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Project Description

The City of Manchester, New Hampshire is requesting $19.9 million in BUILD 2019 Grant funding from the United States Department of Transportation (USDOT) for **Reconnecting Manchester for 21st Century Innovation Project**, which includes roadway, bridge, bicycle, and pedestrian infrastructure improvements at a total cost of $24.8 million, including $4.9 million in local match. The transportation infrastructure improvements will create the enhanced connectivity and congestion mitigation to enable $2.4 billion of private investment within the 124.3-acre project area, including redevelopment and new construction development opportunities for approximately 12.1 million square feet of mixed-use development (Refer to Build-out Analysis). This public-private opportunity is further validation of the positive investments and substantial progress made by the City and its development partners in the revitalization of the Millyard and Downtown Manchester.

In order to provide improved and expanded transportation options, the project proposes four interlocking components that reconnect the project area to surrounding areas, and empower redevelopment:

A. Pedestrian connections across Granite Street linking the Millyard and Downtown with the project area,

B. South Commercial Street extended from the South Millyard to Elm Street corridor,

C. Multimodal transportation corridor on the retired railbed,

D. Queen City Avenue/Cilley Road/South Willow Street intersection improvements.

Figure 1: Manchester, NH BUILD Grant Application Project Components
Project Location
For the Reconnecting Manchester for 21st Century Innovation Project, the City of Manchester has identified a project area focused around the South Millyard district, immediately to the southwest of the City’s historic Downtown and Millyard. The project is located within the boundary of the US Census-designated Urbanized Area 53740 (Manchester, NH). Geographically, the area is focused on:

- Granite Street corridor on the north
- Queen City Avenue corridor on the south
- Elm Street (US Route 3) and South Willow Street corridors on the east
- The east bank of the Merrimack River

The Challenges Brought by Success
Manchester has experienced significant success in revitalizing its city center area over the past 30 years. In the past, vacant mills and commercial buildings comprised the area formerly occupied by the Amoskeag Manufacturing Company, now known as the Millyard, which is immediately adjacent to a beautiful Downtown. Thanks to the vision of private entrepreneurs, investors, and city leaders, these areas are now filled with thriving businesses, innovative start-ups, and successful educational institutions. Areas that had been only underutilized industrial sites are now popular residential complexes, stadiums and restaurants.

With Manchester’s success comes the necessity and responsibility to adapt outdated transportation and infrastructure systems to 21st century standards that can accommodate future growth and redevelopment. Success has impacted the local transportation system in the following ways, and has created these challenging conditions:

1. Traffic congestion on Granite Street is significant, impacting the safety of drivers, pedestrians, and cyclists seeking to move north-south along Commercial Street; a street that connects major employers, educators and attractions. In addition, during peak hours, this congestion affects mobility on the adjacent Interstate System (I-293). Granite Street is a Principal Arterial, is part of the National Highway System, and is one of the three entrances into Downtown Manchester from the State’s Turnpike/Federal Interstate system, as well as one of four crossings of the
Merrimack River. It is the major east-west thoroughfare connecting across the Merrimack River to important regional roads and the Interstate Highway System.

2. Over time, the development of large land parcels and the presence of the Pan Am Railroad have reduced the number of east-west streets that connect the South Millyard with Elm Street (see Figure 5, Page 6). Elm Street (US Route 3) is a Principal Arterial on the National Highway System, connecting the heart of Downtown Manchester with businesses and communities to the north and south. When land uses were less dense in the project area, this condition was inconvenient but tolerable. With redevelopment now spreading southward from Downtown and the Millyard, there is an opportunity for Southern Elm Street to become a dense, multi-use corridor with a complete streetscape for all users. However, east-west connections can be the “game-changer” in empowering further redevelopment and economic growth.

3. The abandoned Manchester-Lawrence Rail Line currently runs from the heart of the project area – southeast under Elm Street all the way to South Willow Street – and continues to the Manchester-Boston Regional Airport. South Willow Street is one of the largest commercial shopping districts in the region, with three miles of commercial/retail space anchored by the Mall of New Hampshire (792,000 SF per owner, New England Development), as well as having adjacent residential neighborhood communities that will all benefit from improved mobility. In its current condition, the railroad corridor attracts vandalism and vagrancy, and has a negative social impact on the value and perception of adjacent properties. The bridge that carries Elm Street (Bridge #144/075) across this railbed is over 100 years old. Although in a safe condition for vehicular traffic, the bridge is awaiting repair for known deficiencies, including spalling from its underside, making travel below prohibited for safety reasons.

4. Manchester is the regional center for southern New Hampshire, yet its regional transit systems are fragmented across the city center, making it difficult for travelers to transition from modes of travel. For almost 20 years, the City and regional planning entities have sought to establish a centralized transportation hub; increasing uses and connectivity offer us the opportunity to create that center where rail, bus, trolley, auto, bicycle, and pedestrian can join.

5. The City has been working to establish a healthy bicycle system through rail trail projects on the current NHDOT TIP, improving bike pavement markings and implementing a bike share program in the millyard. However there are several “gaps” in the system that prevent cyclists from riding regionally in a safe, direct manner. Several of these missing connections are in the project area and force cyclists to ride on existing roadways without dedicated cycling infrastructure.
6. The existing intersection where Queen City Avenue and South Willow Street (both National Highway System roadways) converge with Cilley Road is confusing to drivers due to its road geometries. Previous reconfigurations have created a highway-style interchange promoting high travel speeds in a zone where driver decision-making is already problematic. This junction is especially important for trucks bringing freight shipments to the South Willow Street Commercial District; improving this interchange could also improve the flow of goods to the area. In its current condition, this intersection is not an attractive gateway to the City of Manchester, as it does not welcome visitors and residents, but rather, is a potential opportunity where significant redevelopment could occur.
How Manchester Will Meet the Challenges
For all of the success in the Millyard area and the adjacent Downtown district, expanding development across the southern Millyard border of Granite Street now faces significant challenges. Continued growth in a dense district requires the need for better transportation options, including connectivity and congestion mitigation for the increased numbers of users. The **Reconnecting Manchester for 21st Century Innovation Project** will address those transportation challenges by implementing four interlocking components. These components build upon past investments to reconnect the project area, and allow redevelopment and expansion of Downtown Manchester, to the southern part of the City, and the overall region. Specific project elements are:

A. Pedestrian connections across Granite Street linking the Millyard and Downtown with the project area,
B. South Commercial Street extended from the South Millyard to Elm Street corridor,
C. Multimodal transportation corridor on the retired railbed,
D. Queen City Avenue/Cilley Road/South Willow Street intersection improvements.

Together, these transportation infrastructure improvements will enhance mobility and safety for passenger vehicles, freight, bicycles, and pedestrians. The improvements will also mitigate congestion, implement proven safety countermeasures, and enable new mixed-use/mixed-income development.

