

# Worcester Mobility Action Plan



Final Report June 2024



worcester  
mobility  
action plan

# Acknowledgments

Developing the Mobility Action Plan required partnership and collaboration across departments and with residents and organizations across the city. The plan was led by the Department of Transportation & Mobility in partnership with the Department of Sustainability and Resilience with guidance from the consultant team.

The City of Worcester is grateful for all the staff, residents, businesses, organizations, agencies, and others who contributed their time, shared their lived experiences, offered their ideas and vision for a better transportation future.

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# Executive Summary

The Mobility Action Plan for Safe, Equitable, and Sustainable Transportation (Mobility Action Plan) is a long-range transportation plan that will guide the Worcester Department of Transportation & Mobility (DTM) in execution of identified policies, programs, strategies, and projects to improve the City's transportation system. The Mobility Action Plan is based on the guiding vision that the City of Worcester's transportation network should support people of all ages and abilities with safe, equitable, and sustainable mobility choices. Throughout the development of the Mobility Action Plan, the public provided concerns, ideas, questions, and comments about current transportation in Worcester—and the improvements needed for the future. Input from the public is incorporated into the development of the Mobility Action Plan's findings and recommendations.

The Mobility Action Plan identifies challenges and opportunities within Worcester's existing transportation system and includes 46 recommended strategies for the City of Worcester to initiate and execute. **The Mobility Action Plan's strategies all aim to improve and advance mobility for Worcester's community through the conversion of roadways to Complete Streets, elimination of traffic-related fatalities and serious injuries, removal of inequitable transportation barriers, and collaborative work across City departments.** Recognizing inevitable capacity limitations, the Mobility Action Plan prioritizes the strategies to aid the City in implementing the strategies and recommended networks.

## Goals & Objectives

### SAFETY

- Build safe streets for all users
- Prioritize safety of vulnerable roadway users
- Reduce crashes and severity of outcomes

### CONNECTIVITY

- Expand transportation options
- Facilitate active transportation

### EQUITY

- Foster engagement and participation with communities
- Improve physical accessibility
- Improve transit rider experience
- Increase economic accessibility

### The four goals of the Mobility Action Plan are:

**SAFETY:** Build and operate safe streets for everyone regardless of age, ability, or transportation mode with a goal of zero traffic fatalities or serious injuries. Maintain transportation infrastructure in good condition.

**CONNECTIVITY:** Develop an integrated and efficient transportation network that offers multiple transportation choices and expands opportunities to access local and regional destinations.

**EQUITY:** Provide all residents with quality and affordable transportation options to meet their daily needs. Prioritize transportation improvements serving communities that have been historically neglected, underserved, or disproportionately impacted by past transportation decisions, while recognizing and reducing adverse impacts that the transportation system has had on these communities.

**SUSTAINABILITY:** Reduce impacts of the transportation system on the environment and public health by shifting mode share to sustainable travel choices, reducing the use of fossil fuels, and incorporating green infrastructure to improve air quality, flooding, and urban heat island effect. Align transportation investments with land use regulations to promote walkable, mixed-use neighborhoods with access to transit and micro-mobility travel options.

### SUSTAINABILITY

- Green the streets
- Improve transit reliability
- Increase non-auto mode share
- Reduce vehicle emissions

## Conversion of roadways to Complete Streets

Many roadways in the US currently prioritize vehicular movement at the cost of safety and access for other roadway users such as walkers, bikers, people taking transit, or people with disabilities. Complete Streets ensure that streets are for everyone; it is an approach to planning, designing, and operating streets to allow safe access for all people who need to use them, including pedestrians, bikers, transit riders, and motorists of all ages and abilities.

## Elimination of traffic-related fatalities and serious injuries

In the past five years, 44 fatalities and 483 serious injuries occurred because of crash-related incidents in Worcester. A Vision Zero approach prioritizes safety on roadways to eliminate traffic fatalities and serious injuries through a multi-pronged effort spanning roadway design, education and programs, and policy changes.

## Removal of inequitable transportation barriers

Years of inequitable distribution of resources and opportunity have resulted in longer travel times and decreased access to high-quality transportation options for areas where people with lower incomes and people of color reside. Furthermore, these populations are often negatively and disproportionately impacted by air pollution from transportation. Identifying and addressing transportation barriers can help improve mobility for underrepresented communities.



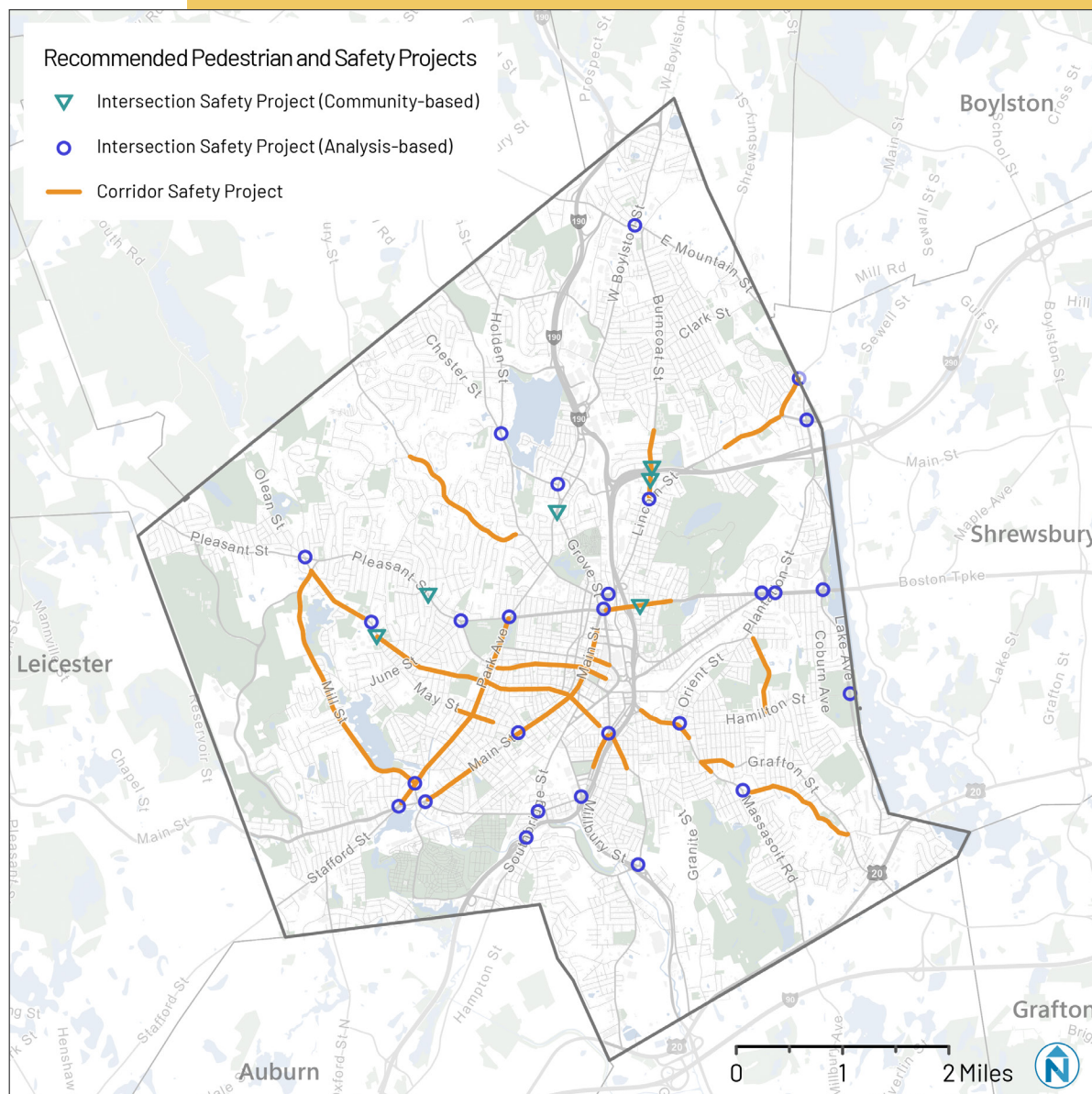
### Some Elements of a Complete Street:

- 1 High-quality pedestrian infrastructure encourages walkability, which benefits small businesses, the environment, and overall quality of life.
- 2 Safe, dedicated bike lanes and bike parking encourages mode shift.
- 3 Transit priority and dedicated bus lanes helps create a more reliable and efficient bus network.
- 4 Right-sized roads and other traffic-calming measures creates a safer roadway for everyone.
- 5 Managing curb space by providing pick-up/drop-off or loading areas can alleviate congestion, support small businesses, and better serve all users.
- 6 Trees and other forms of green infrastructure help improve air quality and provide shade in urban environments.

## The Mobility Action Plan recommended strategies are organized by mobility focus area.

### Access for All: Ensuring Complete Streets and access for all ages and abilities

- 1.1: Expand Safe Routes to School (SRTS) Program
- 1.2: Review and Update Ordinance on Biking on Sidewalks
- 1.3: Ensure Age- and Dementia-Friendly Transportation Design
- 1.4: Encourage Community-Based Education Programs
- 1.5: Identify and Address Transportation Barriers by Past Transportation Decisions
- 1.6: Develop a Transportation Equity Framework
- 1.7: Develop Public Engagement Toolkit
- 1.8: Pursue Employer Commute Programs or Transportation Demand Management (TDM) Developer Requirements



**Strategy 2.1:** To advance the City's Complete Streets policy, this strategy recommends that all upcoming pavement projects undergo corridor or intersection studies to assess vehicle lane widths and capacity, travel speeds and crash data, and sidewalk and bike facility presence and condition. Corridors and intersections identified in this map are critical candidates as identified through analysis and public input.

The Recommended Pedestrian and Safety Projects map identifies corridors with a high rate of crashes and intersections that pose barriers or challenges to crossing and connectivity. The intersections were identified through both consultant analysis and community engagement.

