hesitate to reach out to me with any questions, please contact (603) 491-3967.

Sincerely,



Philip M. Jones
New Hampshire State Representative
Keene City Council

SWRPC | Southwest Region Planning Commission

37 Ashuelot Street
Keene, NH 03431
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Fax: (603) 357-7550
www.swrpc.org

January 22, 2025

The Honorable Sean Duffy, Secretary
United States Department of Transportation
1200 New Jersey Avenue, S.E.
Washington, DC 20590

Re: ***Revitalizing Downtown Keene*** RAISE Grant Application

Dear Secretary Duffy:

On behalf of Southwest Region Planning Commission (SWRPC), please accept this correspondence in support of the *Revitalizing Downtown Keene* proposal under the U.S. Department of Transportation's (USDOT) RAISE Program. This multi-modal transportation project is very well aligned with the Program's strategic goals by addressing critical safety issues, improving access and mobility for our most vulnerable populations, addressing local climate and sustainability goals, and strengthening the local and regional economy. The proposal seeks to replace core utility infrastructure, upgrade the walking and cycling environment, create new flexible community spaces, and incorporate elements that will reduce flooding, improve air quality, and reduce the impacts of heat island effect. Reduction in roadway widths, crosswalk and sidewalk improvements, and new sidewalk grade bike lanes will prioritize people over cars and support current efforts to improve transit services in the area.

Downtown Keene is the center of the Region, drawing employees, customers, students, and others from Southwest NH, Vermont and Massachusetts to jobs, goods, services and cultural destinations. According to recent commuting data, the City's population (approximately 23,000) grows by 25% on a typical weekday from workers alone.[1] In addition to the influx of workers, several thousand additional visitors come to the City's downtown daily to access medical and professional services, retail stores, restaurants, banks, schools, museums, theaters, government offices, and courts, Keene State College, Antioch University, and many other destinations. In rural New Hampshire, the predominant mode of transportation is the personal vehicle placing significant traffic impacts on Keene's downtown. The *Revitalizing Downtown Keene* project is instrumental in addressing the near ubiquitous safety conflicts that motorists, pedestrians and bicyclists experience in the downtown today by incorporating complete streets that encourage visitors to park and then walk, bike or use the City's transit system during their stay.

In addition to hosting the daily influx of visitors, Keene's downtown has the largest and densest residential population in the Region. Many of the Region's most vulnerable populations live in the downtown area. The mixed-use area hosts hundreds of multifamily and senior housing apartments as well

[1] U.S. Census Bureau. LEHD Origin-Destination Employment Statistics (2002-2021) accessed on February 14, 2024 at https://onthemap.ces.census.gov.

as homeless shelters interspersed among commercial, governmental, educational, and cultural destinations. According to the U.S. Census Bureau, approximately 12% of households in the downtown do not own a vehicle—a very high number for rural New Hampshire.[2] Keene and its downtown are currently experiencing record high rates of homelessness, median home values and monthly rental costs as well as record low owner occupied and rental housing unit vacancies. According to the *Southwest New Hampshire Regional Housing Needs Assessment* published by SWRPC in 2023, the City of Keene will require 755 new housing units by 2030 in order to address housing cost escalation and low vacancy trends.[3] After housing, transportation expenses are among the highest costs for our rural population. Having a City core that supports carless households will have real impact on residents making the City and Region more affordable, resilient and sustainable.

The *Revitalizing Downtown Keene* project aligns with many of the Region's long range transportation goals and objectives:[4]

Goal 1: The transport system will be managed to support and enhance the regional economy.

Objective 1A: It will be managed to foster a reliable business climate for existing and new businesses.
Objective 1B: It will be managed to leverage, attract and stimulate new investment.
Objective 1C: It will be managed to nurture and support regional economic diversity.
Objective 1D: It will provide transportation efficiency solutions for households, businesses, and taxpayers and free up scarce resources for personal, business and community investments.

Goal 2: The transport system will be managed to help preserve and enhance natural, cultural and historic resources.

