

KEENE DOWNTOWN IMPROVEMENTS

Design Report

December 8, 2023





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Acknowledgments

The Keene Downtown Improvement and Reconstruction Project is the culmination of years of planing and preparation for sustainable downtown infrastructure improvements that move the community forward and expand the region's economic vitality. This is not easy, in fact without the partnerships acknowledged below and the participation of the greater Keene community, this project could not happen.

Project Management Team

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Rebecca Landry, Deputy City Manager, Communications Director
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Mayor's Ad-Hoc Steering Committee

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Councilor Randy Filault
Councilor Mitchell Greenwald
Councilor Andrew Madison
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Keene Technical Review Committee

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Executive Summary

Acknowledging the significance of Downtown Keene as the community's economic engine with a commitment to maintaining its vibrancy, relevance, and functionality, Stantec Consulting Services, Inc. lead the planning and design of the highly anticipated comprehensive Downtown Infrastructure Improvement and Reconstruction Project.

Since the last major revitalization in 1988, the Downtown infrastructure, spanning telecommunications, electrical, water, sewer, and stormwater systems, has aged over 120 years. Limited spot replacements occurred in 1988, leading to ongoing failures and capacity issues. Recognizing the need for a forward-looking approach, the City aims to replace and upgrade critical infrastructure components with this project.

The project extends through the traditional Downtown Keene boundaries, encompassing areas in the north inclusive of Central Square, south along Main Street to the Main/Marlboro/Winchester intersection, east and west down West Street and Roxbury Street, and expanding down Gilbo Avenue to Railroad Square. The evolving Downtown, now emphasizing entertainment-oriented activities, requires infrastructure improvements to support this continued community transformation.

Ensuring broad community input, the project established an Ad-Hoc Steering Committee appointed by the Mayor, including City Council representatives, community business partners, Downtown representatives, and public advocates. A Technical Advisory Committee, appointed by the City Manager, managed day-to-day project activities, representing key departments like Public Works, Parking Services, Community Development, Fire, Police, Parks and Recreations, and Economic Development. Council Advisory Committees including the Bicycle, Pedestrian and Path Advisory Committee and the Energy and Climate Committee heard testimony on project alternatives and recommendations.

To lay the foundation for technical information, the design team collected data on natural and cultural resources, utilities, land use, traffic patterns, parking inventory, pedestrian/bicycle usage, a detailed tree canopy inventory, store front access, and current infrastructure conditions.

Using actual ground survey supported by 2020 aerial photographs and GIS layers, base plans were developed integrating property, land use, utility, and resource information. A comprehensive traffic analysis model was created to understand vehicular, pedestrian, and bicycle traffic patterns, with a focus on creative and efficient data collection methods. A parking analysis compared peak downtown usage with peak hour activities throughout the day.

Engaging the community, merchants, property owners, and residents was and will continue to be priority as the project progresses, with unique and tailored outreach programs for each project element. Presentations and interactions with the Mayor's Ad-Hoc Steering Committee, City Council Municipal, Services, Facilities, and Infrastructure (MSFI) Committee, and the City Council were integral to keeping stakeholders informed. A Downtown Infrastructure Improvement and Reconstruction Project Timeline as provide below.

Using information gathered at general public workshops, public informational meetings, City Council Public Workshops, MSFI Committee Meetings, and ultimately the City Council Project Review Workshop, project design alternatives were developed - informed by project goal setting and identification of project area issues and concerns - with considerations including a "do nothing" approach, a minimal restoration alternative, single-lane and multi-lane multimodal corridor options, and several major intersection options at Central Square. Cost estimates were provided for the project preferred alternative design to ensure transparency in financial planning.

Understanding concerns of local residents and businesses, preliminary project phasing plans will be developed based on the preferred design alternative to minimize disruptions and accommodate traffic and business needs. Project phasing will extend into preliminary design tasks. The consultant will then proceed to finalize design documents, including technical specifications and contract documents.

This transformative project, with its multi-year construction plan and phased approach, reflects the City of Keene's commitment to a sustainable, vibrant Downtown that meets the evolving needs of the community for the next fifty years.

Project Timeline

Downtown Infrastructure Improvement and Reconstruction Project

The project timeline on the right outlines the project teams' efforts in the planning phase of the project. As with all major projects in Keene, engaging the community to discuss issues and concerns related to a project and then allowing merchants, property owners, and residents alike to participate in design development is a top priority.

As outlined earlier in the acknowledgement, a unique and broad outreach and engagement process was created early in the planning phase and included goal setting, presentations and interactions with the Mayor's Ad-Hoc Steering Committee, the Keene City Council, and the Municipal, Services, Facilities, and Infrastructure (MSFI) Committee.

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) 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 following an additional Council project review workshop that included review of previous recommendations by the Mayor's Ad-Hoc Steering Committee, the MSFI, and two (2) alternatives developed by Council during their project review process.



March 2022 PROJECT KICK-OFF

April 2022 MAYOR'S AD-HOC STEERING COMMITTEE MEETING #1

June 2022 MAYOR'S AD-HOC STEERING COMMITTEE MEETING #2

June 29, 2022 **PUBLIC WORKSHOP #1**
City Hall and Railroad Square
Public participation and public comments taken

Aug 2022 MAYOR'S AD-HOC STEERING COMMITTEE MEETING #3

Sept 2022 MAYOR'S AD-HOC STEERING COMMITTEE MEETING #4

Oct 2022 MAYOR'S AD-HOC STEERING COMMITTEE MEETING #5

Oct 6, 2022 **PUBLIC WORKSHOP #2**
The Show Room and Railroad Square
Public participation and public comments taken

Nov 2022 MAYOR'S AD-HOC STEERING COMMITTEE MEETING #6

Dec 2022 MAYOR'S AD-HOC STEERING COMMITTEE MEETING #7
Steering Committee Alternative Recommendation to City Council

Jan 2023 CITY COUNCIL - COUNCIL MEETING #1

Jan 30, 2023 **PUBLIC INFORMATION MEETING #1**

- Keene Public Library
- Public participation and public comments taken

Feb 21, 2023 **PUBLIC INFORMATION MEETING #2**

- Keene High School Auditorium
- Public comments taken

March 2023 CITY COUNCIL - COUNCIL MEETING #2

March 29, 2023 **CITY COUNCIL PUBLIC WORKSHOP #1**

- Open to the public

April 26, 2023 **CITY COUNCIL PUBLIC WORKSHOP #2**

- Open to the public

May 2023 CITY COUNCIL - COUNCIL MEETING #3

- City Council Referral to MSFI (Municipal Services, Facilities and Infrastructure Committee)

May 2023 MSFI (Municipal Services, Facilities, and Infrastructure)

May 15, 2023 **MSFI PUBLIC MEETING #1**

May 24, 2023 **MSFI PUBLIC MEETING #2**

MSFI Recommendation to City Council

June 2023 CITY COUNCIL - COUNCIL MEETING #4

July 6, 2023 **COUNCIL PROJECT REVIEW WORKSHOP**

City Council Final Recommendation

1 Background & Data Collection

- Data Collection
- Existing Conditions
- Existing Storefront Access
- Existing Utilities
- Existing Open Space, Trail and Bike Network
- Tree Inventory and Assessment
- Transit Facilities & Pedestrian Circulation
- Pedestrian and Traffic Volume
- Parking Analysis
- Traffic Analysis

Parking →

Courtyard Marriot →

Cheshire Medical →

Granita Enoteca →

RAILROAD ST

ONE WAY →

P
PARKING

Background

The last major downtown revitalization in Keene occurred in 1988. This work supported the Downtown for the last 30 years. The infrastructure (telecommunication, electrical, water, sewer, stormwater, etc.) including building services went back over 120 years ranging from the early 1890s to the 1980s. Most of the infrastructure was not replaced in 1988 with only limited spot replacement. The infrastructure saw failures and issues with capacity that were expected to continue and increase. The City determined that it was time to plan for the replacement and upgrade of this infrastructure to support the change in climate and demands on the systems to meet the needs of the next fifty (50) years. The City plans to replace/upgrade infrastructure components including stormwater, water, sewer, telecommunication, electrical, broadband, irrigation, traffic signals, lighting, building services, and coordination with private utility providers also performing work.

The 1988 rehabilitation focus was on retail development. Over the last 10-15 years, the Downtown has seen a transformation from retail to more entertainment (downtown events, restaurants, entertainment,) oriented activities and the current configuration had difficulty in supporting these activities. There were public discussions that areas of downtown did not meet the needs and interests of the community, residents in the area, and users. There was an interest in expanding social gatherings/event spaces, open spaces for use by merchants and businesses, public art displays, enhanced pedestrian, and bicycle facilities.

This project looked at several specific areas, including:

- Improvements to sidewalk areas
- Improved pedestrian and bicycle facilities (street crossings, etc.)
- Gathering spaces/event areas, and open spaces
- Redesign and reconfiguration of Railroad Square

The concept of what Downtown had expanded to over the years to define the project area includes areas 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/Marlboro/Winchester intersection, and Roxbury Street to Roxbury Plaza. The features that give downtown its unique spirit needs to be considered when improving the downtown areas following the restoration of utility replacements.

Data Collection

Stantec initiated the project by collecting and reviewing existing available information from the City. The following information was obtained.

Record Plans / Reports:

Project files and plan information from private development projects were gathered from the records of the Planning Department files, including traffic reports, drainage reports, utility plans, ROW, and property line data, among other documents.

Project files and record plan information from the records of the Department of Public Works files were collected, including water, sewer, and drainage plans, as well as tie cards and reports.

City reports and projects available from City Departments, such as the Keene Comprehensive Master Plan 2010, Downtown Parking Analysis Report, Strategic Parking Plan, Downtown Revitalization Study, Modeling the Future of the Keene Arts Corridor, Strengthening Connections: Downtowns & Trails, the Keene Complete Streets Design Guidelines, as well as previous City project files were accessed.

Traffic Signal operational settings that were available from the City were obtained.

City GIS Data and Aerial Photography:

City GIS files with available layers, including topography, land use, ROW, property lines, and aerial photography from the City's 2020 photographs, were accessed.

Traffic Data and Studies:

Traffic data and studies were collected from the NHDOT and Southwest Region Planning Commission, including crash data and pedestrian incidents as available from the City's Police Department and the NHDOT.

Field Visit and Documentation:

During the field visit, Stantec reviewed the complete compiled base plan for the project. They also reviewed previous concept plans and ideas for improvements, assessed traffic control operations, pavement marking, signage, and reviewed existing signs for visibility and message with respect to the intersecting roadways. They

noted deficiencies or non-standard markings. Existing topography and adjacent features were reviewed as they related to sight distance at the intersections and along the corridor, lane use, and driver safety. Areas within and outside the ROW identified for stormwater treatment were reviewed. Each intersection and the corridor between were documented and photographed. Available parking in the study area was reviewed. A tree inventory was conducted with a qualified arborist, and ADA compliance and furnishings were assessed.

Field Reconnaissance Memo:

Stantec summarized the findings from the field visit in a memo for review by the City. This memo noted any missing data or information that needed to be collected and summarized general observations, design constraints, and potential design issues.

Traffic Counts:

Stantec completed traffic counts, including turning movement counts at each intersection, pedestrian counts, and bicycle counts.

Utilities:

Stantec conducted office research of available plans and data and performed field reviews for confirmation. Video inspections of sanitary sewer systems and any storm drainage systems to remain were conducted. A utility location company performed field locations for all known utilities, which were surveyed as part of the field survey. This included both public utilities (water system, sewer, drainage, and traffic signals) and private utilities (gas, telecommunications, and electrical).

Past Studies

SLOW STREETS

Located within Keene's pedestrian-oriented downtown, Slow Streets are places where all travel modes are in high demand and vehicular traffic must proceed at slow speeds for safety. Mixed use activities in this high density commercial core require greater attention to accommodating all modes of transportation. In this area cars, buses and bicycles all share the right of way, pedestrian convenience is of the utmost importance, crossings are frequent, and cars easily pull in and out of curbside spaces. The rich mix of activity is facilitated by the slow speed of traffic on these streets.



Main Street in Downtown Keene

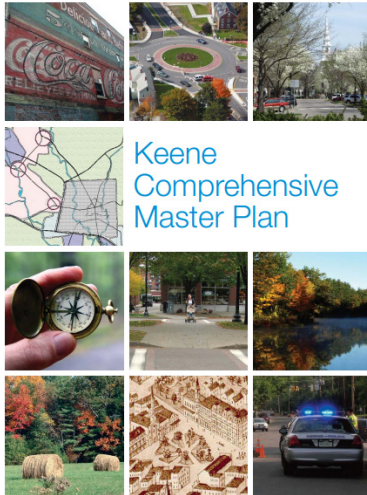
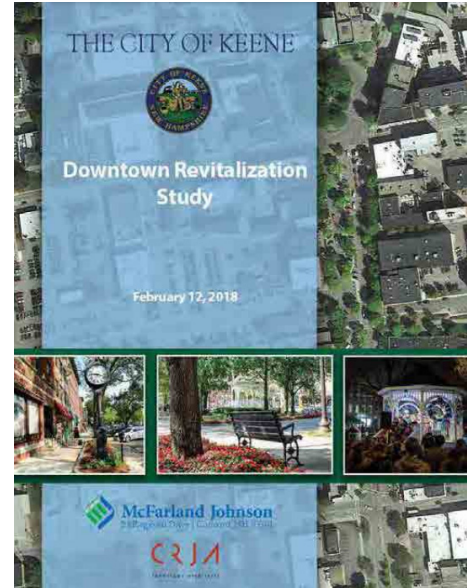


West Street in Downtown Keene

Where are Slow Streets in Keene?

- Central Sq
- Church St
- Court St*
- Cypress St
- Eagle Ct
- Emerald St
- Elm St
- Federal St
- Gilbo Ave
- Lamson St
- Main St*
- Mechanic St
- Railroad St
- Ralston St
- Roxbury St*
- School St
- St. James St
- Vernon St
- Washington St*
- Wells St
- West St*
- Wilson St
- Winchester St*

*Street type changes along roadway segment.



SEPTEMBER 2010

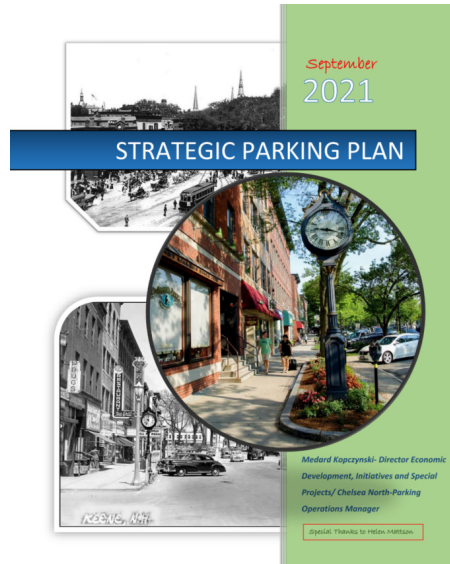
FOR

The City of Keene, New Hampshire
November, 2010



Submitted by:

Andrew W. Miller, AICP
Downtown Parking and Planning Associates, LLC



September
2021

STRATEGIC PARKING PLAN

Medard Kocpynski - Director Economic
Development, Initiatives and Special
Projects/ Chelsea North-Parking
Operations Manager

Special Thanks to MEDA HARRISON

Modeling the Future of the Keene Arts Corridor

Citizens' Institute on Rural Design 2021 - 22
Keene, NH

Citizens'
Institute on
Rural
Design



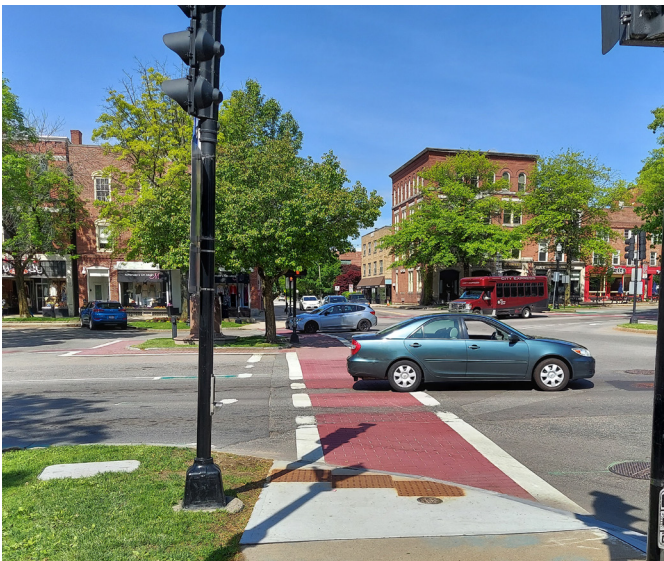
KEENE COMPLETE STREETS DESIGN GUIDELINES • 2015



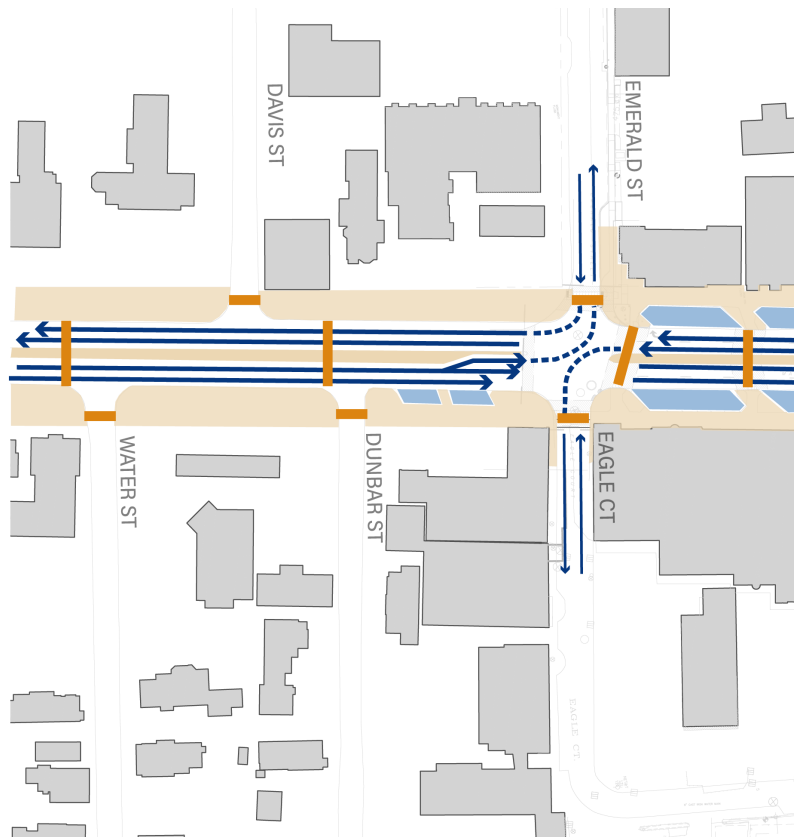
Existing Conditions



Main Street serves as a vital urban minor arterial accommodating high traffic volumes and providing access to downtown Keene. The Main Street corridor features two 11-foot travel lanes in each direction, each direction features shared-use pavement markings for bikes (sharrows). Center landscaped medians separate the directions of travel, enhancing aesthetics and safety. Main Street is delineated by angled on-street parking in both directions, granite curbing, and concrete sidewalks on both sides of the street. Pedestrians navigate Main Street through a network of intersection and mid-block crossings. Notably, an east-west pedestrian/bike route (Cheshire Rail Trail) crosses south of Railroad Street to Gilbo Avenue. Main Street, between Gilbo Avenue and West Street/Roxbury Street, includes a center median with angled parking, lighting and a limited walkway connected by several crosswalks. The posted speed limit on Main Street is 25 miles per hour.



Central Square, a prominent feature of downtown consists of a central open space common surrounded by a circular roadway intersection. This unique intersection connects Main Street with Roxbury Street, Washington Street, Court Street, Winter Street, and West Street. The one-way directional flow within Central Square is



controlled by a traffic signal at Main/West/Roxbury intersection. The north, west, and east sides of Central Square are delineated by angled on-street parking, granite curbing, and concrete sidewalks. Pedestrians can access the center common of Central Square through crosswalks at each roadway intersection and a mid-block crossing.

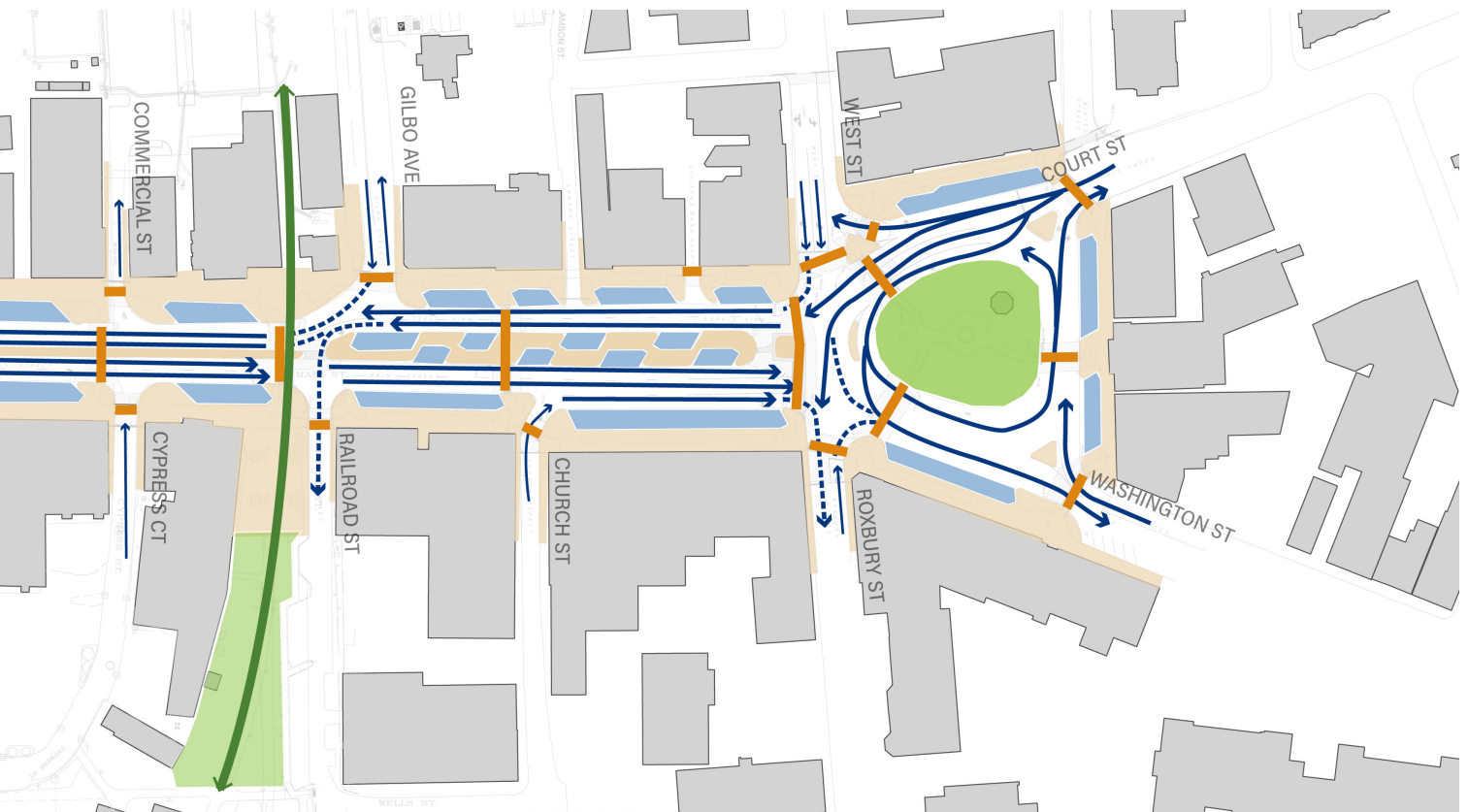
The intersection of Main Street, Gilbo Avenue, and Railroad Street is an offset four-legged intersection without traffic signals. Gilbo Avenue is one lane in each direction with parallel on-street parking on the north side and angled parking on the south side. Both sides include granite curbing and concrete sidewalks.

Gilbo Avenue's eastbound traffic is limited to right turns only at the intersection with Main Street. Railroad Street is a one-lane eastbound one-way local roadway and features parallel on-street parking, granite curbing and concrete sidewalks on both sides of the street.

The intersection of Main Street, Cypress Street, and Commercial Street is separated by a center median island. Commercial Street is a single-lane local street with one-direction westerly connecting Main Street to a commercial parking lot.

Commercial Street includes granite curbing and partial asphalt sidewalks on both sides. Cypress Street approaches Main Street with one-way westerly travel and includes parallel on-street parking, granite curbing and concrete sidewalks on the north side. Crosswalks are provided on the south, east, and west approaches. Turning movements to Main Street are limited to right turns due to a raised median along Main Street.

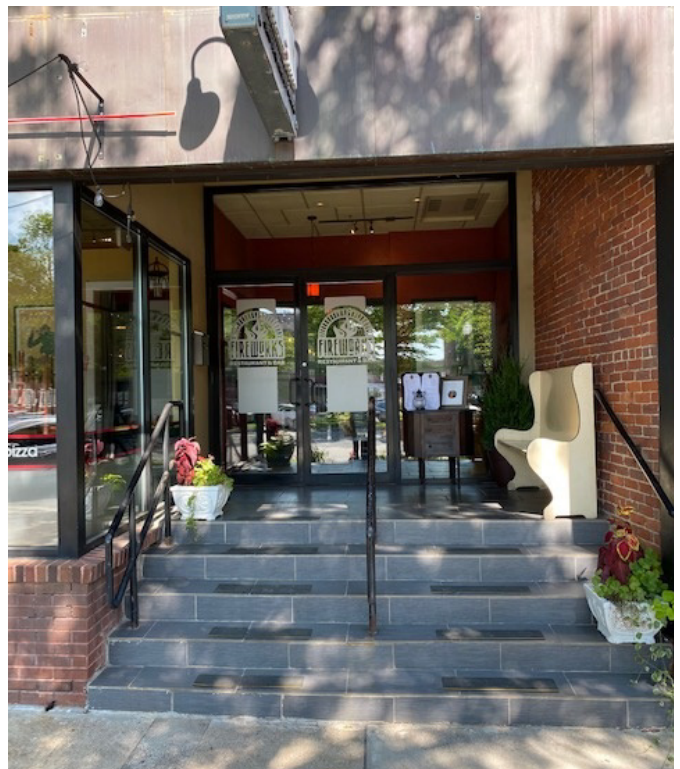
Main Street at Emerald Street and Eagle Court forms an unsignalized four-legged intersection under stop control for the minor legs. Emerald Street, a local street approaching from the west of Main Street, features one lane in each direction separated by a double yellow line. The westbound lane on Emerald Street is restricted to right turns only onto Main Street. Emerald Street is defined by granite curbing and concrete sidewalks on both sides. Eagle Court, approaching from the east, also offers one lane in each direction. The south side features parallel on-street parking and concrete sidewalks, while the north side provides a one-foot shoulder and granite curbing. Crosswalks are provided on the north, east, and west approaches.



Existing Storefront Access

All building upper floor and storefront business access were reviewed, and photo documented. There are eighty-five (85) building entrances within the project area. General challenges observed include entrances at existing grades, barriers to access outside of the public right-of-way, and barriers to access within the public right-of-way.

- Fifty-six (56) locations have universal access and are barrier-free (63% of total) – some with ramps within the sidewalk area and some with steep slopes that do not meet current access code standards.
- Twenty-nine (29) locations do not have universal access and are with barriers. Some barriers include step pocked within building facades, others include steps encroaching into sidewalk spaces.





Existing Utilities - Water and Sewer

There are numerous underground utilities along Main Street in downtown Keene. These include both public and privately owned infrastructure. The City of Keene owns and maintains water, sanitary sewer and storm drainage facilities, as well as limited irrigation and electrical systems. The existing water and sanitary sewer system's infrastructure on Main Street in downtown Keene from Water Street to Central Square, including side roadways within the project limits, provides service connections to approximately 25 buildings. These buildings house over 50 businesses, commercial properties, City buildings, and residential units. This segment of Main Street is the heart of Keene's cultural, dining, entertainment, and retail experience. In addition, these water mains service City Hall, religious centers, and non-profit organizations serving the region's under privileged populations. The age and condition of the City's utility infrastructure has created the need for this project. There are sewer and water pipes that date back to the early 1900's and in some cases, late 1800's. The drainage system is prone to localized ponding and several structures are failing. Below is a brief overview of the existing conditions of each of the publicly owned systems:

Water:

The existing water distribution system was installed between 1868 and 1928 and consists of cast iron water mains varying from 4" to 12" diameter. There are two water mains installed more recently that will be retained include a 16" cast iron transmission main constructed in 1957 that runs along Water Street and down Emerald Street, and a 12" ductile iron distribution main constructed in 2001 that runs along Main Street from south of Water Street to Emerald Street.

Most of the fire lines from the water main to the buildings do not have backflow prevention valves and are in poor condition.

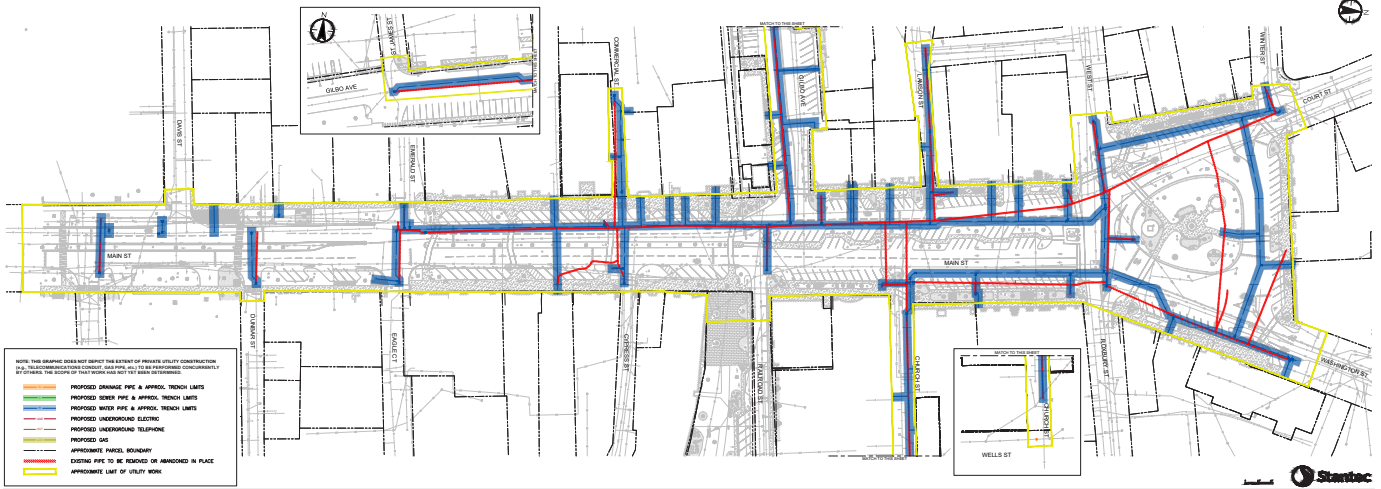
Sewer:

Much of the sewer pipe is vitrified clay pipe, installed around 1931. The diameters range from 6" to 12". A portion of the sewer pipes, generally those that were 10" in diameter and over were lined in 2004 and are in acceptable condition. There are small segments of new SDR pipe, generally at side road connections, such as Roxbury Street. The vitrified clay pipe that remains is mostly undersized at 6", and has extended beyond its normal life span as it is now over 90 years old.

Trench Plan



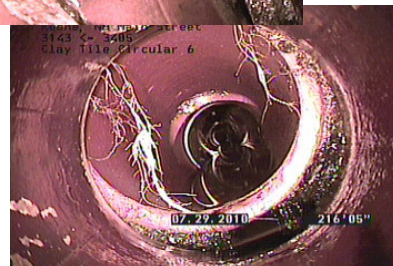
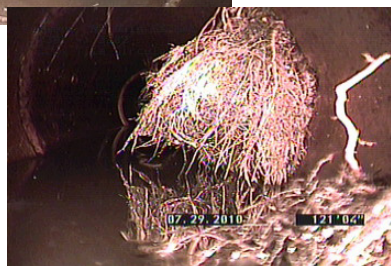
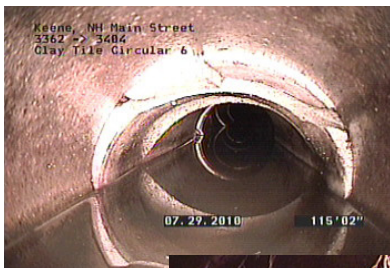
Water



Sewer



Sewer Infrastructure Condition



Existing Utilities - Drainage

Drainage

The project corridor consists of multiple closed drainage systems. Most of the project area drains easterly and discharges into Beaver Brook. The remaining area drains west to the Ashuelot River. The pre-development condition has been divided into four (4) study points based on the closed drainage systems that convey runoff beyond the project limits as shown on Existing Drainage Systems plan. The study points are described below.

Water Street

The project area draining to the Water Street closed drainage system includes Main Street from just south of Water Street to just south of Eagle Court. A 24" RCP conveys runoff along Water Street beyond the project limits. Small, closed drainage systems from Dunbar Street, Crossfield Street and Willow Street tie into the Water Street trunkline beyond the project limits. The Water Street trunkline then connects with the Railroad Street closed system prior to discharging to Beaver Brook through either a 60" or 72" trunkline.

Railroad Street

The area draining to the Railroad Street closed drainage system within the project limits has been subdivided into three (3) subcatchment areas. The first area collects runoff from Main Street from just south of Eagle Court to West Street. The systems along Main Street connect to the 36"

RCP trunkline located just south of Railroad Street. A 24" HDPE which collects runoff from Eagle Court and Cypress Street, along with an 18" RCP from Church Street, tie into the 36" RCP along Railroad Street. This trunkline appears to connect with the 24" RCP Water Street trunkline prior to discharging to Beaver Brook through either a 60" or 72" trunkline.

Roxbury Street

The area draining to the Roxbury Street closed drainage system has been subdivided into three (3) subcatchment areas. The first area collects runoff from Central Square within the project limits. The Central Square systems connect to the 30" HDPE trunkline at the beginning of Roxbury Street. A 15" HDPE which collects runoff from Court Street beyond the project limit ties into the Central Square system. The 30" HDPE trunkline along Roxbury Street increases in size to a 36" HDPE beyond the project limits. A 48" RCP which collects runoff from Washington Street beyond the project limits ties into the Roxbury Street trunkline. Other small closed systems tie into the Roxbury Street trunkline prior to discharging to Beaver Brook.

Gilbo Avenue

Runoff from Gilbo Avenue is conveyed through a 24" bituminous coated CMP trunkline. Small, closed drainage systems from St. James Street and Lamson Street tie into this trunkline. This trunkline extends beyond School Street and eventually discharges to the Ashuelot River. The Gilbo Avenue trunkline does not receive runoff from Main Street.

Storm Drain



Existing Utilities - Others (Irrigation / Electrical and Private)

Irrigation:

The City maintains an aging and unreliable irrigation system within the Main Street and Central Square footprint. Much of this is dedicated to Central Square, but extends to the landscaped areas within the sidewalks of Main Street and surrounding Central Square. The system is in constant need of maintenance.

Electrical Facilities:

Within the project corridor there is City maintained street lighting as well as electrical outlet risers that provide power for outdoor dining and retail spaces.

Private Utilities:

There are privately owner gas, communications and electrical utilities located within the project area. The age and condition of these systems varies. The City is coordinating with each of the private utility companies within the project area to determine if any changes, relocations, or additions to their infrastructure is necessary.