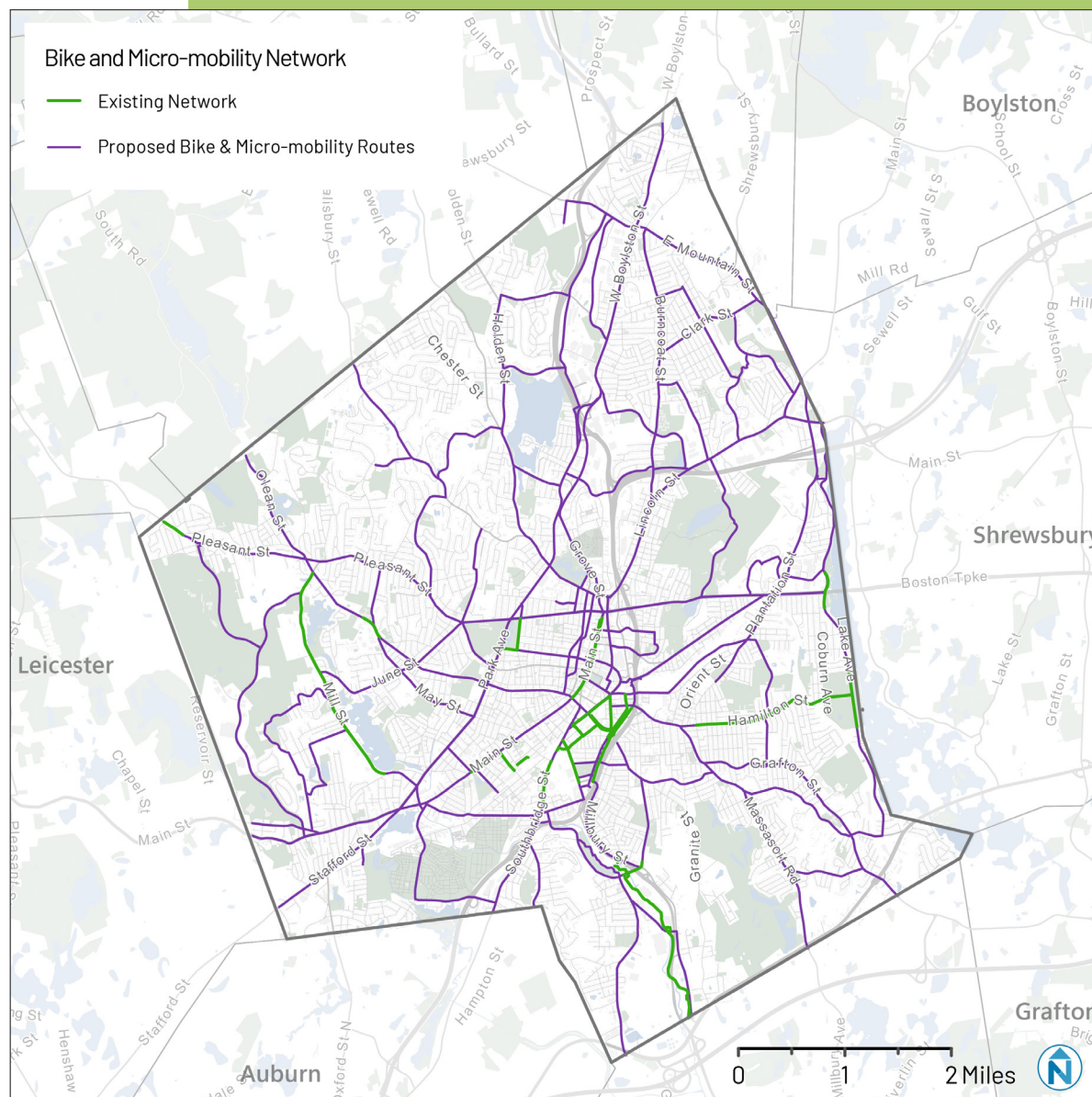


### Walking & Accessibility: Enhancing pedestrian connections and improving accessibility

- 2.1: Conduct Corridor and Intersection Studies to Advance Complete Streets
- 2.2: Execute Interim or Pop-Up Safety Projects
- 2.3: Implement Improved Street Lighting, Emphasizing Pedestrian-oriented Lighting
- 2.4: Develop a Pedestrian Infrastructure Toolkit
- 2.5: Create a Neighborways Program
- 2.6: Complete ADA Transition Plan for the Right-of-Way
- 2.7: Create a Sidewalk and Curb Ramp Implementation Plan
- 2.8: Eliminate Financial Disincentives to Sidewalk Construction

### Biking & Micro-mobility: Expanding the bike and micro-mobility network and amenities

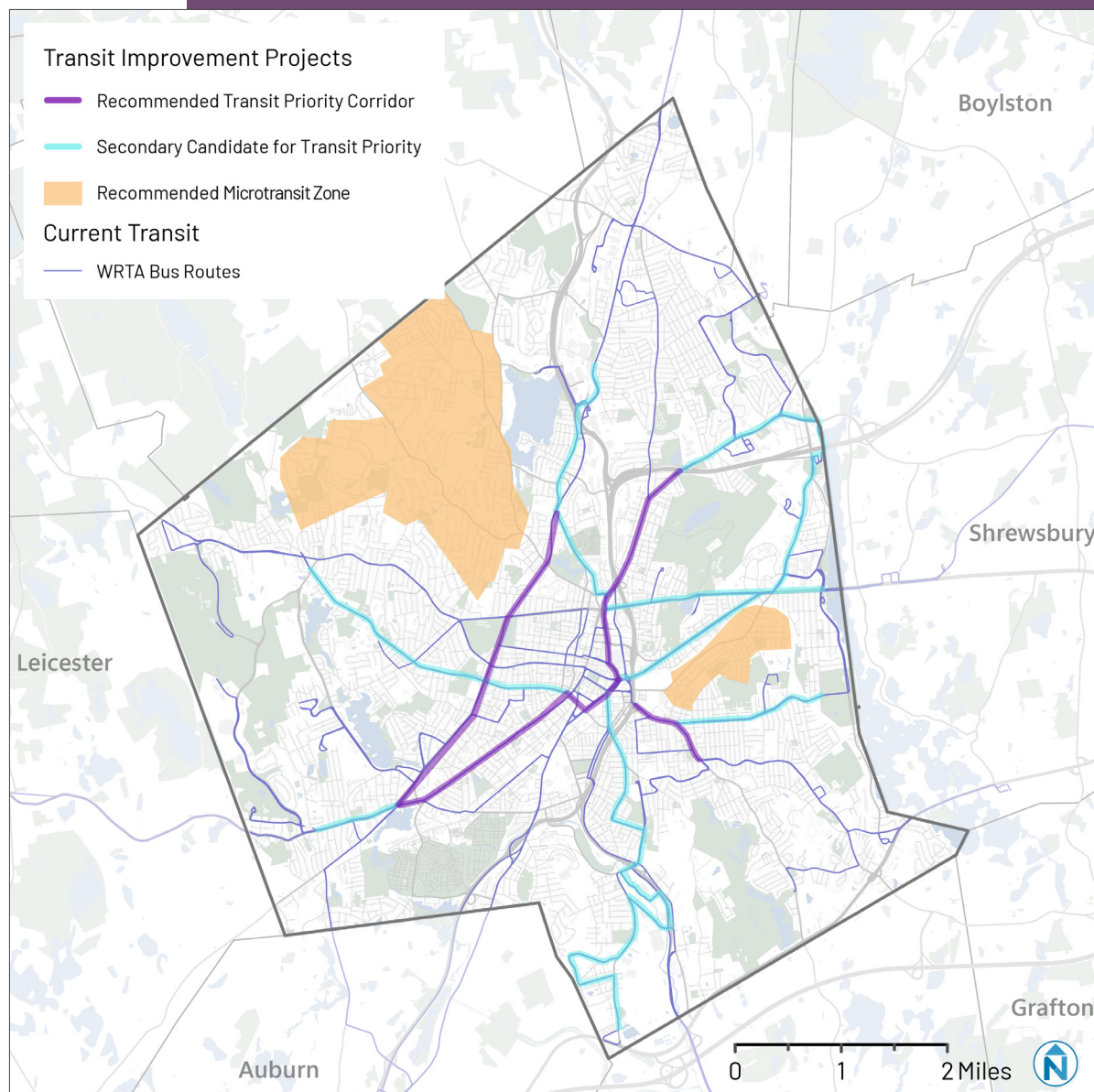
- 3.1: Develop Bike and Micro-mobility Facility Standards that Comply with Contemporary Design Standards
- 3.2: Develop Bike and Micro-mobility Network
- 3.3: Inventory Bike Parking, Develop Guidelines, and Deploy Additional Parking



**Strategy 3.2:** This strategy recommends developing concept designs and securing funding to install more micro-mobility infrastructure in the areas prioritized in the Bike and Micro-mobility Network.

## Public Transportation & Transit: Improving transit speed, reliability, access, and connections

- 4.1: First/Last Mile Strategic Plan to Improve Access to Transit
- 4.2: Expand WRTA Service Through Addition of Crosstown Services
- 4.3: Study Potential for On-Demand Microtransit
- 4.4: Expand WRTA Paratransit Service to Provide Responsive On-Demand Service
- 4.5: Improve Transit Real-Time Information
- 4.6: Develop and Implement Bus Shelter and Bench Policy
- 4.7: Continue Fare-Free WRTA Transit Service
- 4.8: Implement Transit Signal Priority on Key Corridors
- 4.9: Coordinate Scheduling Between Key WRTA Bus Routes and MBTA Commuter Rail
- 4.10: Consolidate Bus Stops and Consider In-Line Stops Where Appropriate to Reduce Transit Delay and Improve Reliability
- 4.11: Improve Transit Headways and Hours of Service
- 4.12: Explore and Pursue Transit Electrification



**Strategies 4.3 & 4.8:** Geographically-based transit improvements, including recommended microtransit zones (Strategy 4.3) and transit priority (Strategy 4.8) are shown in this map.