Should these challenges go unattended, there could be far-reaching consequences to the no-build alternative. Along with continued traffic congestion and lost potential economic development, this area would maintain pockets of negative social behavior that would remain disconnected to the local community. Public safety and mass transit currently face challenges serving this area, and continued lack of action to address the needs of this zone will only deepen the social disconnect.

**Project History and Context**
Manchester is the social and economic center of southern New Hampshire, and is growing in both population and economic significance. Since 1980, Manchester’s population has grown by over 20%, from 90,936 to a 2017 population of 111,196. Economic growth in the life sciences, advanced manufacturing, information technology, education, and service industries are supporting new job growth. However, for purposes of the grant application, the Manchester region is classified as a designated rural area with open land, agricultural uses and forested land surrounding the City itself. In addition, Manchester is the most ethnically diverse community in the State, and in northern New England [U.S. Census Bureau].

During the 19th Century, the Amoskeag Manufacturing Company in Manchester, NH was the industrial heart for the region’s economic success. The Millyard, located along the Merrimack River, provided jobs for thousands during decades of economic success. To the east of the Millyard, Downtown Manchester along Elm Street was the regional urban commercial center. To the south, the area below Granite Street contained important rail lines, heavy industrial sites and warehousing facilities. However, like many manufacturing communities in the United States, Manchester’s original, defining industries were diminished by changes in global and national economics and demographics. After a period of decreased use and decay in the twentieth century, many of Manchester’s vast mills and
commercial buildings were underutilized or completely vacant and became areas of blight. Manchester is one of the first urban revitalization Grant awardees with proven success in applying federal grant dollars into long-term economic and cultural revitalization.

Figure 5 is street map of Manchester from 1873, which shows how the city once had multiple east-west street connections to Elm Street. Now, after years of development and growth, zero east-west connection remain in the South Millyard district.

Thankfully, Manchester reinvented its economies and communities through innovation, persistence and grit. The success of Manchester’s Millyard in particular has been the result of decades of dogged, incremental progress. During the 1980s the neighborhood was connected to the Everett Turnpike at Granite Street through a standard interchange, which allowed connection for workers and deliveries. In 2008, the ramp intersection was upgraded to a single point diamond interchange. Land use zoning for the Millyard was changed to encourage a mix of uses, which resulted in the reuse of several large and important former mill structures. The City also introduced diagonal parking to Elm Street in downtown and Commercial Street in the Millyard district, resulting in increased parking capacity and accelerated redevelopment.

Private vision and investment have been crucial to the success of Manchester’s recovery. The revitalized Mill District is now known as a fertile ecosystem for technology firms and innovative businesses, as described in articles from The New York Times and Politico. Mill buildings that were once filled with mechanical fabric looms are now home to offices for companies such as Texas Instruments, Autodesk, DEKA Research and Development, and Eversource Energy. Other buildings are filled with engineering firms, architects, professional offices, college classrooms and a smattering of restaurants. In response to the improvements area, Downtown experienced a 19.7% increase in residents between 2000 and 2010. The success in business activity and the need for additional housing is attracting developers who see opportunities to build apartments and hotels within the center of the city. For further information of Manchester’s success, follow this link.
The South Millyard area is slowly evolving with new mixed uses, including educational institutions such as Southern New Hampshire University (SNHU) and University of New Hampshire (UNH-Manchester), multi-unit housing, restaurants, shopping, sports and entertainment, among other dynamic activities, making Manchester an attractive place for students and young professionals. The City is actively encouraging this evolution, supported with actions by both the public and private sectors, working in partnership. While some redevelopment is occurring, the project area still has high levels of disinvestment and is part of Manchester’s only designated Opportunity Zone (see map here).

However, new development in and around the South Millyard district is directly inhibited by the fact that three east-west streets that had provided transportation connections to the National Highway System, state roads, city streets and local pedestrian networks have been removed over the decades. In order to restore the capacity for continued private sector investment and development, Manchester must reconnect the South Millyard area to the surrounding highway and street networks, expanding the revitalized urban fabric and quality of life thereby unifying the City’s urban fabric south of Downtown and the Millyard.

Building on Success – Completed Plans and Projects
This BUILD grant application is not the City’s first step towards this vision of a more connected city and South Millyard area. The City’s 2006 Downtown Strategic Development Plan articulated many of the central ideas embodied in this BUILD project. The recently completed Manchester Connects - Multimodal Transportation and Land Use Planning Initiative, convened by the Southern New Hampshire Planning Commission (SNHPC), which is the Metropolitan Planning Organization serving Manchester, is focused on increasing connectivity to help people move within and through the area on foot, by bike, car, bus, and train and is now moving into its implementation phase.

Over the past two decades, the City and its State and regional partners have completed several projects that expanded connectivity and urban livability:
- Widening of Granite Street Bridge, completed 2008, which included the completion of the single-point diamond interchange at Exit 5 of I-293
- Rehabilitation of five “red-listed” bridges and improved ramp system connecting Manchester to Interstate 293, completed 2017
- Construction of 1,700 car parking garage at South Commercial Street, completed July 2019
- Hands Across the Merrimack Pedestrian Bridge, the only dedicated multi-use trail currently across the Merrimack River, completed 2008
- Construction of Riverwalks on the east bank of the Merrimack River, completed in phases during the early 2000s
- Elm Street Gaslight District, completed 2018, revitalization and improvements to the Gaslight section of Downtown Manchester along Elm Street between Granite Street and Green Street, which includes pedestrian and streetscape elements, as well as new curbing and pavement overlay
Currently, in 2019, SNHPC is working with a team to develop the Manchester Transit Oriented Development (TOD) Plan. The TOD Plan is supported by the NHDOT Community Technical Assistance Program (CTAP) as a strategy to mitigate impacts associated with the expansion of I-93 between Salem and Manchester. TOD is a development model focused on the creation of compact, walkable, pedestrian-oriented, mixed-use communities centered around well-connected and high-quality mobility systems. Manchester’s TOD project area encompasses all of the project area that is the subject of this BUILD grant application. The projects are working in parallel. It is anticipated that the most feasible location for the new multimodal transportation hub will be in the BUILD grant project area, meaning the impacts of the BUILD grant can be expanded. The improvements to overall transportation systems and connectivity funded by the BUILD grant will benefit the development of transit-oriented development in Manchester. (Source: SNHPC website – link here)

The City of Manchester is currently in the design phase to implement an Adaptive Signal Control (ASC) system on Granite Street and to upgrade the communication between signals with Signal Performance Measures (SPM) on South Willow Street. More detailed discussion about the ASC system can be found in the Innovation section later in our application.