Electrical Pedestals



Light Pole Base



Irrigation Systems



Trench Drain

Existing Open Space, Trail and Bike Network

Trail Network

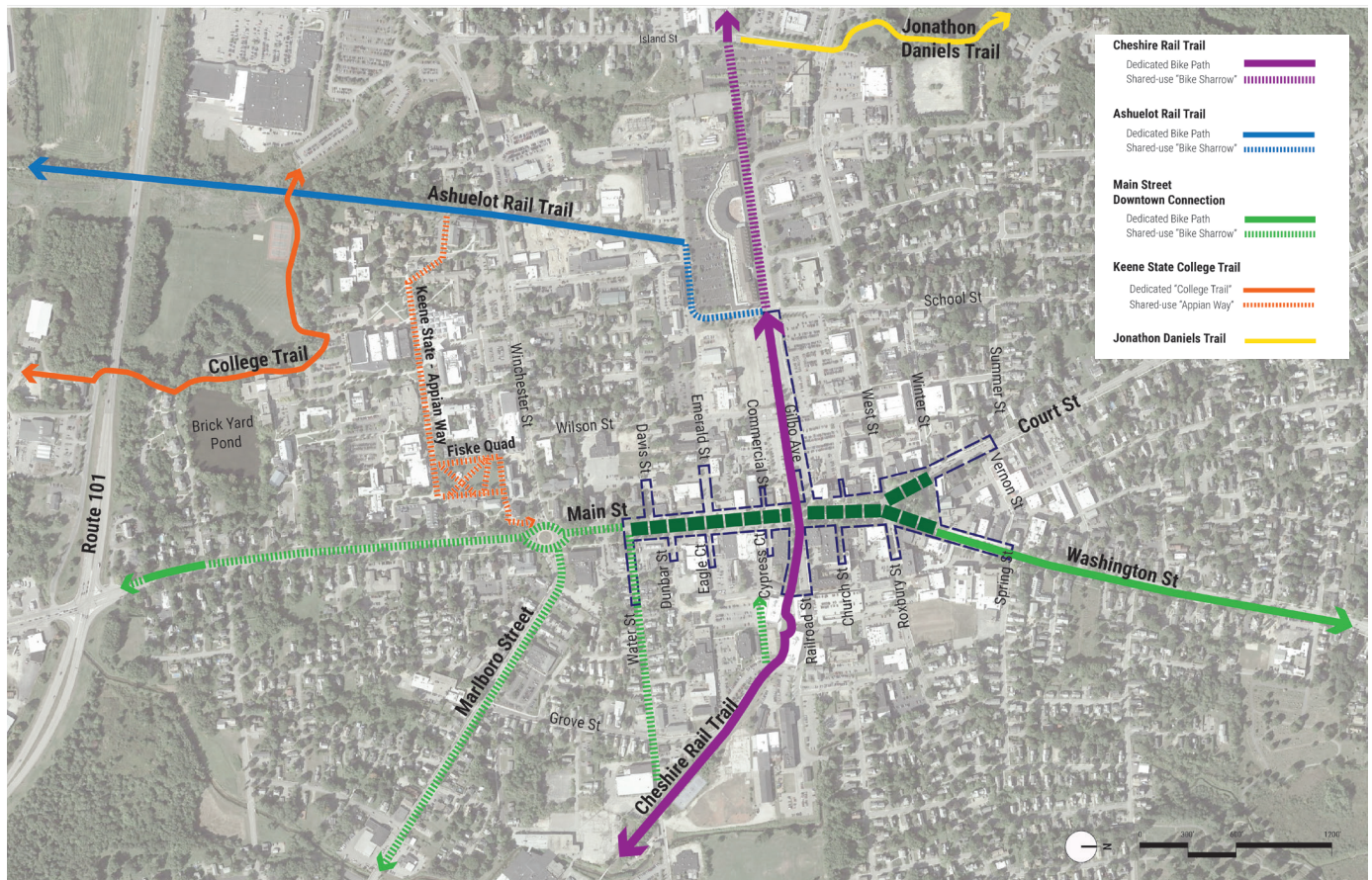
Keene offers a variety of trails for walking, biking, and exploring nature where some uniquely converge in downtown Keene and connect to the city's amenities, attractions, and services. The main trails include:

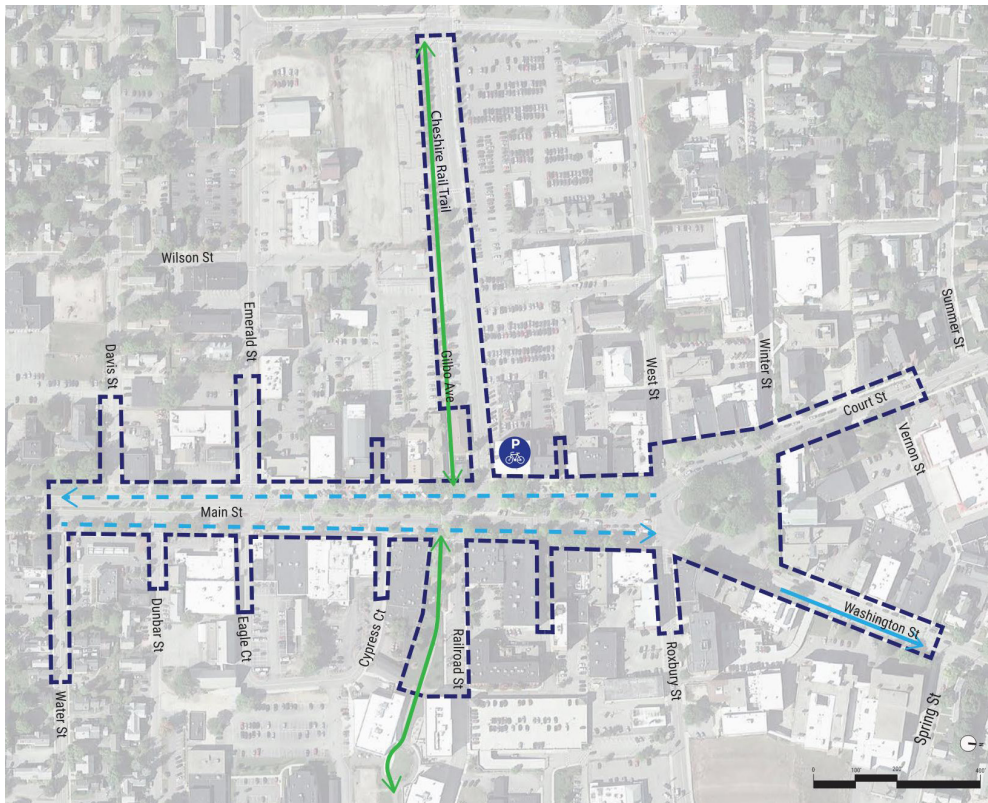
- The Cheshire Rail Trail follows the former railroad line from Walpole to Fitzwilliam. The trail is divided into three sections in Keene: the Cheshire Rail Trail North, which runs from the city's northern border to the intersection of Main Street and Island Street; the Industrial Heritage Trail, which passes through the historic industrial district along the Ashuelot River; and the Transportation Heritage Trail, which crosses the river and continues to the city's eastern border.
- The Ashuelot River Trail parallels the scenic Ashuelot River from Swanzey to Winchester and connects to the Cheshire Rail Trail in downtown Keene. The trail crosses the river several times on bridges and trestles and connects landmarks such as the Ashuelot Covered Bridge, the Ashuelot Mill, and the Ashuelot Park.

- The Jonathon Daniels Trail starts at the Jonathon Daniels Memorial Plaza on West Street and follows the river to the south, where it joins the Ashuelot River Trail near the Keene State College campus.

- The Appel Way Trail, which is a short loop trail that connects the downtown area with the Ashuelot River Park. The trail also provides access to the Cheshire Rail Trail and the Ashuelot River Trail.

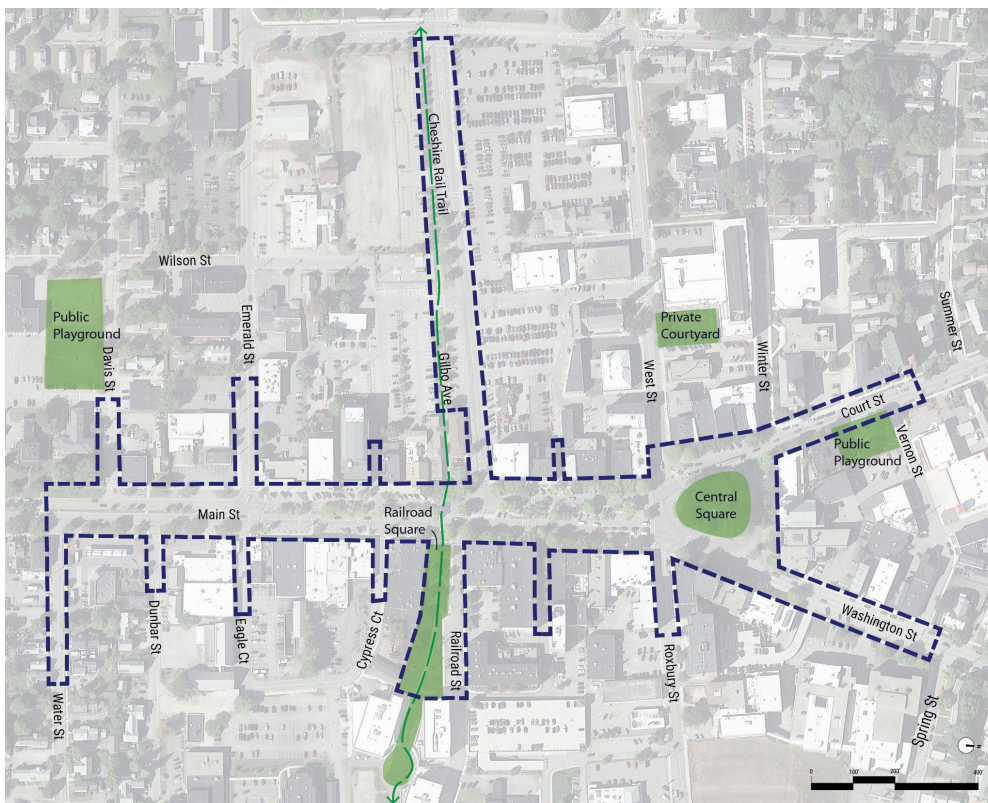
Additionally, the Ammi Brown Trail connects the Cheshire Rail Trail with the West Keene neighborhood and the Stonewall Farm.





Bicycle Network

Bicycle facilities along Main Street, its side streets, and Central Square are limited to shared roadway pavement markings (sharrows). Washington Street outbound from Central Square (north) has recently added striped bike lane adjacent to parallel parking spaces from Central Square to The Cheshire Rail Trail which crosses Main Street at Railroad Street and Gilbo Avenue is a great asset for bicycle access, but there is no protected way for someone on a bike to get from the Rail Trail to businesses on Main Street. Main Street is a gap in the bike network, and there is no clear way to connect the two. This poses a challenge for bikers who want to access businesses on Main Street.



Open Space

Railroad Square and Central Square are two prominent open spaces located along Main Street within Downtown Keene. They provide a unique place for people to gather, relax, and enjoy the city's atmosphere. However, downtown could benefit from more open space, especially during city-wide events and festivals, when these spaces can get crowded and noisy. Keene recognizes the opportunities to create new open spaces along the Gilbo Avenue opportunity corridor, which is a potential area for redevelopment and revitalization. By doing so, the city hopes to enhance the quality of life and attractiveness of downtown for residents, visitors, and businesses.

Tree Inventory and Assessment

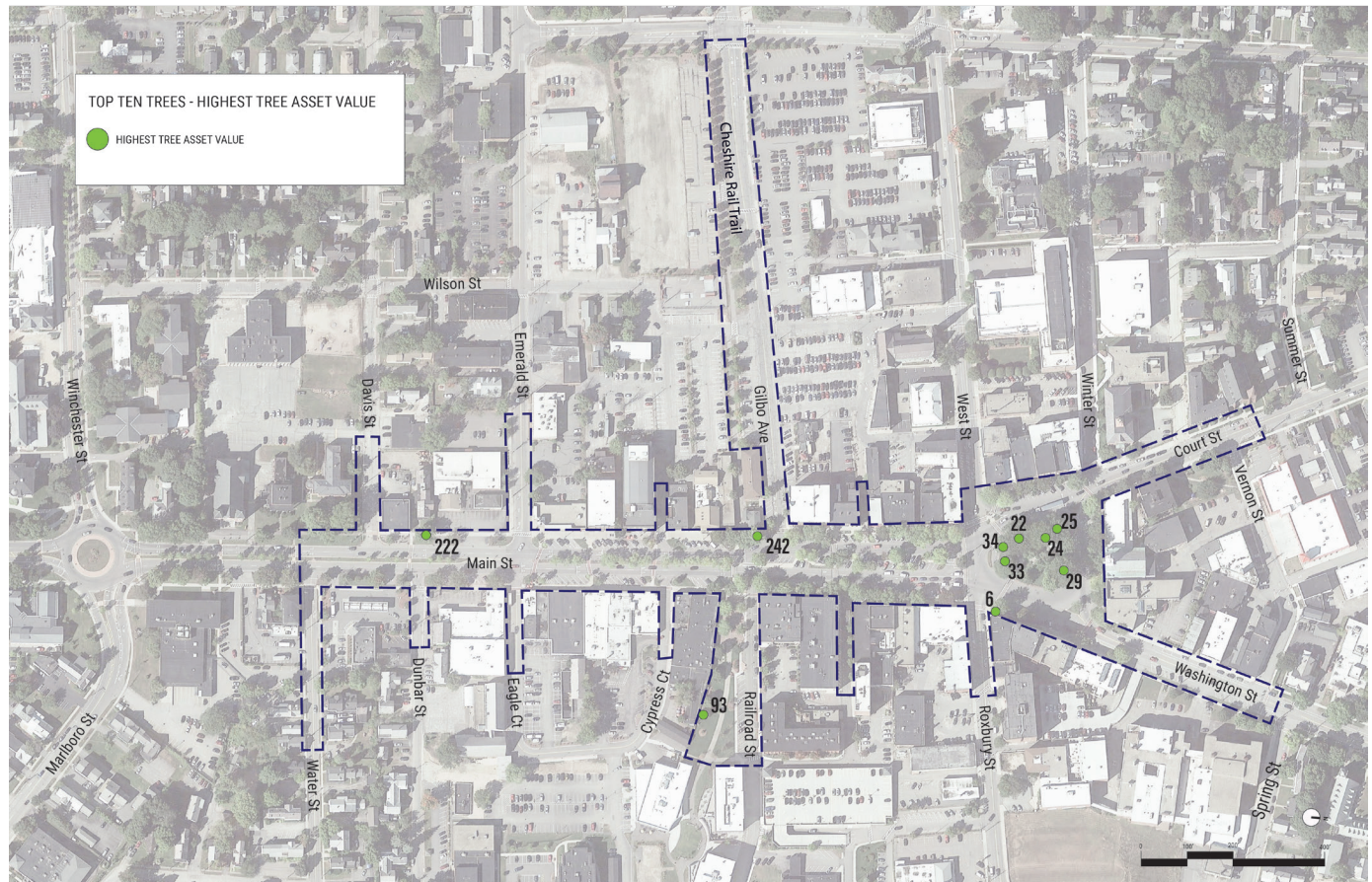
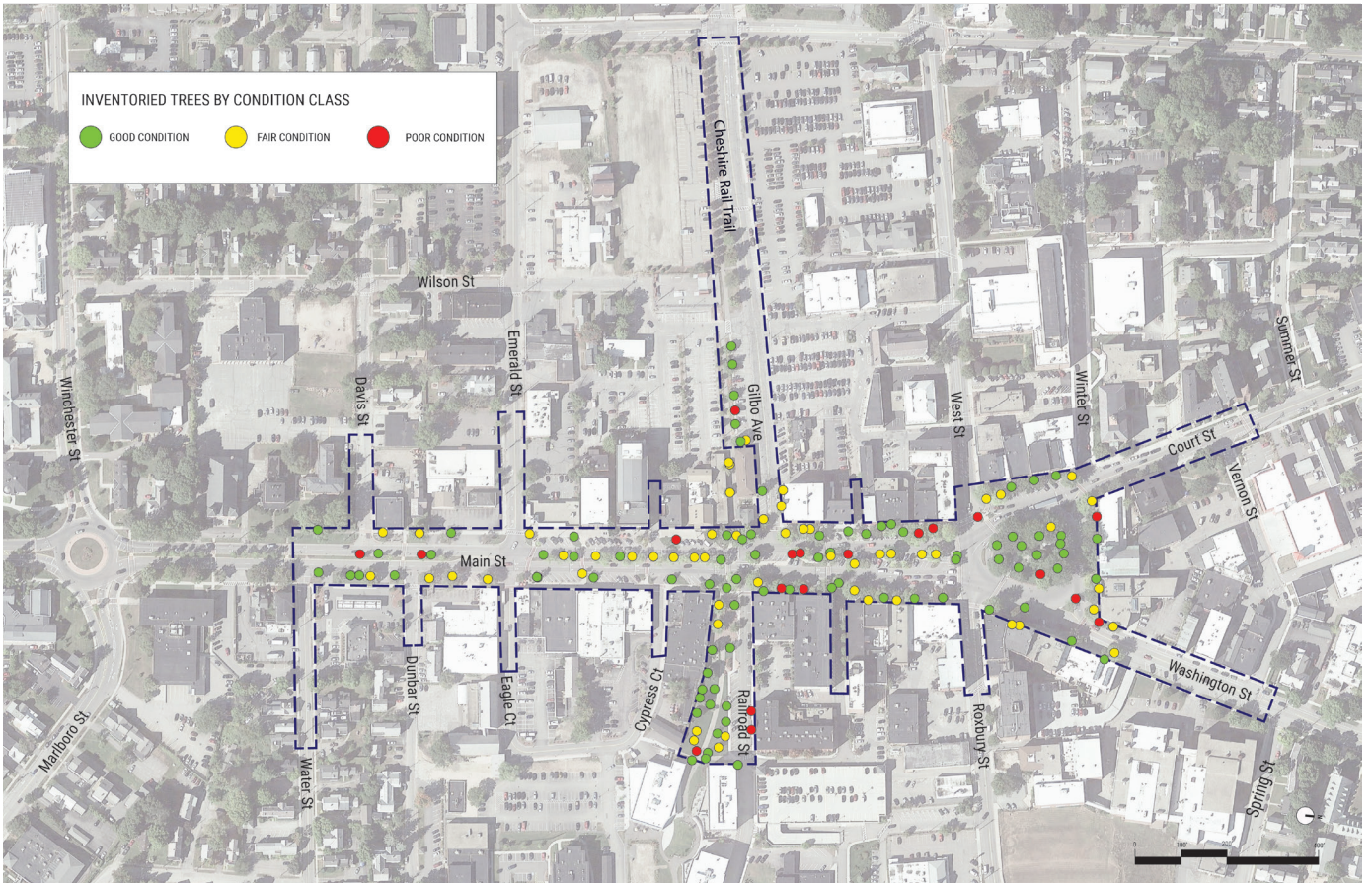
TBD

Tree Species Identified

Genus	Species	Common Name	Count
<i>Acer</i>	<i>negundo</i>	Maple-Boxelder	1
	<i>platanoides</i>	Maple-Norway	4
	<i>rubrum</i>	Maple-Red	9
	<i>saccharum</i>	Maple-Sugar	3
	<i>x freemanii</i>	Maple-Freeman's	5
Acer Total			22
<i>Celtis</i>	<i>occidentalis</i>	Hackberry	1
<i>Cercis</i>	<i>canadensis</i>	Redbud-Eastern	3
<i>Chamaecyparis</i>	<i>nootkatensis</i>	Falsecypress-Nootka	1
<i>Cladrastis</i>	<i>kentukea</i>	Yellowwood	1
<i>Crataegus</i>	sp.	Hawthorn	1
<i>Fraxinus</i>	<i>pennsylvanica</i>	Ash-Green	18
<i>Ginkgo</i>	<i>biloba</i>	Ginkgo	5
<i>Gleditsia</i>	<i>triacanthos</i>	Honeylocust-Common	8
<i>Koelreuteria</i>	<i>paniculata</i>	Goldenraintree-Panicled	1
<i>Malus</i>	sp.	Crabapple	7
<i>Prunus</i>	<i>serrulata</i>	Cherry-Flowering	1
<i>Pyrus</i>	<i>calleryana</i>	Pear-Callery	19
<i>Quercus</i>	<i>palustris</i>	Oak-Pin	24
	<i>rubra</i>	Oak-Northern Red	9
Quercus Total			33
<i>Stewartia</i>	<i>pseudocamellia</i>	Stewartia-Japanese	1
<i>Syringa</i>	<i>reticulata</i>	Lilac-Japanese Tree	2
<i>Tilia</i>	<i>cordata</i>	Linden-Littleleaf	13
<i>Ulmus</i>	<i>americana</i>	Elm-American	4
<i>Zelkova</i>	<i>serrata</i>	Zelkova-Japanese	15
Grand Total			156

Top Ten Trees - High Estimated Tree Asset Value

Tree ID	Common Name	Genus	Species	DBH	Tree Asset Value
29	Oak-Northern Red	<i>Quercus</i>	<i>rubra</i>	55	\$45,515.00
22	Oak-Pin	<i>Quercus</i>	<i>palustris</i>	42	\$41,072.00
24	Oak-Northern Red	<i>Quercus</i>	<i>rubra</i>	38	\$39,573.00
25	Oak-Northern Red	<i>Quercus</i>	<i>rubra</i>	30	\$18,792.00
6	Oak-Pin	<i>Quercus</i>	<i>palustris</i>	25	\$16,347.00
222	Oak-Northern Red	<i>Quercus</i>	<i>rubra</i>	27	\$15,222.00
242	Oak-Pin	<i>Quercus</i>	<i>palustris</i>	23	\$13,836.00
34	Honeylocust-Common	<i>Gleditsia</i>	<i>triacanthos</i>	26	\$13,521.00
93	Linden-Littleleaf	<i>Tilia</i>	<i>cordata</i>	24	\$13,293.00
33	Honeylocust-Common	<i>Gleditsia</i>	<i>triacanthos</i>	25	\$12,501.00



Transit Facilities & Pedestrian Circulation

Transit Facilities

The bus service along Main Street as well as the broader downtown area is infrequent and inconvenient. The buses only come every 30 minutes, which means that people who rely on them must wait a long time or plan their trips carefully. Moreover, there are no bus stops on Main Street itself, so people must walk to side street stop locations to catch the bus. This can be unsafe and uncomfortable, especially in bad weather or at night. Furthermore, there are limited amenities for people who take the bus, such as shelters, benches, or trash cans. These factors make the bus service less attractive and accessible for the residents and visitors of the southern part of Main Street.

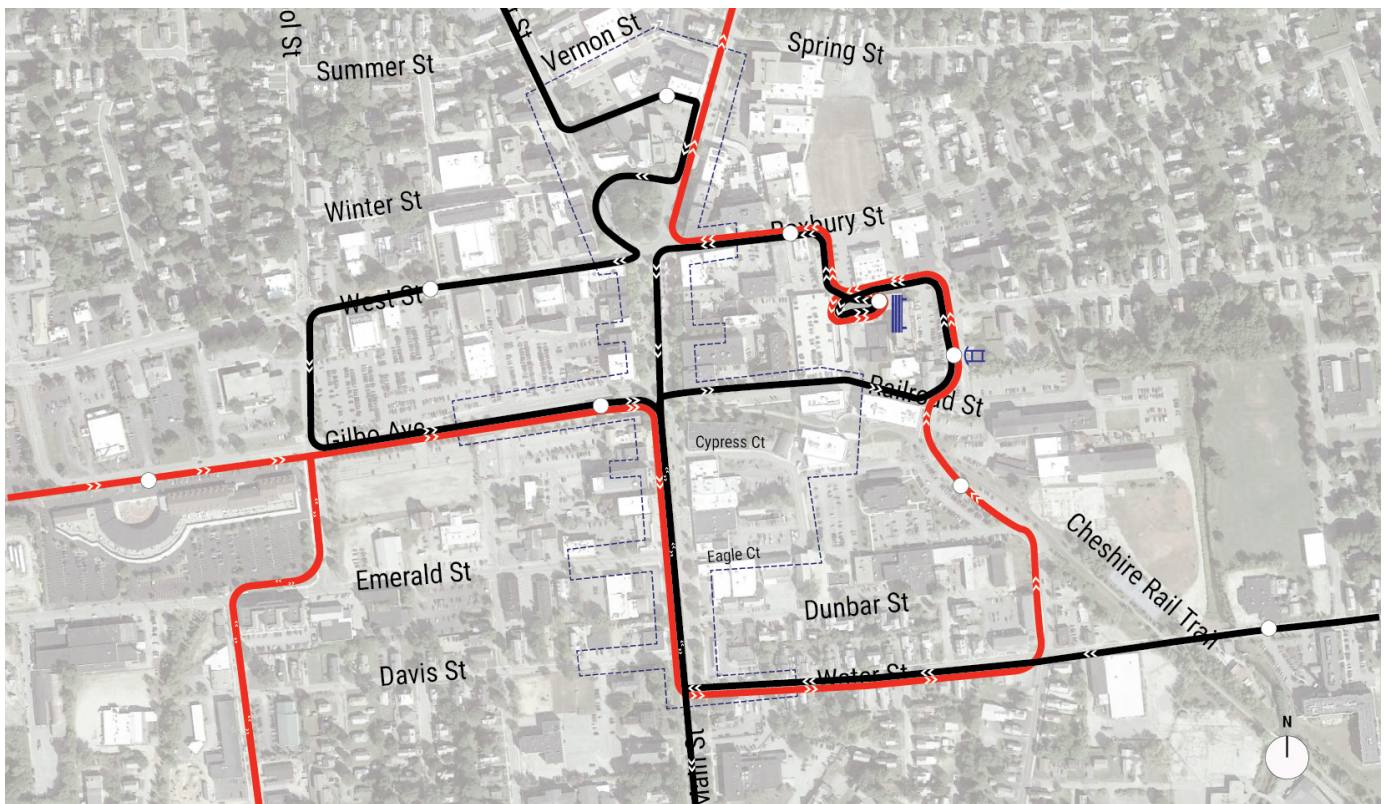
Pedestrian Circulation

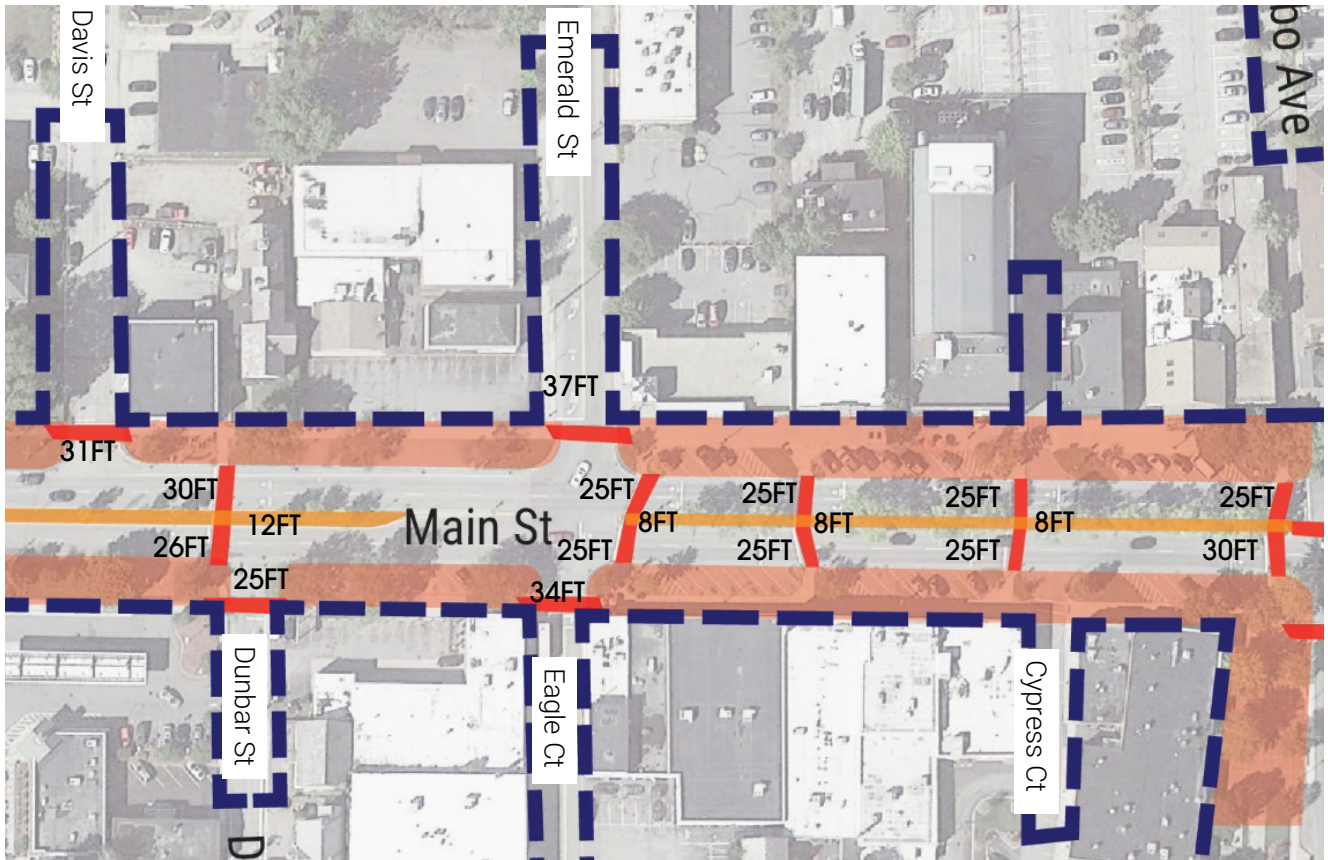
Crosswalk safety is a major concern for pedestrians in downtown Keene, as they have to cross long distances on busy streets with multiple lanes of traffic. The crossing distances can vary depending on the location, but they are generally longer than recommended lengths for pedestrian comfort and safety.

Sidewalks are provided on both sides of streets within the project area along Main Street, Court Street, Washington Street, West Street, Roxbury Street, Railroad Street and Gilbo Avenue. Some of the side streets off of Main Street are limited to sidewalks on one side only.

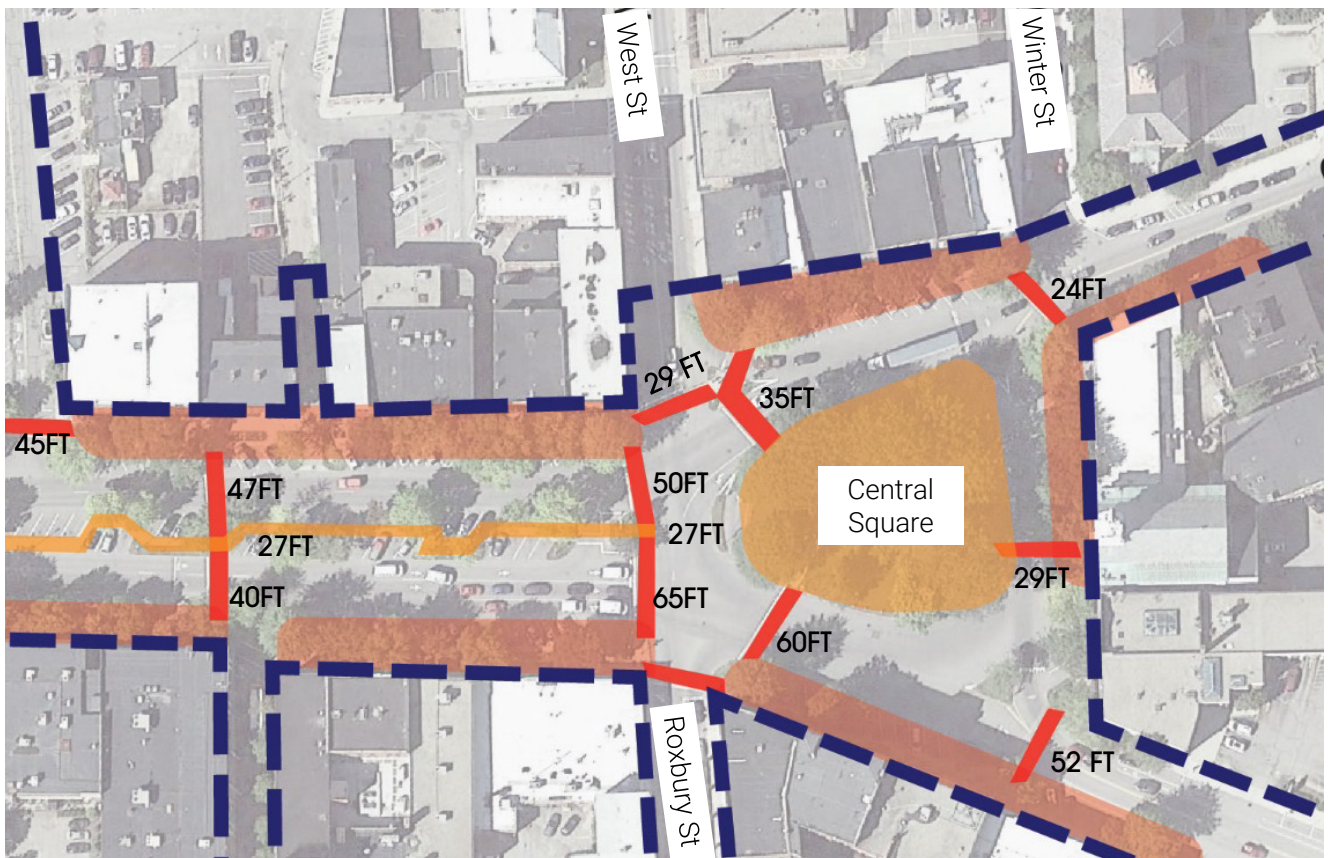
Crosswalks are located at every major intersection along Main Street (Water, Dunbar, Emerald/Eagle Street, Cyprus, Railroad/Gilbo, Church, and West/Roxbury). There are two (2) additional mid-block crosswalks along Main Street. Where Main Street has multiple lanes in each direction, the crossings require people to cross multiple travel lanes, creating a “double threat” of two lanes in one direction. Pedestrians must look for gaps in both lanes and hope that the drivers in the second lane see them and yield. This can be very dangerous, especially for children, seniors, and people with disabilities. The limited median offers some refuge for long crossings, but it is not wide enough to accommodate many pedestrians or provide adequate protection from traffic.

Central Square features crosswalks at major intersections (West, Roxbury and Winter) with a mid-block crossing at Washington Street and the block between Washington and Court. The crosswalks at Roxbury and West as well as the two diagonal crosswalks entering the Central Square common area are pedestrian signal controlled. The crossing distances of these crosswalks can be as high as 140 feet, which typically take 2 light cycles to clear. This is a very long time for pedestrians to be exposed to traffic and potential conflicts with vehicles.





█ CROSSWALKS
 █ MEDIANS
 █ SIDEWALKS



Pedestrian and Traffic Volume

Traffic Data Collection

Stantec collected pedestrian and traffic volume for the project by recording how many pedestrians and vehicles passed by specific locations in the downtown project area. The pedestrian and traffic data was used to create volume networks for the study area to see how pedestrians and vehicle traffic moved through downtown Keene. These traffic volume networks were used for inputs for traffic analyses software.

Automatic Traffic Recorder (ATR) counts were collected from Wednesday, July 20th through Thursday, July 21st 2022 and organized directionally (northbound, southbound, eastbound, westbound) and classified by type of vehicle, including motorcycles, cars, buses, multi-axles, and bicycles. Along with traffic volumes and classification information, speeds were recorded for each ATR location.

The following were the ATR count locations:

- Main Street, South of Emerald Street/Eagle Court
- Emerald Street, West of Main Street
- Railroad Street, East of Main Street
- Gilbo Avenue, West of Main Street
- West Street, West of Main Street
- Roxbury Street, East of Main Street
- Court Street, North of Central Square
- Washington Street, North of Central Square

Historical and Seasonal Variations

The traffic study analyzed data from the state's transportation department and from Stantec's own traffic counts in 2019 and 2022. The study found that the traffic in Keene did not change significantly over the years, except for some variations due to different factors, such as the COVID-19 pandemic and the nearby Keene State College. The study also projected the traffic conditions for the year 2035, using a conservative growth rate of 0.5 percent per year.



Parking Analysis

A parking analysis was completed including conducting an inventory of all public parking spaces within the downtown project area. Data was mined from a variety of sources to provide a representation of the downtown's overall parking network. Understanding the characteristics of downtown parking will help inform the final design. Many concerns were expressed with the type of parking and overall count throughout the assessment process.

The project team reviewed parking data provided by the Keene Parking Department including periodic data collection, policies, regulations, stakeholder input, photos, and surveys. In October 2022, the project team collected parking data in the downtown study area for the following:

Parking Inventory

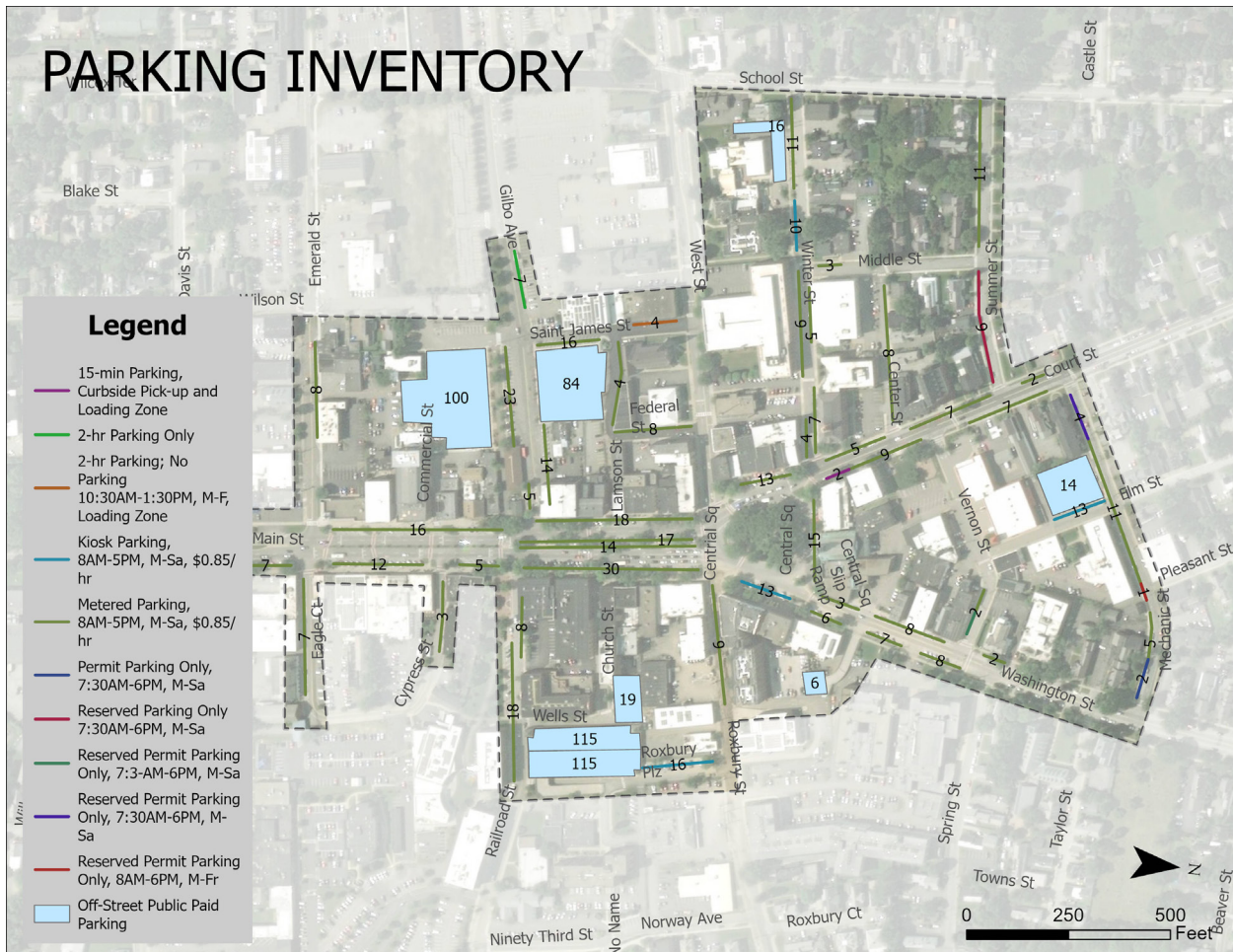
- Identify all parking spaces by location
- Identify how every parking space is regulated

- Identify conditions relating to the access of parking inventory, including availability/location/visibility of parking signage and wayfinding, condition of connecting pedestrian infrastructure

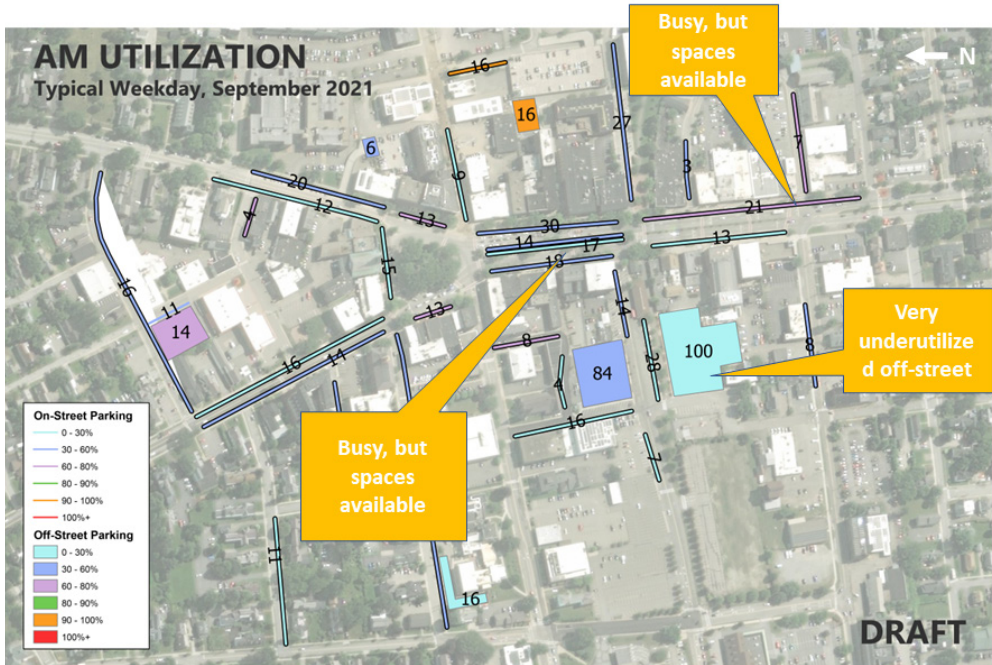
Parking Utilization

- Identify how many spaces are occupied by location (on-street or off-street) during four (4) defined periods on a typical weekday.