### Shared Mobility: Enhancing and expanding access to shared mobility options

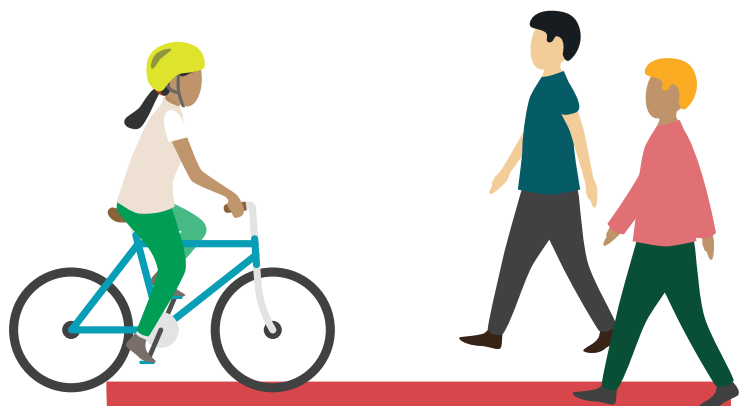
- 5.1: Implement a Bikeshare and/or Micro-mobility Share Program
- 5.2: Encourage and Expand Electric Vehicle Carshare

### Vehicular Network, Parking, and Curb Management: Improving efficiency of traffic control systems and advancing traffic calming and appropriate use of right-of-way space

- 6.1: Develop Traffic Calming Toolkit
- 6.2: Conduct Road Diets
- 6.3: Develop and Launch Traffic Signal Improvement Program
- 6.4: Lower Statutory Speed Limit Citywide and Enact Safety Zone Speed Limits at Appropriate Locations
- 6.5: Study and Prioritize Curb Space for Best Uses
- 6.6: Conduct Parking Studies in Key Districts
- 6.7: Expand Publicly Accessible Electric Vehicle Charging

### Getting It Done: Supporting coordination to advance mobility

- 7.1: Design and Process Standardization
- 7.2: Traffic Analysis Requirements & Development Code Audit
- 7.3: Create and Implement Vision Zero Safety Action Plan
- 7.4: Prioritize Active Transportation and Transit in Corridor and Network Planning
- 7.5: Incorporate Green Infrastructure (Trees, Rain Gardens, etc.) in Roadway Projects
- 7.6: Develop Streetscape and Street Tree Standards

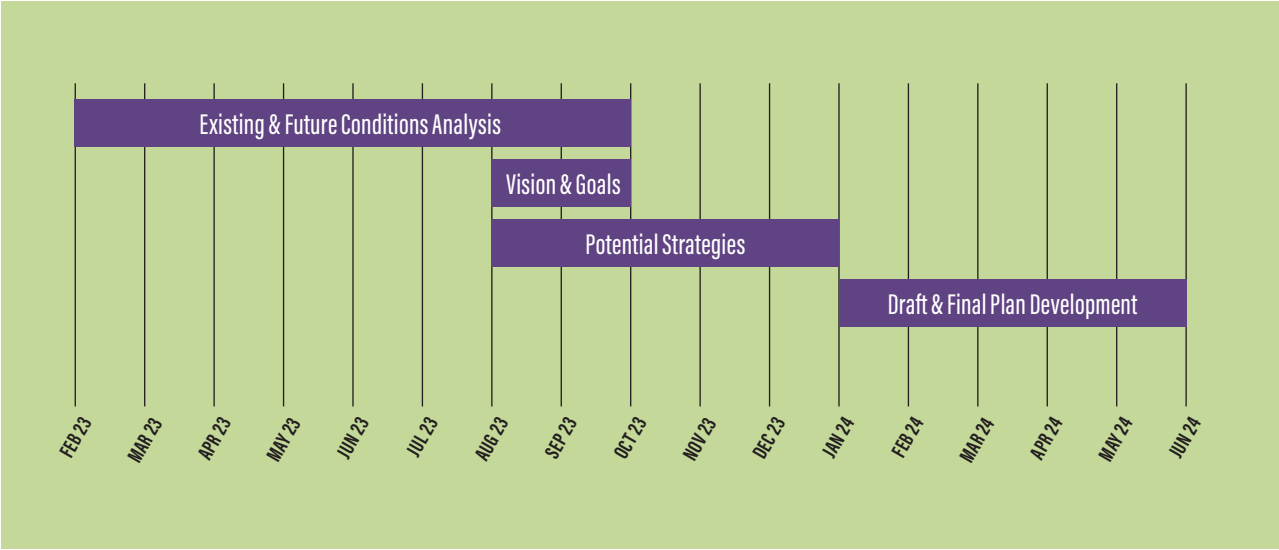




# Introduction

In the Spring of 2023, the Worcester Department of Transportation & Mobility (DTM) launched the development of the Mobility Action Plan for Safe, Equitable and Sustainable Transportation (Mobility Action Plan), a long-range transportation plan that will identify policies, programs, strategies, and projects to guide the newly formed department and City as a whole with respect to planning, design, and implementation of mobility infrastructure and services. The purpose of developing the Mobility Action Plan is to set the stage for creating a safer multi-modal transportation network that meets the needs of all users and help shape how the City prioritizes transportation improvements.

Figure 1 Mobility Action Plan Project Timeline



## Plan Development Process

The need for the Mobility Action Plan was identified through the Now|Next Citywide Plan process in response to the creation of DTM and the need for a more specific and detailed plan for transportation strategies. The Mobility Action Plan leveraged resources and analyses that were initially developed as part of that citywide plan and then further refined the work – with additional engagement and analysis – to develop actionable strategies and recommendations.

## ENGAGEMENT SUMMARY

Public engagement is a necessary part of transportation planning. Historically, transportation planning throughout the United States was not conducted in a transparent manner. The results were particularly devastating to urban neighborhoods and disproportionately impacted ethnic minorities. Like so many other cities across the country, the City of Worcester is left with the scars from transportation projects that destroyed neighborhoods and erected barriers through the creation of highways and extra wide streets. DTM staff are committed to improved and more impactful public engagement that ensures that the impacted community’s ideas and concerns are reflected in the planning process and outcomes.

Initial outreach around transportation began during the Now|Next Citywide Plan process and informed the engagement process for the Mobility Action Plan. As a newly created department with nearly an entirely new staff, DTM built its outreach program from the ground up throughout this plan development.



## Engagement Goals and Activities

Engagement efforts were centered around the following three goals:

- **Goal 1, Communicate:** Introduce the public to the DTM, the purpose of the Mobility Action Plan, and concepts such as Complete Streets.
- **Goal 2, Listen:** Gain feedback/consensus from the public on transportation priorities.
- **Goal 3, Be Inclusive:** Broaden outreach especially to historically underrepresented communities and potential groups that may have been missed in previous planning efforts (such as seniors, youth, and businesses).

Phase 1 of public engagement began in earnest in May 2023. Since then, the City has provided periodic project updates to and engagement opportunities for interested community members, with a concerted effort to engage with diverse communities across all parts of the City. **Table 1** highlights the phases of engagement activities that were conducted to gather feedback and insight from the community for this project.

**Table 1** Overview of Engagement Phases and Activities

Phase	Description + Types of Engagement	Key Engagement Activities	Topics Discussed
<b>Phase 1: Discovery</b>	Discovery involved the initial gathering of information and understanding of key issues and concerns within the City. The project team conducted a site visit with local stakeholders to better understand the area. Other activities centered around focus groups with targeted demographic cohorts including youth, seniors, non-English speakers, disabled individuals, and businesses and institutions, ensuring representation of diverse perspectives.	<ul style="list-style-type: none"> <li>• Transportation and Mobility Working Group Meeting (#1), January 25, 2023</li> <li>• Site Visit, March 29, 2023</li> <li>• Focus Groups (13 total; 178 people), Spring 2023</li> </ul>	Existing Conditions, Challenges, and Opportunities
<b>Phase 2: Discussion (and Analysis)</b>	The Discussion phase included development of project vision and goals and exploring potential solutions for the City's unique needs. City staff participated in local pop-up events and an online survey was distributed to collect additional information. A Transportation and Mobility Working Group Meeting was then held to recap existing conditions and gather feedback from the project stakeholders.	<ul style="list-style-type: none"> <li>• Pop-up Events (9 total; 350+ people), Summer 2023</li> <li>• Online Survey, Summer 2023</li> <li>• Transportation and Mobility Working Group Meeting (#2), October 12, 2023</li> </ul>	Draft Strategies and Potential Solutions
<b>Phase 3: Decision Making</b>	The Recommendations or Decision-making phase helped the City reach decisions and draw conclusions based on the information gathered from previous phases. This phase included another meeting with the Transportation and Mobility Working Group, which centered on a review of potential strategies. The strategies were then refined and presented to the general public at two in-person public meetings and one virtual meeting. This phase culminates with the draft and final Mobility Action Plan reports.	<ul style="list-style-type: none"> <li>• Transportation and Mobility Working Group Meeting (#3), December 18, 2023</li> <li>• Public Meeting (virtual), February 15, 2024</li> <li>• Public Meetings (in-person), February 12 and 21, 2024</li> <li>• Draft Mobility Action Plan Online Feedback, May 20, 2024 through May 31, 2024</li> </ul>	Recommendations and Conclusions
<b>All Phases</b>	Two web pages and several social media posts were created specifically to communicate with the public about the planning process. Facts, figures, timeline, and a calendar of upcoming Mobility Action Plan-related events and working group meetings were posted on the site. Partners and stakeholders helped direct community members to these information resources.		

# Online Survey & Mapping Tool

As part of the Phase 1 data collection phase, the team created an interactive online survey and mapping tool. The survey asked respondents preference questions and also asked them to identify on a map where they experience transportation or mobility challenges (Figure 2). The survey was available in five different languages including English, Spanish, Portuguese, Vietnamese and Albanian and included three main sections:

- Ranked questions on goals and priorities,
- Interactive maps to identify opportunities and challenges, and
- Demographic questions.