In preparation to apply for the 2019 BUILD Grant, the City convened a day-long charrette on May 23, 2019 and invited stakeholders, property owners and the public to participate in a facilitated session. The eighty (80) participants learned about ongoing planning and transportation projects, worked in groups to identify key issues in the project area that should be improved, and set priorities for key recommendations in the area.

Figure 6: Participants in the May 23, 2019 BUILD Grant Charrette
Statement of Work for BUILD Grant

The Reconnecting Manchester for 21st Century Innovation Project is a logical extension of the ongoing success in the center of Manchester and includes four components:

A. Pedestrian connections across Granite Street linking the Millyard and Downtown with the project area,

B. South Commercial Street extended from the South Millyard to Elm Street corridor,

C. Multimodal transportation corridor on the retired railbed,

D. Queen City Avenue/Cilley Road/South Willow Street intersection improvements.

An overview of the improvements and their location is shown on Figure 7. Each proposed improvement reinforces the larger objectives of providing complete streets and TOD concepts in and around the South Millyard area. The plan is to utilize the existing infrastructure and create patterns of development that reflect the values and vision of the community. It is the City’s goal to implement a development plan that will reunite disconnected neighborhoods with the Millyard and Downtown, while preserving corridor mobility, enhancing safety, and improving economic conditions.

The proposed infrastructure improvements are essential to improve safety for vehicular, pedestrian and bicycle access in order to relieve congestion and improve traffic flow. All of the project components are inter-related and work in concert to provide multimodal connectivity between the project area and the adjacent local and regional connections for drivers, freight drivers, cyclists, and pedestrians.
The detailed description of the project components follows:

A. Pedestrian connections across Granite Street linking the Millyard and Downtown with the project area through construction of a pedestrian bridge at Granite Street and South Commercial Street.

The pedestrian sidewalks that run north-south along South Commercial Street are the most direct path from the Millyard to the South Millyard areas and attractions, including the 7,500 seat Northeast Delta Dental Stadium, SNHU facilities, hotels, residential developments and businesses. In its current form, the at-grade pedestrian crossing of Granite Street is uninviting and crosses eight lanes of dense urban traffic. The pedestrian crossing time allotment within the traffic signal phasing contributes to reduced capacity of the intersection. The project would construct a pedestrian bridge with its north entry integrated into Gateway Park crossing above Granite Street. In addition, this will alleviate congestion on Granite Street and backing of traffic onto the Interstate system.

B. South Commercial Street extended to connect through South Millyard to connect Granite Street and Elm Street to mitigate congestion.

South Commercial Street at Granite Street is currently the only connection from the west side of the South Millyard to the regional road network. This intersection is located immediately adjacent to some of the highest traffic generators in the area:

a. Southern New Hampshire University’s online education facility and its 1,300 employees
b. Northeast Delta Dental Stadium (capacity of 7,500) which hosts regular minor league baseball games and large events/concerts
c. Hilton Garden Inn Hotel with 125 rooms
d. Riverwalk residential development with a total of 150 apartments and 42 condominiums located to the south of the stadium
e. WMUR-TV – the State of New Hampshire’s predominant news station

This has resulted in high levels of congestion along Elm Street and Granite Street (both part of the National Highway System), resulting in poor levels of service during peak hours on each road at critical intersections. Furthermore, during peak hours, drivers and pedestrians pour out of the busy millyard district into these intersections, causing further congestion in these areas. As previously explained, there were several east-west connections between South Commercial Street and Elm Street that provided multiple means of ingress/egress through the area. Over time, these connections have disappeared, forcing all traffic to South Commercial Street, thus choking off access. In order to improve levels of service to Elm Street and Granite Street, improve regional traffic flow, and provide increased access to the South Millyard area, the project will extend South Commercial Street through to Elm Street. This will also replace an existing at-grade rail crossing at Bedford Street at the northwest corner of the project area. This connection will provide much-needed safe pedestrian access. Currently during events at the ballpark, many pedestrians walk across the open railroad area, to shorten their route.
C. Multimodal Transportation Corridor to Regional Networks

At the heart of the project is the conversion of the retired railbed connecting the project area to Queen City Avenue as a multimodal transportation corridor to create a new, major connection to existing street patterns and highway access via Queen City Avenue or South Willow Street. The corridor will accommodate two lanes for vehicles and a separated paved path for cyclists and pedestrians. This will require replacing the Elm Street overpass and abutment walls, which are not currently configured to provide enough width for all proposed lanes. The corridor will link two critical areas: the site where several planning studies have proposed a Multimodal Transportation Center, and a newly reconfigured intersection/gateway at Queen City Avenue/Cilley Road/South Willow Street.

This will provide an additional exit from the South Millyard area to allow drivers to connect more efficiently at southern connection points to local and regional roads, and the interstate highway system.

For Manchester’s active cycling community, the new corridor fills one of the most significant gaps in the area’s cycling network by providing connections to the already established system of local bike paths and regional bike trails. Currently, the South Manchester Bike Path terminates 400’ to the south of the intersection of the Queen City Avenue/Cilley Road/South Willow Street intersection. The new multimodal path will connect under Elm Street and provide a direct connection to the South Millyard area, as well as improved opportunities for cyclists to access the Millyard and Downtown area destinations. This will also provide a shorter route for emergency services.
D. Improvements to Queen City Avenue/Cilley Road/South Willow Street intersection

This component will reconfigure the Queen City Avenue/Cilley Road/South Willow Street intersection as a gateway junction, including a new roundabout system and opportunities for infill development of multi-use buildings. This is a remaining fragment of highway-scale infrastructure from the 1980s when larger, higher speed intersections and feeder roads were seen as the solution to development woes. Roadway conditions are less than ideal for bicyclists and pedestrians due to the lack of crosswalks and sidewalk connectivity, and the future connection of the South Millyard and Downtown-beyond, are hindered by the presence of a confusing configuration of many lanes of traffic.

The project will improve functionality and clarity of the intersection into a true urban gateway. The centerpiece of the improved condition includes construction of a new roundabout system, improved bike lanes and sidewalks, integrated connection to the Multimodal Corridor connecting with the South Millyard area and Downtown and Millyard beyond, as shown in Figure 9 below.

Figure 9: Manchester, NH BUILD Grant Application – Conceptual Improvements to Queen City/South Willow/Cilley Road Intersection
## Project Schedule

The **Reconnecting Manchester for 21st Century Innovation Project** will complete all design, permitting and funding obligation in a time frame to synchronize with the completion of City plans and improvements. The City is positioned to execute the completion of design and permitting and start construction in accordance with the funding requirements of the BUILD program. All requirements of the State and Federal oversight of the first two project elements will be complete before the June 30, 2021 deadline. All funding can be obligated by September 30, 2021. Per requirements, all funds will be expended by September 30, 2026.