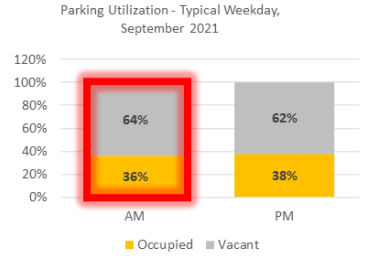
Parking inventory and AM/PM parking utilization are shown below and to the right. Overall downtown parking inventory was observed in September 2022. Total on-street and off-street public parking spaces in the downtown core is 732 spaces. Results for parking utilization that was observed on October 6, 2022 for the time periods that include 12:00 Noon, 3:00 PM, 5:00 PM, and 7:00 PM can be seen on Pages 34 and 35. Details for all parking data collected is provided in the Appendix.



Parking Inventory

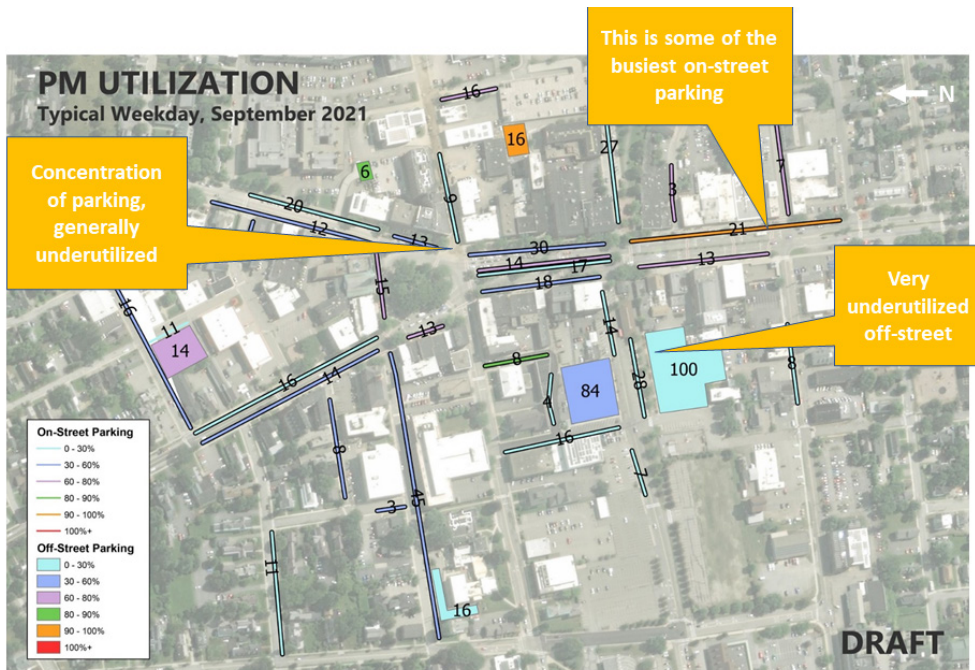


AM Utilization

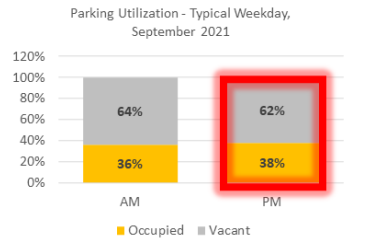


AM Utilization

- 80-90% is “optimal” parking utilization
- Downtown parking is relatively underutilized in the morning, with over 450 spaces unoccupied
- Main Street (south) and Central Square are busiest areas



PM Utilization

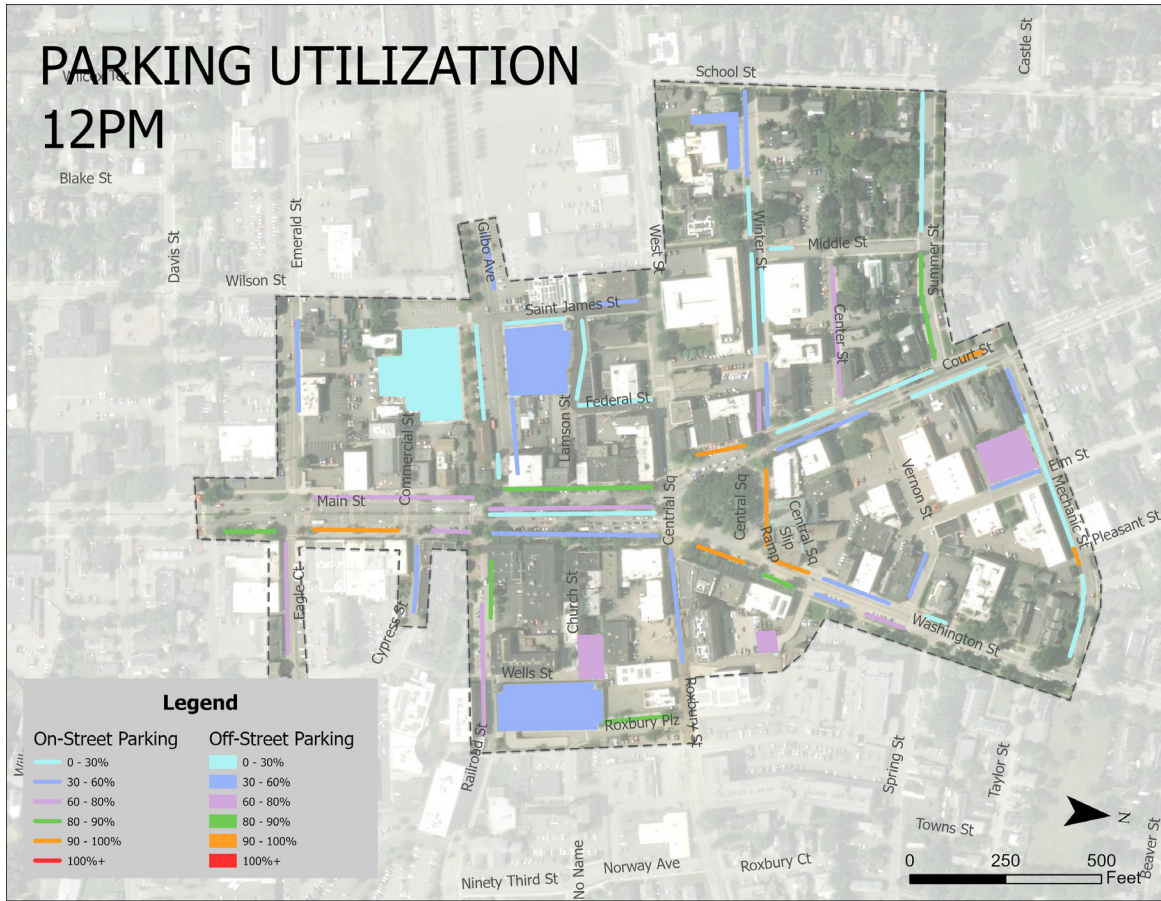


PM Utilization

- Downtown parking remains relatively underutilized in the evening, with over 450 spaces unoccupied
- Main Street (south) and Central Square are busiest areas

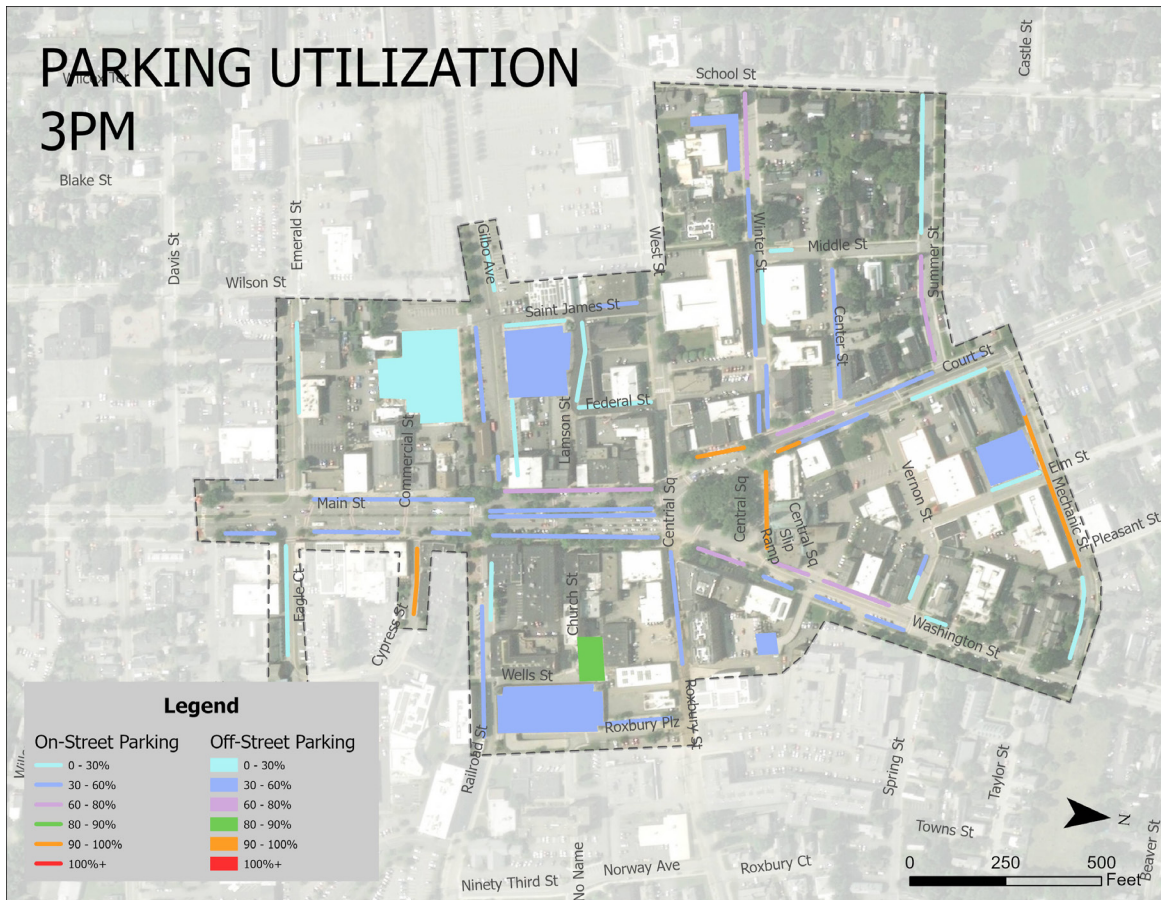
PARKING UTILIZATION

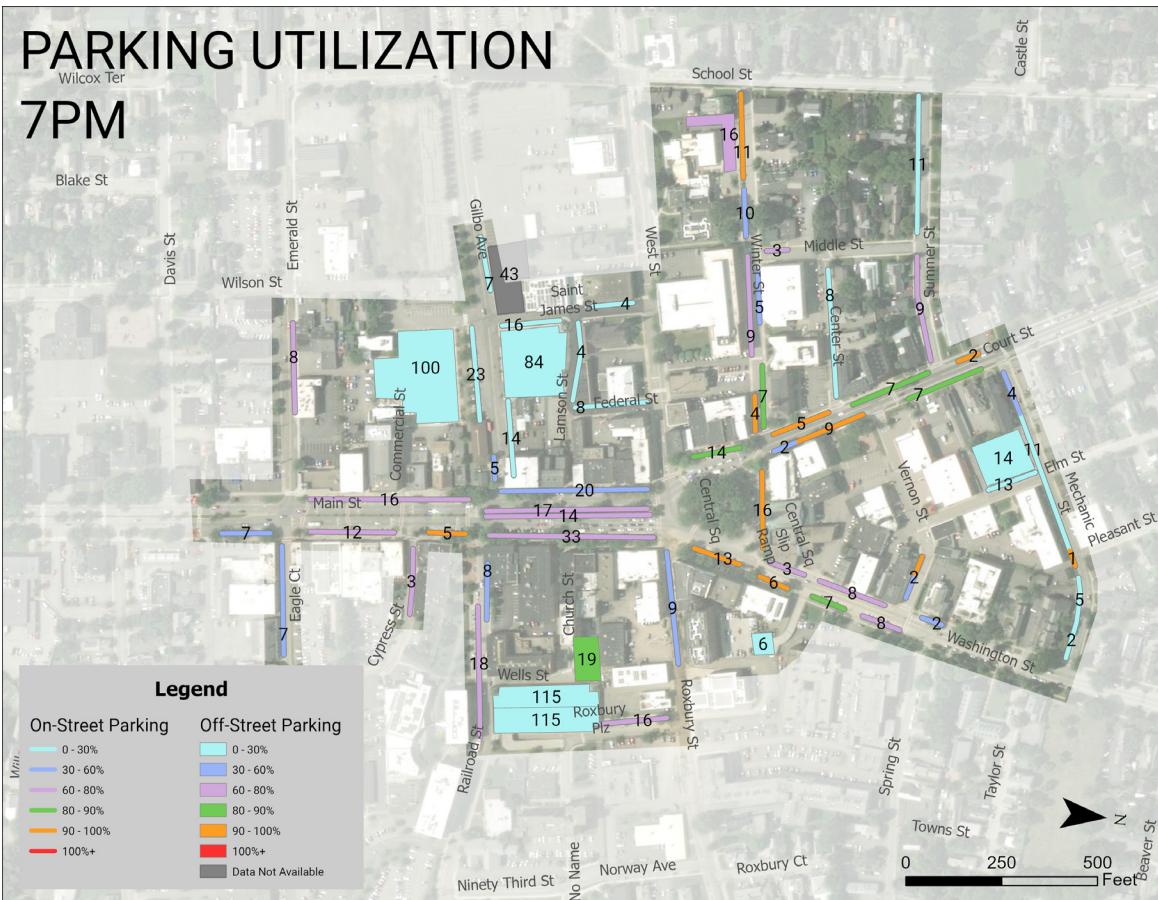
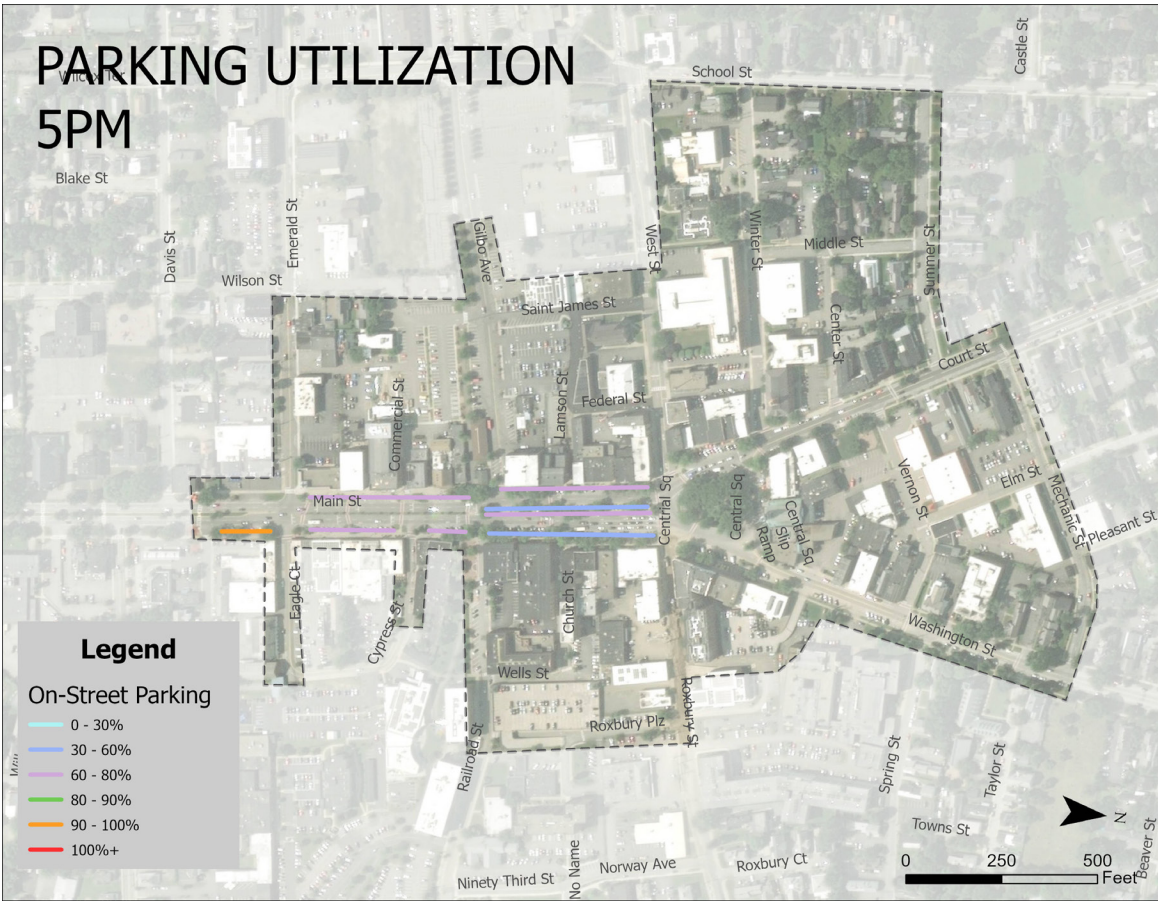
12PM



PARKING UTILIZATION

3PM





Traffic Analysis

Safety Analysis

Stantec reviewed crash history data for a 3-year period between September 2019 to May 2022. The Main Street corridor segment within the project area had the highest average crashes, with just over 64 reported annually. The high number of crashes could be possibly due to the traffic conflicts and unsignalized side streets along Main Street. Central Square, Emerald Street and Gilbo Avenue had average crashes per year of 12, 8 and 4.73 respectively. Main Street had the highest number of pedestrian (5) and bicyclist (5) crashes, while Eagle Court, Emerald Street and Roxbury Street each had one (1) bicyclist crash over the 3-year span.

Traffic Analysis

Vehicle Level of Service

Stantec used Trafficware's Synchro 11 capacity analysis software to model the study area for the Keene Downtown Improvements Project and its critical intersections. The traffic signal timings of the one signalized intersection within the Study Area, the intersection at Central Square (between Main Street, Roxbury Street, and West Street) was reviewed in the field and confirmed by records held by the City's Public Works Department. The weekday morning, midday, and afternoon peak hour traffic volumes in conjunction with existing lane assignments and traffic control, were used in the capacity analyses conducted on the study area intersections.

The following four intersections were analyzed for their existing operations:

- Main Street at Central Square, Roxbury Street, and West Street (Signalized)
- Main Street at Gilbo Avenue and Railroad Street (Unsignalized)
- Main Street at Cypress Street and Commercial Street (Unsignalized)
- Main Street at Emerald Street and Eagle Court (Unsignalized)

The level-of-service grades identified were derived from the delays reported from the microsimulation outputs following the Highway Capacity Manual (HCM). Level of Service (LOS) is a commonly used and accepted measure of effectiveness of peak-hour traffic operating conditions. It considers such factors as automobile, truck, pedestrian,

and bicycle volumes, roadway width, speed, steep grades, parking, and traffic control devices.

Volume to capacity ratios and queues are also important elements in traffic operations evaluation. The volume to capacity (v/c) ratio is calculated by dividing the recorded volume by the calculated capacity of the lane or approach. This is a measure that reports when traffic volume exceeds the capacity of the roadway which causes jamming and backups. Queues are also important as they provide a more accurate display of impacts to dense downtown corridors such as Keene. The longer the queues at the intersections, the higher the risk of queues impacting neighboring intersections, roadways, and parking along downtown streets.

Pedestrian Level of Service

In addition to vehicle LOS, Stantec reviewed the pedestrian LOS at the Downtown intersections to provide comparisons between potential alternatives and existing conditions and their treatment of other roadway users, specifically pedestrians. Pedestrian crossing delay criteria was evaluated and their associated LOS rankings for the above referenced intersections were provided.

Intersection Analysis

Stantec reported on weekday traffic operations conditions (morning, mid-day and afternoon peak hours) for the existing intersections referenced above as well as the alternatives studied including the future "no build condition" of the existing Central Square intersection layout, a future "minimally improved" Central Square layout with optimized signal timings, a future new "5-approach, full movement traffic signal for Main Street, West Street, Roxbury Street, Court Street and Washington Street", and a new "5-approach, compact roundabout for Main Street, West Street, Roxbury Street, Court Street and Washington Street". All of the above considered maintaining multi-lane approaches (two lanes in each direction) along Main Street. Single lane approaches (one lane in each direction) were also studied alternatively.

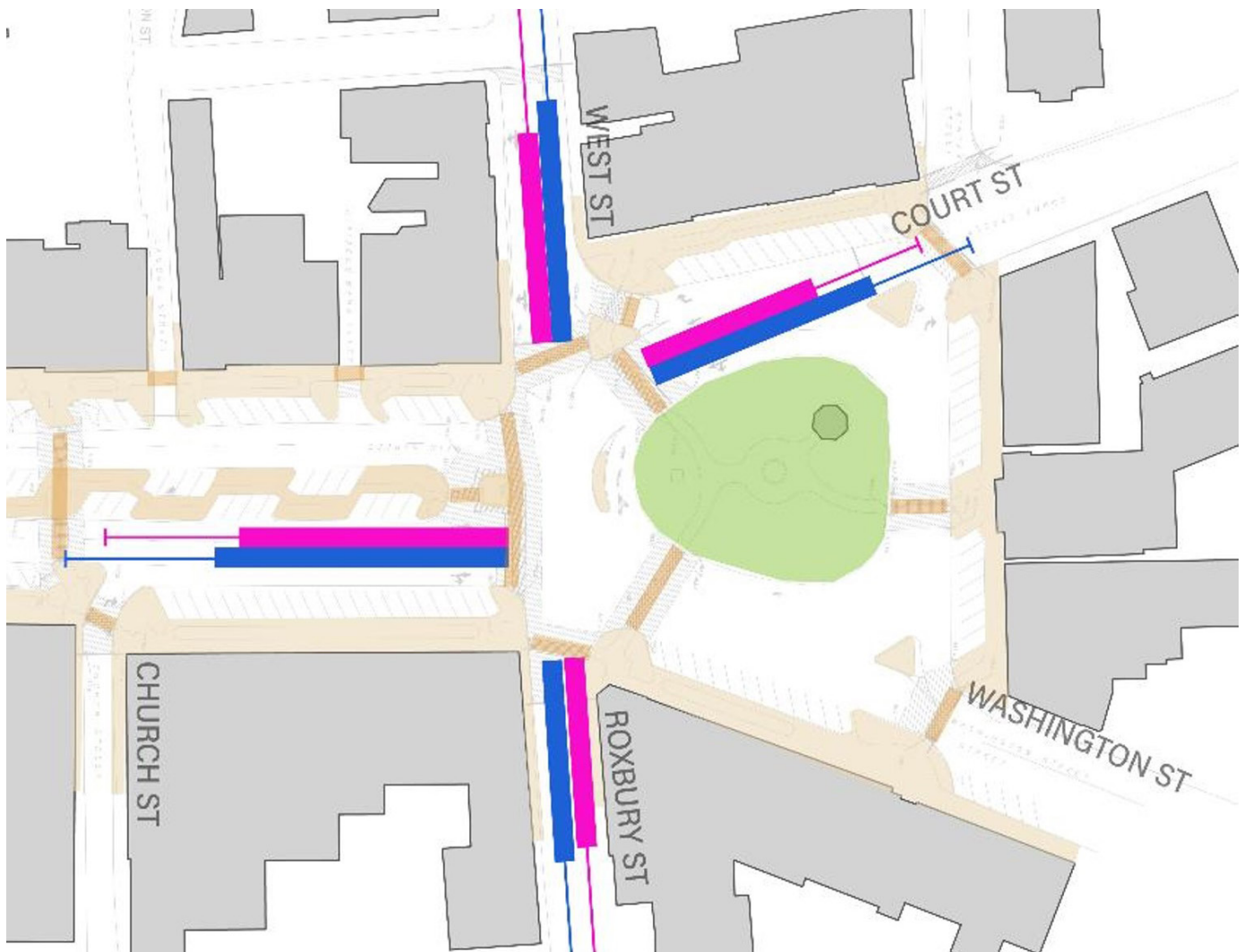
The following graphics outline the traffic operations models for the existing intersections conditions and the alternatives noted above. The full traffic study and its appendices are provided in the Appendix.

Table 4 – Downtown Improvements Project – Existing Conditions

Approach	Direction/ Approach Lane	AM Peak				Midday Peak				PM Peak						
		Delay ¹	LOS ²	v/c ³	Queue ⁴ 50 th 95 th	Delay ¹	LOS ²	v/c ³	Queue ⁴ 50 th 95 th	Delay ¹	LOS ²	v/c ³	Queue ⁴ 50 th 95 th			
Central Square (Signalized) – Main Street at Central Square, Roxbury Street, and West Street⁵																
West Street	EB L	39.9	D	0.38	86	154	38.5	D	0.40	86	161	36.3	D	0.53	104	173
	EB T/R	36.7	D	0.61	119	198	35.7	D	0.65	134	225	35.9	D	0.67	133	223
Roxbury Street	WB R	24.5	C	0.42	113	190	23.7	C	0.34	101	182	24.9	C	0.39	107	175
Main Street	NB U-Turn/T	12.6	B	0.48	35	96	19.4	B	0.53	172	252	15.4	B	0.47	57	140
	NB T ⁶ /R	34.1	C	0.48	162	241	43.1	D	0.53	136	225	36.0	D	0.47	172	250
Central Square	SB L	38.6	D	0.05	40	89	46.8	D	0.04	26	62	44.3	D	0.05	46	96
	SB T ⁶	21.0	C	0.39	104	165	27.6	C	0.51	155	210	24.4	C	0.48	129	191
SB R	2.5	A	0.58	18	68	2.9	A	0.43	29	88	2.7	A	0.63	19	74	
OVERALL		24.5	C				27.5	C				26.1	C			
Main Street at Gilbo Avenue and Railroad Street (Unsignalized)⁶																
Gilbo Avenue	EB T/R	11.1	B	0.11	-	10	15.0	C	0.29	-	30	13.0	B	0.18	-	18
Main Street	SB L/T T/R	10.1	B	0.07	-	5	9.8	A	0.06	-	5	9.6	A	0.06	-	5
Main Street at Commercial Street and Cypress Street (Unsignalized)⁶																
Cypress Street	WB R	11.7	B	0.10	-	13	11.7	B	0.19	-	18	11.5	B	0.15	-	13
Main Street at Emerald Street and Eagle Court (Unsignalized)⁶																
Emerald Street	EB R	13.1	B	0.20	-	18	14.6	B	0.34	-	38	13.3	B	0.27	-	28
Eagle Court	WB L/T/R	38.3	E	0.13	-	10	44.5	E	0.28	-	28	59.9	F	0.24	-	20
Main Street	NB L	9.4	A	0.19	-	18	10.4	B	0.24	-	23	10.2	B	0.20	-	20
Main Street	SB L	9.9	A	0.04	-	3	10.1	B	0.12	-	10	9.4	A	0.05	-	10

1. Delay in seconds per vehicle 2. Level of Service based on HCM delay thresholds 3. Volume to Capacity Ratio (HCM 2000 Reporting)
 4. Queue in feet per lane: 50th percentile and 95th percentile (25 feet per vehicle)
⁵ Two Lanes, ⁶ Three Lanes, ⁷ SimTraffic Reporting (Avg of 5 simulations), ⁸ HCM 2010 Reporting

Traffic Study - Traffic Analysis – Existing Conditions Model

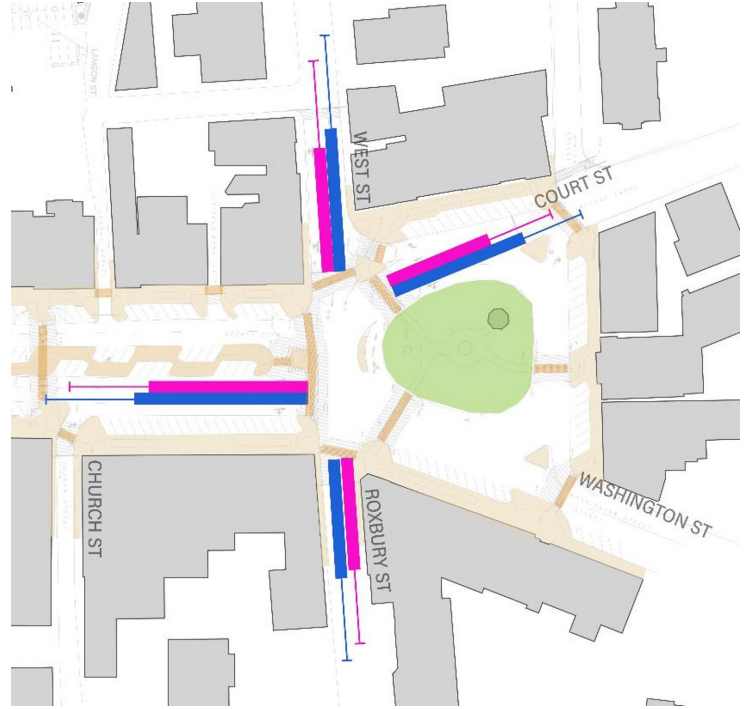
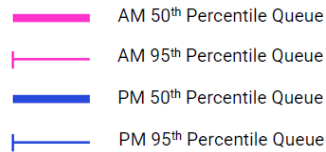


Central Square – Existing 4-Leg Approach W/ Traffic Signal

Central Square -

Existing 4-Leg Approach W/ Traffic Signal

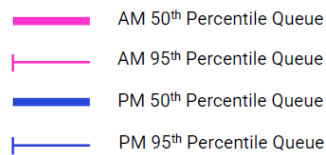
Central Square Signal (Main Street @ West/Roxbury)	Existing Intersection							
	2022 AM				2022 PM			
	Level of Service (LOS)	Delay (s)	50th % Queue (ft)	95th % Queue (ft)	Level of Service (LOS)	Delay (s)	50th % Queue (ft)	95th % Queue (ft)
West Street (EB)	D	36.7	119	198	D	35.9	133	223
Roxbury Street (WB)	C	24.5	113	190	C	24.9	107	175
Main Street (NB)	C	34.1	162	241	D	35.6	172	250
Court Street (SB)	C	21.0	104	165	C	24.4	129	191



Central Square -

Existing 4-Leg Approach W/ Optimized Lanes/Traffic Signal

Central Square Signal (Main Street @ West/Roxbury)	Alternative - Optimized Intersection							
	2027 AM				2027 PM			
	Level of Service (LOS)	Delay (s)	50th % Queue (ft)	95th % Queue (ft)	Level of Service (LOS)	Delay (s)	50th % Queue (ft)	95th % Queue (ft)
West Street (EB)	D	37.5	114	198	D	35.9	131	252
Roxbury Street (WB)	C	19.7	90	190	C	24.9	110	192
Main Street (NB)	C	28.9	106	241	D	35.6	165	239
Court Street (SB)	C	23.0	109	172	C	24.4	116	183

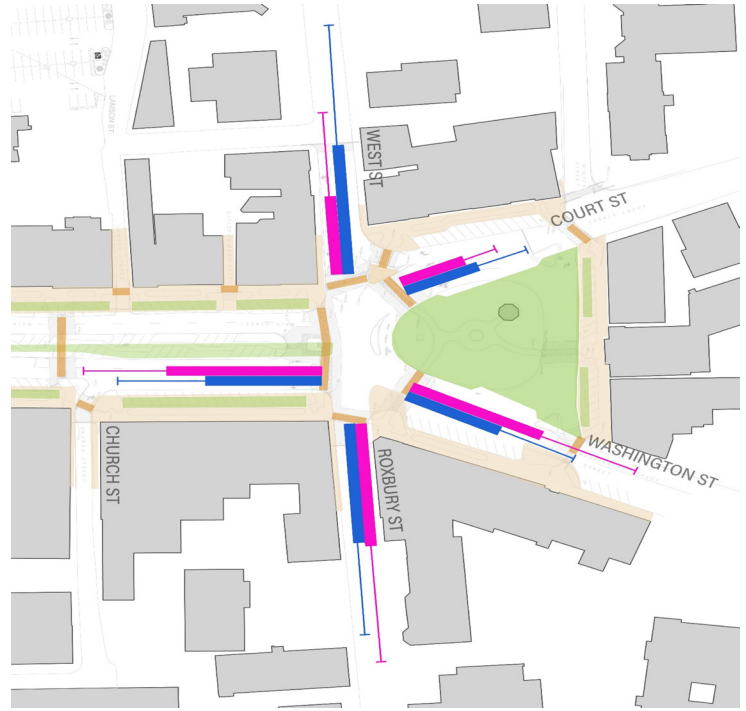


Central Square -

New 5-Leg Approach, Full Movement Traffic Signal, Two-Lane Main Street

Alternative - 5-Leg Signal, 2 Lanes											
Central Square Signal (Main Street @ West/Roxbury)	Level of Service (LOS)	2027 AM			2027 PM			Level of Service (LOS)	Delay (s)	50th % Queue (ft)	95th % Queue (ft)
		Delay (s)	50th % Queue (ft)	95th % Queue (ft)	Delay (s)	50th % Queue (ft)	95th % Queue (ft)				
West Street (EB)	E	76.2	103	213	E	75.6	165	323			
Roxbury Street (WB)	E	66.5	156	310	E	60.2	153	276			
Washington Street (SB)	D	52.3	155	267	D	44.1	106	187			
Main Street (NB)	D	43.3	162	253	D	41.2	124	217			
Court Street (SB)	D	46.8	72	119	D	42.2	86	139			

- ▬ AM 50th Percentile Queue
- ┤ AM 95th Percentile Queue
- ▬ PM 50th Percentile Queue
- ┤ PM 95th Percentile Queue

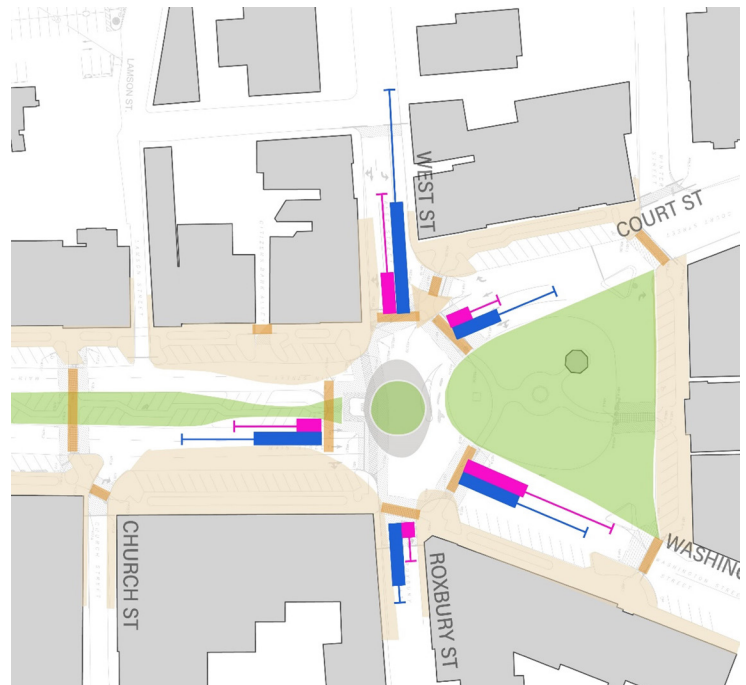


Central Square -

New 5-Leg Approach Roundabout

Alternative - 5-Leg Roundabout, 2 Lanes NB Approach											
Central Square Signal (Main Street @ West/Roxbury)	Level of Service (LOS)	2027 AM			2027 PM			Level of Service (LOS)	Delay (s)	50th % Queue (ft)	95th % Queue (ft)
		Delay (s)	50th % Queue (ft)	95th % Queue (ft)	Delay (s)	50th % Queue (ft)	95th % Queue (ft)				
West Street (EB)	B	14.6	39	96	C	24.7	78	193			
Roxbury Street (WB)	B	10.2	14	34	B	14.5	21	52			
Washington St. (SB)	C	18.0	49	123	C	18.0	44	108			
Main Street (NB)	A	9.1	25	63	B	11.9	47	116			
Court Street (SB)	A	9.4	15	39	C	15.3	32	79			

- ▬ AM 50th Percentile Queue
- ┤ AM 95th Percentile Queue
- ▬ PM 50th Percentile Queue
- ┤ PM 95th Percentile Queue



2 Design Process & Visioning

Public Meetings and Workshops

Issues and Concerns

Project Goals

Summary of Public Input

Character Zones

Preliminary Concept Options

Main Street

Central Square

Gilbo/Railroad

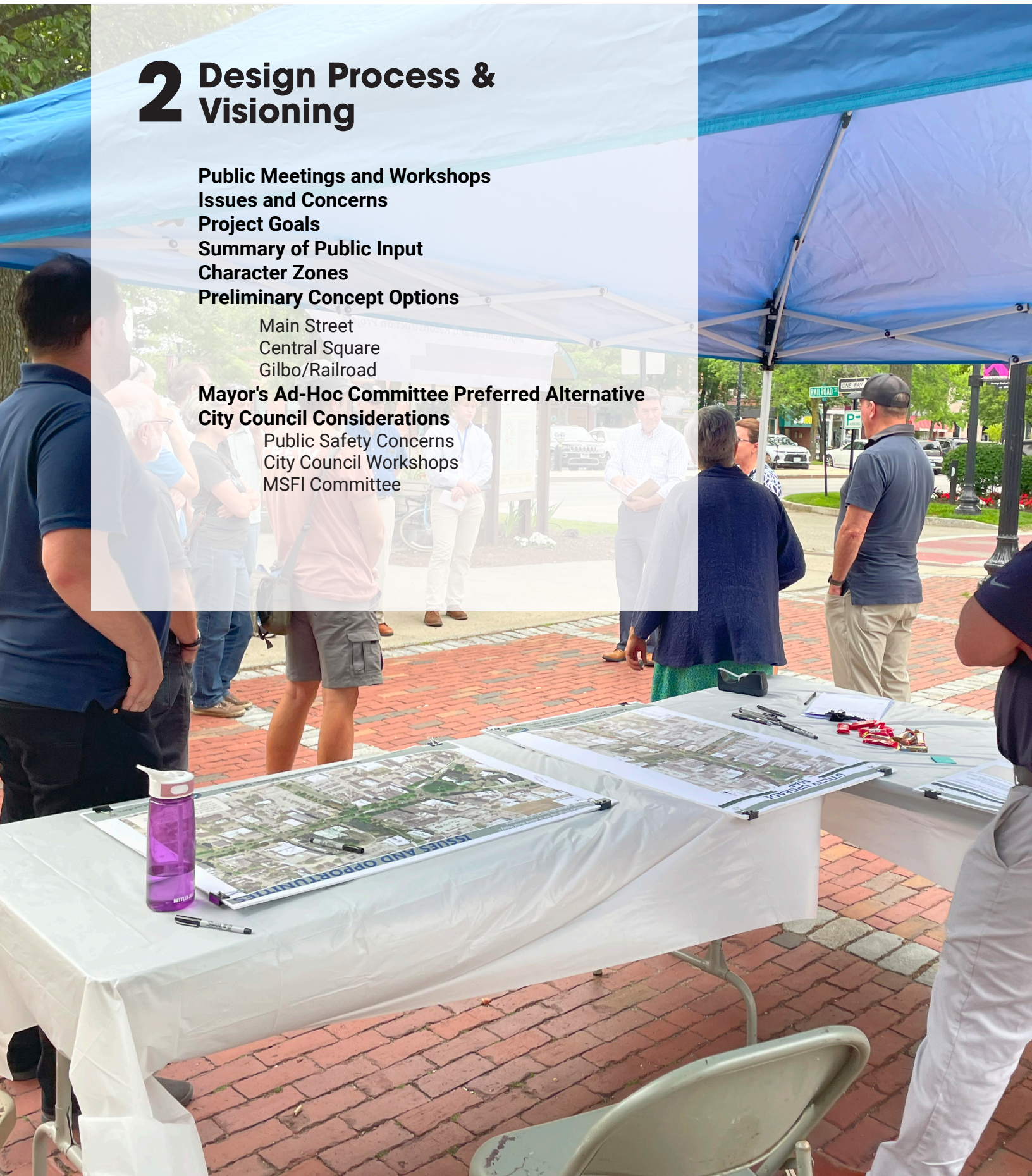
Mayor's Ad-Hoc Committee Preferred Alternative

City Council Considerations

Public Safety Concerns

City Council Workshops

MSFI Committee



Design Process & Visioning

TBD

Public Meetings & Workshops

Originally planned as part of the Mayor's Ad-Hoc Steering Committee public project development process, below is a summary of the community engagement efforts in 2022.