Objective 2A: It will be managed to ensure high quality water, soil and air.
Objective 2B: It will be managed to reduce greenhouse gases from transportation emissions.
Objective 2D: It will be managed to preserve the sense of place of its villages, downtowns, parks and other unique cultural and historic destinations.
Objective 2E: It will work to preserve elements of the Region's transportation history including its historic bridges, trestle bridges, railroad depots, rail rights of way and other resources.

Goal 3: The transport system will provide people of all ages and abilities timely access to goods, services, recreation, entertainment and companionship.

Objective 3C: It will improve mode of transport choices as well as the quality of existing alternative choices inside the region and with outside destinations.
Objective 3D: It will support and encourage local efforts to improve street, sidewalk, bicycle path and virtual connectivity as well as land use practices that reduce overreliance on building transportation capacity or requirements for long-distance transportation solutions.

Goal 4: The transport system will be designed and managed to eliminate fatalities and injuries as well as provide reassurance to the traveling public that they are safe.

Objective 4A: It will be designed and managed to address unique safety challenges of special populations including but not limited to senior citizens, the disabled and the youth.

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[2] U.S. Census Bureau. American Community Survey 5-Year Estimates for Census Tracts 9711, 9713 and 9714.03, Table B25044 accessed on February 14, 2024 at https://data.census.gov.
[3] SWRPC. 2023. *Southwest New Hampshire Regional Needs Assessment* available at https://www.swrpc.org/housing/.
[4] SWRPC. 2023. *Southwest Connects: Southwest Region Transportation Plan: 2023-2040* available at https://www.swrpc.org/programs-services/transportation/long-range-transportation-plan/.

Objective 4C: It will address safety concerns of "incomplete streets" and its effect on the traveling public's comfort walking, biking or using transit.

Objective 4D: It will proactively mitigate potential dangers associated from severe storm events and other causes of potential hazards.

In summary, the *Revitalizing Downtown Keene* project serves as a shining example of the type of transportation investment that our Region has strived for, addressing not only real transportation needs, but also improving social and economic conditions for the Region and incorporating climate change resilience and adaptation measures that will preserve downtown Keene's status as Southwest New Hampshire's regional center of employment, services and culture.

Thank you for considering the City of Keene's proposal and this correspondence. Please contact me if you have questions or would like to discuss this matter further.

Sincerely,

Todd Horner
Executive Director

cc: Elizabeth Dragon, City Manager, Keene (e-mail)
Don Lussier, Public Works Director, Keene (e-mail)

January 20, 2025

The Honorable Sean Duffy, Secretary
United States Department of Transportation
1200 New Jersey Avenue, S.E.
Washington, DC 20590

Re: Support for the ***Revitalizing Downtown Keene*** RAISE Grant Application

Dear Secretary Duffy:

Please accept this letter of support for the *Revitalizing Downtown Keene* project to the U.S. Department of Transportation's RAISE Program. Downtown Keene is the region's economic engine reliant on its vibrance, relevance, and functionality for all. This multi-modal project brings equitable access, resilient design, and improved quality of life, all while reducing reliance on future infrastructure maintenance thereby alleviating burden on federal support.

Downtown Keene serves as an economic, social, and cultural hub for the city and the surrounding Monadnock Region. This opportunity will transform the downtown streetscape into a beautiful, dynamic corridor that creates flexibility for community use, prioritizes multimodal and active transportation access, expands connections to downtown, and integrates climate mitigation and resiliency measures.

The project would restore core utility infrastructure, upgrade the walking and cycling environment, create new community spaces, and incorporate elements that will reduce flooding, support better air quality, and reduce the heat island effect. Crossing distance reduction, crosswalk and sidewalk optimization, new sidewalk-grade bike lanes, and car-lane enhancements will support pedestrians, cyclists, and drivers alike, and induce demand for every mode of travel to promote freedom of movement and human dignity.

Further, the project provides robust, expedient connections from Downtown Keene and emergency response services to high-interest neighborhoods. Increased accessibility provides alternative choices for people to connect to Downtown and the wider region. For these reasons, I submit that the *Revitalizing Downtown Keene* project aligns with the grant program priorities and would be a useful investment in RAISE grant funding. Thank you for your consideration.