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Figure 10: Manchester BUILD Grant Project Schedule
**Project Budget**

The City of Manchester seeks funding under the USDOT BUILD funding source for the **Reconnecting Manchester for 21st Century Innovation Project**. The proposed improvements to be funded under this application will improve conditions on roadways that are part of the National Highway System, reduce congestion, improve driver, cyclist and pedestrian safety, and empower economic competitiveness by increasing transportation access for redevelopment. Figure 11 shows the cost and funding allocation of each proposed improvement:

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Figure 11: Manchester BUILD Grant Project Budget

The City has secured funding commitments totaling 20% of the project cost. The Lansing Melbourne Group (LMG), an international consulting development company, is contributing funding for this project, which is an extension of the investment they have already contributed in Manchester. LMG’s contributions include $55 million for the state-of-the-art parking garage for SNHU in the South Millyard, and the construction of a Tru by Hilton hotel, just north of the project on Commercial Street. In the letter of support, Lansing Melbourne Group expresses their commitment to this project. The City will fund the remainder of the 20% match, as they understand that investing back into the community will enable and encourage the City’s property owners to invest in the redevelopment of their own properties.
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### Summary of Potential Private Investment Leveraged by BUILD FY2019 Funding
- **Office/Light Manufacturing:** 2.9 million square feet
- **Retail:** 906,000 square feet
- **Residential:** 4.2 million square feet totaling 4,202 units
- **Parking:** to support all developments/land uses
- **Total Development Program:** 12.1 million square feet at anticipated 75% build-out
- **Total Private Investment:** $2.4 billion private investment

As a highly integrated mixed-use/mixed-income area, all components of the **Reconnecting Manchester for 21st Century Innovation Project** are interrelated. Successful commercial, office, retail, educational, entertainment, residential, restaurants and activated public space require pedestrian and vehicular traffic, convenient access, and visibility to thrive. These amenities create value and increase the quality of life for all who live, work, and visit Manchester and the region. Providing multimodal access to a diversity of uses and users (residents, employees, students, hotel guests, and other visitors) ensures the project area remains active at all times of the day, week and year, supporting a sustainable economy.

### Summary of Private Job Creation Leveraged by BUILD FY2019 Funding
- **Sustains 973 construction jobs annually during a 30-year build out period**
- **Creates redeveloped and new construction space for 7,344 permanent jobs**

More detail on both potential private investment and private job creation leveraged by BUILD FY2019 Grant Funding can be found in the Economic Competitiveness section later in this application.
Selection Criteria

The Reconnecting Manchester for 21st Century Innovation Project meets the BUILD FY19 primary selection criteria by providing long-term benefits to the city and region’s transportation systems, improving safety, providing options for mobility-challenged populations, and generating economic stimulus.

Primary Criteria
Safety
The project will improve safety within the project area by constructing key elements of the transportation system to enhance the movement of goods and people by improving the roadways, intersections, multimodal connections and pedestrian and bicycling facilities. In the aggregate, these projects will reduce the number, rate, and consequences of transportation-related accidents, serious injuries, and fatalities, and will provide safer pedestrian access and mobility.

A primary concern is the current condition for pedestrians crossing Granite Street in all directions. This intersection is problematic for both pedestrian safety at a high-volume intersection, and for drivers negotiating the intersection during periods with heavy pedestrian usage. The attached Technical Memorandum of Traffic Documentation supporting this application details the recent accident history in the project area, including all affected intersections. By constructing a dedicated pedestrian bridge over the intersection, pedestrians will have a much safer pathway to cross the intersection, and will no longer experience at-grade conflicts. This will also improve operations at the signalized intersection of Granite and South Commercial Streets, as time now dedicated to the pedestrian crossing phase can be reallocated to critical traffic movements, thus reducing queueing, emissions, and driver frustration. Furthermore, this reduction in vehicular delay from the elimination of the exclusive pedestrian phase will reduce queueing along the Granite Street corridor that frequently spills back into the I-293 interchange area, often back onto the off-ramps and mainline Interstate themselves.

Current conditions necessitate all traffic moving into/out of the project area through the intersection at Granite and South Commercial Street, resulting in a higher volume of traffic at this intersection. By extending South Commercial Street to Elm Street and beyond, vehicular traffic will be more efficiently dispersed through the project area, and will reduce the traffic pressure on this key location.

Currently, Elm Street (US Route 3) is the only contiguous north-south through-corridor in the project area, requiring project area traffic to use Granite Street and Elm Street to access the residential, commercial and institutional uses served by South Willow Street and Queen City Avenue. This increased volume decreases the safety and functionality of both of these roadways. The construction of the Multimodal Transportation Corridor to directly connect South Commercial Street to this area will improve accessibility to this corridor. The Corridor will also have a grade-separated path for cyclists, increasing the rate of cycling, which has been shown in other cities to result in major safety benefits for other users of streets.
The existing intersection of Queen City Avenue, South Willow Street and Cilley Road is a confusing layout that was originally constructed for high-volume conditions more in line with an interchange than a local street intersection and gateway to the Downtown area. The reconfiguration of this intersection with a roundabout system will have an immediate effect on vehicular safety, since replacement of a signalized intersection with a roundabout in similar locations has been shown to result in a 70% reduction in all crash types (source: Crash Rate Modification Clearinghouse).

The project will provide shorter travel distances for first responders, resulting in significant positive safety implications for the general public. Currently, there is only one route into and out of the South Commercial Street area. As the South Millyard area has developed, users with a higher need for emergency services have located there: large employers (e.g. SNHU with over 1,300 employees), large entertainment venues (e.g. Northeast Delta Dental Stadium has a capacity of 7,500) and high-density residential developments. After the project improvements, there will be two available routes for emergency access, resulting in major reductions in response travel distance (50% for Police, 28% for EMS and 5% for Fire). In addition, all responders will have fewer intersections to pass through on the way to calls; 75% of all EMS accidents occur during "hot" response (Virginia Department of Health, Acad Emerg Med 2005 Jul; 12(7):594-600).

**State of Good Repair**

The Notice of Funding Opportunity (NOFO) defines a State of Good Repair as “Improving the condition of existing transportation facilities and systems, with particular emphasis on projects that minimize life-cycle costs”. Maintaining a State of Good Repair is essential for historic city centers like Manchester to grow and adjust to changing economic conditions. The roadways in the project area have evolved over time and are not well-configured to support the redevelopment and new construction taking place in the project area. Improvements are needed to allow the project area to fully participate in our modern economy, while creating infrastructure that will be easier to maintain and adapt over the next 50 years.

Existing intersections along Granite Street, Elm Street, Queen City Avenue, and South Willow Street, as well as other local streets, were not designed to handle the levels of traffic that have accompanied the economic growth of the South Millyard and Downtown Manchester. These areas are overtaxed with congestion. By providing additional capacity to service existing and future travel demands, not only by vehicles, but for pedestrians and bicyclists, the impacts on any one street or intersection can be better distributed throughout the local transportation network, essentially extending the design life of the local and regional transportation network. Such improvements would also complement any TOD that
may be contemplated with the potential advent of commuter rail from the Boston area into southern New Hampshire.