- In-person Project Workshop (Workshop #1), June 2022: This workshop had approximately 50 participants.
- Online website workshop/survey, June-July 2022: This workshop/survey included about 100 participants and 800 website visitors.
- Stakeholder Roundtables July-August 2022: The project roundtable series consisted of six (6) well-attended meetings, including the Technical Review Committee, Downtown Business Group #1, Downtown Business Group #2, Art's Alive Group, Bicycle Pedestrian Path Advisory Committee, and Keene Rotary Club.
- In-person Workshop (Workshop #2), October 2022: This workshop had more than 100 participants. Workshop attendees provided 42 preference worksheets and 157 preference worksheets were provided on the project website page following the workshop.
- Web Page: This page includes an interactive map, project goals, and an invitation for comments. Numerous comments were provided. As of December 5, 2022, the project website received 12,080 visits.



FLEXIBLE STREET SPACE

Street space designed to be easily closed for outdoor Community events.



TRAFFIC CALMING

There are many ways to 'calm' traffic, but the overall goal is to encourage people to drive more slowly. This could include things like speed bumps, speed signs, raised crosswalks, and/or using medians or curb extensions to narrow driving lanes.



PROTECTED BIKE LANE

A protected bike lane includes space for a 'buffer' between space for bikes and space for cars. The buffer can include vertical elements, such as a curb or posts.



HIGH-VISIBILITY CROSSWALK

Wide white bars enhance visibility for people crossing the street.



PARALLEL PARKING

Parallel parking takes up less space on the street for car storage, making room for other things such as street furniture, sidewalk, bike facilities, etc.



← HIGHER PRIORITY ————— LOWER PRIORITY →

OUTDOOR DINING OR ACTIVITY

Flexible space on the curb or in the street that can be used for chairs and tables, or even pop-up sales or seating areas.



STREET FURNITURE

This includes things like benches and litter bins, but also bicycle parking and lighting.



BIOSWALE/GREEN INFRASTRUCTURE

Plantings that not only increase greenery on the street but also aid in stormwater management.



BICYCLE RACKS AND STORAGE

Bicycle parking on the sidewalk, temporary "bicycle corridors" on-street in parking spaces, and secure bicycle parking options.

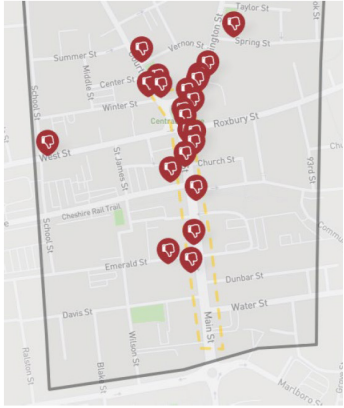


WAYFINDING

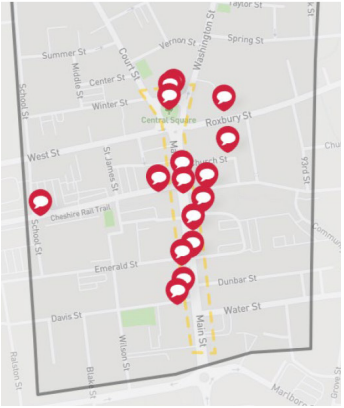
Wayfinding is signage that helps people find important locations, such as clusters of businesses, parking, local trails, and City Hall. There should be signs for both people driving or biking and people walking.



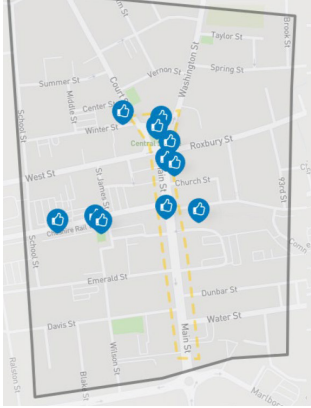
Things I Don't Like



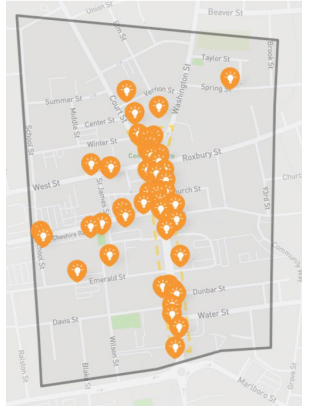
Make a Comment



Something I Like



Ideas and Suggestions



Create opportunities for outdoor performances

Address extensive flooding issues

Support small businesses with transforming outdoor space

Issues and Concerns

Reliable Utility Infrastructure:

- **Water, Sewer, and Drainage Systems:** Aging infrastructure can lead to water quality issues and service disruptions. Residents and businesses are concerned about potential health and safety risks, as well as the economic impacts of service disruptions making replacements of these systems a top priority. Effective stormwater management is also needed to prevent localized flooding, particularly during heavy rain events.
- **Electrical Services (EV Planning for the Future):** With the electric vehicle market growing, forward-thinking planning is essential. This involves creating opportunities to install more EV charging stations throughout the Downtown and integrating smart grid technology to accommodate future demand. Residents want to reduce their carbon footprint, and convenient EV charging is a key aspect of this.
- **Private Utilities (Electric, Gas, Telecommunications, Fiber):** The dependability of private utilities like electric, gas, telecommunications, and fiber-optic internet is crucial for everyday life. Any disruptions in these services can impact businesses, communication, and emergency response systems. Collaborative agreements and clear communication between the city and private utility providers are needed to ensure future reliability.

Environmental Concerns:

- **Vehicle Delays and Greenhouse Gas Emissions (GHG):** Residents are concerned about the health impact of air pollution due to vehicle emissions and the economic impact of congestion. Improving public transportation, promoting carpooling, and enhancing biking and walking infrastructure are key strategies to address these concerns.
- **Flooding (Delays and Property Damage):** Flooding events can cause significant property damage and pose risks to life. Sustainable urban planning should incorporate measures like permeable pavements, green roofs, and improved stormwater management to reduce the impact of flooding.

Traffic Concerns:

- **Signal Timing, Delays, and Conditions:** Traffic congestion and inefficient signal timings can increase travel times and stress levels for drivers. Improved traffic management and infrastructure

upgrades, such as smart traffic lights, can help alleviate these concerns.

- **Emergency Vehicle Access:** Main Street is a primary designated emergency response route so quick access for emergency services is critical for public safety. Traffic plans should consider the fastest routes for emergency vehicles and implement solutions like emergency signal preemption.

Pedestrian Safety Concerns:

- **Crosswalk Lengths:** Adequate crosswalk lengths ensure pedestrians have enough time to cross streets safely. This is especially important in areas with high foot traffic like Downtown.
- **Mid-Block Crossings:** Installing marked mid-block crosswalks with proper signage and lighting can enhance pedestrian safety, particularly in areas where jaywalking is common.
- **Double Threat Near Misses:** Identifying locations with double threat near misses, where pedestrians may be caught between moving vehicles in multilane roadways, is a priority for improved safety. Installing pedestrian islands and additional signage can help mitigate these risks.
- **Lighting, Signage, Visibility, and Conditions:** Well-lit streets, clear signage, and improved visibility enhance pedestrian safety. Consideration should be given to factors like street lighting design, signage maintenance, and ensuring walkways are clear and obstruction-free.

Bicycle Safety Concerns:

- **Limited to No Bicycle Facilities in Downtown:** The lack of dedicated bicycle lanes or routes through downtown can deter cycling as a viable transportation option. Creating designated bike lanes, bike-sharing programs, and secure bike storage facilities can address this issue.
- **Storage/Racking:** Adequate bike storage and racks encourage bicycle use. Installing secure and convenient bike storage in strategic locations, including near transit stops and commercial areas, promotes cycling.

Public Transit:

- **Limited Public Transit Stops:** Expanding the public

transit network by adding more stops and routes makes it more accessible to a broader range of residents and caters to Keene's growing population.

- Growing Need: With increased urban density, there's a growing need for efficient and affordable public transit. This can reduce traffic congestion, greenhouse gas emissions, and the reliance on private vehicles.

Downtown Sidewalk Commerce:

- Create More Opportunities: Encouraging sidewalk commerce can invigorate the local economy. To achieve this, the city can consider relaxing regulations that restrict such activities and implementing designated areas for street vendors and outdoor dining.
- Conditions Don't Allow in Some Areas: In some cases, narrow sidewalks or other obstructions may hinder sidewalk commerce. Identifying such areas and implementing sidewalk widening or other infrastructure improvements is crucial to facilitate these activities.

Image and Character of Downtown Keene:

- Tree Canopy: Downtown Keene's lush tree canopy contributes to the visual appeal and environmental health of the city. Tree preservation efforts, alongside strategic planting of new trees, can enhance the aesthetics and provide shade and air purification, while reducing a heat sink effect.
- Iconic Views: Iconic views and landmarks define the character of Keene. Protecting and promoting these views can be done through zoning regulations, heritage preservation, and public engagement.

Universal Access:

- Accessibility in Public Realm: To ensure universal access, public transportation, sidewalks, and building entrances need to comply with accessibility standards to the best extent practicable, including ramps, tactile paving, and adequate curb cuts. Ensuring these elements are in place helps individuals with disabilities and those with limited mobility navigate the city with ease.
- Business/Building Access: Addressing physical barriers at business and building entrances involves

ramp installation, automatic doors, and clear signage. Additionally, educating businesses on the importance of accessibility is crucial to promote universal access.

- These detailed considerations reflect the comprehensive nature of the concerns raised by the community, demonstrating the need for a holistic approach to Downtown urban planning and development. Collaborative efforts among local government, residents, and relevant stakeholders are essential to address these issues effectively and create a more livable, sustainable, and inclusive downtown environment in Keene.



Project Goals

As a result of public input from open workshops, interviews, surveys, and the projects' on-line interactive project map, the following project goals were developed and refined through guidance from the Mayor's Ad-Hoc Steering Committee and Keene City Council.

Utility Infrastructure Improvements: This goal involves prioritizing the upgrading of aging utility systems such as water, sanitary sewer, drainage, as well as private utility infrastructure including the downtown electrical grid and fiber/telecommunication systems to meet current and future demands. By enhancing utility infrastructure resilience, the city can better withstand environmental challenges and provide consistent, high-quality services to residents and businesses.

Define/Expand Connections to Downtown District: This objective focuses on creating pedestrian-friendly paths, bike lanes, and public transportation options that connect outlying neighborhoods to the downtown core. These connections not only improve mobility but also stimulate economic activity and community cohesion.

Support a More Sustainable Built Environment and Transportation Choices: Sustainability efforts include promoting energy-efficient building practices, reducing carbon emissions, and offering alternatives to single-occupancy vehicles. This means supporting public transit, carpooling, cycling, and walking, while encouraging eco-friendly construction methods and materials, as well as promoting innovative and sustainable stormwater management systems in the Downtown core. sidewalks.

Strengthen Image and Character, Including Arts and History: This goal is specific to enhancing Keene's identity and involves showcasing its artistic and historical assets. This might include public art installations, heritage preservation, and cultural events that celebrate the city's unique character and its contribution to the arts and history.

Expand Flexible Open Space: By creating more open and flexible spaces, the city provides venues for community gatherings, outdoor events, and recreational activities that drive a vibrant economic center. Parks, plazas, and multipurpose areas offer residents and visitors versatile options for relaxation and social interaction.

Improve Multimodal Transportation Access: In line with a modern, multi-modal approach, Keene intends to improve pedestrian and bicycling infrastructure while enhancing public transportation networks. Initiatives include protected bike lanes, bike-sharing programs, expanded bus routes, electric vehicle charging stations, and improved sidewalks.

Provide Adequate Parking: Ensuring that there's sufficient, conveniently located parking helps reduce congestion and supports local businesses. This may involve constructing parking garages, optimizing on-street parking, and utilizing smart parking technology to manage spaces effectively.

Upgrade Walking Environment: This goal entails revamping sidewalks, crosswalks, and public spaces to create a pedestrian-friendly environment. It includes considerations like well-designed street furniture, attractive landscaping, adequate lighting, and other elements that make walking a safe, enjoyable, and practical means of getting around the city.



Summary of Public Input

Placemaking and Wayfinding:

The absence of effective placemaking elements like public art, gathering spaces, and distinctive landmarks has left Downtown Keene feeling somewhat disjointed. Wayfinding, including clear signage and pedestrian-friendly paths, would help visitors and residents better understand and navigate the area, ultimately creating a more engaging and user-friendly environment. Placemaking strategies could involve creating public art installations, green spaces, or themed districts that reflect the city's identity.

Comfort for Pedestrians, Cyclists, and Rollers:

Residents expressed concerns about the safety and accessibility of Downtown for pedestrians, cyclists, and individuals using mobility aids. This might involve improving sidewalks and crosswalks, introducing dedicated bike lanes, ensuring ADA-compliant infrastructure, such as curb ramps, and improving lighting. Enhancing comfort for all forms of non-motorized transportation promotes a more inclusive and healthier urban environment.

Low-Impact Development and Green Infrastructure:

Expanding low-impact development practices involves incorporating environmentally friendly construction methods and materials that reduce the environmental footprint that is typical of a dense Downtown core. Green infrastructure, including features like permeable pavements, green areas, and urban rain gardens, can help manage stormwater and mitigate the impacts of urbanization on local ecosystems, promoting sustainability and resilience.

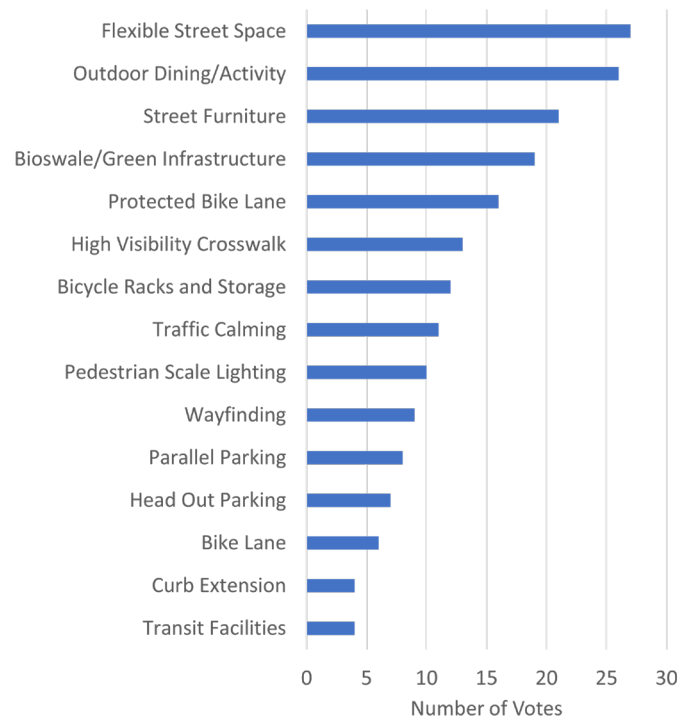
Balancing Car Facilities:

While recognizing the continued need for car facilities, there is a strong push to reduce car-centric design. Streamlining could involve optimizing traffic flow, reducing road widths to create more space for pedestrians and cyclists, and encouraging carpooling and electric vehicle use. Balancing car facilities with sustainable transportation options is essential in reducing traffic congestion and emissions.

Infrastructure Upgrades:

The call for infrastructure upgrades may encompass various aspects, including modernizing utility systems (water, sewer, electrical, and telecommunications), repairing and repaving roadways, and improving public transportation infrastructure. These upgrades are necessary to ensure the reliability and efficiency of critical services in Downtown.

What elements would you like to see on Main Street?



Expanding Downtown Activities:

Expanding opportunities for activities in Downtown aims to transform the area into a livelier urban hub. This can be achieved by hosting more events, markets, and cultural festivals, as well as creating versatile and flexible public spaces for recreational activities and community gatherings. An active Downtown not only enhances community engagement but also stimulates economic growth.

Incorporating Art and History:

Integrating art and history into the design is a way to preserve and celebrate the city's cultural heritage. This might involve commissioning public art installations, incorporating historical markers, and fostering a deeper connection to the city's past through guided tours and educational initiatives. By embracing the artistic and historical richness of the area, Keene can differentiate itself and offer a unique experience to residents and visitors alike.

These comments underscore the community's desire for a more inviting and accessible Downtown area that promotes sustainability, active transportation, cultural richness, and overall well-being. Public engagement and collaboration with urban planners and local authorities will be essential in addressing these concerns and shaping the future of Downtown.

Character Zones

Following input from the public recognizing the distinct differences between sections of the downtown project area, the vision + design team set up to define downtown core character zones to best describe use and character within each area.

1. Main Street:

Nestled in the heart of Keene, Main Street is a vibrant and bustling center. It exudes charm with its well-maintained historic architecture and a welcoming atmosphere. Inclusivity is a key theme, where people from all walks of life come together. Main Street serves as a multimodal hub, accommodating pedestrians, cyclists, and public transportation, making it accessible to everyone. This area hosts various events and markets, creating a lively and engaging community space.

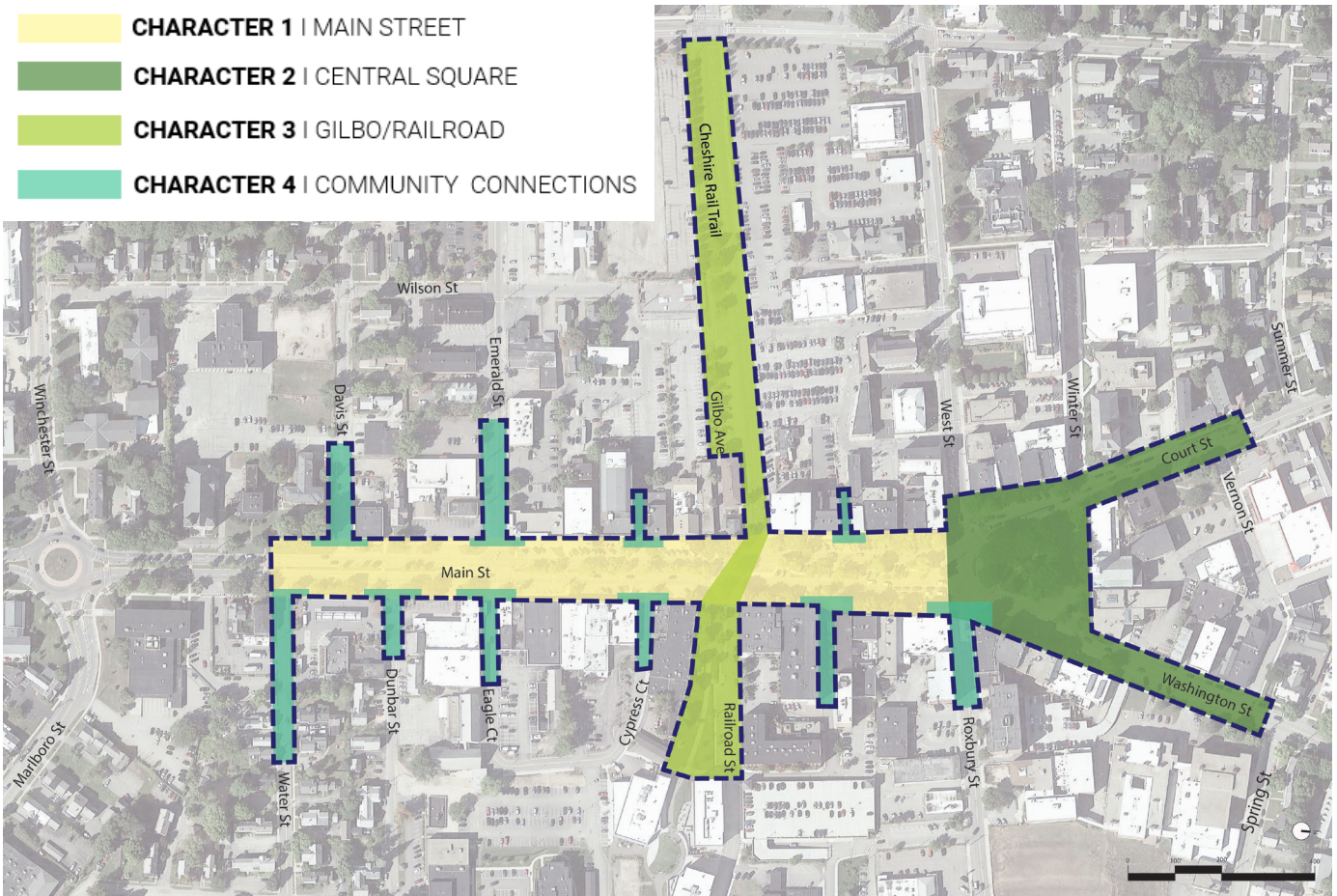
2. Central Square:

As the civic core of our city, Central Square stands out with a formal and distinguished ambiance. It's reminiscent of a classic village center, where important government and community activities are conducted. The architecture and landscape here is grand and structured, reflecting the historical significance of this area. It's a place where residents gather for events and ceremonies, official functions, and a sense of civic pride.

3. Gilbo Avenue and Railroad Square:

These areas are a testament to Keene's artistic spirit and rich history. They provide a festive and flexible space for creative expression, with vibrant street art, open spaces for artistic exhibitions, and a lively atmosphere. Historic buildings add a touch of nostalgia, making it a favorite destination for those seeking a connection to the city's roots. Whether it's an outdoor concert, the farmers market, an art fair, or simply a place to wander and appreciate the unique character, Gilbo Avenue and Railroad Square are where culture and history converge.

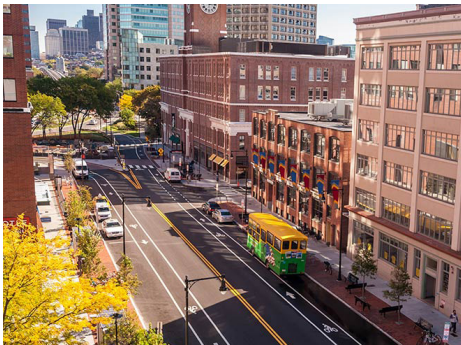
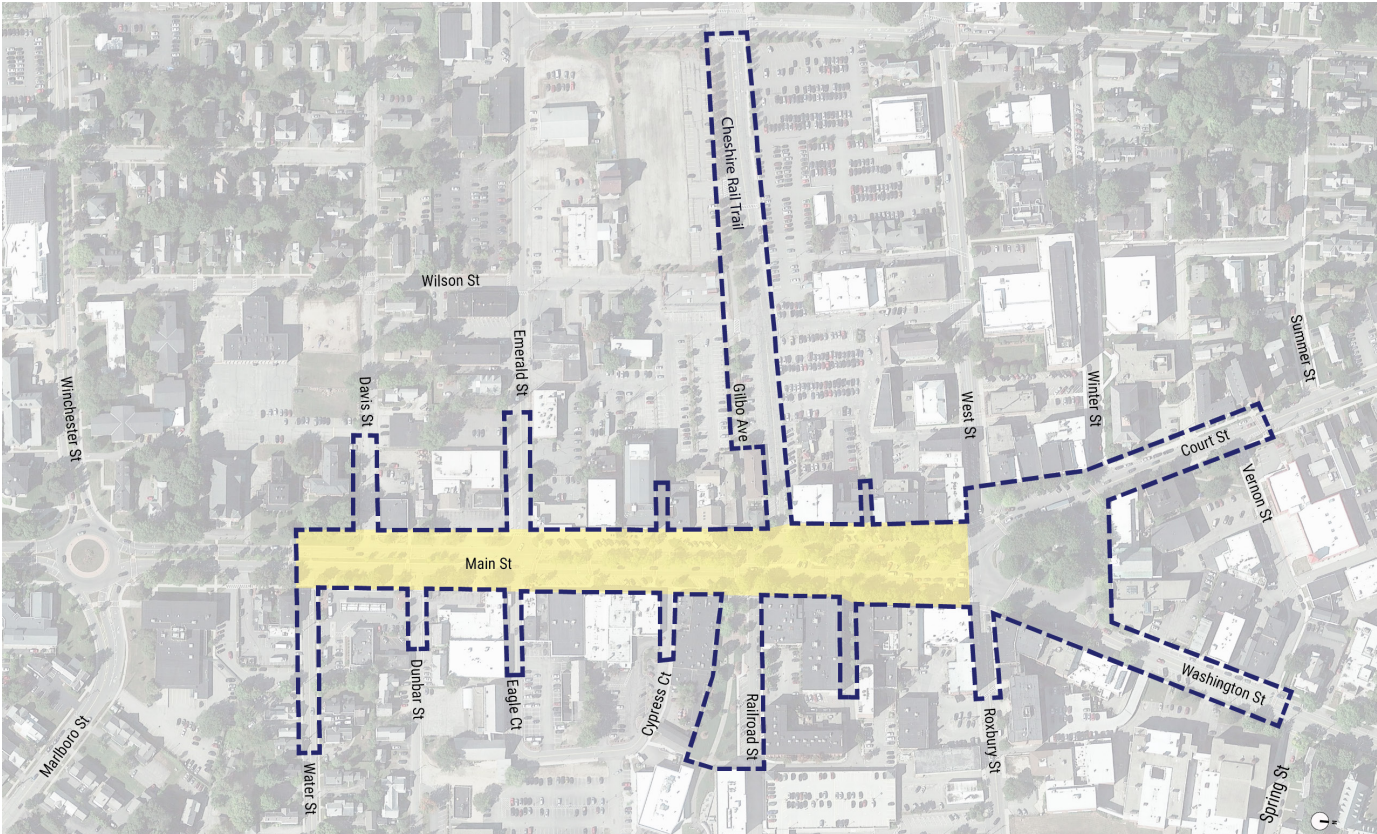
- CHARACTER 1 | MAIN STREET
- CHARACTER 2 | CENTRAL SQUARE
- CHARACTER 3 | GILBO/RAILROAD
- CHARACTER 4 | COMMUNITY CONNECTIONS





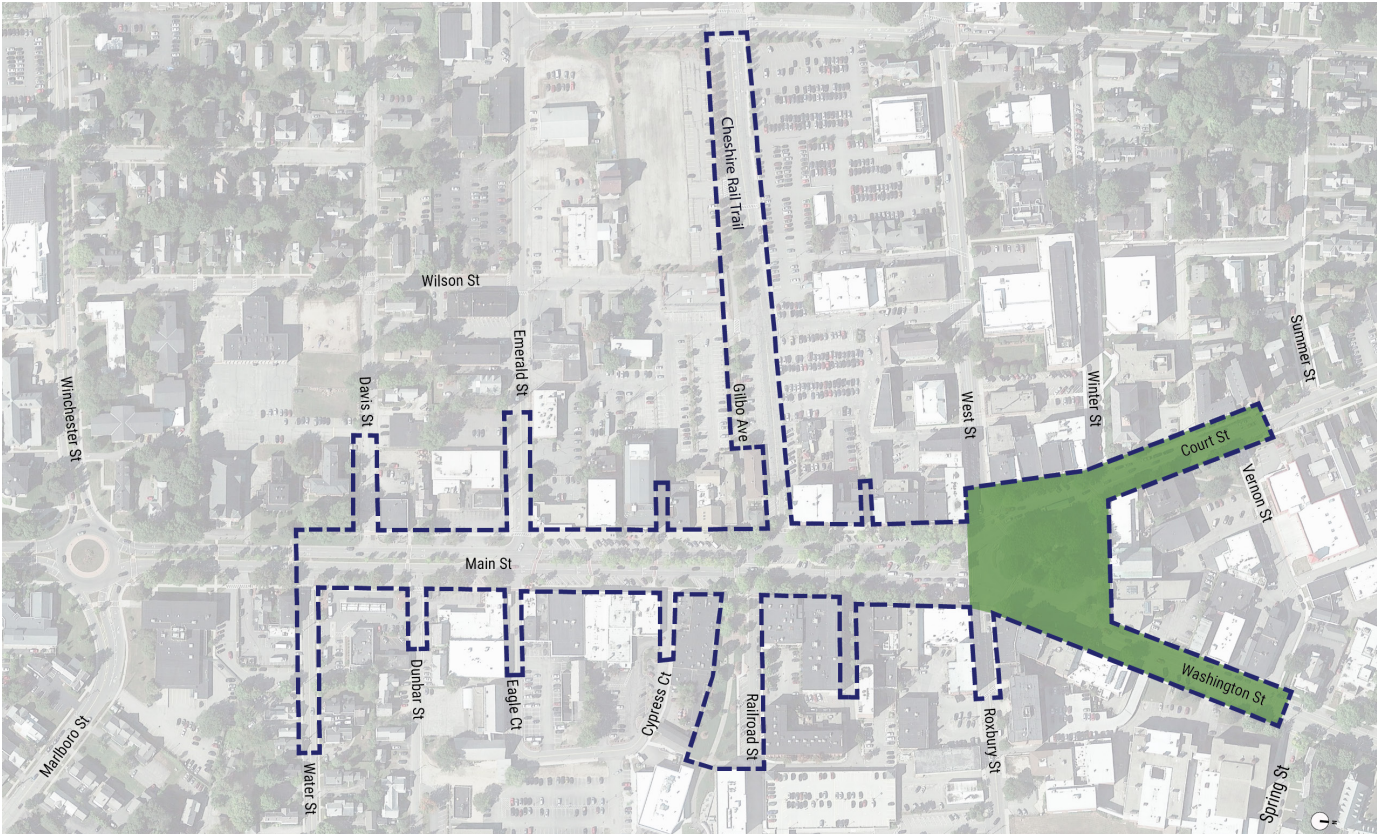
Character Zones - Main Street

Vibrant/Charming/Inclusive/Welcome/Multi-Modal



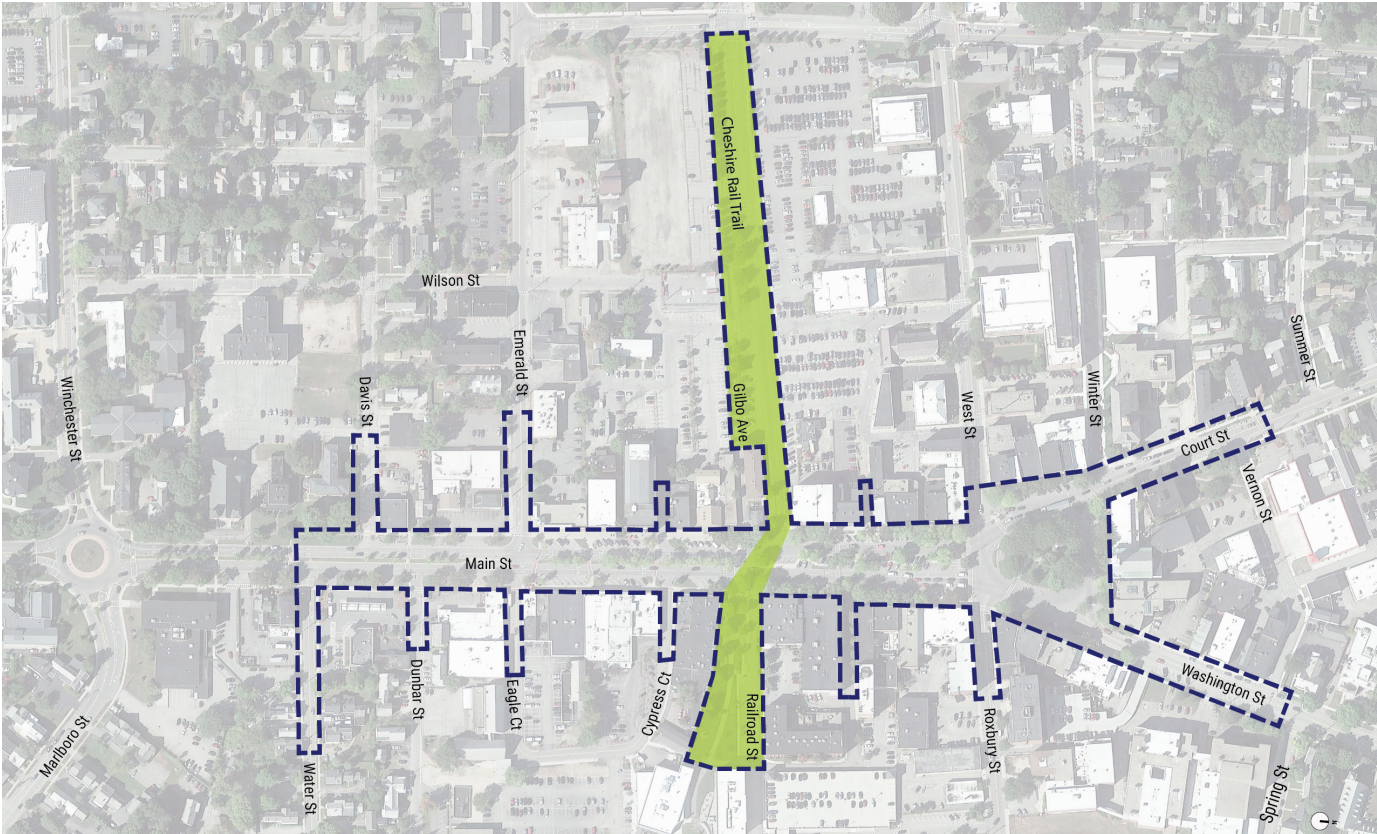
Character Zones - Central Square

Civic/Formal/Village Center



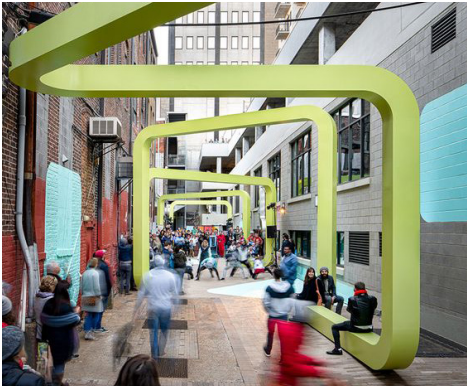
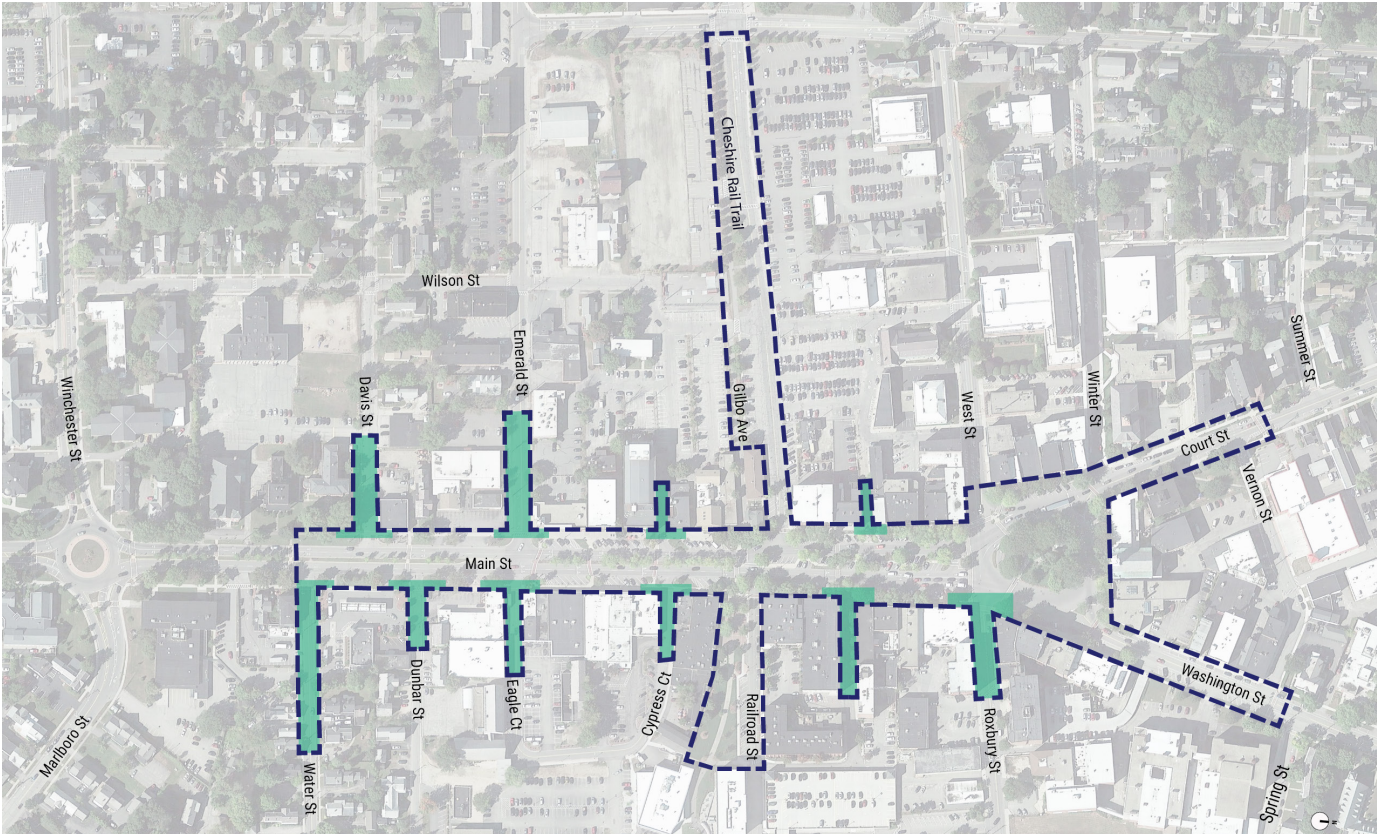
Character Zones - Gilbo/Railroad