## Who Took the Survey?

- 270 people finished all sections of the survey
- 320 people finished all, but the demographic questions
- 12 surveys were completed in Spanish

## Of the roughly 50% of people who answered the demographic questions:

- 16% identified as Hispanic or Latino vs 25% of the general population
- 7% identified as Black or African-American vs 14% of the general population
- 4% identified as Asian or Pacific Islander vs 7% of general population

### Question 4: Traveling in Worcester, Challenges and Opportunities

Where have you encountered challenges or seen opportunities for improvement when walking, biking, rolling, riding the bus, or travelling by automobile? These might be routes, crossings, or places where you feel unsafe or uncomfortable due to traffic or other conditions or these might be places where you would like to see safer intersections, better sidewalks, bike lanes, improved connections to bus stops, more street trees, or any other ideas.

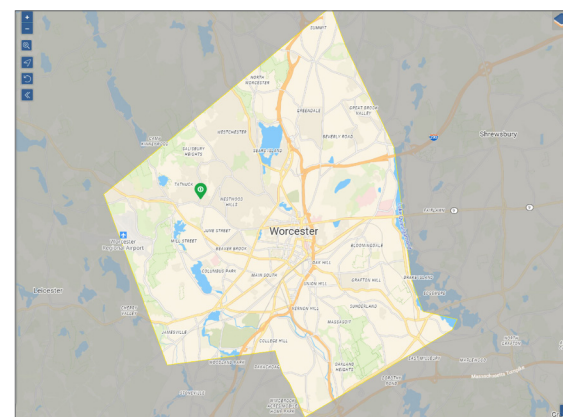
- Please mark these locations on the map by placing pins to indicate specific places or by drawing lines to show routes.
- You can add as many pins or draw as many lines as you wish.
- You can also add a note with each pin or line that explains the challenges and/or opportunities for improvement.

The Mobility Action Plan is a long-term vision for mobility in the City. Shorter-term safety concerns (such as potholes, missing signs, overgrown vegetation, etc.) should be directed to our 311 service. Please call 311 or submit a request online at <http://www.worcesterma.gov/311>.

Challenge/Opportunity for Walking, Biking, or Rolling (Point)



Challenge/Opportunity for Other Transportation Modes (Point)



**Figure 2** Online Survey Map Question & Interface

## Challenges & Opportunities Identified Through Engagement

Engagement activities helped the project team hone their focus for the Mobility Action Plan. In general, the public is supportive of positive change and eager to see the City follow through on creating a safer and more accessible transportation system. Residents felt that Worcester has many opportunities to improve the transportation system, increase mode choices, and make systems work better for everyone. **Safety on the streets was the number one priority and overarching theme throughout conversations with the public.** Concerns about speeding, crossing streets, lack of sidewalks, and unease about getting around by bike all lead back to creating safe streets for people of all ages, abilities, and modes. Other findings from the engagement activities are listed in **Table 2** and categorized by mode of transportation including transit, walking, biking, micro-mobility and driving.

The project team also gathered public feedback on draft strategies and network improvements through in-person and virtual voting exercises. Results from those exercises are provided in the Appendix, and strategies that were strongly supported are noted in the Mobility Networks & Recommendations chapter after the strategy description with an icon and tagged as a Public Favorite with the text as shown below.



**Public Favorite!** Strategies with this icon scored higher during public engagement activities.

**Table 2** Phase 1 Engagement Findings by Mode

Mode	Summary	Findings
<b>Transit</b>	Transit is a key priority that came up frequently during engagement activities.	<p>Service: Challenges with reliability, frequency, timing, network gaps</p> <p>Infrastructure: Need more bus shelters and benches, better snow clearance</p> <p>Fare free: Fare free transit is a valuable resource to the City and should continue</p>
<b>Walking</b>	Pedestrians in Worcester are challenged with unsafe walking facilities and when interacting with speeding drivers.	<p>Safety: Hazardous and infrequent crossings. Traffic-calming would help, as well as better lighting, sidewalk repairs, safer crossings, and other Americans with Disability Act (ADA)-related improvements.</p> <p>Pedestrian Network: A disconnected network of sidewalk infrastructure and lack of intuitive crossings. Challenges related to ADA accessibility.</p>
<b>Biking &amp; Micro-mobility</b>	Bike and micro-mobility use is of interest to people in Worcester, but most won't bike without more dedicated facilities.	<p>Bike and Micro-mobility Network: Current sparsely developed and disconnected network creates safety issues, confusion, and generally deters people from biking.</p> <p>Infrastructure: People would be more inclined to bike if there were more protected on- and off-street lanes and more bike parking.</p>
<b>Driving</b>	Speeding is a primary issue related to motor vehicle travel in the City	<p>Speeding: Speeding is prevalent throughout the City; enforcement/monitoring is seen as insufficient. Initiatives related to traffic calming and slow streets would help.</p> <p>Parking: People often park on sidewalks or in other illegal locations.</p>

## ANALYSIS SUMMARY

The existing and future conditions analysis looked at the demographics, land use, travel patterns, and urban context of Worcester along with the current and planned transportation networks and was supplemented by site visits and public engagement. Key findings from the existing and future conditions analysis are summarized in the Mobility Networks & Recommendations chapter.

### Key External Data Sources

Census and American Community Survey data from 2020, 2021, and 2022 provided an overview of the demographics and socioeconomic characteristics of Worcester at the citywide and block group level. Key statistics that were mapped include means of transportation to work, vehicle ownership, race and ethnicity, age, poverty status, and English language proficiency. This analysis set the stage for developing a plan to both support residents who do not have alternative transportation options as well as encourage those who currently drive to shift to other modes.

The Massachusetts Department of Transportation (MassDOT) maintains an interactive database of all motor vehicle, bicycle, and pedestrian-involved crashes recorded in the state, including the results of analysis on previous years of crashes at the

Metropolitan Planning Organization (MPO) level. This data and analysis supplemented City-provided data on infrastructure and feedback from the public to inform locations chosen for safety upgrades.

To identify where Worcester residents are travelling to and from, the project team utilized StreetLight Insight® dashboard and analytics, which enabled the team to review and assess location-based services (LBS) travel data for Worcester using traffic analysis zones. The LBS data was derived from average daily traffic counts between October 1st and October 30th 2022, for trips beginning and ending within the City of Worcester. Findings from this analysis informed study recommendations, as it highlighted the prevalence of short trips within and close to residential areas and non-radial travel patterns that are not well suited with the current transit, bike, and micro-mobility networks.

The project team conducted an in-person site visit on March 29, 2023. The walking tour portion of the site visit provided insights into the understanding of previous projects, ongoing development, historical significance of the neighborhoods, and accessibility challenges. The bus and driving tours shed light on mobility challenges in communities that are less accessible without a car. Key takeaways include the need for safer, more comfortable, and improved conditions for those walking, biking, rolling, and taking transit.

## Previous & Upcoming Plans

In the past decade, the City of Worcester has produced multiple policies and plans to guide the future of Worcester. The plans cover a broad range of topics, but all focus on supporting social and economic growth while retaining the City's character. Equity and sustainability are at the heart of many plans, particularly within the past few years. The following plans include transportation-related goals or strategies and inform the direction of the transportation policy in the City of Worcester.

**Table 3** Previous Plans

Plan	Year	Description
<b>City of Worcester</b>		
<b>Vision Zero</b>	Current (2024–ongoing)	Acts as a guide to the City to work toward eliminating transportation-related fatalities and severe injuries, thus creating a safe, fair, and sustainable mobility system for everyone.
<b>Worcester Now Next</b>	2023–2024	Comprehensive citywide master plan exploring issues including land use and urban form, housing, transportation, mobility, economic development, and more, aimed at developing a long-range plan to guide future development and establish priorities.
<b>Complete Streets Prioritization Plan</b>	2023	Includes 21 prioritized Complete Streets projects for funding consideration based on criteria such as serving multiple modes, enhancing safety, addressing environmental justice populations, and improving accessibility, with plans to update these to align with changing needs and priorities.
<b>Green Worcester</b>	2021	Outlines a strategic framework for sustainability and climate resilience, with ten main goals, one of which is to promote sustainable transportation choices, and a foundation to transition the City to 100% clean and renewable energy by 2045.
<b>Strategic Plan Framework</b>	2020	Outlines four primary objectives: creating a vibrant, thriving city, fostering strong neighborhoods, providing opportunity for all, and ensuring sound fiscal and operational governance. Can be viewed as a complement to the Now Next plan and the Public Schools' Strategic Plan.
<b>City of Worcester Cultural Plan</b>	2019	Aims to integrate arts, creativity, and cultural heritage into daily life for improved quality of life, with one of the five goals focusing on Public Space Design and Activation.
<b>Complete Streets Policy</b>	2017	Designed to support a multimodal transportation system that prioritizes safe, efficient, and convenient travel for all users, with design and operational standards to be integrated into all transportation and development projects.
<b>City of Worcester Urban Design and Streetscape Guidelines</b>	2012	Mandates adherence to design standards for projects receiving financial support located within the core urban neighborhoods of Downtown and the Canal District, in which streets are categorized as Primary Streets, Gateway Streets, Connector Streets, and Internal Streets.
<b>Regional</b>		
<b>CMMPO Regional Bicycle Compatibility Index</b>	2021	Provides a level of comfort analysis to all federal aid-eligible roadways within the Central Massachusetts Metropolitan Planning Organization (CMMPO) region, aiming to enhance bicycle route planning based on existing roadways conditions and identified key corridors in Worcester to improve connectivity and infrastructure for bicyclists.
<b>Worcester Regional Transit Authority Comprehensive Regional Transit Plan Update</b>	2021	Offers recommendations based on potential post-COVID ridership recovery scenarios, emphasizing guided principals including safety, customer experience, equity, fiscal responsibility, environmental stewardship, and alignment with regional planning efforts.
<b>Community Health Improvement Plan Annual Report</b>	2019 + 2020	Provides updates on progress towards the Community Health Improvement Plan (CHIP) goals, including progress on various priorities, engagement with partners, and implementation of initiatives.
<b>Greater Worcester Community Health Improvement Plan</b>	2016	Comprises nine priority areas, including transportation-specific objectives aimed at enhancing access to physical activity spaces, implementing Complete Streets projects, and engaging the business community in promoting walkability.