The Elm Street Bridge (Manchester 144-075), constructed in 1915, is a critical link in the transportation network allowing for efficient north-south travel, mobility of goods, accessibility and mobility of people. Under the National Bridge Inventory (NBI) Appraisal Ratings (July 2018 Inspection Report) it is functionally obsolete for its Underclearances (rated at 2), and its Structural Evaluation is rated at 5 (Above Minimum - Tolerable). Currently the blast plates are deteriorating and pieces are falling from under the bridge. The bridge span itself is included in New Hampshire Department of Transportation’s Ten Year Plan, and is slated for repair in 2026. The structural retaining walls supporting the roadway approaching the bridge on Elm Street are in poor condition and will require replacement.

In its current state of repair, the bridge will require repair/replacement to address structural deficiencies in the near term. As part of this project, there is a unique opportunity to reconstruct the bridge to new dimensions to improve its functionality both above and below the structure itself (see Figure 13). The existing bridge structure does not provide adequate width to accommodate the proposed Multimodal Corridor with two lanes of north-south vehicular traffic and a separated bike/pedestrian path. We propose to replace the existing Elm Street overpass bridge with a new structure that will allow construction of the Corridor below and improved travel conditions along Elm Street above for vehicles and bicyclists in appropriate travel lanes and pedestrians on sidewalks. In this way, the project is consistent with City and State plans to maintain existing transportation facilities in a state of good repair while addressing current vulnerabilities.

Because of the low-lying nature of the Multimodal Corridor, stormwater management will be an integral part of both the Elm Street Bridge reconstruction and the Corridor construction. Most of the project area is outside of mapped Flood Hazard areas. Nevertheless, the project components will be designed to accommodate and treat the increased stormwater expected from severe precipitation events in the future. The Multimodal Corridor provides opportunities for sustainable, nature-based solutions to mitigate stormwater such as biofiltering swales and rain gardens. The design of these infrastructure improvements will be more resilient to vulnerabilities of severe precipitation and cold weather events.
The Manchester Department of Public Works (DPW) utilizes an asset management system, Maximo, to conduct all predictive, preventative, and corrective maintenance for all city assets under its purview. The assets populated are comprehensive and plentiful (hundreds of thousands of assets), and they include roads, bridges, playground equipment in parks, even boilers and chillers in schools. This system is integrated with the City’s GIS system, along with a software engine (GEONEXUS) that provides two-way updates with ESRI on a nightly basis. All work orders, purchasing, cost accounting, permitting and capital projects utilize this system. Supervisors and superintendents use a mobile iPad solution to track resources for the purposes of asset updating and cost accounting. There is also a mobile application (Manchester, NH Connect) that allows the public to notify the City of problems with trash, graffiti, potholes and other public works-related problems. The app is directly integrated with the City’s asset management system, routing work orders to the appropriate supervisor, based on the classification of work with feedback to the user once complete.

The Manchester DPW has made presentations on applications of asset management systems for municipalities at the IBM Pulse National Convention, as well as the Maximo for Utilities Work Group (MUWG) National Convention. The assets contemplated for construction within this BUILD grant would be seamlessly integrated into this system, along with the Departments’ work process management.

**Economic Competitiveness:**
Manchester is a dynamic and growing city, located at the geographic and intellectual center of innovation, education, healthcare, and business in northern New England, as well as being within an hour of the Boston metropolitan area. As the largest city in New Hampshire, with a population of 111,196 (2017 est.), Manchester is the economic center of a broader MSA region of 400,721 people (2010 US Census) where innovation and economic growth are increasing as a result of strong collaboration between private business, educational institutions, City and State government, and non-profit organizations. The growth of Manchester’s institutions and industry clusters is important for the economic health of the nation, not just Manchester and New Hampshire. Click [here](#) and [here](#) for examples.

The project area is central to the employment base of Manchester, and immediately in and around the project area are the other major economic anchors for the region. Directly north is the heart of Manchester and the University of New Hampshire’s Manchester campus. To the south and southeast is the South Willow Street commercial corridor, anchored by the Mall of New Hampshire and its surrounding retail facilities, which continue to thrive despite national negative trends in other retailing areas. The Manchester-Boston Regional Airport provides not only passenger air transport, but also freight and logistical support with companies like UPS and FedEx, which businesses in the South Millyard project area rely on for goods and services.

As shown by continuing patterns of redevelopment and business location, there is intense interest by the private sector to locate close to the Millyard and the businesses located therein. The so-called “eds and meds” (education, medical, bio-science, and research/development) employment sector continues to grow. At full build out, the redeveloped parcels in the project area have the potential to generate more than 7,344 new
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jobs, as referenced earlier. Educational opportunities in the vicinity of South Millyard and the overall project area are extensive – there are nine higher education institutions in Manchester (link), with the University of New Hampshire-Manchester and Southern New Hampshire University immediately adjacent to the South Millyard development parcels.

The Reconnecting Manchester for 21st Century Innovation Project enhances economic competitiveness by unlocking access to land for redevelopment in close proximity to the already successful Downtown and Millyard areas. In an historic city such as Manchester, there are limited areas of developable land remaining in the city center that is in close proximity to major economic drivers and close to existing and potential transit hubs. The project area is in an economically-distressed area, and has been designated one of New Hampshire’s only Opportunity Zones to encourage and enable new construction and redevelopment of underutilized structures/lots. 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 to take advantage of the synergistic aspects that have fueled the Millyard’s growth while protecting the look and feel of the existing neighborhoods.

The City is committed to creating the conditions for growth and investment, and these efforts have achieved positive results. The City’s effective economic development strategy has attracted millions in development projects in the past ten years. These recent developments have included the following recent public and private investments in the areas in and adjacent to the South Millyard:

- SNHU at 33 South Commercial Street
- UNH-Manchester
- Elliot at River’s Edge Medical Center
- Arms Park
- Residences at Riverwalk
- Market Basket
- ARMI (Advanced Regenerative Manufacturing Institute)

There is continued interest from the private sector to locate close to the Millyard and the area’s businesses and educational institutions. However, there is limited access to the sites with redevelopment potential in the project area. The development potential can be unlocked by increasing transportation access and options to the area through the construction of the project components. The project will increase Economic Competitiveness as it will:

- enhance the value of the underutilized parcels (totaling 5.1 million square feet) in the area by extending and creating connecting roadways with access to/from the Elm Street corridor and frontages within the South Millyard area
- maximize the value of the developable parcels in the area and enable the development of:
  - 2.9 million square feet of office/light manufacturing space
  - 906,000 square feet of retail space
  - 4.2 million square feet of residential space (4,202 units)
- enable a total of $2.4 billion in private investment within the project area, if built out in accordance with zoning and development regulations. This level of
investment has both local and regional implications for improved economic competitiveness