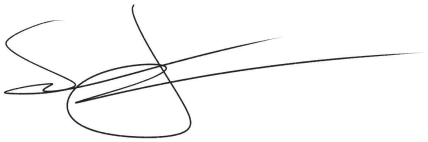
Bicycle and Pedestrian Pathways Advisory Committee supports this project that seeks to reimagine our downtown at human scale. It is clear how it increases safety for pedestrians and cyclists, but also protects drivers by correcting Main Street's over-engineered design, through common sense measures that encourage individuals to drive responsibly. It encourages

recreational tourism resulting in economic growth by capitalizing on our extensive rail trail network with adjacent towns. Improving bicycling and pedestrian infrastructure is part of Keene’s ongoing master plan.

We recently renewed our status as one of LAB's Silver Bicycle Friendly Communities, the highest of the state, and the improvements to our Main Street could support our upgrading to Gold. Infrastructure is the most difficult and costly component of the project, and as such, the grant can ensure these changes are not deprioritized as the project unfolds. Although there is a small increased cost up front to make these changes, sidewalks and bike paths are far less costly to maintain than their equivalent for vehicular traffic, returning the investment in the long term. Please help us seize this rare opportunity to improve our downtown for generations to come while the city is handling necessary infrastructure restoration.

Please do not hesitate to reach out with any questions to Sam Jackson at (603) 706-8151.

Sincerely,



Sam Jackson, Acting Chair on behalf of all members of BPPAC

CITY OF KEENE
NEW HAMPSHIRE

January 22, 2025

The Honorable Sean Duffy, Secretary
United States Department of Transportation
1200 New Jersey Avenue, S.E.
Washington, DC 20590

Subject: Support for the ***Revitalizing Downtown Keene*** RAISE Grant Application

Dear Secretary Duffy:

As Keene's Conservation Commission, we take seriously our responsibility to protect and enhance our community's natural place within our surrounding environment. While it is true that Keene's downtown is the transportation, economic, and social hub of Southwestern New Hampshire, it is also our home. The commission sees the *Revitalizing Downtown Keene* project as an opportunity to ensure that our downtown melds the built environment of Main Street & Central Square with the rolling hills and river valleys of the Monadnock Region.

The *Revitalizing Downtown Keene* project will allow us to enhance and expand our aging street tree environment; create comfortable, outdoor, human-scaled spaces and networks; and ensure Keene's ability to thrive in the coming decades in the face of unprecedented environmental, ecological, and climatic change. For all these reasons and more, the Keene Conservation Commission, wholeheartedly supports the *Revitalizing Downtown Keene* project.

If we can be of any service in this project, or if you have any further questions, please feel free to contact us at (603)352-5440.

Sincerely,

Andrew Madison

Andrew Madison
Chair, Keene Conservation Commission

CITY OF KEENE
NEW HAMPSHIRE

January 23, 2025

The Honorable Sean Duffy, Secretary
United States Department of Transportation
1200 New Jersey Avenue, S.E.
Washington, DC 20590

Subject: Support for the ***Revitalizing Downtown Keene*** RAISE Grant Application

Dear Secretary Duffy:

Please accept this letter of support for the *Revitalizing Downtown Keene* project to the U.S. Department of Transportation's RAISE Program. Acknowledging the significance of Downtown Keene as the region's economic engine with a commitment to maintaining its vibrancy, relevance, and functionality for all, this multi-modal project brings equitable access, resilient design, and improved quality of life to long underinvested communities.

Keene's downtown serves as an economic, social, and cultural hub for the city and surrounding Monadnock Region. This opportunity will transform the downtown streetscape into a dynamic corridor that accommodates expanding community uses, prioritizes multimodal and active transportation access, expands connections to downtown, and integrates climate adaptation and resiliency measures.

The project would replace core utility infrastructure, upgrade the walking and cycling environment, create new flexible community spaces, and incorporate elements that will reduce flooding, support better air quality, and reduce the impacts of heat island effect. Reduction in roadway widths, crosswalk and sidewalk improvements, and new sidewalk grade bike lanes will prioritize people over cars and support the wider use of multi-modal transit across a greater diversity of groups.