# Vision, Goals, Objectives, & Evaluation Metrics

## Vision & Goals

The Mobility Action Plan's vision and goals were developed following analysis of existing conditions and initial engagement activities; they were then refined and confirmed in subsequent public outreach events.

**VISION: The City of Worcester envisions a transportation network that supports people of all ages and abilities with safe, equitable, and sustainable mobility choices.**

The four main goals of the project are: **Safety, Connectivity, Equity, and Sustainability.**

- **SAFETY:** Build and operate safe streets for everyone regardless of age, ability, or transportation mode with a goal of zero traffic fatalities or serious injuries. Maintain transportation infrastructure in good condition.
- **CONNECTIVITY:** Develop an integrated and efficient transportation network that offers multiple transportation choices and expands opportunities to access local and regional destinations.
- **EQUITY:** Provide all residents with quality and affordable transportation options to meet their daily needs. Prioritize transportation improvements serving communities that have been historically neglected, underserved, or disproportionately impacted by past transportation decisions, while recognizing and reducing adverse impacts that the transportation system has had on these communities.
- **SUSTAINABILITY:** Reduce impacts of the transportation system on the environment and public health by shifting mode share to sustainable travel choices, reducing the use of fossil fuels, and incorporating green infrastructure to improve air quality, flooding, and urban heat island effect. Align transportation investments with land use regulations to promote walkable, mixed-use neighborhoods with access to transit and micro-mobility travel options.

## Goals & Objectives

After development of the goals, the team identified key intentions, or objectives, for the various Mobility Action Plan strategies. Objectives help to ground the goals and strategies to explain the "why" for the actions they recommend.

### SAFETY Objectives

- Build safe streets for all users
- Prioritize safety of vulnerable roadway users
- Reduce crashes and severity of outcomes

### EQUITY Objectives

- Foster engagement and participation with communities
- Improve physical accessibility
- Improve transit rider experience
- Increase economic accessibility

### CONNECTIVITY Objectives

- Expand transportation options
- Facilitate active transportation

### SUSTAINABILITY Objectives

- Green the streets
- Improve transit reliability
- Increase non-auto mode share
- Reduce vehicle emissions

## Evaluation Metrics

Limited municipal resources mean that the City cannot execute every recommended plan strategy at the same time. Prioritization helps identify what should be executed first, once funds and resources are identified. Each Mobility Action Plan strategy was evaluated across six evaluation metrics to determine how well a particular strategy or project advances the City's goals. Scores range from 0 to 3 for each evaluation metric, with a maximum score of 18 for an individual strategy.

Each evaluation metric asks a yes or no question about the impact of a project or strategy, with scores assigned as follows:

- **3 points:** Yes, directly linked & impactful
- **2 points:** Yes, directly linked but less impactful
- **1 point:** Yes, indirectly linked and/or less impactful
- **0 points:** No, not at all

The final scores were used to prioritize strategies of the Mobility Action Plan. In the future, the evaluation metrics can also be utilized to evaluate DTM's progress on strategy implementation or an individual project's success. The evaluation metrics are organized under the four Mobility Action Plan goals and are listed in **Table 4**.

**TOP 15**

**Top 15 Strategy.** Strategies with this icon received the highest prioritization scores.

**Table 4** Evaluation Metrics by Goal

Goal	Metric	Score
<b>Safety</b>	Vision Zero: Does this project work towards eliminating traffic-related fatalities?	0-3
	Complete Streets: Does this project add to a Complete Streets network—or green network—and/or contribute to an all-ages and abilities bike and micro-mobility network?	0-3
<b>Connectivity</b>	Improve Access: Does the project improve access to schools, parks, green spaces, grocery stores, institutions, employment areas, and/or high demand destinations?	0-3
<b>Equity</b>	Reduce Cost or Delay: Does the project reduce the transportation cost burden and/or reduce travel delay for public transit and access to transit for lower income neighborhoods or environmental justice communities?	0-3
	Community Input: Will this project be developed through co-creation with the impacted community or driven by community input?	0-3
<b>Sustainability</b>	Mode Share & Emissions: Does this project increase mode share of walkers, bikers, and rollers or increase mode share of public transportation riders (i.e., does this project reduce Vehicle Miles Traveled) and/or does the project reduce vehicle emissions?	0-3
<b>Total Possible Score</b>		<b>18</b>

# Mobility Challenges, Opportunities, and Recommendations

This chapter will discuss challenges, opportunities, and recommended strategies, organized by mobility focus areas. Organization by mobility focus area provides a direct link between recommended strategies and the issues that need to be solved—or opportunities to be taken. The mobility focus areas include:

- **Access for All:** Ensuring Complete Streets and access for all ages and abilities
- **Walking & Accessibility:** Enhancing pedestrian connections and improving accessibility
- **Biking & Micro-mobility:** Expanding the bike and micro-mobility network and amenities
- **Public Transportation & Transit:** Improving transit speed, reliability, access, and connections
- **Shared Mobility:** Enhancing and expanding access to shared mobility options
- **Vehicular Network, Parking, and Curb Management:** Improving efficiency of traffic control systems and advancing traffic calming and appropriate use of right-of-way space
- **Getting It Done:** Supporting coordination to advance mobility

Within each mobility focus area section, key challenges and opportunities observed through technical analysis and public engagement processes are highlighted. Then, strategies related to that mobility focus area are presented. Each strategy summary will highlight the following:

- Primary goal and objective
- Prioritization score (based on evaluation metrics)
- Background and description

Strategies that were frequently selected during public engagement events are identified as “Public Favorite.” Fifteen strategies received a 12 or higher score when evaluated against the project metrics. These strategies are identified as “Top 15.” The table on page 58 provides a full list of the strategies and their evaluation metrics scores, organized by focus area.

## Top 15 Strategies

The top 15 strategies that received the highest prioritization scores are listed on the following page. The City should prioritize work to advance these strategies, since these projects, programs, and policies are evaluated to have the greatest impact on the community.





- Expand Safe Routes to School Program (Strategy 1.1)
- Incorporate Age- and Dementia-friendly Design Guidance in City Code and Design Manuals (Strategy 1.3)
- Encourage Community-based Education Programs (Strategy 1.4)
- Identify and Address Transportation Barriers by Past Transportation Decisions (Strategy 1.5)
- Conduct Corridor and Intersection Studies in Advance of Pavement Projects (Strategy 2.1)

- Create a Neighborways Program (Strategy 2.5)
- Complete ADA Transition Plan for the Right-of-Way (Strategy 2.6)
- Create a Sidewalk and Curb Ramp Implementation Plan (Strategy 2.7)
- Eliminate Financial Disincentives to Sidewalk Construction (Strategy 2.8)
- Develop Bike and Micro-mobility Facility Standards that comply with contemporary design standards (Strategy 3.1)

- Develop Bike and Micro-mobility Network (Strategy 3.2)
- First/Last Mile Strategic Plan to Improve Access to Transit (Strategy 4.1)
- Implement a Bikeshare and/or Micro-mobility Share Program (Strategy 5.1)
- Create and Implement Vision Zero Safety Action Plan (Strategy 7.3)
- Prioritize Active Transportation and Transit in Corridor and Network Planning (Strategy 7.4)



## Access for All

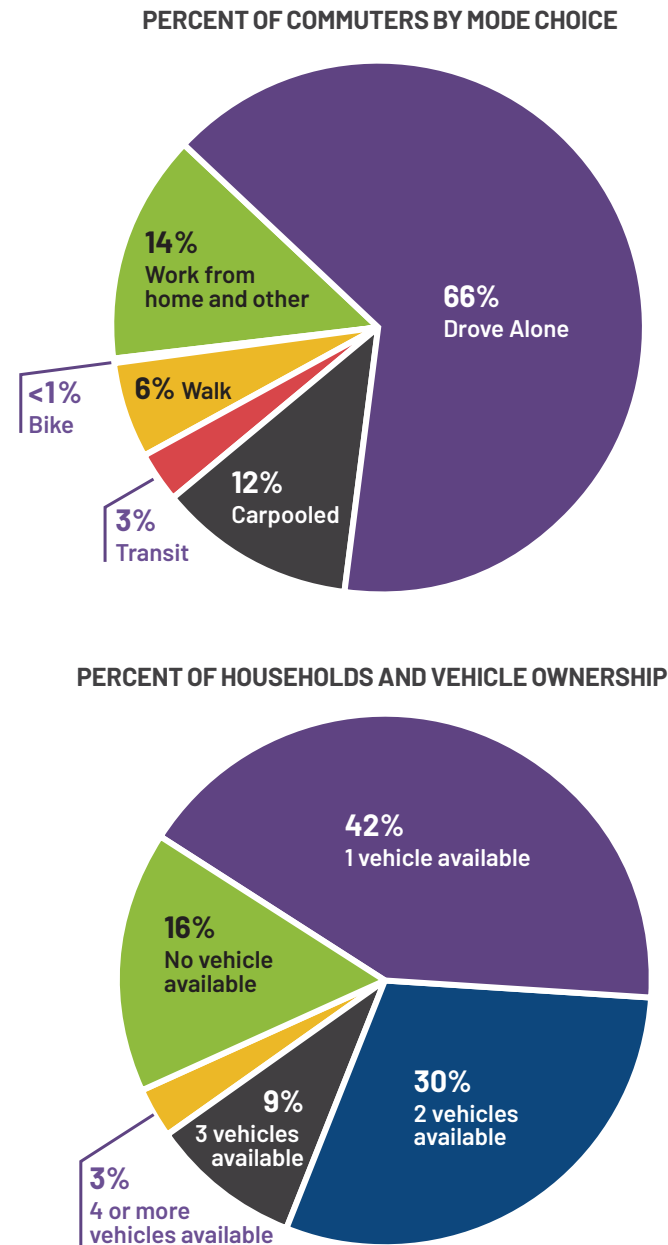
### CHALLENGES & OPPORTUNITIES

Worcester's existing development patterns and underlying zoning, transit service levels, and auto-oriented infrastructure leads to an overdependence on auto travel with limited opportunities for travel by other modes such as taking public transit, walking, biking, or riding other micro-mobility devices. As a result, 66% of Worcester residents drive alone and 12% carpool to work. Just 3% take public transit and 6% walk to work. **Despite Worcester's car-centric street network/design and commute patterns, a sizable portion of the community does not have access to a personal automobile in their household.** Twenty-nine percent of all renters and 16% of the community in total, do not own or have access to a private automobile. The disparity is more pronounced in the City center where 41% of renters and 38% of all residents do not have access to a private vehicle. Most Worcester residents have one or fewer automobiles in their household, in contrast to minimum parking requirements that require two parking spaces per dwelling unit in many areas of the City (see **Figure 3**).