- sustain 973 construction jobs annually during a 30-year build out period
- create redeveloped and new construction space for 7,344 permanent jobs
- create expanded and improved accessibility to employment opportunities by increasing connections that will reduce congestion at key locations in the project area, improving the Level of Service at the Granite Street/South Commercial Street intersection from an F to a D
- decrease transportation costs and improve access, especially for the residents of the rural communities outside Manchester who work in the project area, as well as improve/provide non-vehicular transportation options for mobility-challenged populations to the east and south of the project area

Environmental Sustainability:
The most environmentally sound and economically sustainable community is compact, connected, and complete. Manchester was planned and built as a factory town with manufacturing, commercial and residential uses in close proximity to each other. However, modern transportation systems and large block planning have eroded that walkable fabric and system. As Manchester reconnects its urban fabric, greater development intensity can be achieved to create a community with land use patterns that reduces energy consumption, generates fewer vehicle miles traveled, and cuts greenhouse gases.

The project area is compact and should be readily walkable, but it requires improvements of pedestrian facilities thereby reducing reliance on single-occupant auto use, subsequently reducing energy consumption and improving air quality. The Reconnecting Manchester for 21st Century Innovation Project will provide improved connections to the existing street grid, and identification of and enhancements to alternative routes to optimize the functionality of the existing infrastructure. The Alliance for Biking and Walking estimates that there are $11.80 of benefits for every $1 invested in biking and walking, emphasizing the importance of alternate modes.

Specific project components of the Reconnecting Manchester for 21st Century Innovation Project will have measurable impacts on environmental health. Improvements to the Granite Street pedestrian systems and resulting efficiency at the vehicular intersection will mitigate adverse environmental impacts to air quality through congestion mitigation. Currently, the majority of traffic is funneled to a single point of ingress and egress, resulting in significant congestion and increases in idling time and congestion-related emissions. Connecting the project area with the surrounding street grid through two new vehicular and pedestrian/bicycle routes will provide residents and workers with increased options and improved transportation system connectivity. The construction of all project components will result in a reduction of approximately 10,353 tons of CO2 annually.

Figure 14: The City has implemented an environmentally-sustainable bicycle sharing program
By creating a multi-use path providing a direct route to the South Millyard from the Queen City Avenue/Cilley Road area, the mode shift of travel from passenger vehicles to biking and walking will increase by 1% (from the National Average).

The project area is the location of several potential brownfield sites for which increased access will provide redevelopment incentive. Known remediation and asbestos disposal sites from the New Hampshire Department of Environmental Services (NHDES) are provided here.

**Provide Transportation Choices**

The *Reconnecting Manchester for 21st Century Innovation Project* increases transportation choices for individuals to provide more freedom on transportation decisions. During grant and project area discussions during the City of Manchester’s Community Charrette on May 23, 2019, one of the most commonly heard sentiments about the project area was that “it seems designed only for cars”. Each of the project components is specifically designed to increase transportation choices while creating safer and more human-scaled environments. The reimagined project area is highlighted by urban streets, transportation alternatives and accessibility, including complete streets with bicycle lanes, sidewalks, and safe pedestrian crossings, especially for local populations where the personal vehicle is not their primary mode of transportation.

Each of the project components contributes in specific ways to provide increased access to transportation choices:

A. The construction of the Granite Street pedestrian bridge increases access by creating a safe connection between Downtown, the Millyard and the project area.
B. The extension of South Commercial Street creates a second connection route between Granite Street and Elm Street while providing direct access to both for users of the South Millyard.
C. The new multimodal corridor and shared-use path also establish Manchester as a place for all modes of transportation, and sets the conditions for development commensurate with the importance of Elm Street as one of the City’s main entry points.
D. The Queen City Avenue/South Willow Street intersection with a roundabout system and redeveloped lots will increase the safety and efficiency of travel through the area while also creating a gateway for a sense of arrival to Downtown Manchester. The creation of an enhanced roundabout system suits the specific configuration of the road system, and is an opportunity to create a focus for pedestrian-scaled development in a part of the city that operates at “highway scale”.

Beyond each specific project component, the project supports larger efforts to increase transportation choices in Manchester. There are ongoing efforts to connect Massachusetts Bay Transit Authority (MBTA) rail service that currently terminates in Lowell northward through Nashua to Manchester and then, potentially to Concord as part of the Capital Corridor initiative. The Manchester TOD Project has identified the BUILD project area as the best potential location for a multimodal regional transportation hub.
Overall development within the South Millyard, Elm Street, and South Willow Street corridors will be within a quarter-mile walk of the new transportation hub; an extremely important transit-oriented redevelopment opportunity for the City. This new hub will provide new residential and commercial space in close proximity to a station that can have regional bus and rail services. By increasing connectivity to this area, the project improves access for all potential users.

The development of rail connections and the density of existing and future redeveloped space in Manchester makes it possible to allow those unable to own a vehicle to have many commuting and travel options. In many cities, not owning a car and still having complete mobility is a source of pride. A push to a more transit-oriented community and a balanced mix of uses will make Manchester more accessible and economically competitive.

Transportation costs play a key role in housing affordability. Improved access to transit is vital for Manchester’s population at all income levels. The Manchester housing market currently sports a miniscule apartment vacancy rate of 2.9%, compared with a national rate of 6.2% (2017 US Census ACS data), indicating unfulfilled demand for quality housing, particularly near the Millyard and Downtown core where employment opportunities are located. By connecting more sites to transportation options they become more likely for redevelopment; increasing the housing supply in the area. Overall, the project area has the capacity to create over 5,600 residential units, based on existing zoning and development trends. Because of the diversity of lot sizes and street types in the area, the residential program has the potential for a mix of unit sizes and types, and can integrate some affordable and/or workforce housing. Given the location of the project area to the future Transportation Hub and regionally connected bicycle facilities, the housing units will have easy access to multiple modes of transit, and allow vehicle ownership to be optional rather than mandatory. Without the expense of purchasing and maintaining a car, the new residents will have increased options on the size and type of housing they choose.

Coordinate and leverage federal policies and investment.

Federal policies and investments deployed in this area of Manchester have not been limited to the BUILD FY19 Program. The City of Manchester and SNHPC have completed several initiatives and programs and are actively collaborating on more at the present time:

- The proposed project area falls within Manchester’s designated NH Neighborhood Revitalization Strategy Area (NRSA) as approved by HUD in the City’s Consolidated Plan for 2015-2019. This is a targeted low income and underserved area, and is designated by HUD and the City as a primary target for economic and public infrastructure improvement such as creating greenspace, walkable communities, parking and multimodal transportation options to assist lower income residents with better access the economic opportunities of the City.