Artistic/Festive/Flexible/Historic



Character Zones - Community Connections

Pedestrian/Inviting



Preliminary Concepts Options - Main Street

Option 1 - Minimal

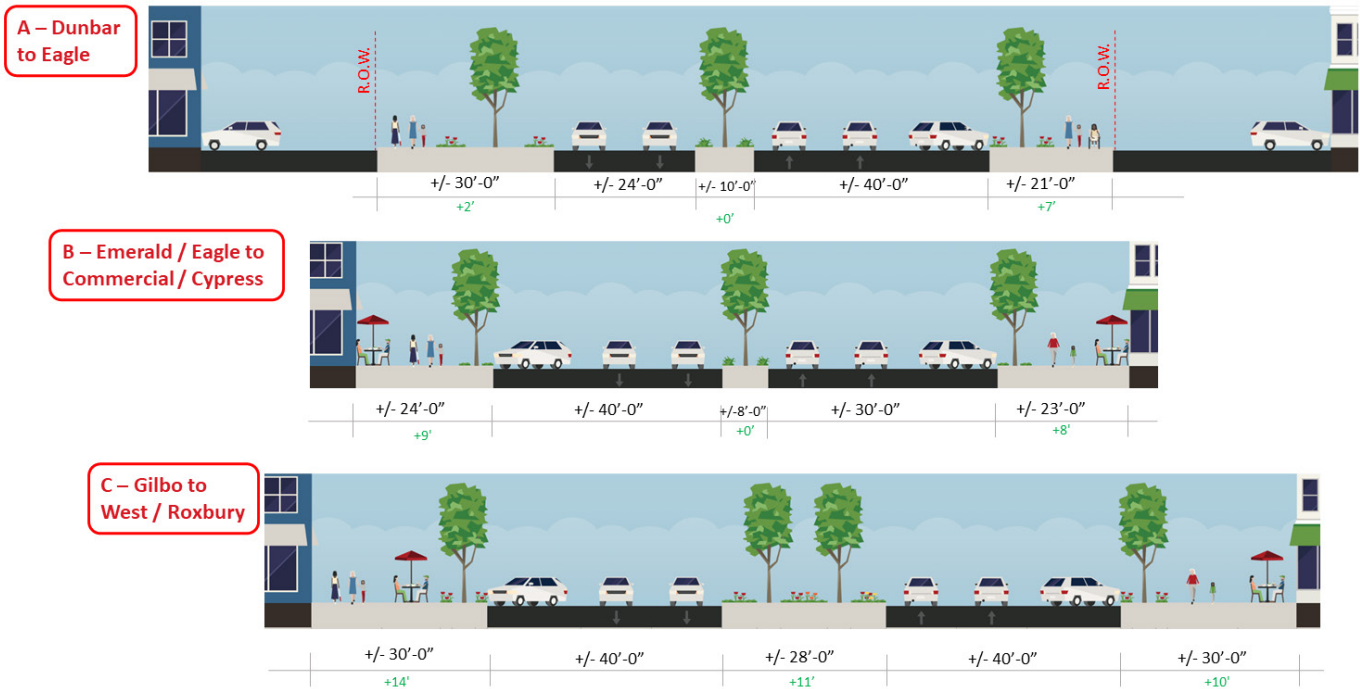
Main Street Option 1 – Minimal maintains existing travel lane arrangements along Main Street (two lanes in each direction), within Central Square (lanes and circulation patterns), and at side street approaches to Main Street. Traffic operations at major intersections essentially remain the same, with traffic signal optimization at the Main Street/West Street/Roxbury Street intersection. Lane width reductions will be considered within Central Square.

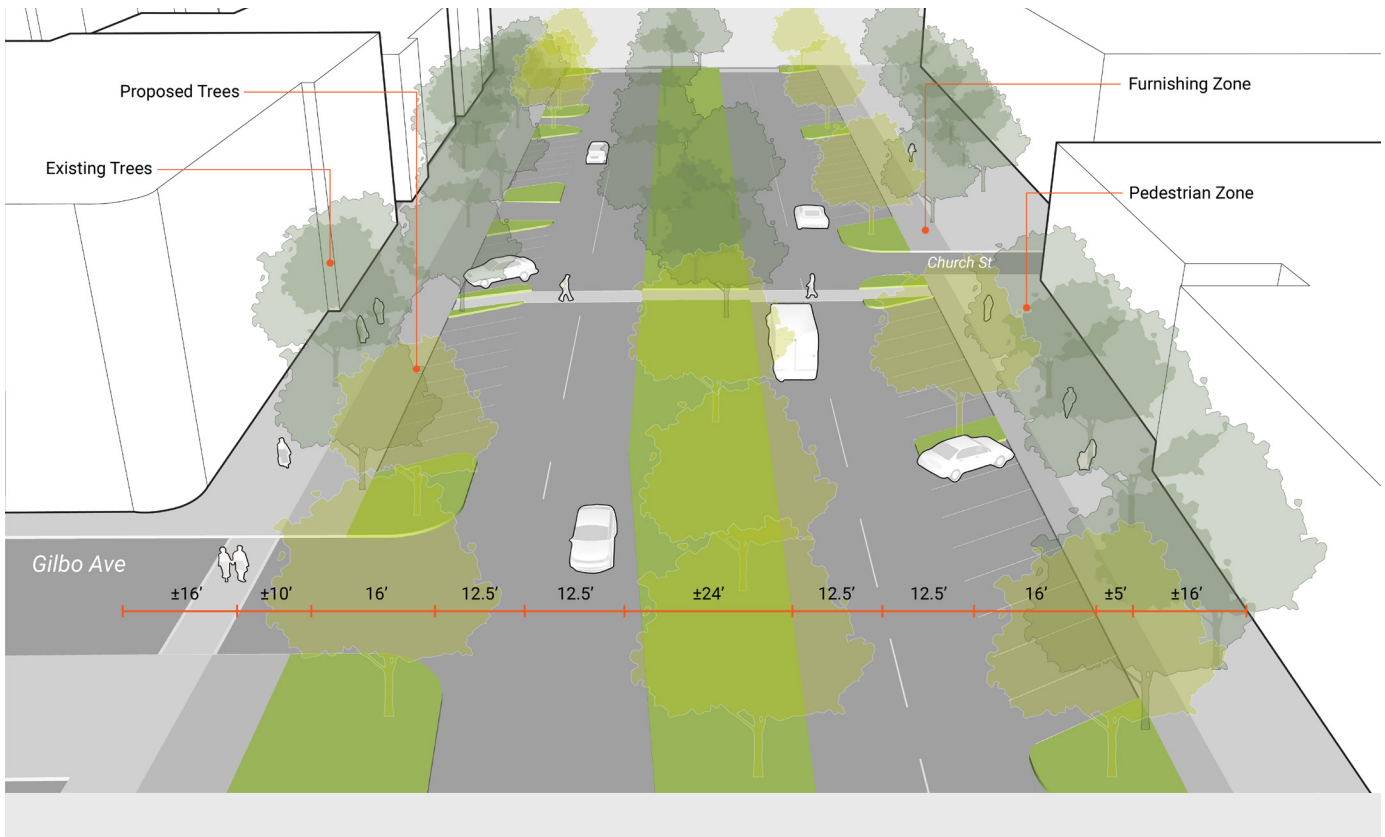
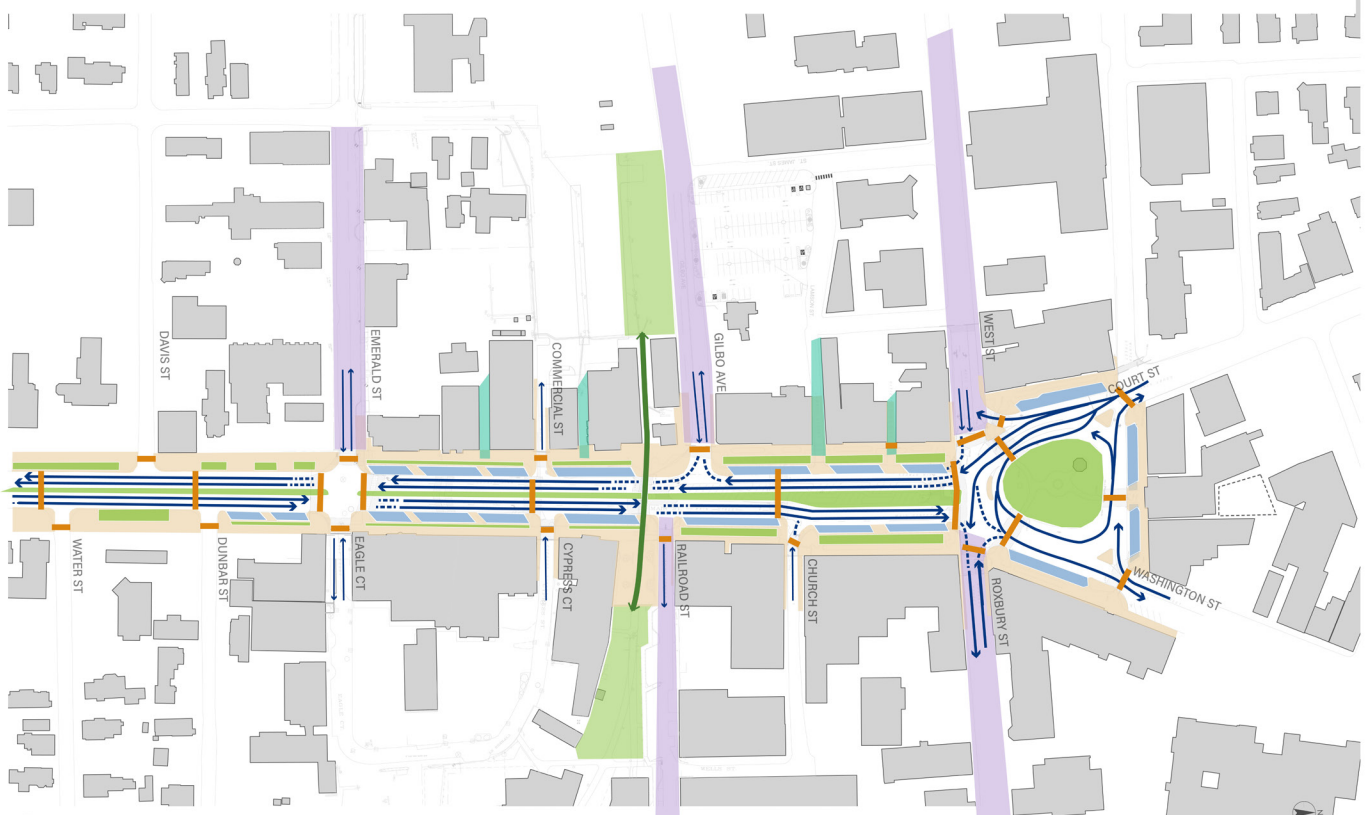
Angled parking along Main Street and within Central Square has been maintained. Angled parking within the center median in north Main Street has been removed to better accommodate sidewalk widths. Total existing parking count of 167 spaces has been maintained within the project area.

Crosswalk count and locations along Main Street, Central Square, and along the side streets are similar. Given limited changes to street and parking stall dimensions,

crosswalks remain wide across multiple lanes and sidewalk width expansion is very limited. There are no provisions for dedicated bicycle facilities within the Downtown project area.

Green space and flexible sidewalk space for commerce is similar along sidewalk sections. Where parking has been eliminated in the center median along Main Street between West Street/Roxbury Street and Gilbo Avenue, a wider green space is provided.





Preliminary Concepts Options - Main Street

Option 2 - Multi-Modal

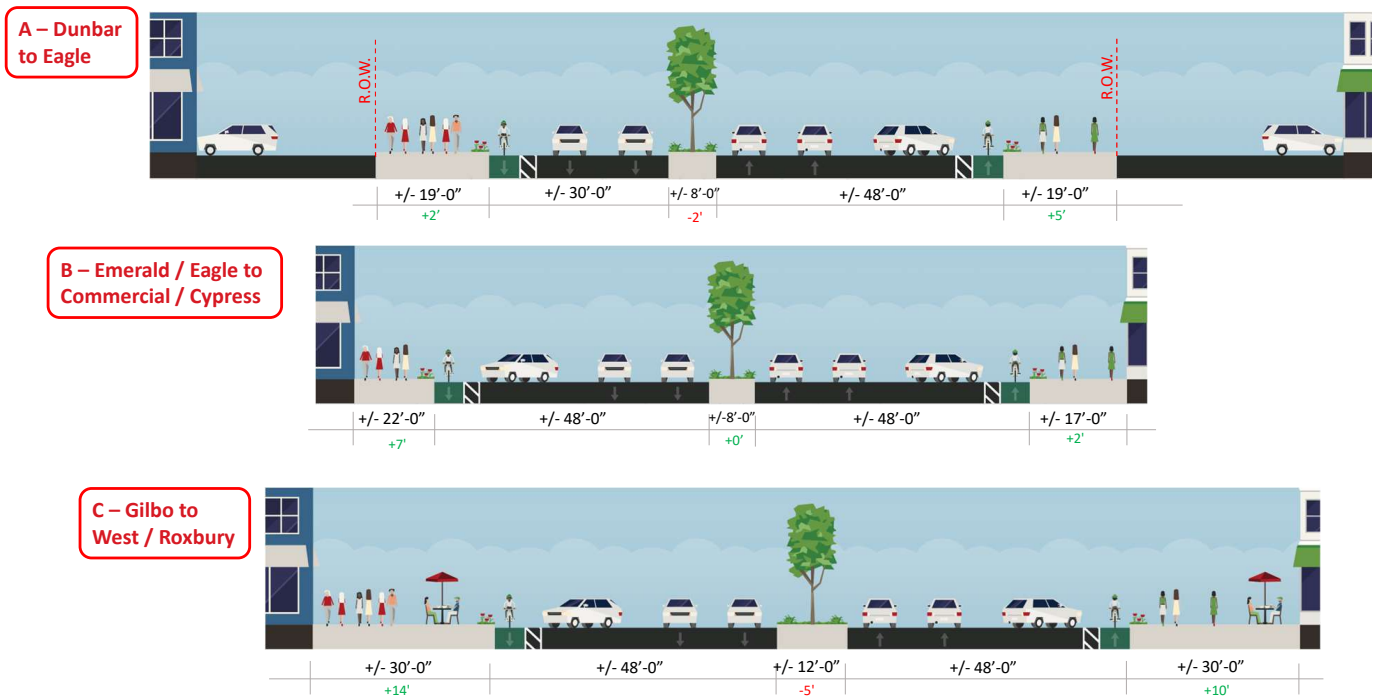
Main Street Option 2 – Multimodal maintains existing travel lane arrangements along Main Street (two lanes in each direction), within Central Square (lanes and circulation patterns), and at side street approaches to Main Street. Traffic operations at major intersections essentially remain the same, with traffic signal optimization at the Main Street/West Street/Roxbury Street intersection. Lane width reductions will be considered within Central Square.

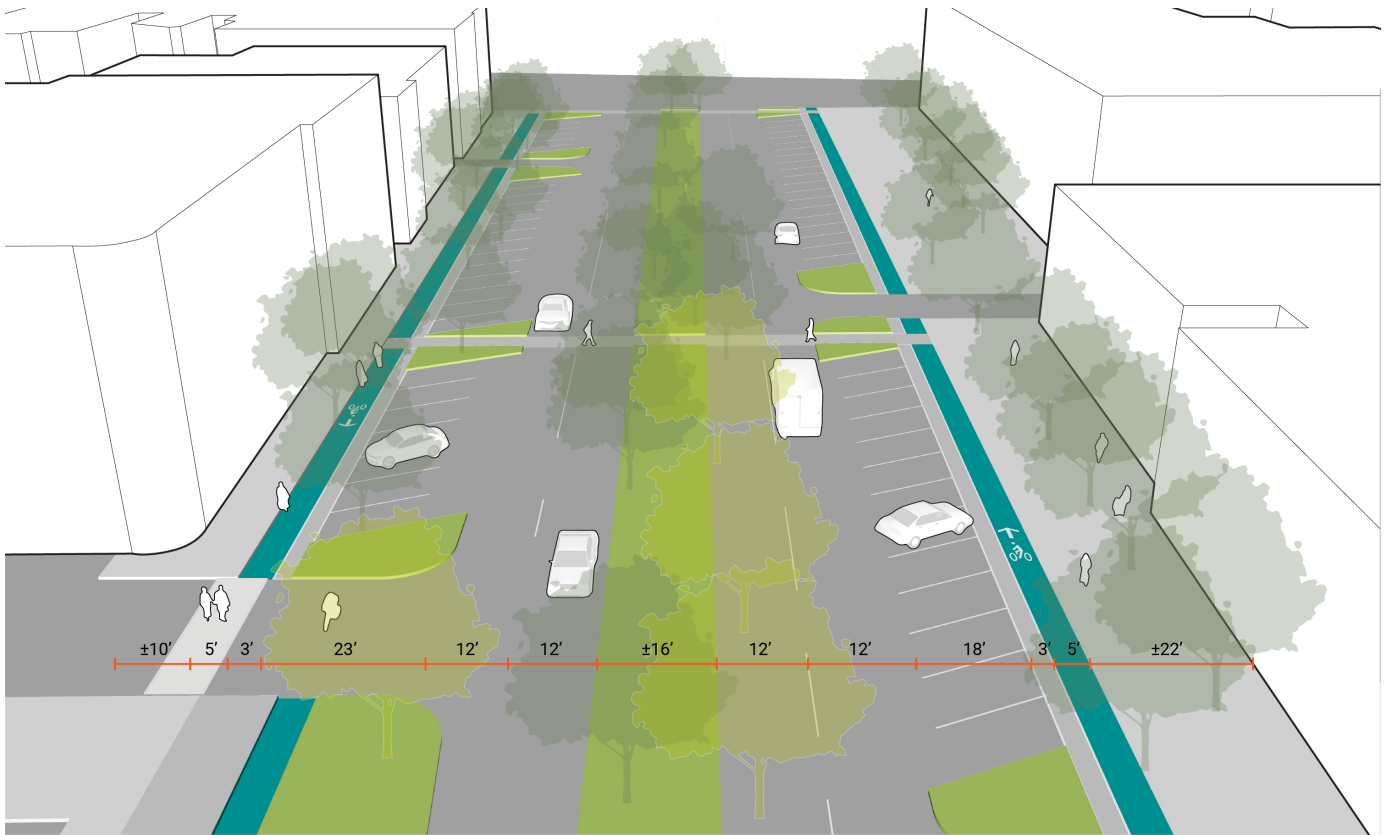
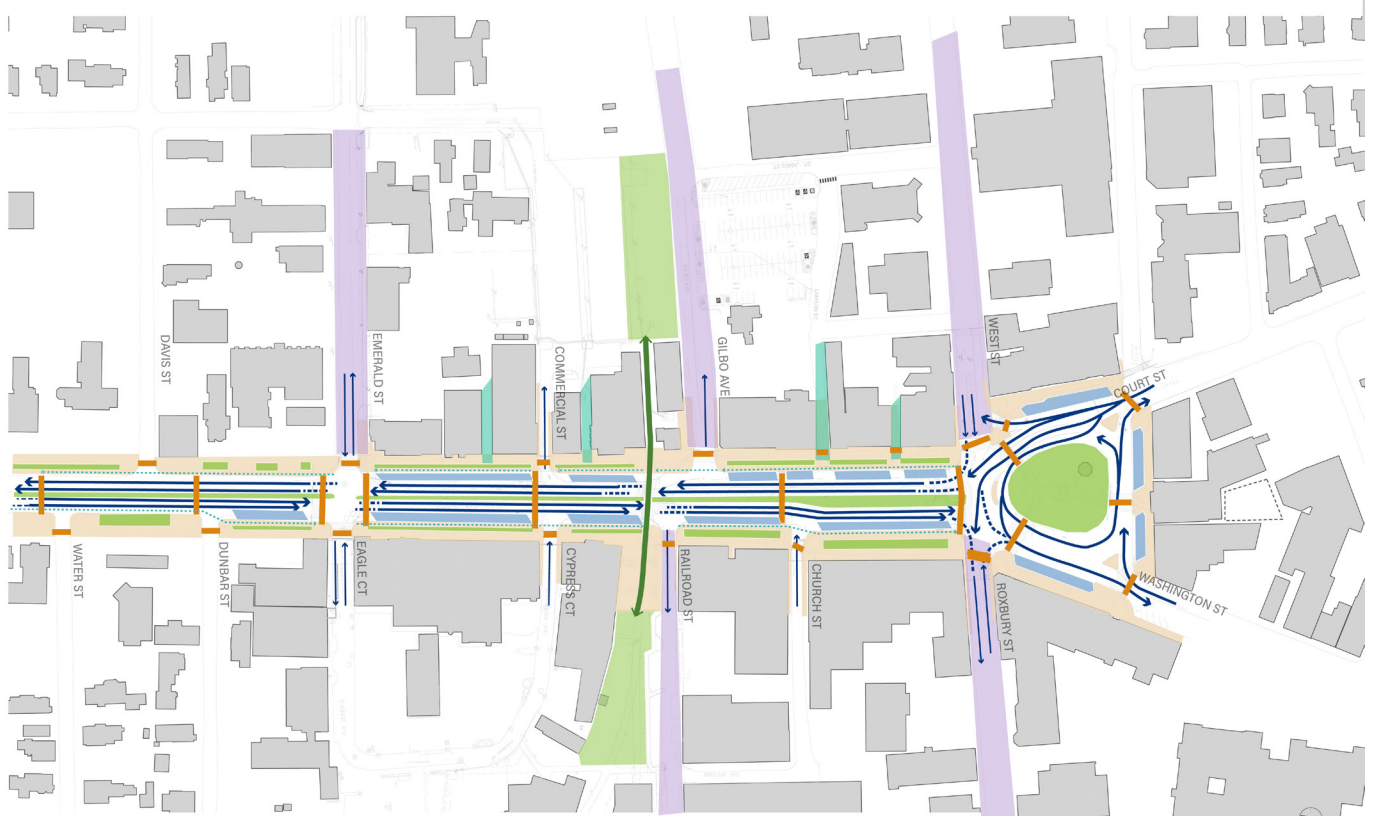
Angled parking along Main Street and within Central Square has been maintained. Angled parking within the center median in north Main Street has been removed to better accommodate sidewalk widths. Total existing parking count of 167 spaces has been improved to 169 spaces within the project area.

Crosswalk count and locations along Main Street, Central Square, and along the side streets are similar. Given limited changes to street and parking stall dimensions,

crosswalks remain wide across multiple lanes. Adjustments to lane widths and the center median width allow for nominally wider sidewalks and protected bicycle facilities are introduced.

Green space and flexible sidewalk space for commerce is similar along sidewalk sections. Where parking has been eliminated in the center median along Main Street between West Street/Roxbury Street and Gilbo Avenue, a wide green space is provided.



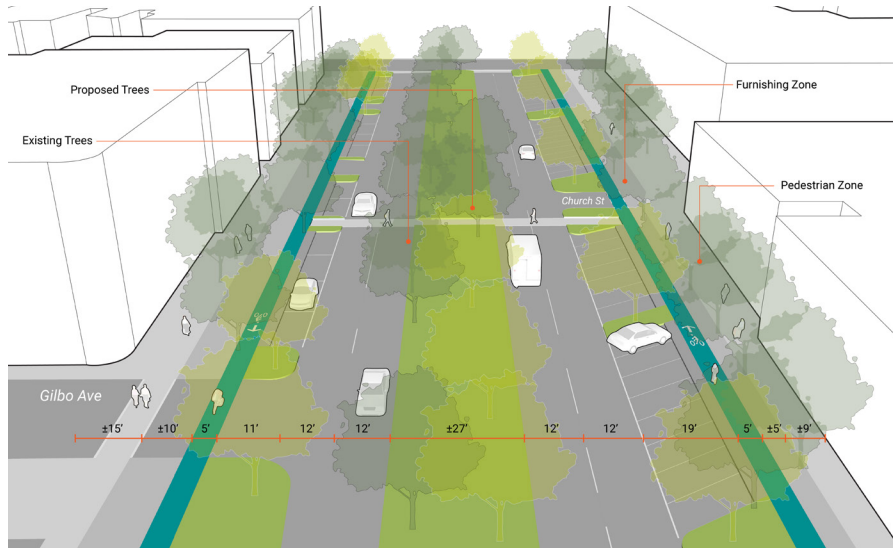


Preliminary Concepts Options - Main Street

Consistent with the design aspects of the Main Street Option 2 – Multimodal, several alternative design studies were completed at the request of the Mayo's Ad-Hoc Steering Committee as well as the Technical Review Committee.

Option 2 - Alternative Studies

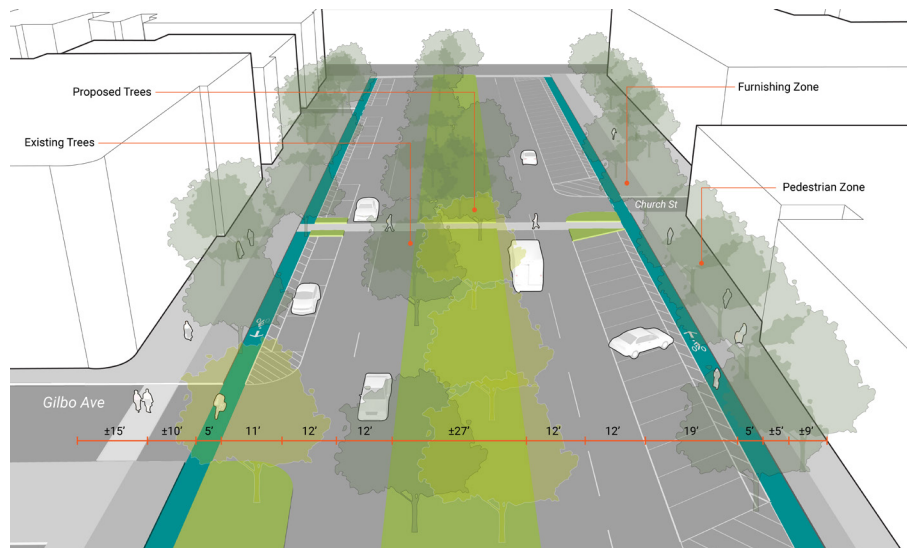
Bike Lane at Sidewalk Grade



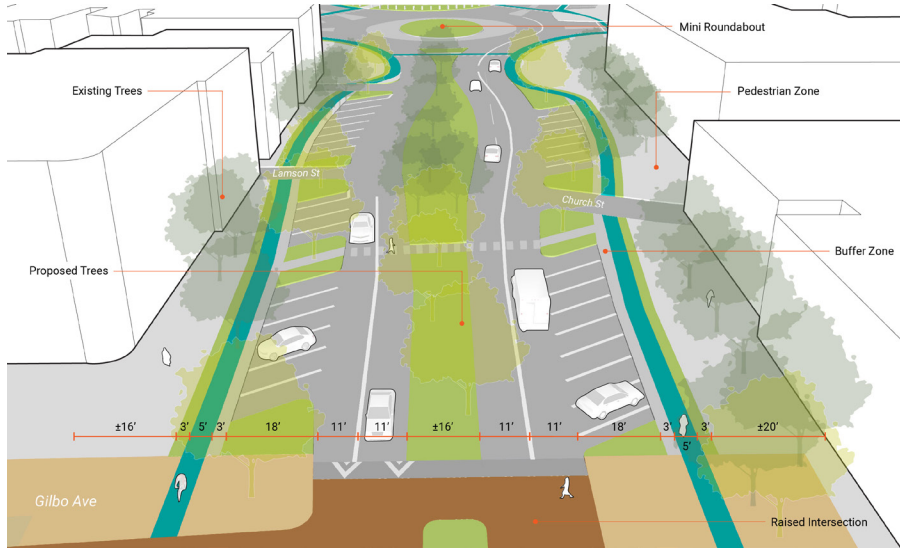
This alternative locates protected bike lanes at the sidewalk grade where they are separated from the on-street parking (both angled and parallel parking spaces shown) and buffered from the pedestrian walking space providing a clear delineation from vehicle space and pedestrian/bicycle space.

Bike Lane at Roadway Grade

Similar to the alternative above, this alternative locates protected bike lanes at the roadway grade where they are separated from the sidewalk space by curbing and buffered from on-street parking (both angled and parallel parking spaces shown) with striping. This alternative limits the use of contiguous landscaped bumpout islands from the sidewalk spaces.



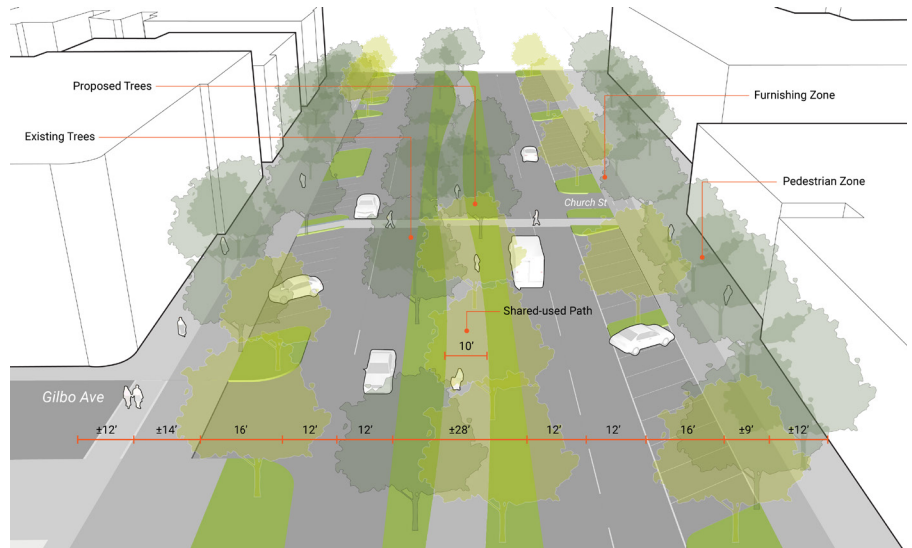
Bike Lane At Sidewalk Grade With Roundabout



This alternative locates protected bike lanes at the sidewalk grade in the roundabout intersection configuration where they are separated from the on-street parking (both angled and parallel parking spaces shown) and buffered from the pedestrian walking space providing a clear delineation from vehicle space and pedestrian/bicycle space. Bike lanes will cross the major intersection of main Street/West Street/ Roxbury Street at wide shared-use crosswalks and continue along as protected bikes lanes at the sidewalk grade through Central Square (Washington Street and Court Street).

Given the width of the raised median along main Street between West Street/Roxbury Street and Gilbo Avenue/Railroad Street, this alternative locates a wide shared-use path for both pedestrians and bicycles. This is the only block along Main Street with adequate width to support a center shared-use path so access to and from this path would be a challenge.