### Safety for All Road Users

Between 2019–2023, 44 fatalities and 483 serious injuries occurred because of crash-related incidents in Worcester.<sup>1</sup> In the past two years alone, 24 crash-related fatalities occurred, seven of which involved a pedestrian (29% of all fatalities). **Figure 4** illustrates the areas with the highest concentration of pedestrian, bicyclist, and motorist crashes and

**Figure 3** Commuting Mode to Work and Household Access to Personal Motor Vehicles (2022 ACS 5-Year Estimates)



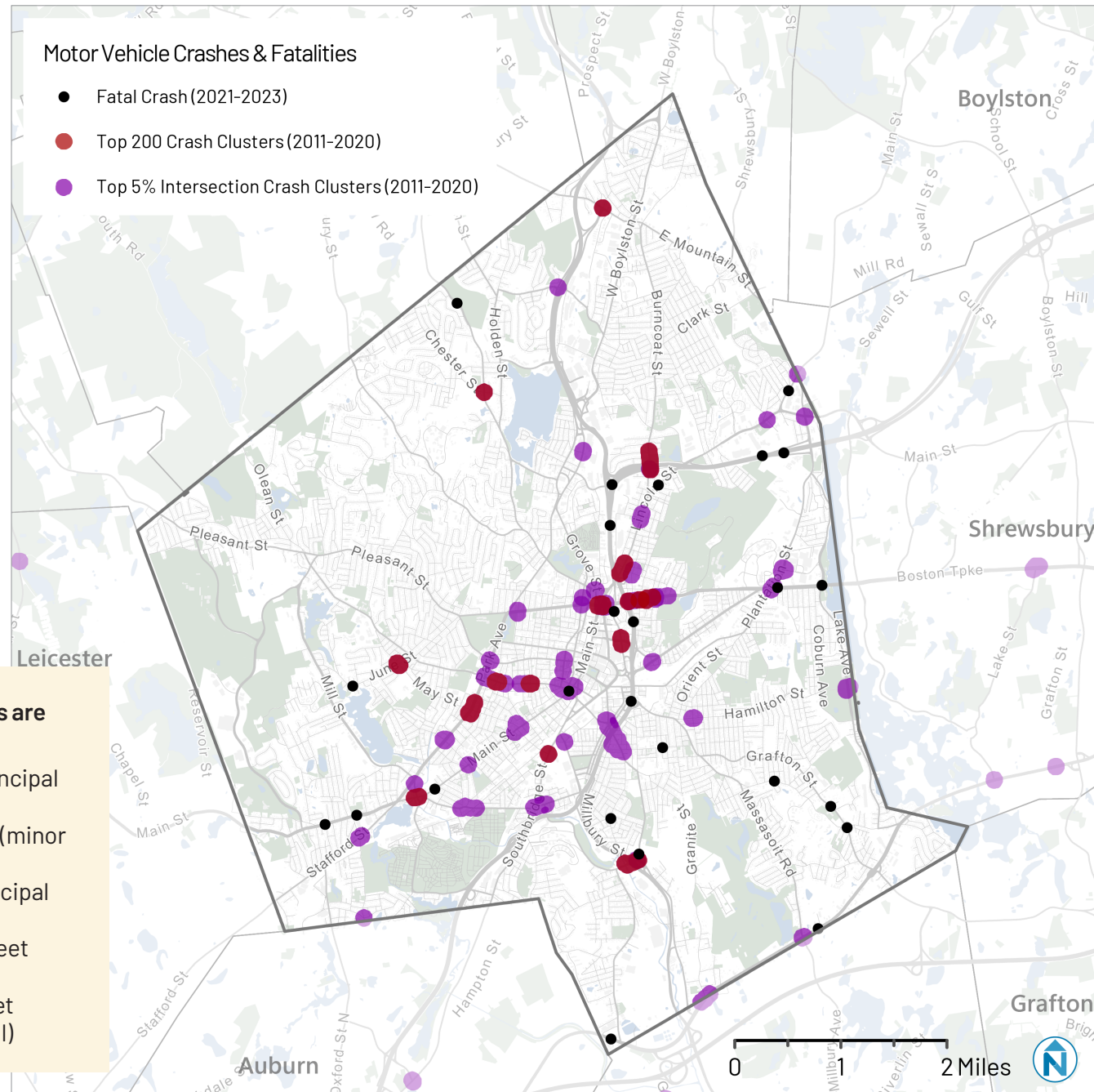
the locations of all crash-related fatalities from 2018–2020.

**High-crash clusters are located along the City's most prominent corridors which are mostly classified as either urban collectors or major arterials.** These types of roadways typically experience higher travel speed and have wider street widths to accommodate heavier vehicle volumes at peak periods; in off-peak periods, these conditions encourage higher vehicle speeds, resulting in more frequent serious crashes.

MassDOT organized its bicyclist and pedestrian crashes from 2011–2022 based on crash incidences and severity to determine the top 5% crash clusters of each regional planning agency. **Crash clusters within the top 5% of a regional planning agency are eligible for Highway Safety Improvement Program (HSIP) funding,<sup>2</sup>** and therefore safety projects identified in areas with

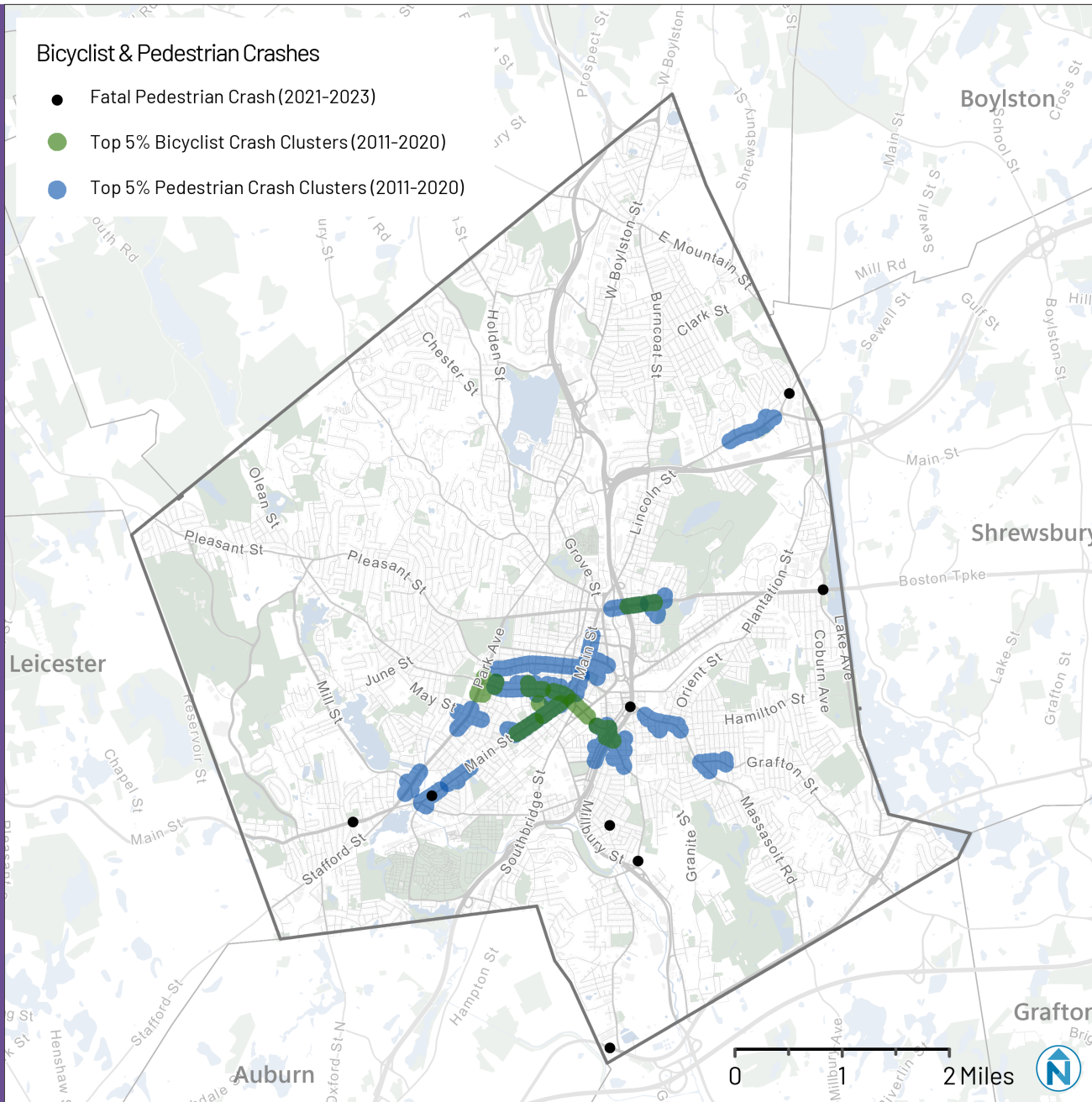
**The highest concentrations of these crash clusters are located along:**

- Lincoln Street (minor arterial)
- Belmont Street (principal arterial)
- Gold Star Boulevard (principal arterial)
- Chandler Street (principal arterial)
- Vernon Street (minor arterial)
- Park Avenue (principal arterial)
- Burncoat Street (minor arterial)
- Main Street (principal arterial)
- Southbridge Street (minor arterial)
- Cambridge Street (principal arterial)



**Figure 4** Crash Clusters and Fatal Crashes (MassDOT: Crash Data Portal)





**Figure 5** Bicyclist and Pedestrian Crash Clusters and Fatalities (MassDOT: Crash Data Portal)

high crashes may have more funding options available than other roadways.