- The Queen City Bridge is on the NHDOT’s “Red-list”. The rehabilitation of this bridge is currently in the design phase, and is scheduled for construction in 2020. The project is funded through the NHDOT State Aid Bridge Program, and is following the NHDOT LPA process.

- The current Adaptive Signal Control Project on Granite Street and the Signal Performance Measures on South Willow Street are a combined Congestion Mitigation and Air Quality (CMAQ) Project, which utilizes Federal CMAQ grant
funding administered through the New Hampshire Department of Transportation (NHDOT) Bureau of Planning and Community Assistance under their Local Public Agency (LPA) project development process.

**Secondary Criteria: Innovation**
The City of Manchester could create a Tax Incremental Financing (TIF) District to fund infrastructure improvements in the project area, which has recently been successful in the nearby Town of Bedford. This would be used for debt service on bonding, used for up-front capital expenditures for initial construction, and funding the life cycle costs of maintaining the proposed improvements.

The NHDOT Transportation Management Center is expanding their Intelligent Transportation System (ITS) Device infrastructure along I-293 and within the project area, which could allow for expansion communication capabilities, improve safety and emergency response time at Exit 5, and along Granite Street.

The Adaptive Signal Control System by Consensus Systems Technologies (ConSysTec) will be installed on Granite Street to optimize signal timing and coordination, and improve traffic flow. This will be done by continuously monitoring cycle lengths, phasing, offsets and splits to adjust for current traffic conditions. The Signal Performance Measures (SMP) on South Willow Street will also improve coordination and traffic flow by maintaining fixed cycle lengths while continually adjusting splits and offsets.

The City of Manchester has made a public/private investment, to insure that the community has the latest in transportation technology, allowing for a sustainable vehicular free lifestyle. The investments allows Manchester Transpiration Authority (MTA) to merge with a neighboring transit system known as CART. This significant expansion enables the service area to cover most of the Capital Corridor from Concord to Nashua to Salem and communities within that triangle. The upgraded scheduling and communication technologies will provide passengers with:

- The ability to request rides online without having to call dispatch, freeing them to schedule any time of day or night
- Use their smart phones to locate a bus and know when it will arrive at their stop in real time
- Access real time online trip planning, showing the most efficient way to travel from Point A to Point B
- Paratransit (StepSaver) options to receive a reminder call the night before their trip, and receive mobile notification approximately 5 minutes prior to their pick up
- Real time alerts for service delays, detours, and other impacts on scheduled service

Manchester is becoming known as the Biofabrication Hub, due to the signing of SB 564 into law, a groundbreaking step in the State leadership in regenerative medicine, which provides an unprecedented 10-year tax exemption for both the State business profits tax, as was the business enterprise for their taxable activity in the Advanced Regenerative Manufacturing Institute (ARMI) project in Manchester. The bill also includes a $5 million student loan repayment program for workers who devote at least five years to the project.
FedEx Corporation, with the help of DEKA Research & Development Corp, has been working on a pilot robot program to be used for a SameDay Delivery Bot. As of July 10, 2019, City of Manchester Aldermen approved a pilot agreement to allow the Bot to drive on city sidewalks, which will pave the way for these box-shaped robots to make deliveries in the not-too-distant future.

Also on July 10, 2019, the City of Manchester Board of Alderman approved the use of a Parking application called EasyPark, which is an in-vehicle parking meter that allows you to pay for parking without walking to and from a parking meter.

**Secondary Criteria: Partnership**

**City of Manchester** – The City of Manchester will be the grant recipient and be responsible for administering the project. The City’s Department of Public Works will be the lead agency for implementation, and will oversee the planning, design and construction of all project components. The City currently has designated and trained professional staff responsible for federal grant administration and reporting procedures.

**Southern New Hampshire Planning Commission (SNHPC)** – As the Metropolitan Planning Organization for Manchester, the SNHPC has collaborated closely with the City of Manchester in regional planning initiatives, urban planning such as Transit-Oriented Development and transportation planning. SNHPC has been a partner in the formulation of the ideas embodied in *The Reconnecting Manchester for 21st Century Innovation Project* and a collaborator in the creation of this application.

**Bureau of Turnpikes** – The Bureau of Turnpikes should coordinate closely with the City on improvements related to Granite Street and the Exit 5 area.

The City has received unequivocal support for the project from political, economic and social leaders, as well as State and regional agencies. The following table is an overview of the more than 40 key leaders across the Granite State that view this project as a positive for the local community and State of New Hampshire (See Appendix for Letters of Support):

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization/Entity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joyce Craig</td>
<td>Mayor of Manchester, NH</td>
</tr>
<tr>
<td>Jeanne Shaheen</td>
<td>United States Senate</td>
</tr>
<tr>
<td>Maggie Hassan</td>
<td>United States Senate</td>
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<tr>
<td>Chris Pappas</td>
<td>United States House of Representatives</td>
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<tr>
<td>Donna Soucy</td>
<td>New Hampshire Senate</td>
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<tr>
<td>Lou D’Allesandro</td>
<td>New Hampshire Senate</td>
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<tr>
<td>Kevin Cavanaugh</td>
<td>New Hampshire Senate</td>
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<tr>
<td>Pat Long</td>
<td>New Hampshire House of Representatives</td>
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<tr>
<td>Mary Heath</td>
<td>New Hampshire House of Representatives</td>
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<tr>
<td>Josh Query</td>
<td>New Hampshire House of Representatives</td>
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<tr>
<td>Matthew Wilhelm</td>
<td>New Hampshire House of Representatives</td>
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<tr>
<td>Victoria Sheehan</td>
<td>New Hampshire Department of Transportation</td>
</tr>
<tr>
<td>Mike Whitten</td>
<td>Manchester Transit Authority</td>
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</tbody>
</table>
Planning and Public Outreach
As we have mentioned before, a community charrette was held on May 23, bringing together key stakeholders, business leaders and abutters, as well as the general public to discuss key issues, constraints and ideas for the project area.
Project Readiness

Technical Feasibility

The design of the South Commercial Street Extension will continue to be developed by the City of Manchester, going from concept level design to final design stage as the BUILD Grant application is in review. This will be the first element to be constructed, followed by the Granite Street Pedestrian Bridge, the Multimodal Transportation Corridor, and the Queen City Avenue Intersection Improvements.

The South Commercial Street Extension is necessary for a second access/egress point for the South Milliyard, and to provide congestion relief for Granite Street, as explained in the Selection Criteria section. This roadway will be designed to meet roadway standards for both the City of Manchester and New Hampshire DOT, with design speed criteria meeting 30 miles per hour. The City has coordinated with Pan Am Railways on an agreement where the City will pay Pan Am to design and construct the railroad gate crossing with their engineers and construction contractors. As part of the construction, Pan Am will remove the existing Depot Street rail crossing, which is approximately 400 feet north of the proposed South Commercial Street Extension crossing. The South Commercial Street Extension crossing will have railroad pre-emption design for 30 miles per hour, good sightlines, and railroad gate system with lights for both the roadway and the sidewalk, increasing the safety of the crossing.