Bike Lane at Center Median



Preliminary Concepts Options - Main Street

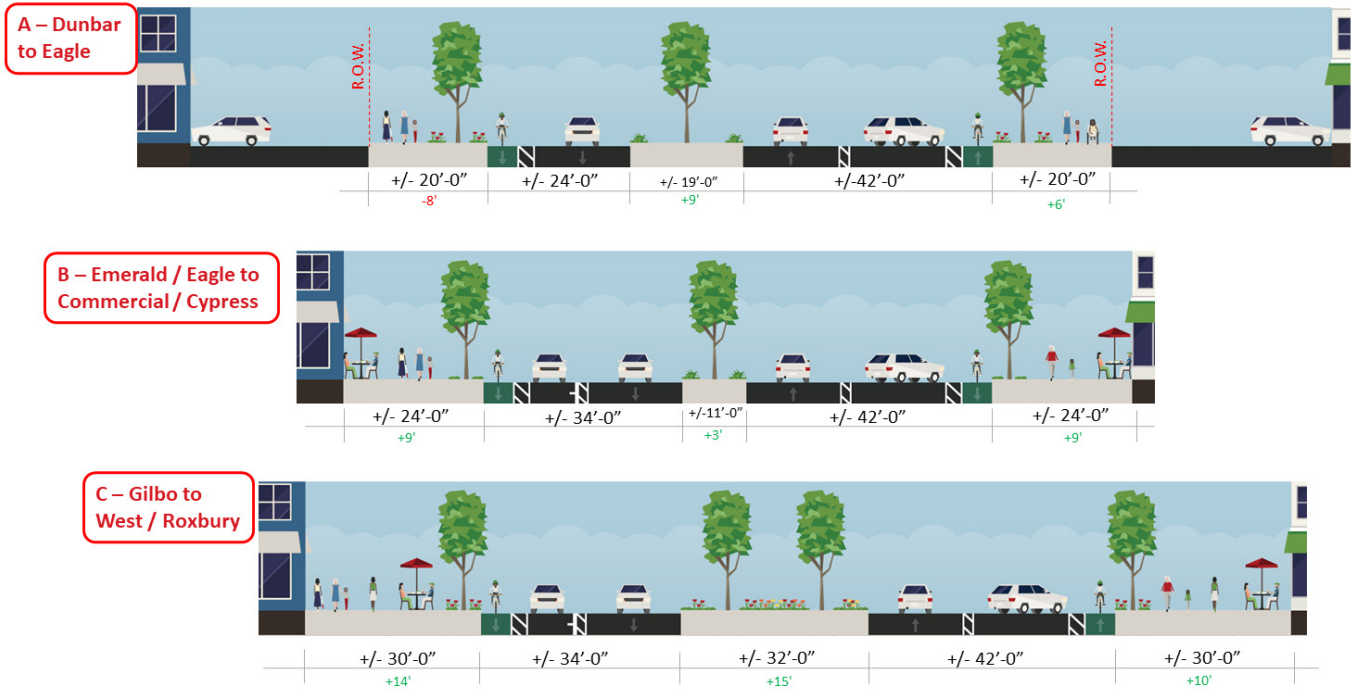
Option 3 - Single Lane

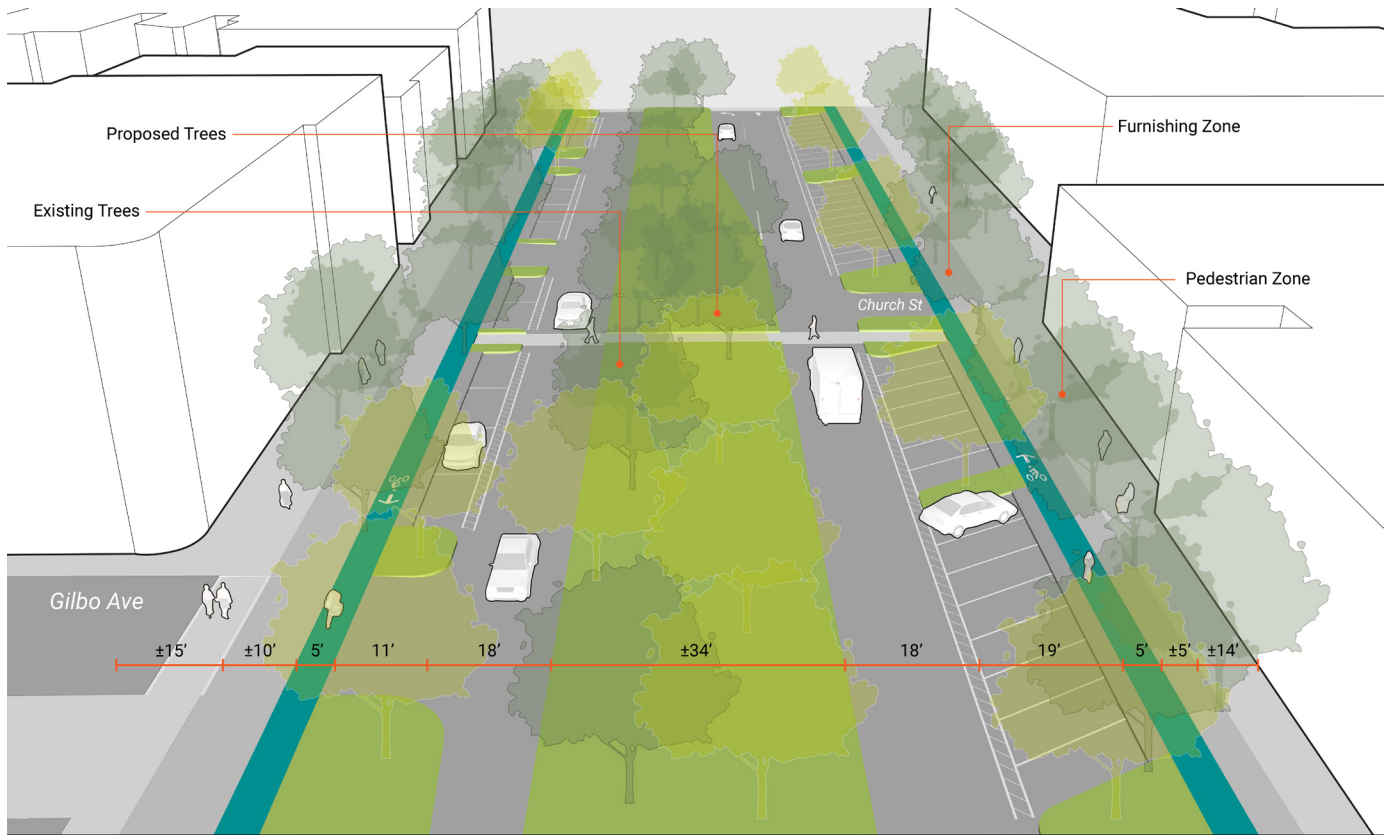
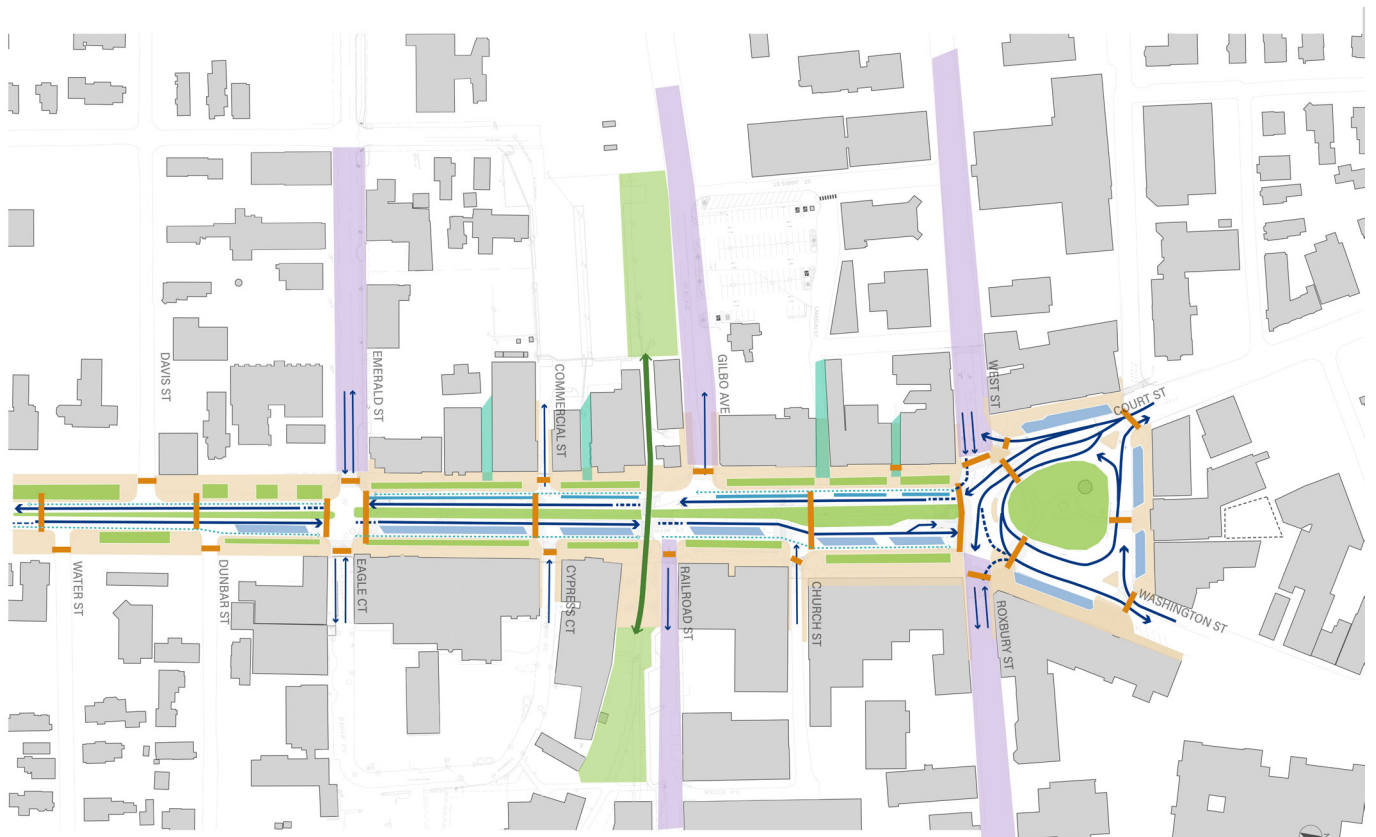
Main Street Option 3 – Single Lane reduces travels along Main Street to a single lane in each direction. Approach lanes within Central Square (lanes and circulation patterns) and at side streets remain the same. Traffic operations at major intersections essentially remain the same, with traffic signal optimization at the Main Street/West Street/Roxbury Street intersection. Lane width reductions will be considered within Central Square.

Angled parking along Main Street and within Central Square has been maintained. With additional width by eliminating a travel lane in each direction along Main Street, a center median plaza with angled parking along Main Street between West Street/Roxbury Street and Gilbo Avenue has been introduced. Total existing parking count of 167 spaces has been improved to 197 spaces within the project area in this alternative option.

Crosswalk count and locations along Main Street, Central Square, and along the side streets are similar. Given the drop of a travel lane along Main Street, crossing lengths at crosswalks have been reduced to a single lane – eliminating the “double threat” issue for pedestrians. Adjustments to lane configurations maximize sidewalk space and protected bicycle facilities are introduced.

Green space and flexible sidewalk space for commerce is maximized in this alternative option.





Preliminary Concepts Options - Central Square

Central Square is the iconic heart of the Keene Downtown. It is characterized by its shade trees, gazebo, fountain, military artifacts and the Soldiers Monument. The perimeter is defined by a granite bollard and chain fence.

From the start of the project, it was critically important to the City, the Community and the Design Team that the existing green be protected and any potential impact minimized. However, opportunities for potential programmatic and physical improvements were discussed, such as:

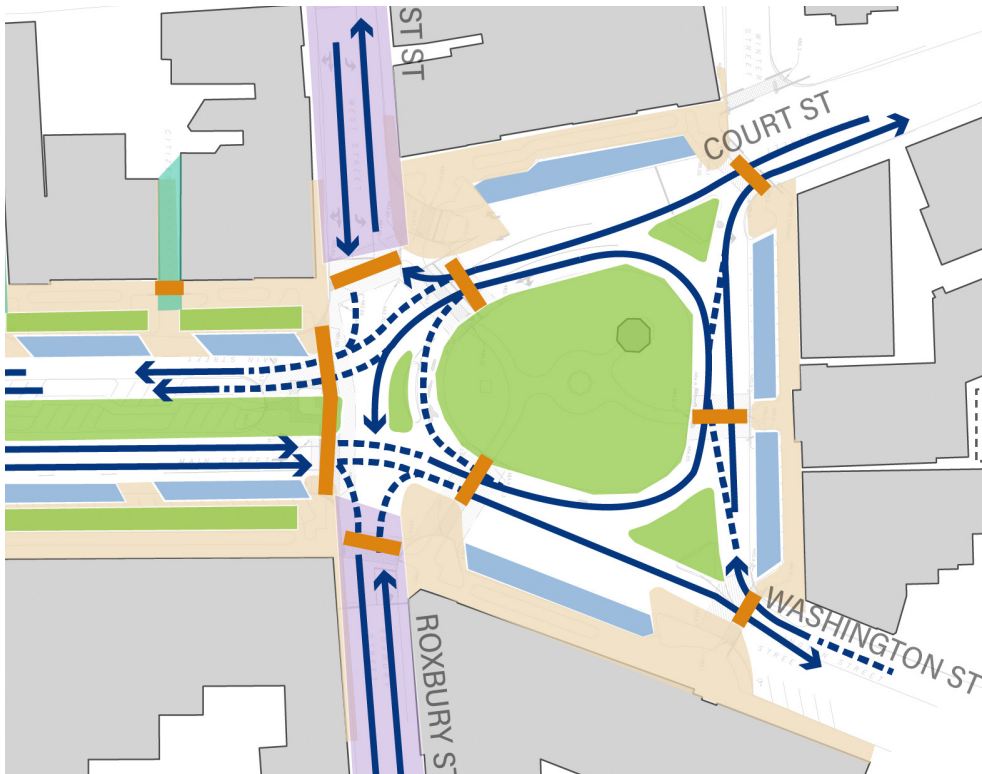
- Maximize (expand) the green to the extent feasible
 - Provide more space around the gazebo.
 - Provide more space to better support programs and events.
- Improve access by reducing crosswalk lengths.
- Enhance and improve the historic character.

These goals were all considered when looking at the various design options for roadway and intersection configurations.



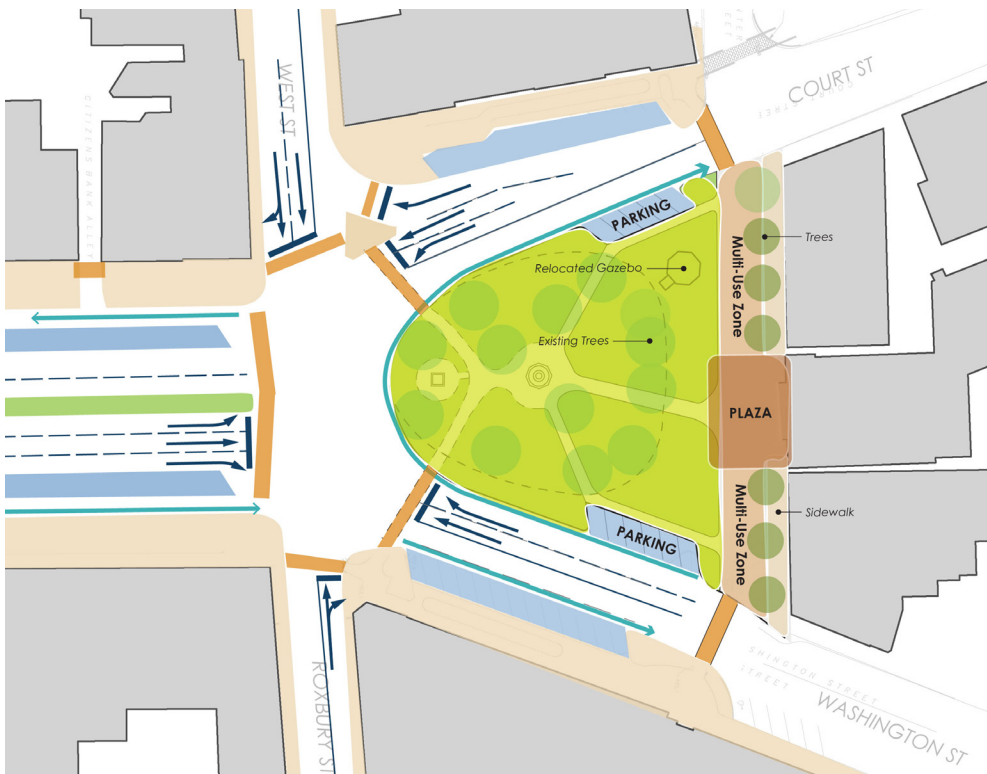
Existing photo

Option 1 - Smaller Circle Circulation



This option essentially maintains the existing vehicular circulation around the green, but minimizes the roadway widths to maximize perimeter sidewalk zones, central square open space and the two northern islands. In this alternative, Central Square is expanded by XX%. This option also significantly reduces the lengths of the crosswalks that access then green, making them easier to travers and safer.

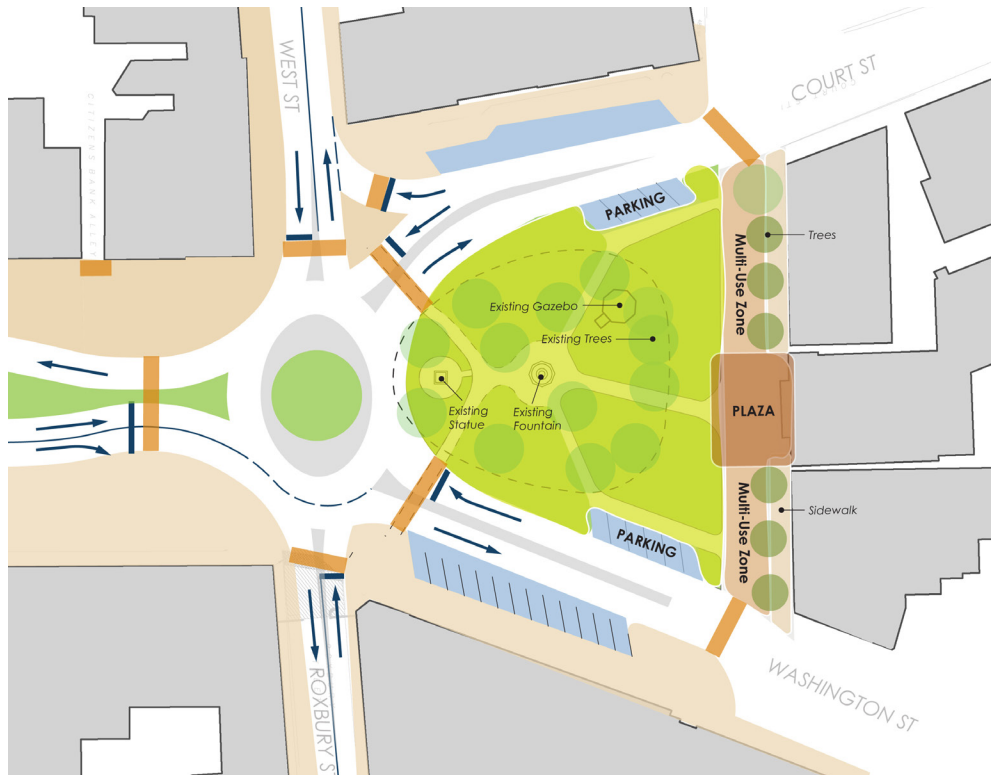
Option 2 - North Expansion - Washington St Two-Way



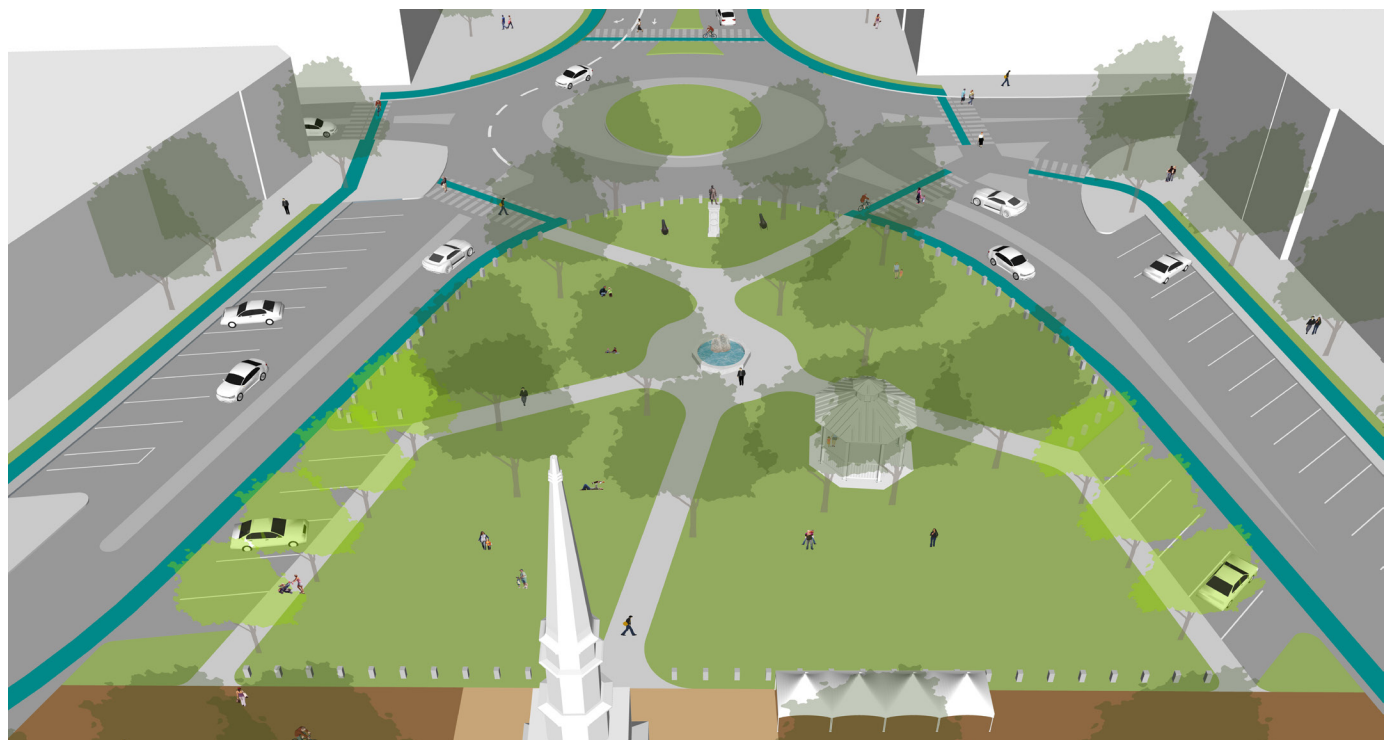
Option 2 proposes to remove the vehicular circulation at the north end of the Square and, essentially extending the square to the building facades to the north. The provides the opportunity for a wider sidewalk in front of the buildings, a new mutli-use zone for passive recreation and programmed events, and an expansion of the green. Angled parking has been proposed in the gained areas at the green along Washington and Court Streets to replace the parking lost with the elimination of the roadway. This option requires Washington Street to become two-way, and the Main/ Washington/ Court/ West/ Roxbury intersection to be re-configured.

Preliminary Concepts Options - Central Square

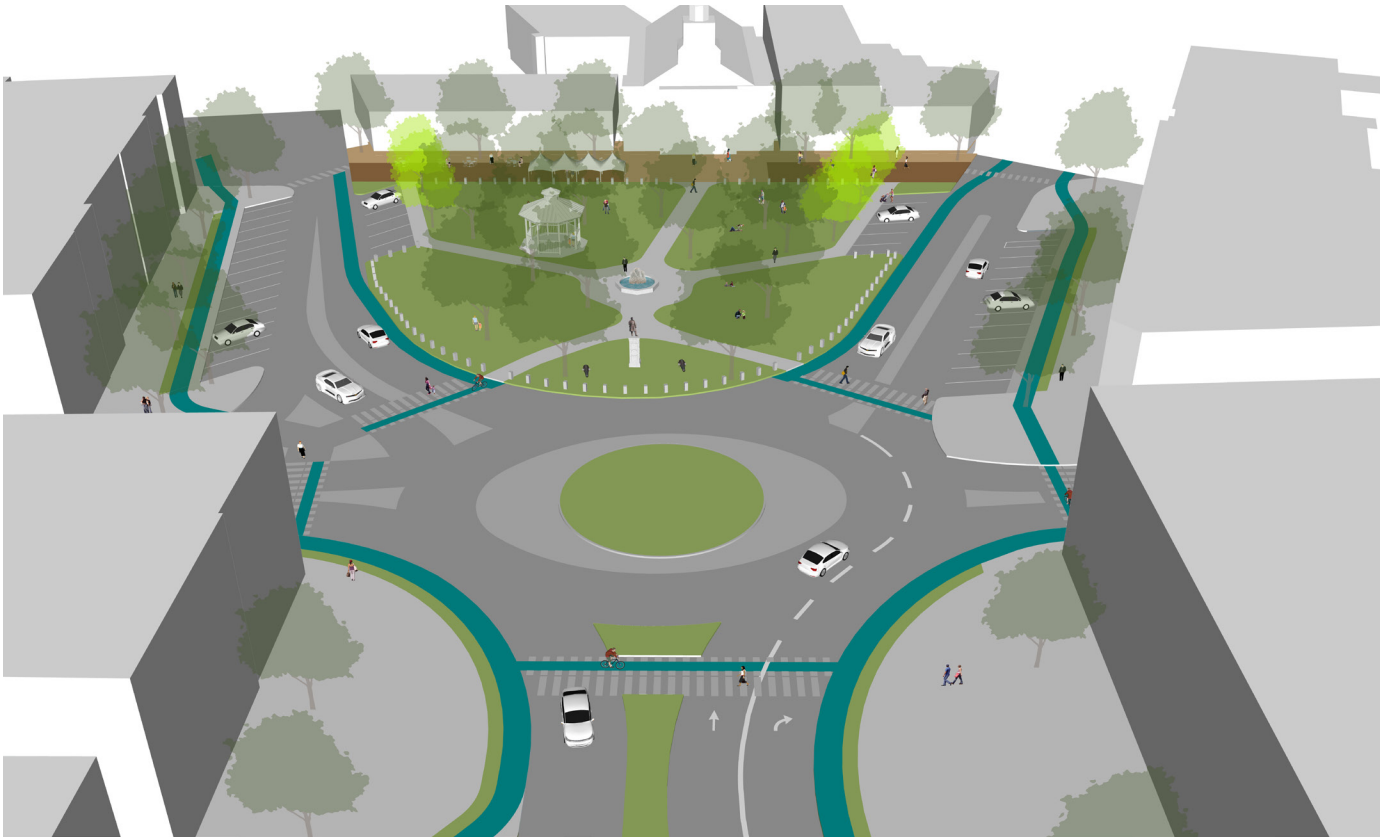
Option 3 - North Expansion - Roundabout Intersection



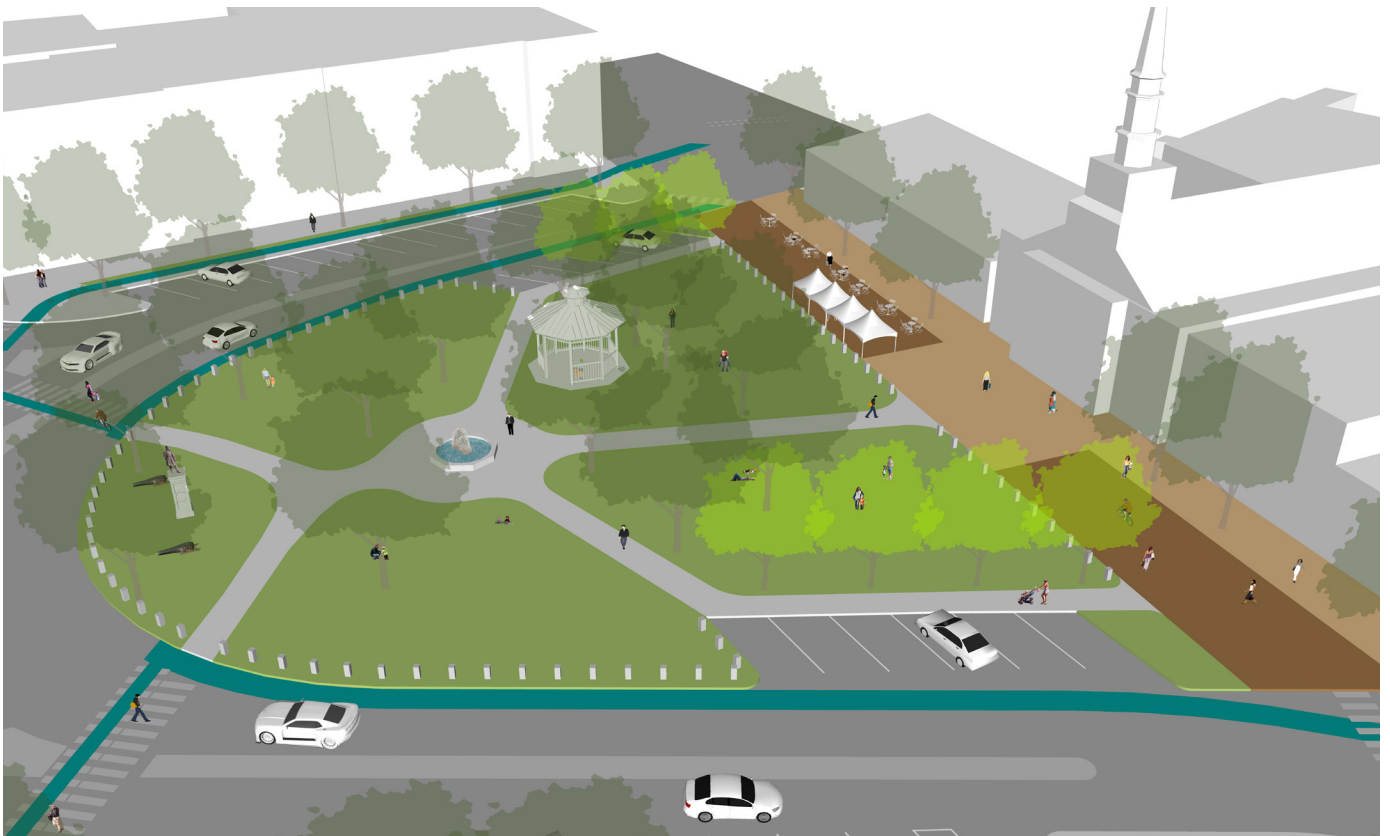
For Option 3 - the green gets extended to the north as in Option 2. However, the Main/ Washington/ Court/ West/ Roxbury intersection becomes a mini-roundabout. This requires not only Washington Street to become two-way but also Court Street. Specific to the Green, this option provides the same benefits as option 2.



Perspective Looking South



Perspective Looking North

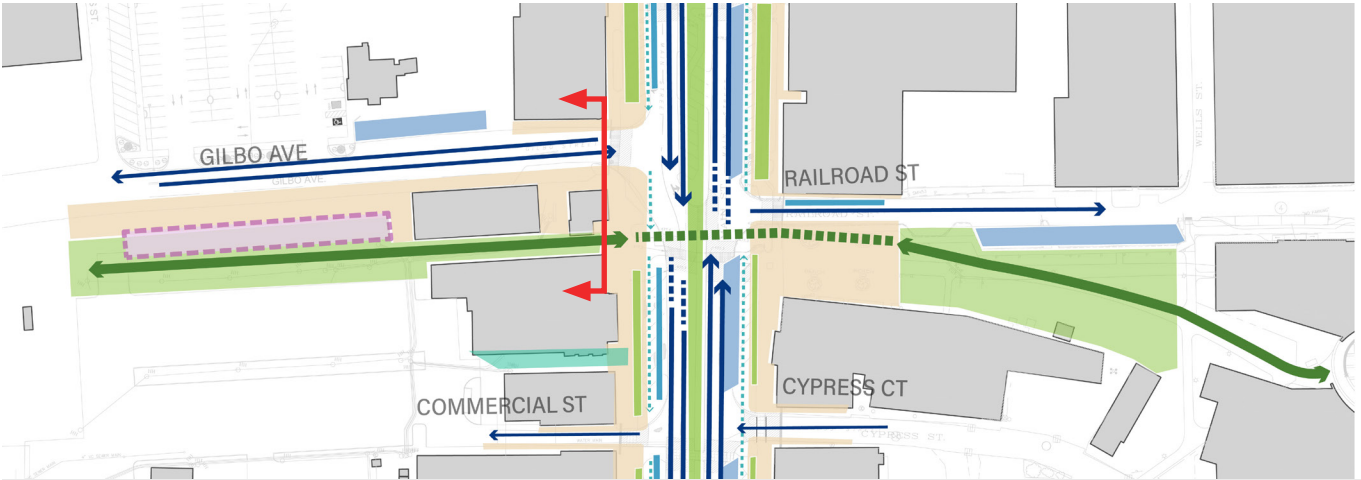


Perspective Looking West

Preliminary Concepts Options - Gilbo/Railroad

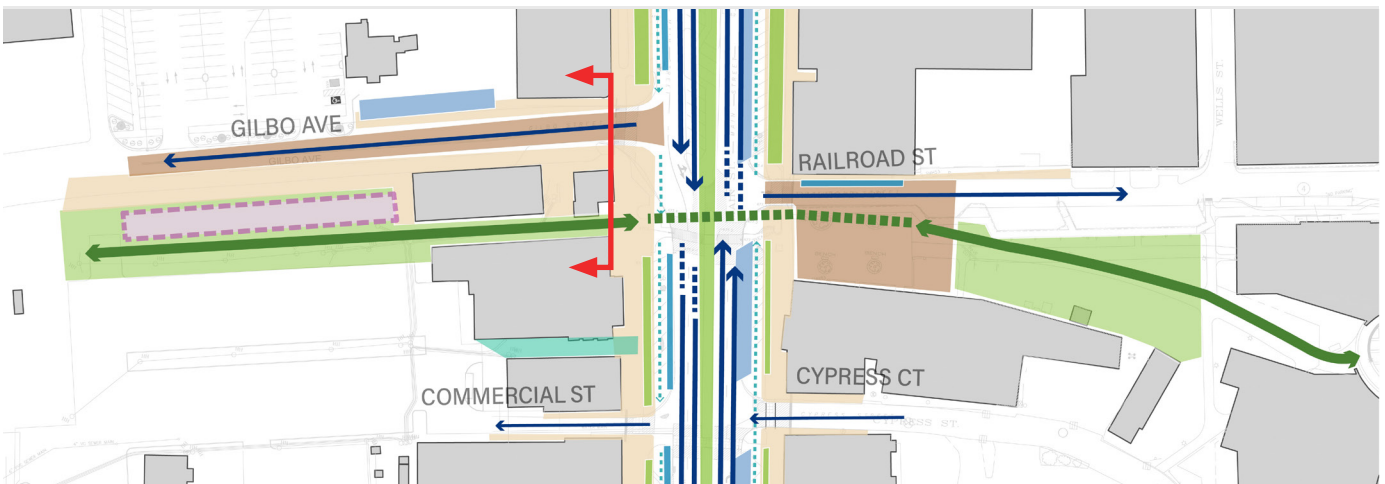
Option 1

TBD



Option 2A

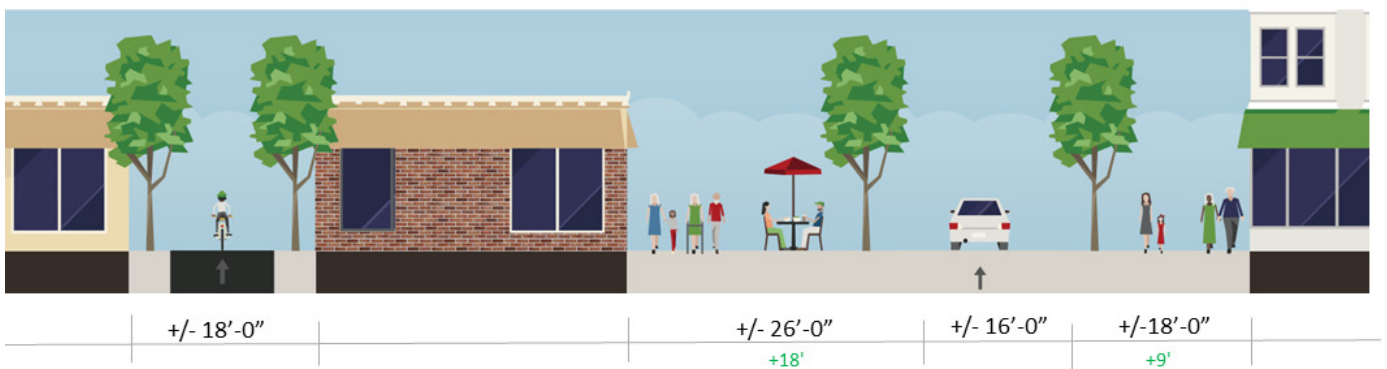
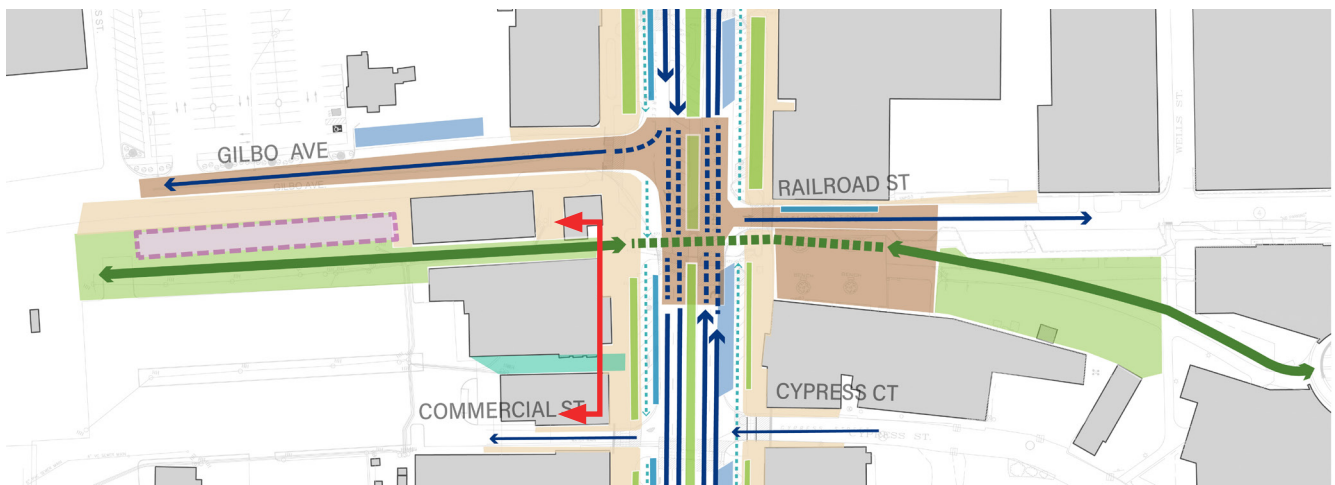
TBD

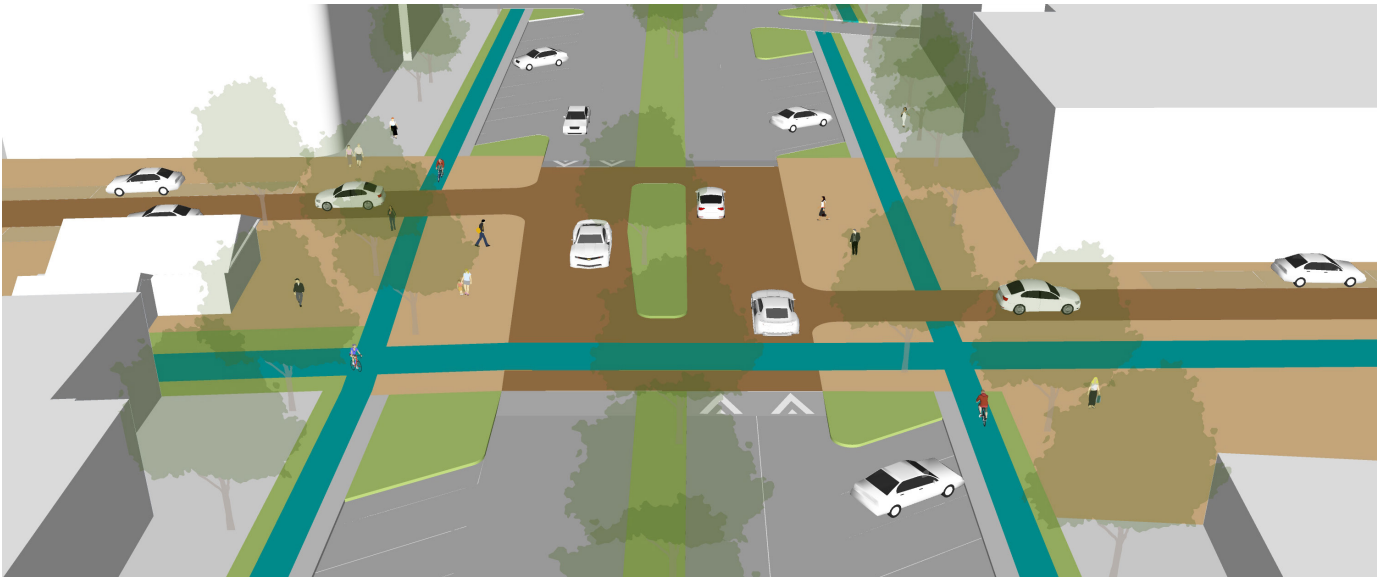
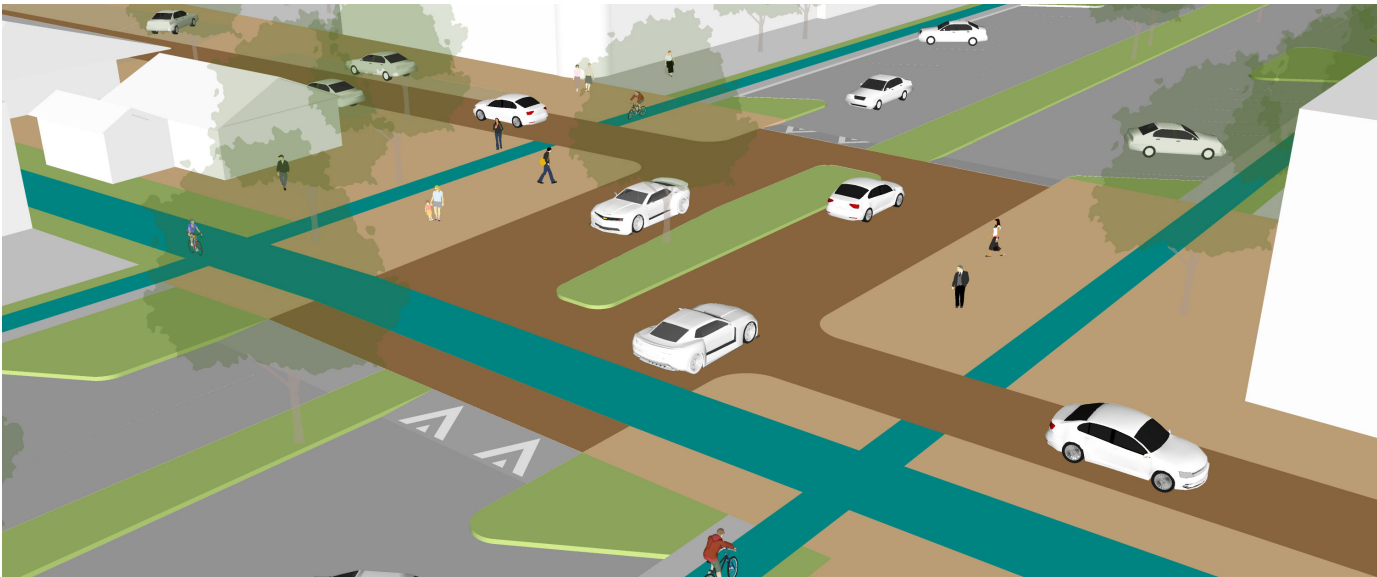


Preliminary Concepts Options - Gilbo/Railroad

Option 2B

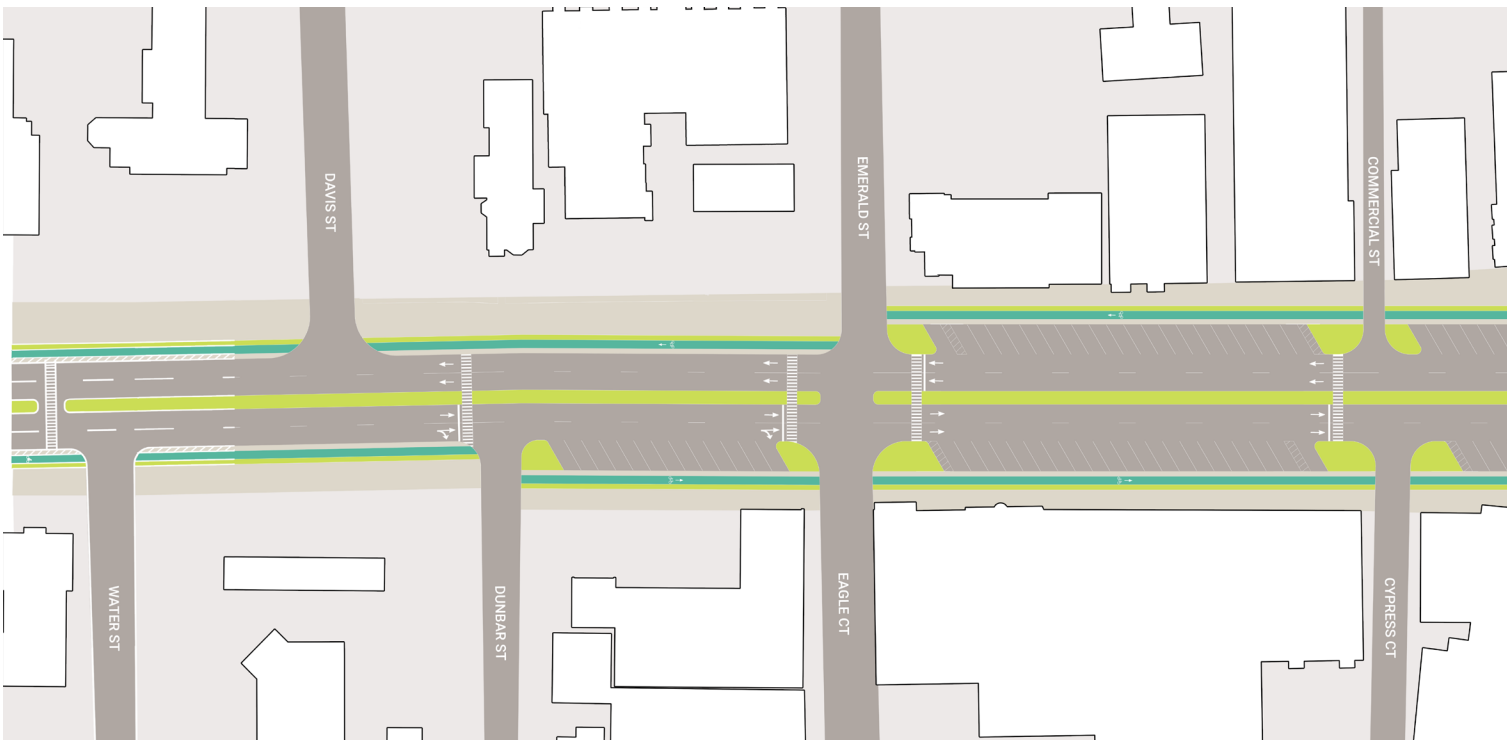
TBD





Mayor's Ad-Hoc Committee Preferred Alternative

At the conclusion of the 9-month project selection process which included 2 public workshops and 7 public meetings, the Mayor's Ad-Hoc Steering Committee selected the multi-modal corridor with roundabout intersection as its preferred alternative. The preferred project alternative was forwarded to City Council in December 2022 for its consideration.