According to this data as well as non-aggregated crash data obtained from MassDOT for years 2019–2023, crashes involving bicyclists are spread throughout the City with higher concentrations at a small number of key intersections. Similar to crashes involving bicyclists, crashes involving pedestrians were analyzed using data from both MassDOT’s crash cluster analysis and an analysis of non-aggregated crash data from MassDOT from 2019–2023. Over the past five years, pedestrian crashes are spread across the City. The top 5% bicyclist and pedestrian crash clusters from 2011–2020 and pedestrian fatalities from 2021–2023 are shown in **Figure 5**.

The varying timeframes of crash data reflect a comprehensive analysis of crash data over multiple periods. These include standardized intervals to simplify and contextualize data, such as the past two years or five years. MassDOT’s existing online analysis, such as the crash clusters, span different times to provide insights into trends over more extended periods.

The highest concentration of crashes involving bicyclists are located at the intersection of Park Avenue and May Street. Other intersections where a notable number of crashes have occurred include Main Street and Chandler Street, Shrewsbury Street and Hill Street, and Park Avenue and Maywood Street. The highest concentration of crashes involving pedestrians are located at the intersection of Belmont Street (Route 9) and Edward Street. Crashes involving pedestrians are prominent along Main Street at the intersections of Martin Luther King Boulevard, Chandler Street, Castle Street, and

Maywood Street. Several crashes took place around Lincoln Square Plaza along Lincoln Street, as well as around Kelley Square, where the roadway was recently reconstructed to form the “traffic peanut” roundabout. Early data indicates that the redesign is reducing crashes by a considerable amount.

### Environmental Justice Areas

The City of Worcester is ethnically and racially diverse. Worcester is home to an estimated 37,970 immigrants from 85 countries, who make up over one fifth or 21% of the City’s total population. This compares to 15% statewide. The City has become more diverse over time and is now a majority-minority City with a growing and

changing cross-section of racial, ethnic, and cultural identities.

Twenty-one percent of Worcester’s residents live below the poverty line, concentrated in the urban core. This is more than twice the 9.8% poverty rate of Massachusetts as a whole.

Often, low-income communities and communities of color have been historically underserved or directly or indirectly harmed by transportation policies in American cities. **A proactive approach to avoid and redress harm is an essential part of an equitable planning process for Worcester’s Mobility Action Plan.** Environmental Justice is the equal protection and meaningful involvement of all people with

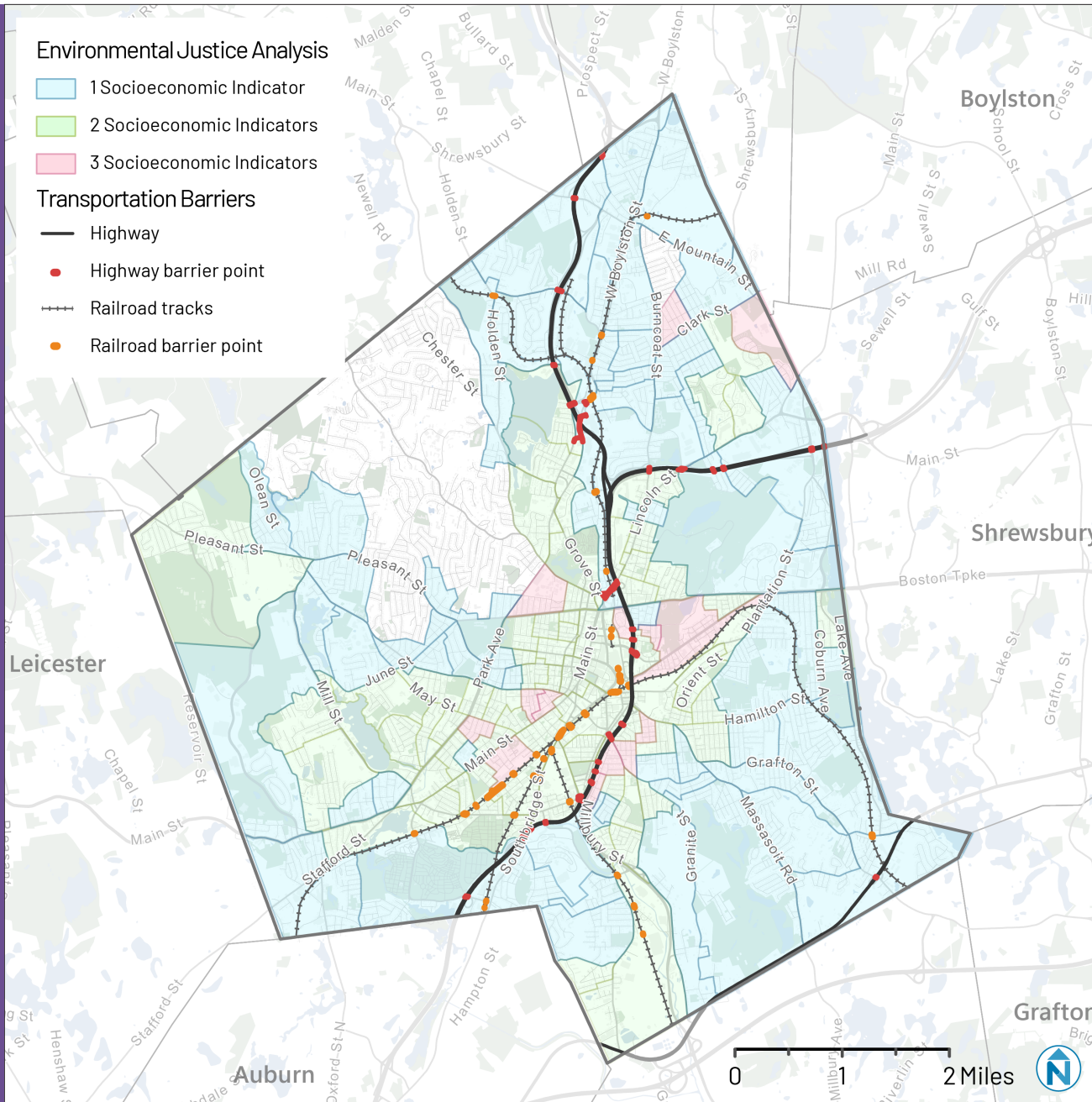
respect to the development, implementation, and enforcement of environmental laws, regulations, and policies and the equitable distribution of environmental benefits, which includes changes to the transportation system. In Massachusetts, an environmental justice population is a neighborhood where one or more of the following criteria are true:

- The annual median household income is 65% or less of the statewide annual median household income
- Minorities make up 40% or more of the population
- 25% or more of households identify as speaking English less than “very well”



**Figure 6** Wide roads, slip lanes, narrow sidewalks, and fast vehicle traffic create an uncomfortable walking and rolling environment along Lincoln Street at I-290 (Google Street View)





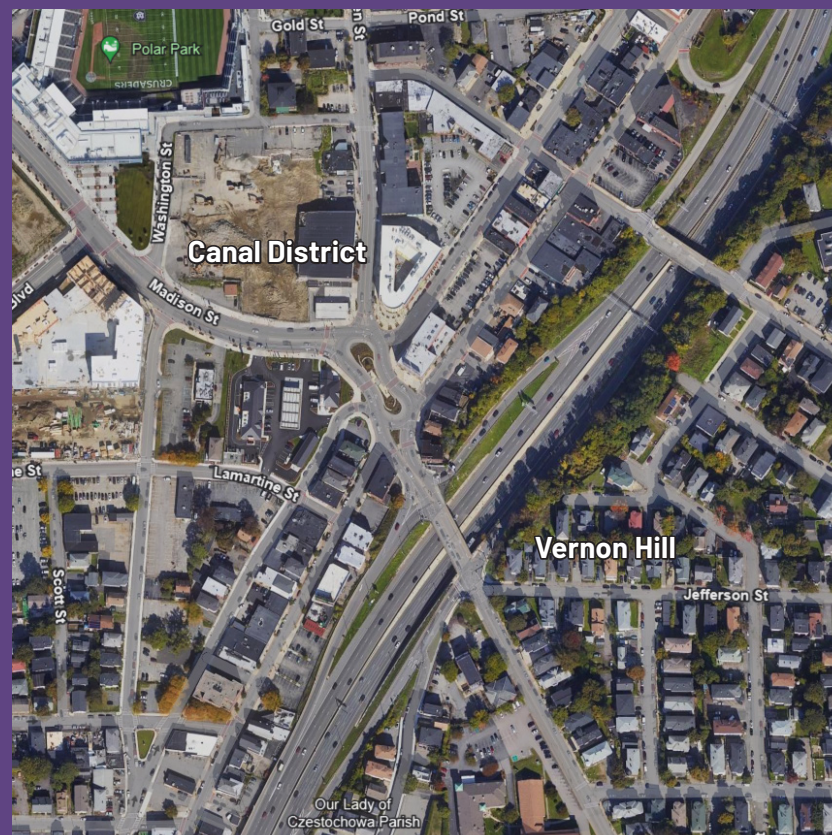
**Figure 7** Environmental Justice Analysis and Transportation Barriers

As seen in **Figure 7**, most census tracts in Worcester hit the benchmark for at least one of the environmental justice socioeconomic indicators, and many areas meet multiple criteria.