In January of 2021, the City of Keene adopted a comprehensive plan for how to carry out various energy and climate goals within the community with a focus on transportation and sustainable planning. The previously mentioned elements of the downtown revitalization are all key components to carry out these community objectives and further enable us to adapt to the changing climate and reduce any additional local impact to such.

Furthermore, the project will cement Keene's downtown as a hub within the regional trail network that threads through different neighborhoods and connects to communities with persistent poverty within and surrounding Keene. The increased accessibility provides alternative choices for people to connect to downtown and the wider region.

For these reasons, I submit that the *Revitalizing Downtown Keene* project aligns with the grant program priorities and would be a useful investment in RAISE grant funding. Thank you for your consideration.

Please do not hesitate to reach out to us with any questions, please contact Paul Roth at 603-354-5454 Ext. 2041 or proth@cheshire-med.com.

Sincerely,

Paul Roth, Vice Chair, City of Keene Energy and Climate Committee

January 28, 2025

The Honorable Sean Duffy
Secretary of Transportation
1200 New Jersey Avenue, SE
Washington, D.C. 20590

Dear Secretary Duffy,

The Keene Downtown Housing Corporation (KDHC) is submitting this letter in support of the City of Keene, New Hampshire's request for funding from USDOT's BUILD grant program for the "Revitalizing Downtown Keene Project". KDHC was founded in 1982 to assist in coordinating efforts between the public and private sector to maintain the health, vitality and environment of Keene's downtown area by assisting the City on economic and housing development projects. In our 40+ year history, we've participated in raising and attracting investment in dozens of economic development and housing projects in downtown Keene. We strongly support the City of Keene's proposal because it will build on previous investments we and other partners have made, and we are confident it will leverage even more investment in the downtown.

At KDHC, we believe Keene's proposed investment in downtown mobility and accessibility as well as the City's planned local investment in water and sewer infrastructure upgrades, will improve the attractiveness of the downtown area for private investment that will lead to the creation of new workforce housing. The creation of additional workforce housing in the downtown area is imperative. Through its own Housing Needs Analysis, Keene has determined that it will need housing for between 4,230 and 4,560 households in the next decade.

By creating a more attractive environment for private sector housing development investments, the project will address not only local housing needs but provide relief to the regional housing market as well. According to the New Hampshire Housing Finance Authority's 2023 Residential Rental Cost Survey Report, Cheshire County, for which Keene is the County seat, had housing rental vacancies estimated at only 1.8%. For a median renter household's income ($44,251), the percentage of 2-bedroom units at or below affordable rent (30% of household income) was only 2%. Keene is the logical place to build workforce housing given its capacity to accommodate denser development by virtue of its existing water and sewer infrastructure. Most surrounding towns do not have water and sewer infrastructure, thus limiting the possibilities of meeting our regional housing needs. Keene also hosts the majority of jobs in the region, so workforce housing will prove to be a safe and sustainable investment. Keene's BUILD proposal will support these investments by supporting short work commute times and safe and convenient access to jobs and services.

Thank you for your consideration of Keene's application and the interests and concerns of the KDHC.

Sincerely,

J. B. Mack
Keene Downtown Housing Corporation President

COLONIAL
PERFORMING ARTS CENTER

January 21, 2025

The Honorable Pete Buttigieg, Secretary
United States Department of Transportation
1200 New Jersey Avenue, S.E. Washington, DC 20590

Re: Support for the ***Revitalizing Downtown Keene*** RAISE Grant Application

Dear Secretary Buttigieg:

Please accept this letter of support for the *Revitalizing Downtown Keene* project to the U.S. Department of Transportation's RAISE Program. Acknowledging the significance of Downtown Keene as the region's economic engine with a commitment to maintaining its vibrancy, relevance, and functionality for all, this multi-modal project brings equitable access, resilient design, and improved quality of life to long underinvested communities.