Key Takeaways

Main Street Design:

- **Multimodal Corridor:** Transforming Main Street into a multimodal corridor, accommodating pedestrians, cyclists, and public transit to promote sustainable transportation and community connectivity.
- **Protected Bike Lanes:** Implementing protected bike lanes on Main Street to enhance cyclist safety and encourage bicycle use within the city.
- **Angled Parking:** Maintaining angled parking on Main Street to maximize parking capacity and improve the accessibility of local businesses for shoppers.
- **Multi-Lane Operation:** Maintaining multi-lane operation on Main Street to ensure efficient traffic flow and accommodate the needs of both vehicles and alternative transportation modes.

Central Square:

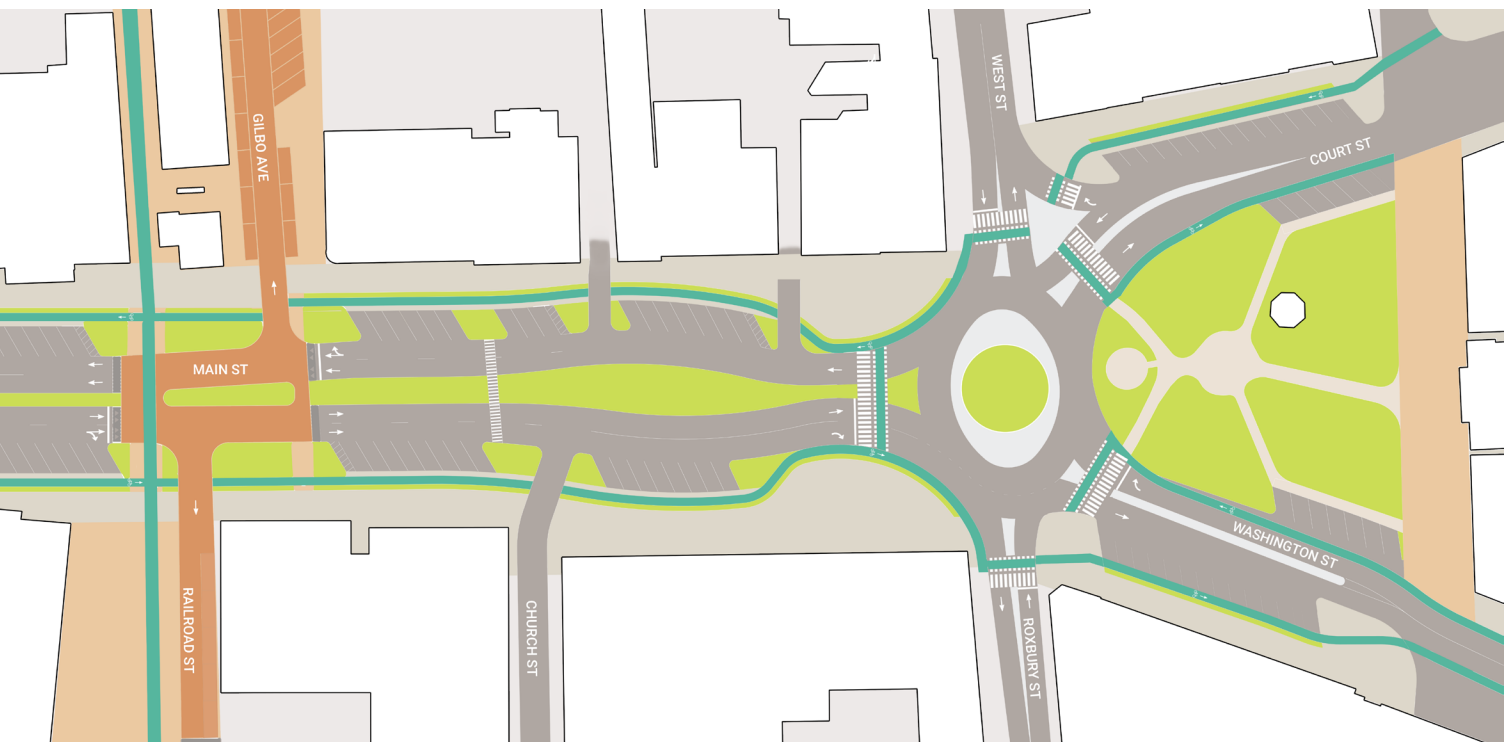
- **Roundabout Intersection:** Replacing the existing intersection in Central Square with a roundabout design to improve traffic flow and enhance safety for all road users.

- **Expansion of Common:** Expanding the Common in Central Square, creating more green space for community events and gatherings, promoting a more vibrant and welcoming village center.

Gilbo Avenue/Railroad Square:

- **One-Way Operation:** Implementing a one-way traffic system on Gilbo Avenue to streamline traffic and improve safety in this historic and artistic area.
- **Raised Intersection:** Creating a raised intersection table connecting Gilbo Avenue to Railroad Square will improve pedestrian safety, identify the significance of the Cheshire Rail Trail connection to Downtown, and provide visual cues to reduce vehicle speeds in this festive and historic district.

These recommendations reflect the comprehensive approach that the Mayor's Ad-Hoc Steering Committee took to promote sustainable transportation, improved traffic management, enhanced public spaces, and to focus on safety and accessibility throughout Downtown. Continued collaborative efforts will be crucial for the successful implementation of these recommendations.



City Council Considerations

City Council Public Informational Meetings

Following the submittal of the Mayor's Ad-Hoc Steering Committee preferred alternative, the Keene City Council, concerned with ongoing comments by the public At the conclusion of the 9-month project selection process which included 2 public workshops and 7 public meetings, the Mayor's Ad-Hoc Steering Committee selected the multi-modal corridor with roundabout intersection as its preferred alternative. The preferred project alternative was forwarded to City Council in December 2022 for its consideration.

In an effort to clarify the recommendations by the Mayor's Ad-Hoc Steering Committee, Keene City Council expanded the project engagement process and hosted additional public meetings including two (2) open public informational meetings and two (2) open public design workshops amongst three (3) City Council meetings to consider all of the options put forth. Council hosted a large public information meeting at Keene Public Library on January 30, 2023, and followed that with another public meeting on February 21, 2023. The top public safety concerns are summarized below.

In response to comments and continued interest by the public, the City Council reviewed project alternative options in detail at two (2) public workshops held in City Council Chambers on March 29, 2023 and April 26, 2023. As a result of those meetings, Council referred the project alternatives to the Municipal Services, Facilities and Infrastructure (MSFI) Committee for their advisory opinion. MSFI met on May 15, 2023 and May 24, 2023 and returned a recommendation which maintained most of the existing downtown roadway infrastructure with limited changes to Central Square.

City Council Public Informational Meeting #1 - 01.30.2023

City Council Public Informational Meeting #2 - 02.21.2023

Top Public Safety Concerns

Roundabout Safety Concerns:

- Concerns were raised about the size and shape of the compact roundabout compared to others in the area. Inconsistent sizes may affect driver behavior and create confusion.
- Ensuring pedestrian safety within roundabouts is crucial. This involves providing clear and safe crossing points, appropriate signage, and educating pedestrians about navigating these unique traffic features.
- Maintaining effective emergency vehicle access within roundabouts is vital. Ensuring that these vehicles can navigate the roundabout efficiently in case of emergencies is a key safety consideration.
- Roundabouts offer advantages such as slower vehicle speeds and improved visibility, which can enhance pedestrian safety. However, there may be disadvantages, including challenges for visually impaired pedestrians, that need to be addressed.
- Identifying and implementing safe pedestrian crossing solutions within roundabouts is essential. This includes marked crosswalks, pedestrian-activated signals, and raised islands to provide refuge for pedestrians crossing multiple lanes of traffic.

Pedestrian Safety in Roundabouts:

- Roundabouts are designed to reduce conflict points between vehicles, which can enhance pedestrian safety. However, education and awareness are necessary to ensure pedestrians understand how to safely cross within roundabouts.
- Ensuring that vehicles yield to both pedestrians and bicycles at crosswalks and intersections is a fundamental safety measure. This promotes shared use of the sidewalk with respect for all users.
- Pedestrians should be educated to watch for bicycles when crossing separated bike lanes, such as those created by parking spaces. This mutual awareness is essential for preventing collisions between pedestrians and cyclists.

- Cyclists must also be attentive to pedestrians when crossing at crosswalks and marked pedestrian crossing areas on sidewalks. This requires mutual responsibility to ensure safety for all users.

Use of Sidewalk Spaces:

- Folks commented on the existing licensed use of sidewalk spaces for commerce, which includes outdoor seating for restaurants, retail displays, and other commercial activities. These current uses contribute to the vibrancy of the streetscape.
- Participants explored new opportunities for utilizing sidewalk spaces, potentially expanding the range of activities allowed, such as street vendors, public art installations, and community events. These new possibilities aim to enrich the urban environment and create more dynamic public spaces.

Universal Accessibility:

- Accessibility concerns were raised regarding parking areas adjacent to sidewalks. Ensuring that parking

spaces are designed to accommodate individuals with disabilities and do not obstruct sidewalk accessibility is crucial.

- The condition and placement of crosswalks came under discussion. Properly marked and accessible crosswalks are essential for ensuring that individuals with mobility challenges can safely and conveniently cross streets.
- The state of the sidewalks themselves was a focal point. Maintaining smooth, even surfaces and promptly addressing any damage or deterioration is crucial to ensure universal accessibility.
- Ensuring that entrances to buildings and storefronts along sidewalks are accessible to all, including those with disabilities, was a prominent concern. This involves ramp installations, automatic doors, and a commitment to creating welcoming and barrier-free entrances.



City Council Public Workshop #1 - 03.29.2023

City Council Public Workshop #2 - 04.26.2023

1. Infrastructure Replacement

2. Project Finances

3. Traffic Review

The City Council Public Workshops focused on review three (3) major areas of interest in the project: the magnitude of the utility infrastructure replacement effort, project finances, and detailed traffic operations review, all important elements that would eventually inform the City Council's final preferred alternative.

City Council heard public testimony in strong support for the need of utility infrastructure improvements. The project team also reviewed latest project estimated costs, current funds that have been appropriated, and the overall capital budget. Summaries are provided on the next page.

The project team reviewed traffic operations and impacts to each of the alternatives considered.



Estimated Project Cost

Component	Option 1 "Optimize Existing"	Option 2 "5-Leg Signal"	Option 4 "5-Leg Roundabout"
Drainage Infrastructure	\$3,500,000	\$3,500,000	\$3,500,000
Water Infrastructure	\$2,900,000	\$2,900,000	\$2,900,000
Sewer Infrastructure	\$2,400,000	\$2,400,000	\$2,400,000
Utility Project Costs	\$8,800,000	\$8,800,000	\$8,800,000
Streetscape (landscaping, furnishings, lighting)	\$1,200,000	\$1,700,000	\$1,700,000
Roadway & Sidewalk	\$1,660,000	\$1,660,000	\$1,560,000
<i>Raised Intersection</i>	\$0	\$250,000	\$250,000
Construction Administration	\$300,000	\$350,000	\$350,000
Contingency	\$450,000	\$500,000	\$500,000
Construction Total	\$12,410,000	\$13,260,000	\$13,160,000
Preliminary Design	\$570,928	\$570,928	\$570,928
Final Design	\$1,140,000	\$1,140,000	\$1,140,000
Project Total	\$14,120,928	\$14,970,928	\$14,870,928

Funds Appropriated as of February 2023

Funding Source	Work Element	Amount
General Fund	Streets/Stormwater/etc.	\$908,970
Sewer Fund	Sewer Infrastructure	\$329,875
Water Fund	Water Infrastructure	\$453,246
	Total	1,692,091

* Expended as of April 2023 \$578,193 (GF \$291,686/SF \$120,455/WF \$166,052)

FY 2023 – 2029 Capital Improvement Program – Adopted July 1, 2022

Funding Source	Fiscal Year	Work Element	Amount
General Fund – Traffic Signal			
Current Revenue	FY24	Traffic Signal	\$196,800
General Fund – Traffic Signal			
Current Review	FY25	Traffic Signal	\$202,700
General Fund			
Stormwater Resiliency Debt Funded	FY25	Stormwater	\$2,159,300
*General Fund Capital Reserve	FY25	Streets	\$500,000
*General Fund Capital Reserve	FY26	Streets	\$500,000
*General Fund Capital Reserve	FY27	Streets	\$500,000
Sewer Fund – Capital Reserve	FY24	Sewer Infrastructure	\$103,500
Sewer Fund – Capital Reserve	FY25	Sewer Infrastructure	\$710,500
Water Fund - Debt Funded	FY25	Water Infrastructure	\$1,630,600
Future Years Total			\$6,503,400
Total Funding (April 2023)			\$8,195,491
Concept Working Estimate (Feb 2023)			\$14,970,928
Gap Funding			(\$6,775,437)

*Downtown Infrastructure Capital Reserve funded by Tax Incremented District .

Gap - GF \$3567,815/SF \$1,760,871/WF \$1,446,751

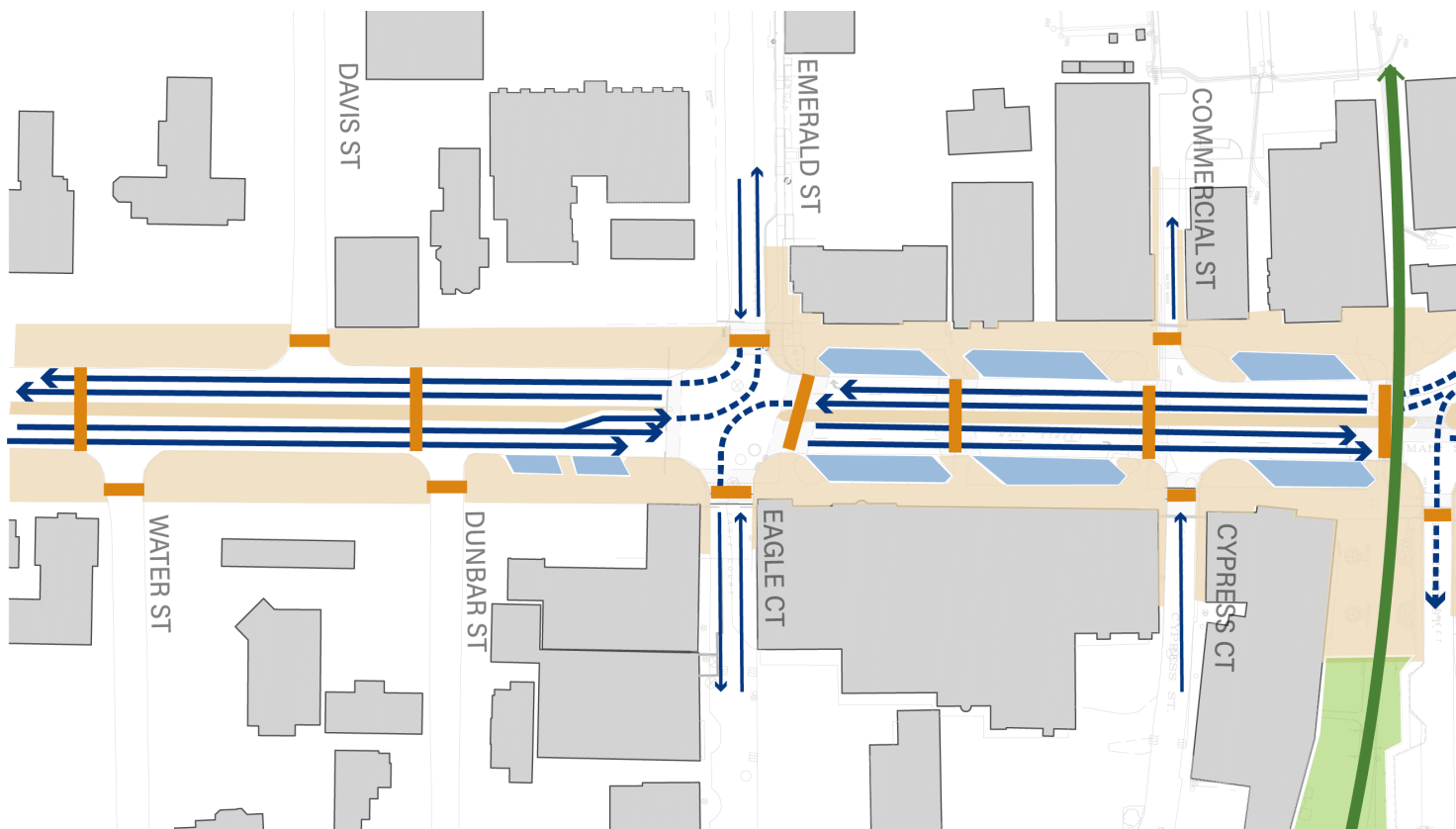
MSFI Public Meeting #1 - 05.15.2023

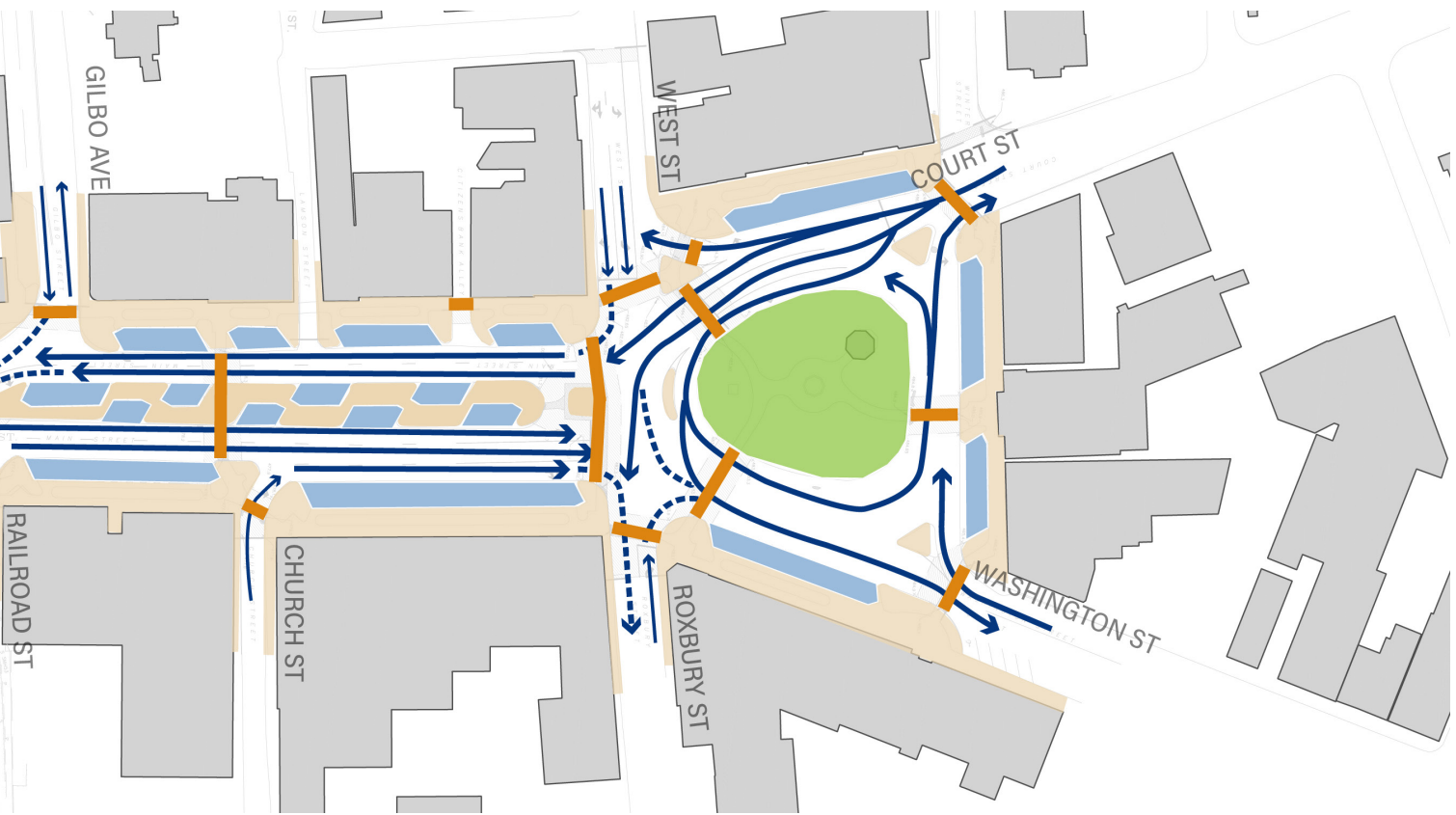
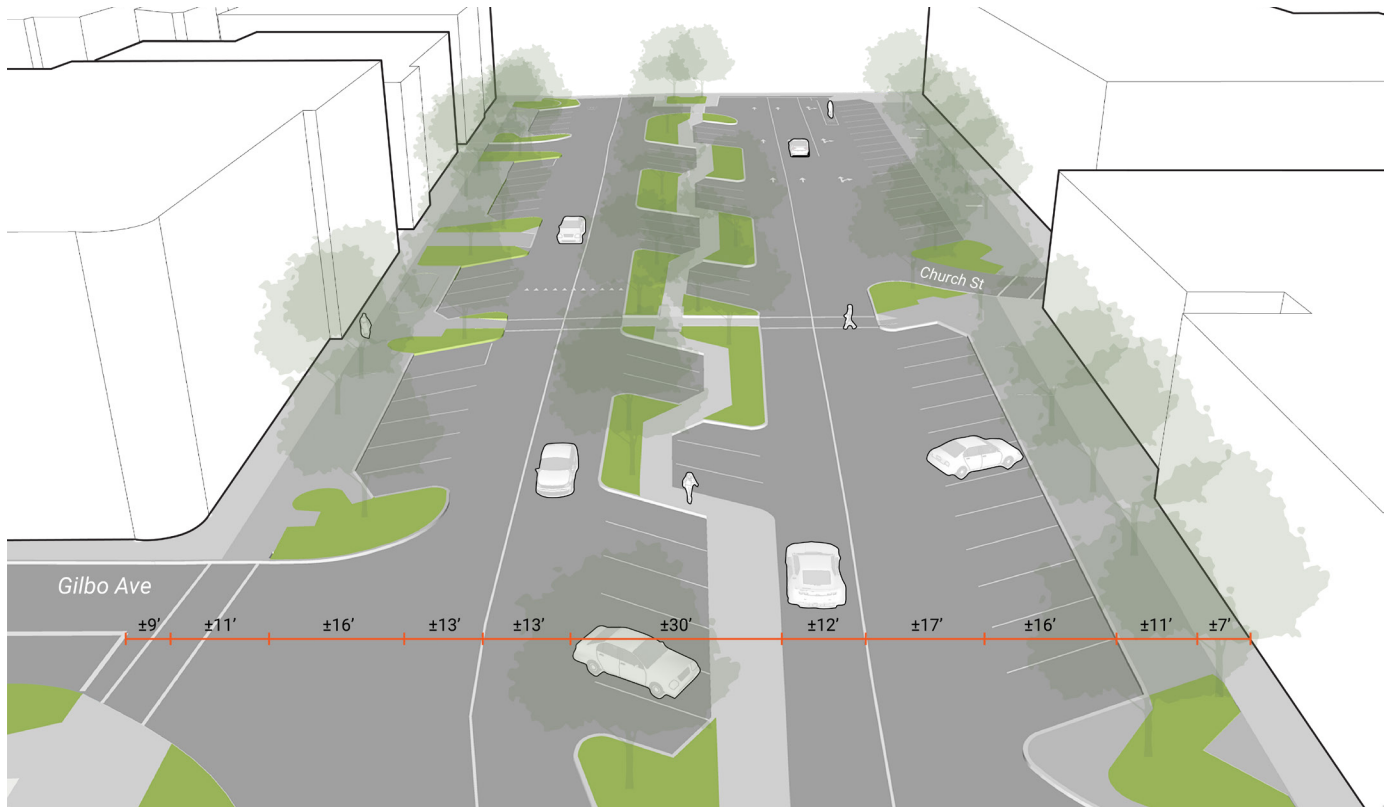
MSFI Public Meeting #2 - 05.24.2023

MSFI Committee Review

As a result of the City Council project informational meetings and public workshops in March and April 2023, Council referred the project alternatives to the Municipal Services, Facilities, and Infrastructure (MSFI) Committee for their advisory recommendation. MSFI met on May 15, 2023 and May 24, 2023 to review the project alternatives and heard comments by the public. At the conclusion of presentations by staff and project team, comments by Councilors and the public, the MSFI recommended that following completion of the utility replacements and improvements:

- That Central Square remains in the existing configuration, but with improvements to lane markings, lengths of crosswalks, and traffic lighting systems.
- That the improvements to Main Street maximize sidewalk widths while also keeping parking in the center median.
- That the raised crossing table crossing Main Street to Gilbo Avenue and Railroad Square be installed as proposed.
- That the remaining crosswalks on Main Street be evaluated for potential elimination of midblock crossings and/or the installation of pedestrian lighting systems where appropriate.
- That the project includes infrastructure (water and sewer) for the installation of public bathrooms at a later date.
- That protected bike lanes are not included in the final design.
- That during the final design an evaluation be done of all turning movements to connected side streets for a possible alteration or improvement.
- That Gilbo Avenue remains two-way traffic.





3 Final Alternative Concept

Council Project Review Workshop
Consideration of Project Alternatives
Final Alternative Concept





City Council Project Review Workshop - 07.06.2023

At its final project review workshop, City Council considered the final four (4) alternatives before them, including the Mayor's Ad-Hoc Steering Committee recommendation, the MSFI Advisory Committee recommendation and two multi-modal corridor alternatives that featured a hybrid Central Square signalized intersection (similar operation as the existing signalized intersection with narrowed lanes to widen sidewalks and expand the Central Square common area) in multiple lanes on Main Street (Multi-lane Hybrid alternative) and single lanes on Main Street (Single-lane Hybrid alternative).

Following deliberation, the final preferred alternative selected by City Council is the **Multi-lane Hybrid alternative**.


Mayor's Ad-Hoc Steering Committee alternative option

PARKING SPACE TABLE

	2-LANE ROUNDABOUT	
	# of Parking Spaces	
	Standard	HC
MAIN ST - NORTHBOUND		
Median	0	0
Water St to Dunbar St	0	0
Dunbar St to Eagle Ct	13	0
Eagle Ct to Cypress St	19	2
Cypress St to Railroad St	8	1
Railroad St to Church St	12	1
Church St to Roxbury St	8	0
NB TOTAL:	60	4
MAIN ST - SOUTHBOUND		
Median	0	0
Davis St to Emerald St	0	0
Emerald St to Commercial St	19	2
Commercial St to Gilbo Ave	9	1
Gilbo Ave to Lamson St	8	1
Lamson St to Drive	6	1
Drive to West St	0	0
SB TOTAL:	42	5
CENTRAL SQUARE		
Washington Street (E)	12	1
Court Street (W)	13	1
Top of Square (N)	16	0
CS TOTAL:	41	2
TOTAL:	143	11


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EXECUTIVE SUMMARY




INTERSECTION OPERATIONS

- Main Street / side streets - no change
- Central Square - compact roundabout
- Gilbo - maintain 2-way direction




CROSSWALKS

- Main Street - reduced by 1
- Central Square - no change
- Gilbo - add raised crosswalk table



TREE IMPACTS

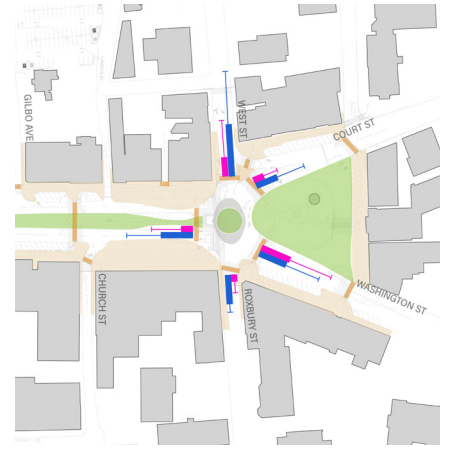
- 57 trees to be removed
- * 14 are in poor condition



FLEXIBLE SIDEWALK SPACE

- Main Street (south of Gilbo) - impacts to current uses
- Main Street (north of Gilbo) - no impacts
- Central Square - minimal to current uses

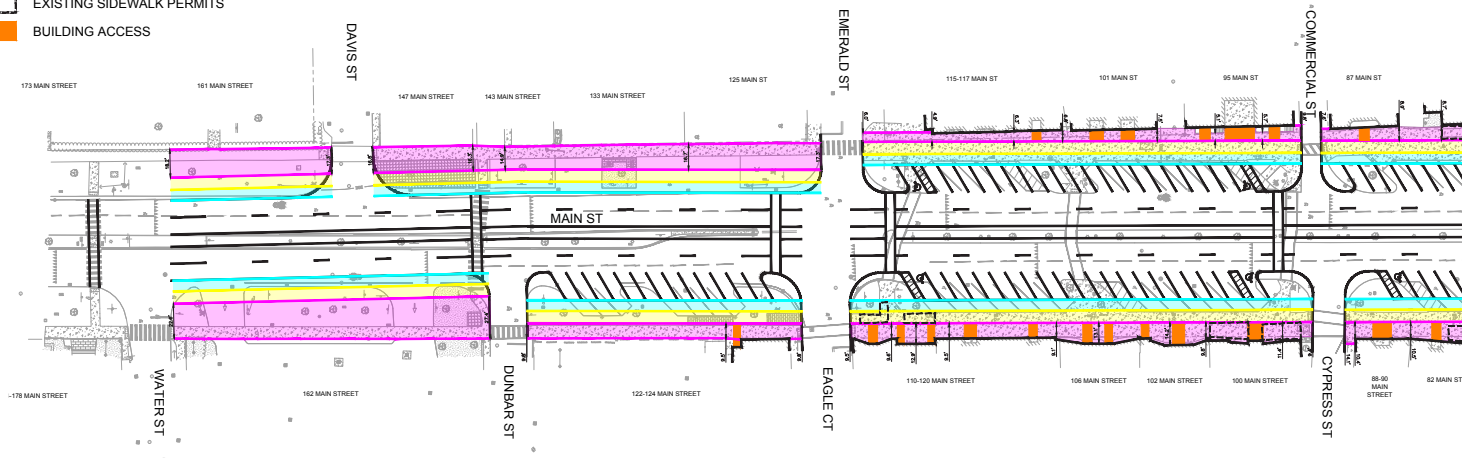
INTERSECTION LEVEL OF SERVICE DIAGRAM



VEH/BIKE PED
 AM B C
 PM B C

LEGEND

- BIKE LANE (7' TYP)
- SIDEWALK / UTILITY BUFFER (8' TYP)
- FLEXIBLE SPACE (WIDTH VARIES)
- EXISTING SIDEWALK PERMITS
- BUILDING ACCESS



Downtown Corridor Operations:

- The alternative maintains the existing traffic configuration with four lanes on Main Street and two lanes on side streets, ensuring continued vehicular access.
- The center median parking will be removed and some of the parking spaces will be mitigated elsewhere.
- A crosswalk table is proposed to connect Railroad Square and Gilbo Avenue, enhancing pedestrian safety and accessibility in this area.

Intersection Operations:

- There are no proposed changes to the operations at Main Street intersections with side streets.
- A roundabout intersection will replace the existing signalized intersection at Central Square. Two-way traffic on Washington Street and Court Street will be permitted.
- Gilbo Avenue will continue to operate as a two-way street, maintaining its current traffic flow.

Crosswalks:

- Crosswalk count on Main Street will be reduced by 1.