The benefits of constructing the pedestrian bridge have already been covered in the Selection Criteria section. The location of the pedestrian bridge is based on the existing grade of Granite Street, which will provide the shortest ramp length while meeting ADA requirements. The pedestrian bridge’s structural design requirements and vertical clearance will be provided in the construction bid special provisions, and the bridge fabricator will provide shop drawings for review by the consultant’s structural engineer. Geotechnical data will be collected and provided in the bid documents. Adjustments to the Granite Street signal phasing and timing will be included. The City of Manchester is currently in the design phase for a contract to install adaptive signal equipment along the coordinated Granite Street signal network, which will further enhance operations of this congested intersection.

The Multimodal Transportation Corridor design will take place after the first project elements are ready for construction solicitation. This section of roadway will be designed for 30 miles an hour and will meet the roadway standards for the City of Manchester and New Hampshire DOT. Drainage design will be a key element, and will need to meet the NH Department of Environmental Services (NHDES) Alteration of Terrain Permitting requirements for stormwater and erosion control for construction. Currently, private development parking areas that abut the rail corridor send their stormwater runoff
directly into the depressed rail bed. All this runoff will need to be captured, either in formal swales or a closed drainage system, to convey water to identified treatment areas. Since the area has had substantial water sent to it over time, some areas have begun to grow wetland type plants. These areas will need to be flagged for wetlands and appropriate mitigation measures will be determined as needed.

The Elm Street Bridge will be replaced to provide an opening large enough for a two lane roadway and an offset multi-use path. Traffic on Elm Street will need to be reduced to one lane in each direction for the phased construction of the bridge. Traffic control will also be a critical element in the construction of the Queen City Avenue Intersection Improvements given the volumes of traffic affected.

**Financial Feasibility**
A total of $24.8 million is required to complete the infrastructure improvements for the **Reconnecting Manchester for 21st Century Innovation Project**. The requested BUILD FY19 V Grant funding of $19.9 million is matched by a $4.9 Million (20.0%) non-Federal local contribution as shown in the Project Budget. In addition, the project demonstrates a substantial positive benefit/cost ratio, as shown in the Benefit-Cost Analysis. The SNHPC has also committed to including this project in its Transportation Improvement Project (TIP) List when it receives funding through the BUILD grant program.

**Project Schedule**
Based on the proposed project schedule, the South Commercial Extension would have all environmental documentation, permitting, NEPA and ROW requirements complete and ready to solicit for construction by September 2020, with construction to begin at the start of the Spring 2021 construction season, which in New Hampshire is typically mid-April based on the severity of the previous winter. It is anticipated that construction would be completed during one construction season, which in New Hampshire typically ends in October to mid-November at the latest.

While the first element is being solicited for construction, the other elements – the Pedestrian Bridge, Multimodal Transportation Corridor and the Queen City Avenue Intersection Improvements – will be designed to meet all environmental documentation, NEPA, Wetland, Alteration of Terrain, ROW and permitting requirements. The schedule anticipates completion of design and permitting with construction solicitation by the beginning of February 2023, with construction beginning in the spring of 2023. It is anticipated that the rail corridor will take two construction seasons to complete, which would have construction finished in October 2025. This schedule meets the requirements of expended funds by September 30, 2026, so should issues arise, the grant obligation timeframe can still be met. A project task summary with detailed schedule of dates is included in the Appendix, outlining the anticipated step-by-step process the project will follow to meet all the requirements for a Local Project Administered (LPA) Federal-Aid Project.

Please refer to the Project Schedule (Figure 10) for a closer look at the timeline of the projects.
**Required Approvals**

It is anticipated that all of the project elements will meet the criteria for Programmatic Categorical Exclusions. Environmental and historic impacts have been researched for the project area, and the findings are included in the Appendix, which includes the Statement of Significance, and location maps. Additionally, those documents can be accessed by clicking [here](#) or [here](#). During design, all appropriate resource agencies will be contacted and coordination efforts will be completed to meet Federal and State requirements. The railroad corridor is considered historic, and there is an old switch station (shown in Figure 16) that will be maintained. The City intends to re-purpose the switch station as a coffee shop or small specialty food establishment. Right-of-Way (ROW) strip acquisitions and construction easements are anticipated, although no full parcel takes or residential/non-residential displacements are expected. For the Queen City Avenue Intersection Improvements, it is anticipated that the improvements will stay within the existing ROW and as much as possible within the existing pavement area with possible adjustments to drainage and stormwater treatment. For the Alteration of Terrain permit, the Multimodal Transportation Corridor and the Queen City Avenue Intersection would be permitted together.

As previously mentioned, a community charrette was held prior to the development of this grant application to gather input from the public, abutters and stakeholders on their thoughts of the issues in the South Millyard area, and their vision and ideas to address them. This public engagement would qualify as the first public engagement for these project elements. Moving forward, the contact information from charrette participants provides a starting point for the City to re-engage and inform the abutters and stakeholders of all additional public meetings, along with the standard public notification process outlined in the New Hampshire Department of Transportation LPA Manual.

**Assessment of Project Risks and Mitigation Strategies:**

For projects like this, typical risks include potential schedule delays due to permitting approval, Right-of-Way procurement, cost escalation and public support. The City will address delays due to permitting by establishing early coordination efforts with all permitting agencies, and leveraging good working relationships established, and based on prior experience with previous projects. Similar to permitting, Right-of-Way procurement effort will begin as soon as possible, including meeting with affected property owners. Many abutters and stakeholders participated in the charrette held prior to the writing of the Grant, and many have included letters of support. The project budget includes inflation costs based on recent federally-funded projects within the area (NHDOT I-93 Northern Section 14633H and NHDOT Bedford 13953).
The project elements for this grant that carry the largest risk, as with most projects, will be during construction, especially since some of the areas to be disturbed are older industrial sites with unknown subsurface conditions. Sufficient investigative explorations will occur during the design process to determine the nature of such materials and the proper treatment and disposal of them during construction. Construction activities will have the proper oversight as outlined in the NHDOT LPA Manual, will follow all OSHA guidelines, and will meet all Manual on Uniform Traffic Control Devices (MUTCD) work zone requirements.

The Contract Bid Book will contain all current documents required for Federal Project, such as Buy America and Davis-Bacon Wage Rates. The City has completed numerous State and Federal-aid projects over the years and are very familiar with the various contracting requirements that need to be satisfied during the design, bidding and construction phases of the project.

Figure 17: Hands Across Merrimack Bridge, encompassing the rail trail with a view of the South Millyard