Keene's downtown serves as an economic, social, and cultural hub for the city and surrounding Monadnock Region. This opportunity will transform the downtown streetscape into a dynamic corridor that accommodates expanding community uses, prioritizes multimodal and active transportation access, expands connections to downtown, and integrates climate adaptation and resiliency measures.

The project would replace core utility infrastructure, upgrade the walking and cycling environment, create new flexible community spaces, and incorporate elements that will reduce flooding, support better air quality, and reduce the impacts of heat island effect. Reduction in roadway widths, crosswalk and sidewalk improvements, and new sidewalk grade bike lanes will prioritize people over cars and support the wider use of multi-modal transit across a greater diversity of groups.

Furthermore, the project will cement Keene's downtown as a hub within the regional trail network that threads through different neighborhoods and connects to communities with persistent poverty within and surrounding Keene. The increased accessibility provides alternative choices for people to connect to downtown and the wider region.
For these reasons, I submit that the *Revitalizing Downtown Keene* project aligns with the grant program priorities and would be a useful investment in RAISE grant funding. Thank you for your consideration.

As a cultural cornerstone and recognized lead provider of performing arts for our tri-state region (New Hampshire, Vermont and Massachusetts), The Colonial Performing Arts Center (CPAC) fully understands the importance of an accessible, relevant and vibrant city core. Located dead center in Keene's downtown business corridor for the past 100 years, CPAC welcomes the multimodal transportation options and increased dynamism this project will bring to the arts community and our city.

Please do not hesitate to reach out to us with any questions, please contact me at (603) 352-3623.

Sincerely,

Keith Marks
Executive Director

95 Main Street - PO Box 77 • Keene, NH 03431
Business Office: 603-357-1233 • Box Office: 603-352-2033 • TheColonial.org

Arts Alive 15 Eagle Court
Keene, New Hampshire 03431
monadnockartsalive.org
(603)283-0944

January 15, 2024

The Honorable Sean Duffy, Secretary
United States Department of Transportation
1200 New Jersey Avenue,
S.E. Washington, DC 20590

Re: Support for the **Revitalizing Downtown Keene** RAISE Grant

Application Dear Secretary Duffy:

Please accept this letter of support for the Revitalizing Downtown Keene project to the U.S. Department of Transportation's RAISE Program. Acknowledging the significance of Downtown Keene as the region's economic engine with a commitment to maintaining its vibrancy, relevance, and functionality for all, this multi-modal project brings equitable access, resilient design, and improved quality of life to long underinvested communities. Keene's downtown serves as an economic, social, and cultural hub for the city and surrounding Monadnock Region. This opportunity will transform the downtown streetscape into a dynamic corridor that accommodates expanding community uses, prioritizes multimodal and active transportation access, expands connections to downtown, and integrates climate adaptation and resiliency measures.

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Furthermore, the project will cement Keene's downtown as a hub within the regional trail network that threads through different neighborhoods and connects to communities with persistent poverty within and surrounding Keene. The increased accessibility provides alternative choices for people to connect to downtown and the wider region.

Additionally, Arts Alive supports this application because it makes space for cultural events, activities, and installations. The arts are a driver of economic health in small communities across the region, like Keene. Arts event attendees often spend an average of over $30 per person in businesses beyond the arts venue they are patronizing, according to our 2022 Arts and Economic Prosperity Survey conducted in partnership with Americans for the Arts. Beyond direct financial benefit, Arts events help build community. According to our Arts Access Study 90% of community members agree that community events are an effective way to connect people in our region and 97% agree that a connected community fosters the wellbeing of its members. These spaces are vital to creating accessible public events in downtown Keene.

For these reasons, I submit that the Revitalizing Downtown Keene project aligns with the grant program priorities and would be a useful investment in RAISE grant funding. Thank you for your consideration.

Please do not hesitate to reach out to us with any questions, please contact me at jessica@monadnockartsalive.org or 802-380-5090.

Sincerely,

Jessica Gelter, Arts Alive

The following attachment is not included in the view since it is not a read-only PDF file.

Upon submission, this file will be transmitted to the Grantor without any data loss.

Keene_Project Location File.kmz