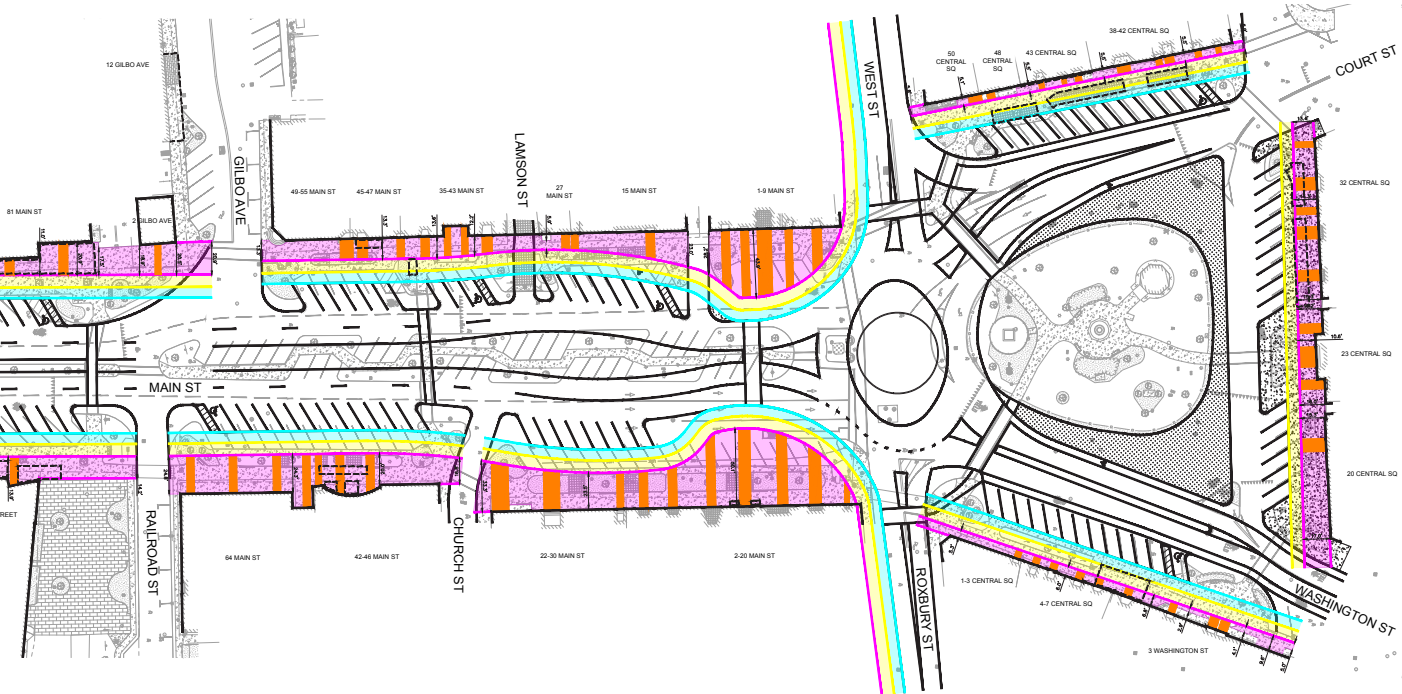
- The crosswalks in Central Square will remain unchanged.
- A raised crosswalk table will be introduced at Gilbo Avenue to enhance pedestrian safety and make crossing more convenient.

Tree Impacts:

- A total of 57 trees are slated for removal, with 14 of them being in poor condition. Tree management with replacements will be part of the project to maintain the aesthetic and environmental aspects of the downtown area.

Flexible Sidewalk Space:

- South of Gilbo Avenue, there will be impacts on the current use of sidewalk space, suggesting potential changes or reallocations of these areas.
- North of Gilbo Avenue, the current use of sidewalk space is not expected to be impacted.
- Some of the existing uses of sidewalk space within Central Square may be affected, indicating potential changes in this area.




MSFI Project alternative option

PARKING SPACE TABLE

	EXISTING CONDITION	
	# of Parking Spaces	
	Standard	HC
MAIN ST - NORTHBOUND		
Median	14	0
Water St to Dunbar St	0	0
Dunbar St to Eagle Ct	7	0
Eagle Ct to Cypress St	11	2
Cypress St to Railroad St	4	1
Railroad St to Church St	12	1
Church St to Roxbury St	20	0
NB TOTAL:	68	4
MAIN ST - SOUTHBOUND		
Median	17	0
Davis St to Emerald St	0	0
Emerald St to Commercial St	9	2
Commercial St to Gilbo Ave	4	1
Gilbo Ave to Lamson St	8	1
Lamson St to Drive	5	1
Drive to West St	5	0
SB TOTAL:	48	5
CENTRAL SQUARE		
Washington Street (E)	13	0
Court Street (W)	13	1
Top of Square (N)	15	1
CS TOTAL:	41	2
TOTAL:	157	11


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EXECUTIVE SUMMARY




INTERSECTION OPERATIONS

- Main Street / side streets - no change
- Central Square - no change
- Gilbo - maintain 2-way direction




CROSSWALKS

- Main Street - no change
- Central Square - no change
- Gilbo - add raised crosswalk table



TREE IMPACTS

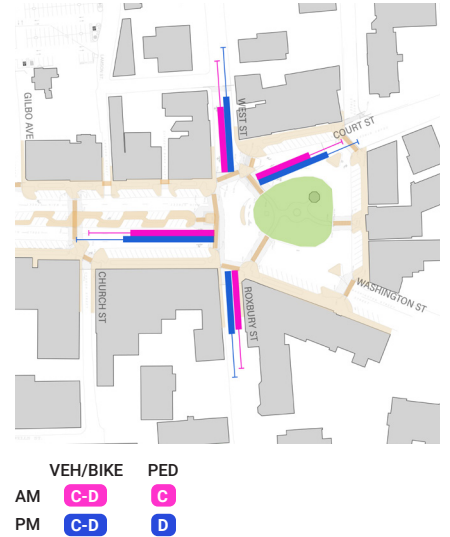
- 32 trees to be removed
- * 14 are in poor condition



FLEXIBLE SIDEWALK SPACE

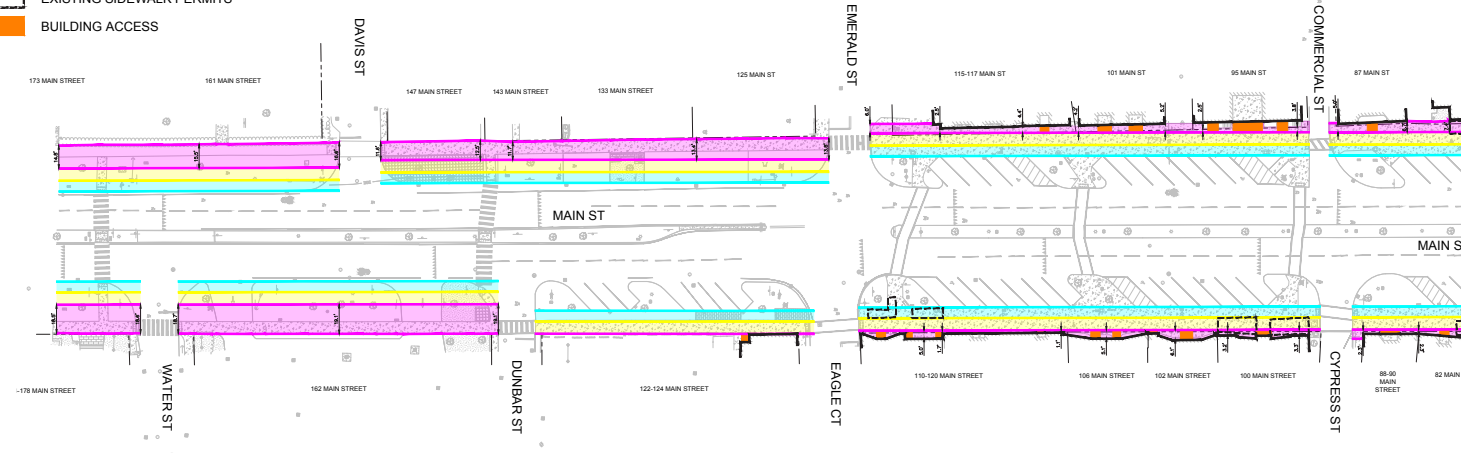
- Main Street (south of Gilbo) - impacts to current uses
- Main Street (north of Gilbo) - no impacts
- Central Square - impacts to current uses

INTERSECTION LEVEL OF SERVICE DIAGRAM



LEGEND

- BIKE LANE (7' TYP)
- SIDEWALK / UTILITY BUFFER (8' TYP)
- FLEXIBLE SPACE (WIDTH VARIES)
- EXISTING SIDEWALK PERMITS
- BUILDING ACCESS



Downtown Corridor Operations:

- The alternative maintains the existing traffic configuration with four lanes on Main Street and two lanes on side streets, ensuring continued vehicular access.
- The center median parking will be retained, allowing for convenient parking access in the downtown area.
- A crosswalk table is proposed to connect Railroad Square and Gilbo Avenue, enhancing pedestrian safety and accessibility in this area.

Intersection Operations:

- There are no proposed changes to the operations at Main Street intersections with side streets.
- The operations at the Central Square intersection will remain as they are currently.
- Gilbo Avenue will continue to operate as a two-way street, maintaining its current traffic flow.

Crosswalks:

- Existing crosswalks on Main Street are not expected to undergo any significant alterations.
- The crosswalks in Central Square will remain unchanged.

- A raised crosswalk table will be introduced at Gilbo Avenue to enhance pedestrian safety and make crossing more convenient.

Tree Impacts:

- A total of 32 trees are slated for removal, with 14 of them being in poor condition. This suggests that tree management and potential replacements may be part of the project to maintain the aesthetic and environmental aspects of the downtown area.

Flexible Sidewalk Space:

- South of Gilbo Avenue, there will be impacts on the current use of sidewalk space, suggesting potential changes or reallocations of these areas.
- North of Gilbo Avenue, the current use of sidewalk space is not expected to be impacted.
- Some of the existing uses of sidewalk space within Central Square may be affected, indicating potential changes in this area.



Multi-lane Hybrid alternative option

PARKING SPACE TABLE

	2-LANE SIGNAL	
	# of Parking Spaces	
	Standard	HC
MAIN ST - NORTHBOUND		
Median	0	0
Water St to Dunbar St	0	0
Dunbar St to Eagle Ct	13	0
Eagle Ct to Cypress St	19	2
Cypress St to Railroad St	8	1
Railroad St to Church St	12	1
Church St to Roxbury St	19	0
NB TOTAL:	71	4
MAIN ST - SOUTHBOUND		
Median	0	0
Davis St to Emerald St	0	0
Emerald St to Commercial St	19	2
Commercial St to Gilbo Ave	9	1
Gilbo Ave to Lamson St	8	1
Lamson St to Drive	6	1
Drive to West St	4	0
SB TOTAL:	46	5
CENTRAL SQUARE		
Washington Street (E)	12	1
Court Street (W)	13	1
Top of Square (N)	16	0
CS TOTAL:	41	2
TOTAL:	158	11


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EXECUTIVE SUMMARY



INTERSECTION OPERATIONS

- Main Street / side streets - no change
- Central Square - modified existing operation
- Gilbo - maintain 2-way direction




CROSSWALKS

- Main Street - reduced by 1
- Central Square - shorter, narrower streets
- Gilbo - add raised crosswalk table



TREE IMPACTS

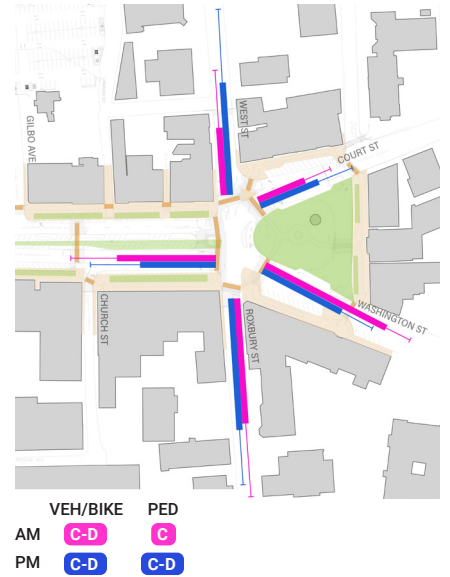
- 60 trees to be removed
- * 14 are in poor condition



FLEXIBLE SIDEWALK SPACE

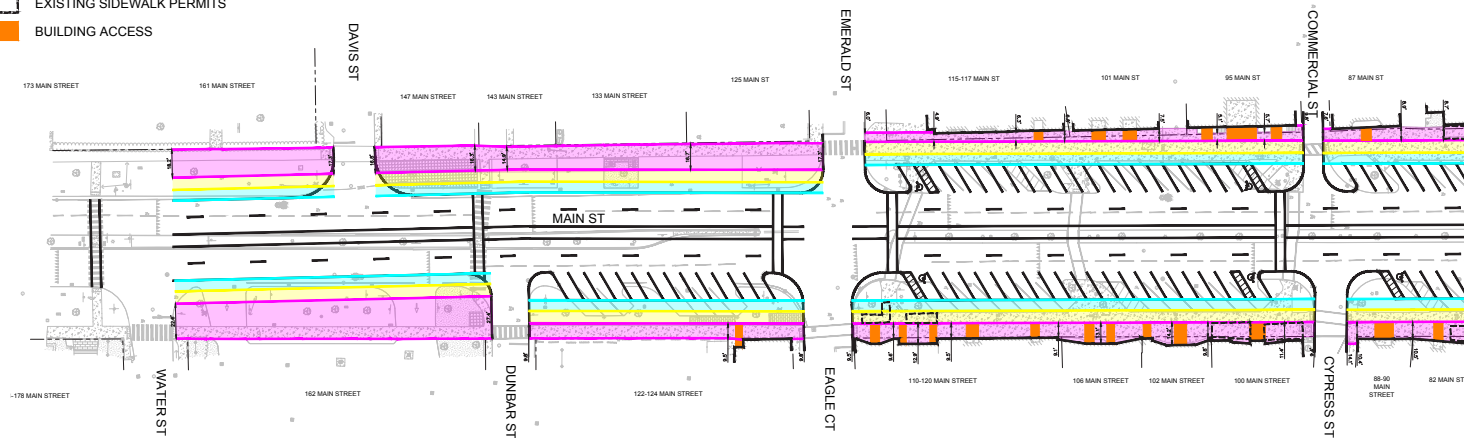
- Main Street (south of Gilbo) - impacts to current uses
- Main Street (north of Gilbo) - no impacts
- Central Square - minimal to current uses

INTERSECTION LEVEL OF SERVICE DIAGRAM



LEGEND

- BIKE LANE (7' TYP)
- SIDEWALK / UTILITY BUFFER (8' TYP)
- FLEXIBLE SPACE (WIDTH VARIES)
- EXISTING SIDEWALK PERMITS
- BUILDING ACCESS



Downtown Corridor Operations:

- The alternative maintains the existing traffic configuration with four lanes on Main Street and two lanes on side streets, ensuring continued vehicular access.
- The center median parking will be removed and some of the parking spaces will be mitigated elsewhere.
- Connect Railroad Sq./Gilbo Ave. with crosswalk table: A crosswalk table is proposed to connect Railroad Square and Gilbo Avenue, enhancing pedestrian safety and accessibility in this area.

Intersection Operations:

- There are no proposed changes to the operations at Main Street intersections with side streets.
- Although signalized traffic operations will be maintained, roadway widths within Central Square will be reduced for better safety and opportunity to widen sidewalk and common areas.
- Gilbo Avenue will continue to operate as a two-way street, maintaining its current traffic flow.

Crosswalks:

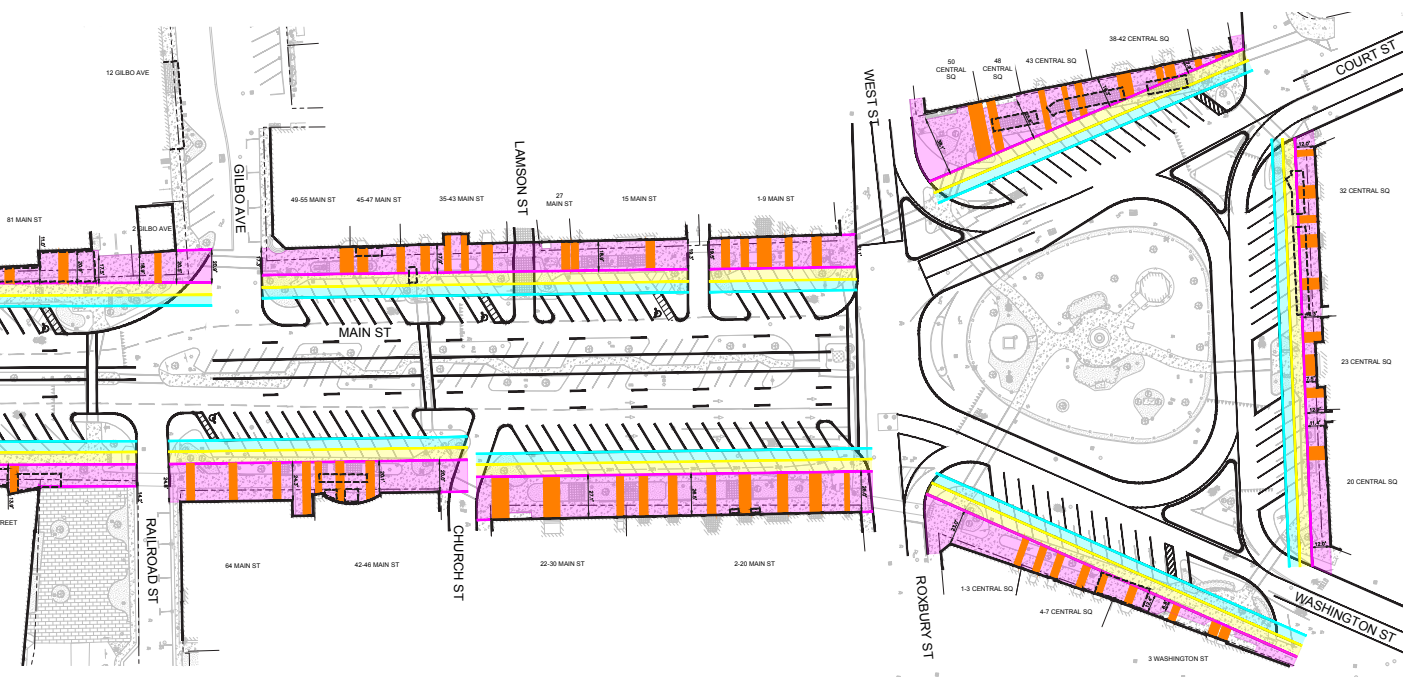
- Crosswalk count on Main Street will be reduced by 1.
- Given a reduction in pavement width, the crosswalks in Central Square will be shortened to improve crossing safety.
- A raised crosswalk table will be introduced at Gilbo Avenue to enhance pedestrian safety and make crossing more convenient.

Tree Impacts:

- A total of 60 trees are slated for removal, with 14 of them being in poor condition. Tree management with replacements will be part of the project to maintain the aesthetic and environmental aspects of the downtown area.

Flexible Sidewalk Space:

- South of Gilbo Avenue, there will be impacts on the current use of sidewalk space, suggesting potential changes or reallocations of these areas.
- North of Gilbo Avenue, the current use of sidewalk space is not expected to be impacted.
- Some of the existing uses of sidewalk space within Central Square will have minimal impact, indicating potential improvements in this area.



Single-lane Hybrid alternative option

PARKING SPACE TABLE

	1-LANE SIGNAL	
	# of Parking Spaces	
	Standard	HC
MAIN ST - NORTHBOUND		
Median	18	0
Water St to Dunbar St	0	0
Dunbar St to Eagle Ct	13	0
Eagle Ct to Cypress St	19	2
Cypress St to Railroad St	8	1
Railroad St to Church St	7	1
Church St to Roxbury St	15	1
NB TOTAL:	80	5
MAIN ST - SOUTHBOUND		
Median	18	0
Davis St to Emerald St	0	0
Emerald St to Commercial St	19	2
Commercial St to Gilbo Ave	9	1
Gilbo Ave to Lamson St	8	1
Lamson St to Drive	5	1
Drive to West St	5	0
SB TOTAL:	64	5
CENTRAL SQUARE		
Washington Street (E)	13	0
Court Street (W)	13	1
Top of Square (N)	15	1
CS TOTAL:	41	2
TOTAL:	185	12

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EXECUTIVE SUMMARY



INTERSECTION OPERATIONS

- Main Street / side streets - no change
- Central Square - modified existing operation
- Gilbo - maintain 2-way direction




CROSSWALKS

- Main Street - shorter, single-lane street
- Central Square - shorter, narrower streets
- Gilbo - add raised crosswalk table



TREE IMPACTS

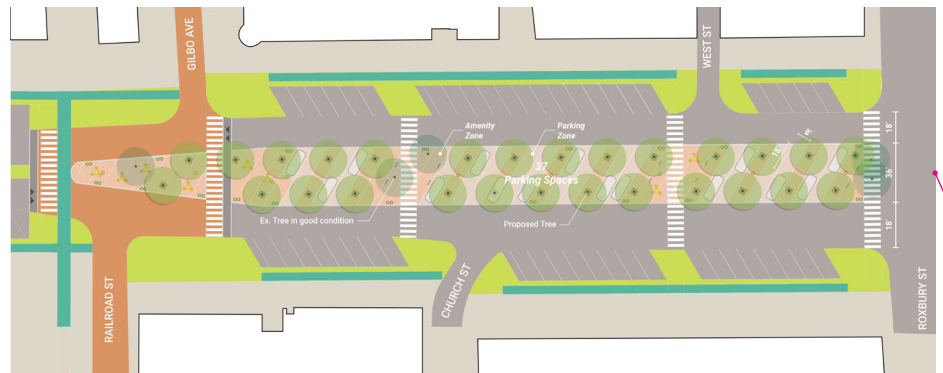
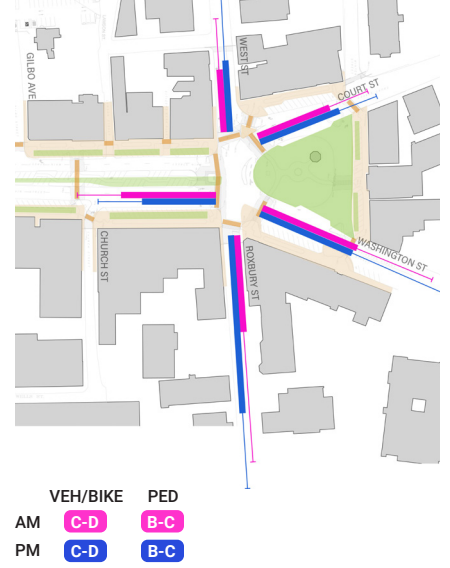
- 61 trees to be removed
- * 14 are in poor condition



FLEXIBLE SIDEWALK SPACE

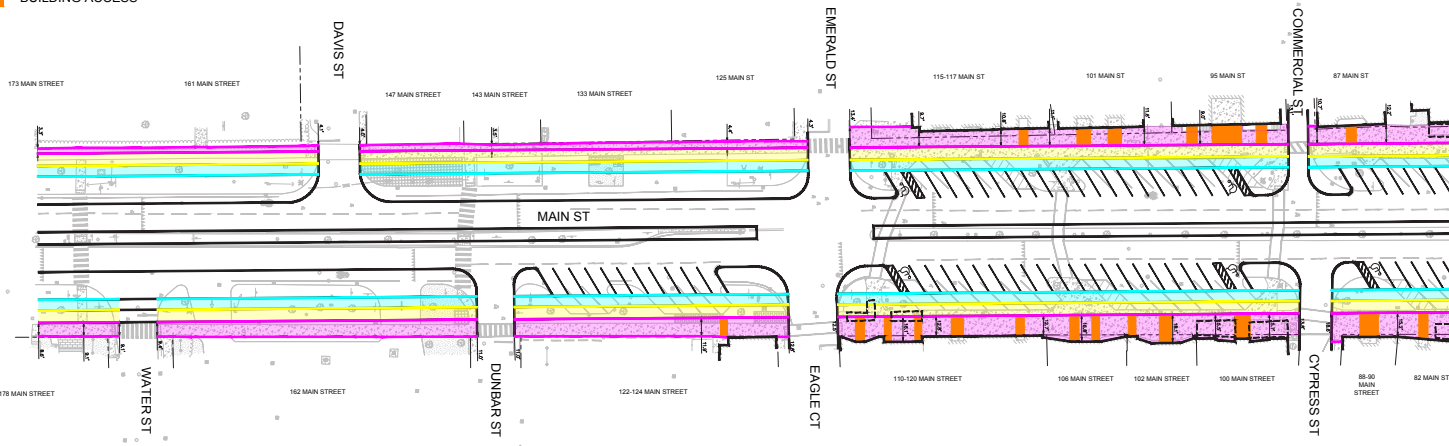
- Main Street (south of Gilbo) - no impacts, max. width
- Main Street (north of Gilbo) - no impacts, max. width
- Central Square - no impacts, max. width

INTERSECTION LEVEL OF SERVICE DIAGRAM



LEGEND

- BIKE LANE (7' TYP)
- SIDEWALK / UTILITY BUFFER (8' TYP)
- FLEXIBLE SPACE (WIDTH VARIES)
- EXISTING SIDEWALK PERMITS
- BUILDING ACCESS



Downtown Corridor Operations:

- The alternative creates a 2-lane Main Street offering maximum pedestrian safety and wider sidewalk section widths and maintaining two lanes on side streets.
- A new tree-lined center plaza with parking spaces will be added to maximize parking count along Main Street and be designed as flexible open space during Downtown events.
- A crosswalk table is proposed to connect Railroad Square and Gilbo Avenue, enhancing pedestrian safety and accessibility in this area.

Intersection Operations:

- There are no proposed changes to the operations at Main Street intersections with side streets.
- Although signalized traffic operations will be maintained, roadway widths within Central Square will be reduced for better safety and opportunity to widen sidewalk and common areas.
- Gilbo Avenue will continue to operate as a two-way street, maintaining its current traffic flow.

Crosswalks:

- Crosswalk count on Main Street will be maintained and by reducing Main Street to a single lane, crosswalks will be much shorter and the “double threat” vehicle/pedestrian conflict will be eliminated.

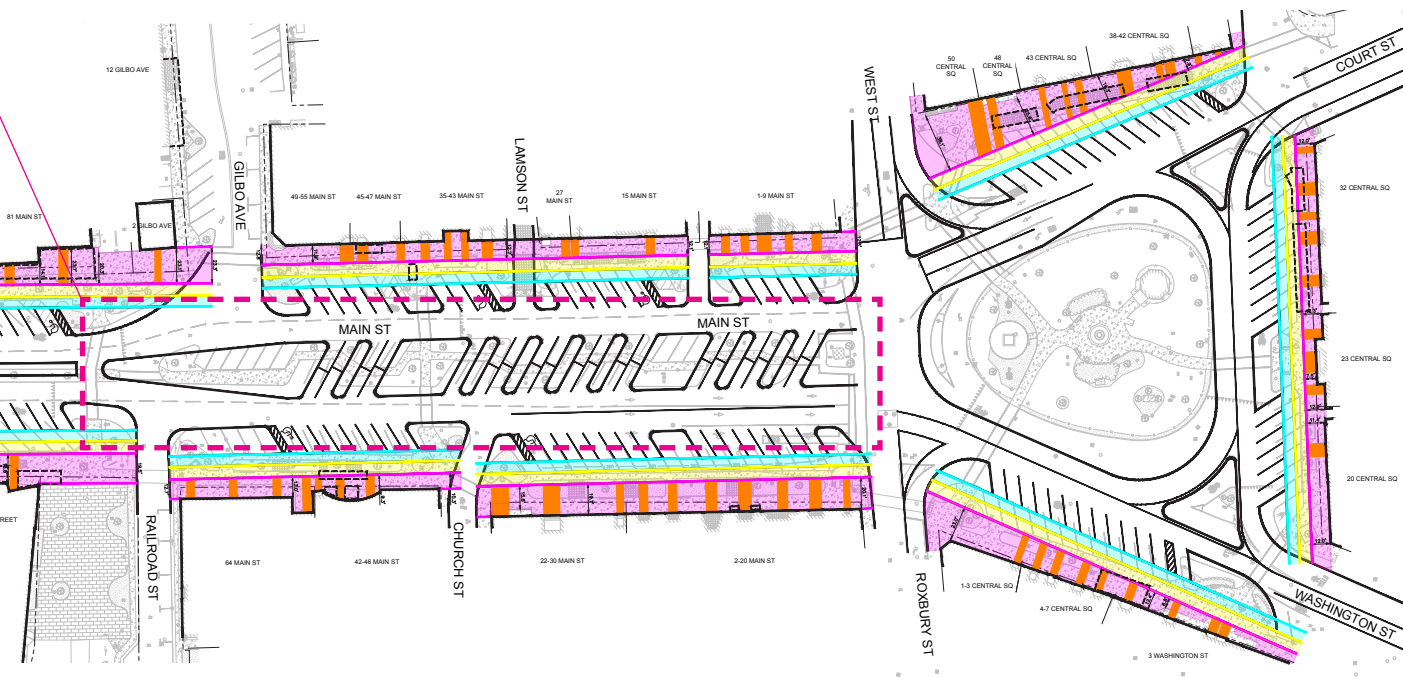
- Given a reduction in pavement width, the crosswalks in Central Square will be shortened to improve crossing safety.
- A raised crosswalk table will be introduced at Gilbo Avenue to enhance pedestrian safety and make crossing more convenient.

Tree Impacts:

- A total of 61 trees are slated for removal, with 14 of them being in poor condition. Tree management with replacements will be part of the project to maintain the aesthetic and environmental aspects of the downtown area.

Flexible Sidewalk Space:

- South of Gilbo Avenue, there will be no impacts on the current use of sidewalk space. Single lane operation along Main Street allows for maximum sidewalk width. Added flexible use of space is expected.
- North of Gilbo Avenue, there will be no impacts on the current use of sidewalk space. Single lane operation along Main Street allows for maximum sidewalk width. Added flexible use of space is expected.
- There will be no impacts to the existing uses of sidewalk space within Central Square, indicating potential improvements in this area.

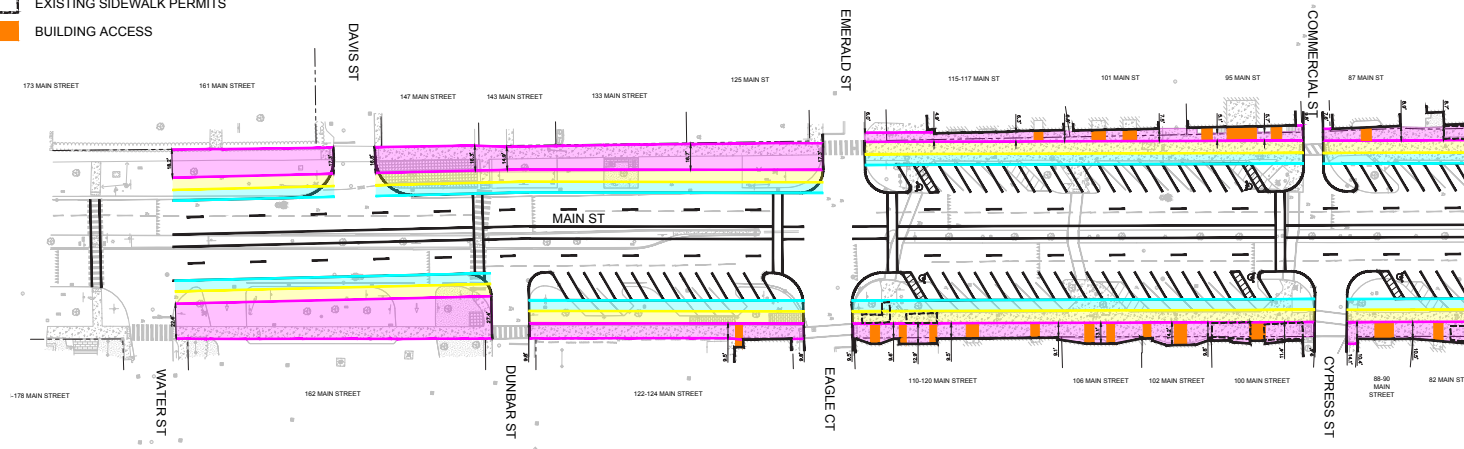


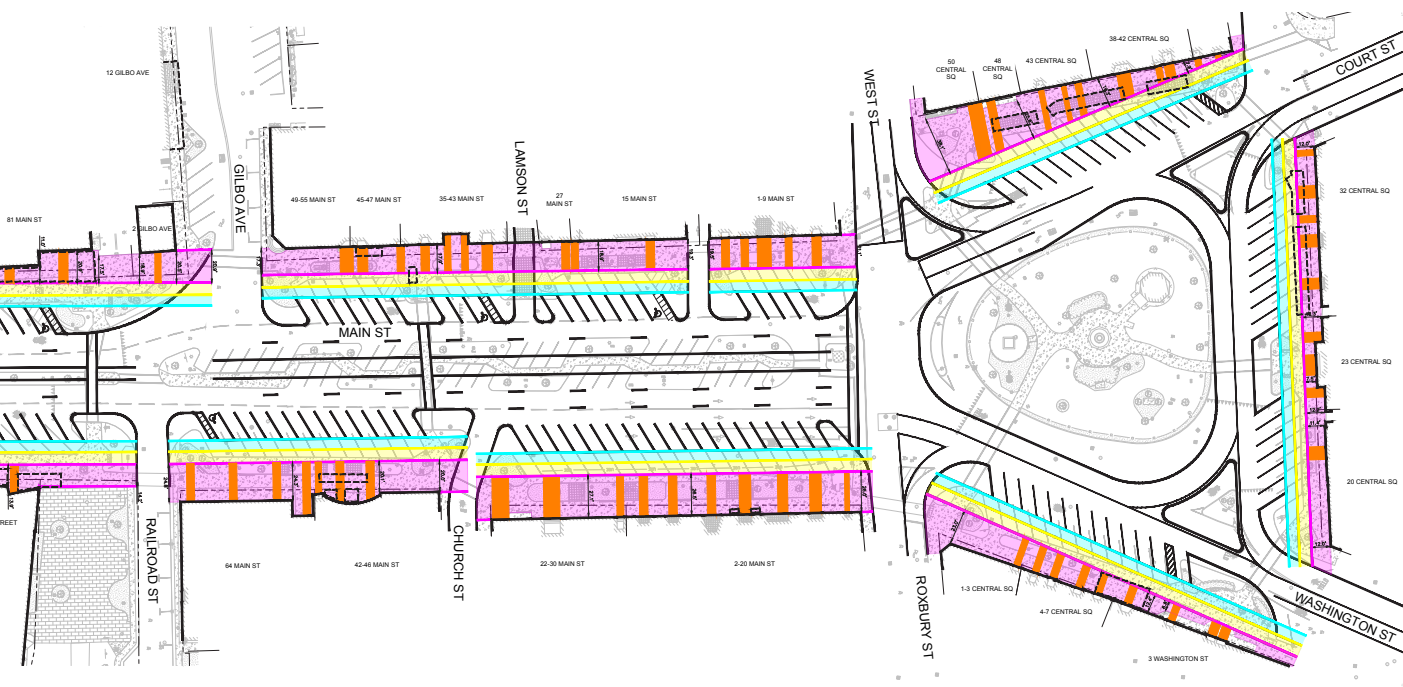
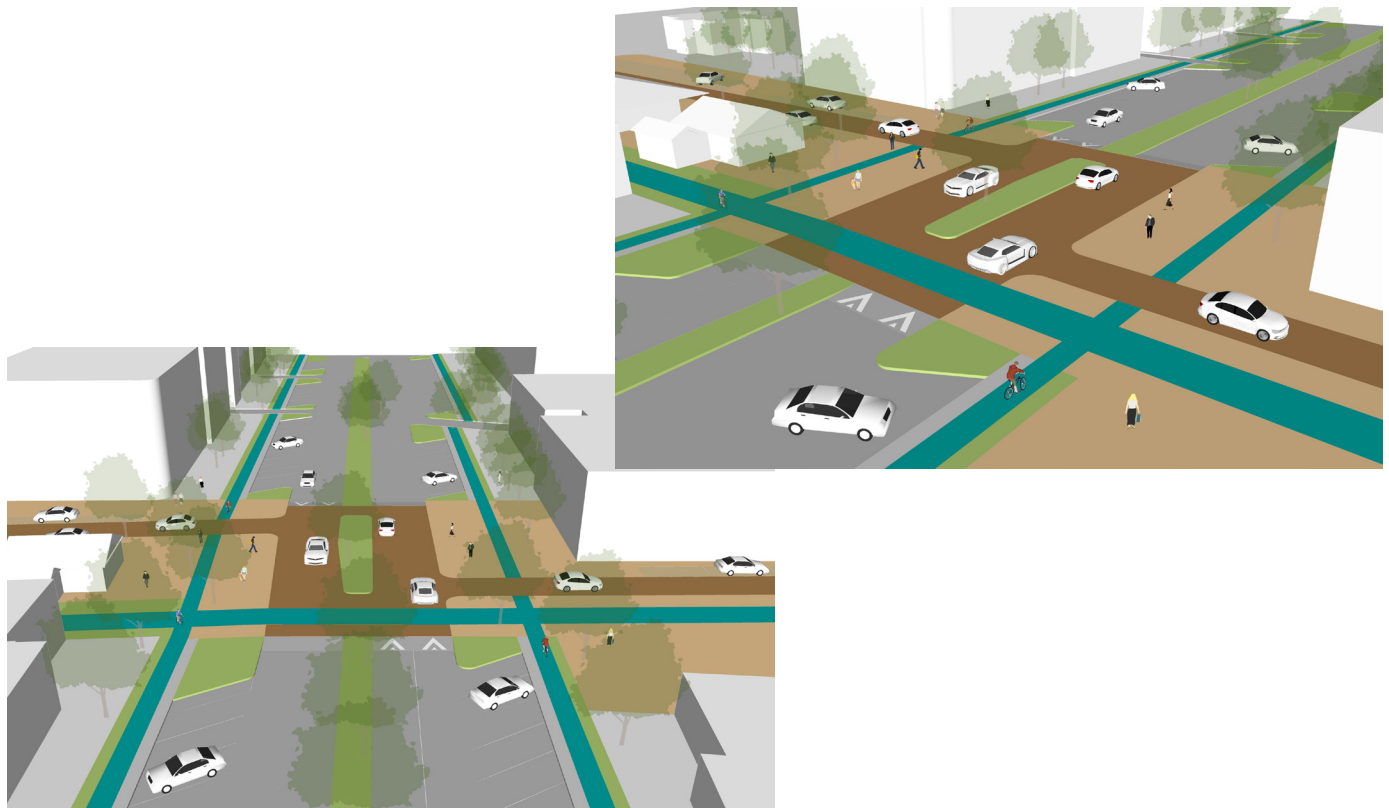
City Council Preferred Alternative - Multi-lane Hybrid Option



LEGEND

- BIKE LANE (7' TYP)
- SIDEWALK / UTILITY BUFFER (8' TYP)
- FLEXIBLE SPACE (WIDTH VARIES)
- EXISTING SIDEWALK PERMITS
- BUILDING ACCESS





Appendix

- I. Design Alternative Plans
- II. Keene Downtown Historic Project Review Report
- III. Keene Downtown Tree Study
- IV. Keene Data and Operations Memorandum
- V. Traffic Analysis Appendix
- VI. Parking Analysis