Throughout history, transportation investments have not always been distributed equally – or equitably – across a community. The outcome of years of inequitable distribution of resources and opportunity is longer travel times and often less access to high-quality transit service for people of color. Furthermore, these populations are often negatively and disproportionately impacted by air pollution from transportation. The City of Worcester has two highways as well as railroad corridors and yards dividing the City. The City identified barriers in the transportation network that currently prevent residents from fully accessing City amenities. As shown, there are few access points across these transportation corridors and those access points that do exist are unsafe or feel unsafe or inhibit reasonable non-motorized access. The barriers, also shown in **Figure 7**, include:

- **Highway barrier point:** Locations impacted by highway placement such as restricted access corridors themselves, as well as roadway intersections near highway entrance and exit ramps that pose dangerous conditions for pedestrians, bikers, and micro-mobility riders
- **Railroad barrier point:** Locations where railroad tracks, either elevated or at street level, make crossing difficult or dangerous for those walking and rolling, such as overhead railroad bridges with narrow sidewalks, poor lighting, or other unsafe conditions, or at-grade active crossings.





In the 1950s, Massachusetts built I-290 through the center of the City of Worcester, essentially dividing it in half. While originally there were four street connections between Vernon Hill (southeast) and the Canal District (northwest), there are now only two. The current connections are neither bike nor pedestrian friendly.



## RECOMMENDATIONS

### STRATEGY 1.1: Expand Safe Routes to School (SRTS) Program

**Primary Goal:** Safety; **Primary Objective:** Prioritize safety of vulnerable roadway users

**Score:** 14/18 **TOP 15** One of the top 15 strategies!

**Background:** MassDOT administers a statewide SRTS Program, funded by the Federal Highway Administration. More than 1,110 schools across the state currently participate and are supported via programmatic or funding opportunities. Twenty Worcester schools are currently involved in the program.<sup>3</sup> Expansion of SRTS efforts City-wide will encourage the “Safe Systems” approach to increase walking and biking to schools.

**Description:** DTM should work with the School Department, Public Health, Police Department, and other stakeholders across Worcester to aid in local delivery of MassDOT’s SRTS program. Initial efforts can include encouraging every school to become a SRTS School Partner (DTM could emphasize equity areas), and more in-depth involvement could include actions such as conducting walk audits to identify infrastructure improvements, helping a school pilot arrival and dismissal lanes and organizing walking and biking school buses.

As defined by the Federal Highway Administration, **The Safe System Approach** considers five elements of a safe transportation system—safe road users, safe vehicles, safe speeds, safe roads, and post-crash care—in an integrated and holistic manner to achieve zero traffic deaths and serious injuries.



**Figure 8** Belmont School Safe Routes to School Dismissal Evaluation (November 14, 2023)



### STRATEGY 1.2: Review and Update Ordinance on Biking on Sidewalks

**Primary Goal:** Safety; **Primary Objective:** Prioritize safety of vulnerable roadway users

**Score:** 11/18

**Background:** Currently, Worcester City Ordinance states that biking on sidewalks is not permitted, despite State Law that permits it outside of business districts. However, bikers and micro-mobility riders are being put at risk if they are required to get off a sidewalk and onto a street that cannot safely accommodate them.

**Description:** Revisit ordinances and policies around the legality of biking on sidewalks in Worcester for areas without dedicated bike and micro-mobility infrastructure.

### STRATEGY 1.3: Ensure Age- and Dementia-Friendly Transportation Design

**Primary Goal:** Safety; **Primary Objective:** Prioritize safety of vulnerable roadway users

**Score:** 14/18 **TOP 15** One of the top 15 strategies!

**Background:** Communities that implement age and dementia -friendly activities commit to the needs of all residents as they age. With a transportation lens, these needs can be similar and help improve the experience for everyone because practices include affordable and accessible transportation, Complete Streets, and overall roadway safety.

**Description:** Incorporate age- and dementia-friendly design guidance in City code and design manuals. DTM should review their City code and street manual to ensure that sidewalks are required to provide adequate clearance width that are free of obstacles and be ADA-accessible, traffic signals include Accessible Pedestrian Signal (APS) push buttons and allow for enough time to safely cross a street, curb ramps include tactile elements for visually impaired travelers, and bus stops are safe and comfortable for those waiting. MassDOT, American Association of Retired Persons (AARP), World Health Organization (WHO), and other national organizations offer resources and guidance on policy, project, and engagement activities.<sup>4</sup>

### STRATEGY 1.4: Encourage Community-Based Education Programs

**Primary Goal:** Connectivity; **Primary Objective:** Expand transportation options

**Score:** 13/18 **TOP 15** One of the top 15 strategies!

**Background:** Travel training is a practice where educators or trained volunteers can teach interested persons on how to buy a transit pass and assist on general practices around riding the bus or commuter rail. Travel training typically involves public transportation, but other newer aspects can include active transportation modes and ride share services. Neighborhood bike rides or walk audits are great opportunities to encourage and promote walking and biking in a community.

**Description:** Support local organizations that can help residents learn about and try other transportation modes, including travel training or other community programs. DTM can connect travel trainers with local organizations, post information online, or host regular events such as walk or bike audits with the community.

### STRATEGY 1.5: Identify and Address Transportation Barriers by Past Transportation Decisions

**Primary Goal:** Equity; **Primary Objective:** Foster engagement and participation with communities

**Score:** 15/18 **TOP 15** One of the top 15 strategies!

**Background:** Transportation barriers currently affect Worcester residents in the way they can travel throughout the City with some residents experiencing more negative impacts based on where they live.

**Description:** DTM should take efforts to acknowledge inequities in the transportation system caused by past decisions and investments or disinvestments and implement projects and programs to reconnect these communities. Projects worth prioritizing include: highway ramp and intersection safety projects, pedestrian scale lighting projects (specifically near bridges or overpasses), corridor safety projects, pedestrian bridges, parks, and stormwater management projects, and other community-identified projects. **Figure 7** shows City-identified barriers from highways, railroad bridges, and railroad tracks.

### STRATEGY 1.6: Develop a Transportation Equity Framework

**Primary Goal:** Equity; **Primary Objective:** Foster engagement and participation with communities

**Score:** 10/18

**Background:** Stepping beyond acknowledgment of inequitable transportation systems and selection of projects for prioritization, a transportation equity framework can provide values and strategies necessary to collaboratively develop an equitable transportation system. The City of Seattle's Transportation Equity Framework,<sup>5</sup> Minneapolis' Racial Equity Framework for Transportation,<sup>6</sup> and the Vermont Agency of Transportation's Transportation Equity Framework<sup>7</sup> are precedent reports; each serve as guides for these agencies and municipalities in decision-making and action around transportation planning.

**Description:** The City should lead the process to develop a roadmap for decision-makers, employees, stakeholders, partners, and greater community to discuss and create an equitable transportation system. Components of a transportation equity framework plan can include: information on historic and current inequities, transportation equity priority areas, equitable engagement strategies, strategies and actions (i.e., steps to an equitable transportation system), and evaluation metrics.

### STRATEGY 1.7: Develop Public Engagement Toolkit

**Primary Goal:** Equity; **Primary Objective:** Foster engagement and participation with communities

**Score:** 8/18

**Background:** Public engagement toolkits provide resources and information to help plan and execute public involvement activities in a community. Although public engagement activities are rarely a 'one size fits all' approach, a City toolkit can include necessary considerations and suggested approaches when working on a range of projects and programs.

**Description:** The City should create a public engagement toolkit to ensure a coordinated, transparent, inclusive, and thoughtful process. The toolkit should be referenced and utilized for all projects.

### **STRATEGY 1.8: Pursue Employer Commute Programs or Transportation Demand Management (TDM) Developer Requirements**

**Primary Goal:** Sustainability; **Primary Objective:** Increase non-auto mode share

**Score:** 9/18

**Background:** In many cities across the country, Transportation Demand Management (TDM) assessments are required for medium to higher density developments in specific zoning districts. A TDM assessment identifies and then implements programs and measures to reduce vehicle miles traveled and the demand for parking. TDM programs can include subsidized transit (i.e., pre-tax benefits or discounted passes); direct commuter subsidies (such as reimbursements for transit passes or vanpool costs); parking cash-outs; daily priced parking (instead of monthly parking); employee vanpool programs; guaranteed ride home programs; first/last-mile shuttles to transit; or secure bike storage, showers, and lockers. As Worcester grows and densifies its downtown core, central neighborhoods and key destinations, traffic congestion will increase and put a greater demand on streets for its finite space. Furthermore, if most travelers continue to drive, the demand for both private parking and on-street parking will increase.

**Description:** The City should consider implementing regulations or policies within their development code to require TDM programs for larger employers or large residential/commercial developments. This could also be wrapped into a broader citywide TDM plan and program.



# Walking & Accessibility

## CHALLENGES & OPPORTUNITIES

Worcester has sidewalks lining most blocks in the central city; however many sidewalks have connection gaps or are in poor condition. In an inventory of over 500 miles of sidewalk in Worcester, 62% of the sidewalk mileage was categorized as in “good condition”, with 30% considered “fair” and 8% of the sidewalk miles classified as “poor”. This analysis is also supported by public engagement feedback and previous planning efforts. **Sidewalks in the City are often narrow and located adjacent to the curb with no landscape strip or buffered separation from vehicle travel zone, which can make it less comfortable to walk.** Curb ramps and ADA accessibility improvements, such as audible walk signals are needed in many locations.

During engagement activities, the public highlighted additional walking challenges: highways and access ramps create perceived and real barriers between parts of the City, major corridors provide limited opportunities for safe crossings (especially outside of the core), and the lack of street trees creates undesirable or uncomfortable pedestrian experiences.

The City of Worcester has acknowledged these challenges through the adoption of a Complete Streets Policy in 2017 and a Prioritization Plan in 2023. The prioritization plan identifies and ranks potential transportation improvements to help eliminate sidewalk connectivity gaps and

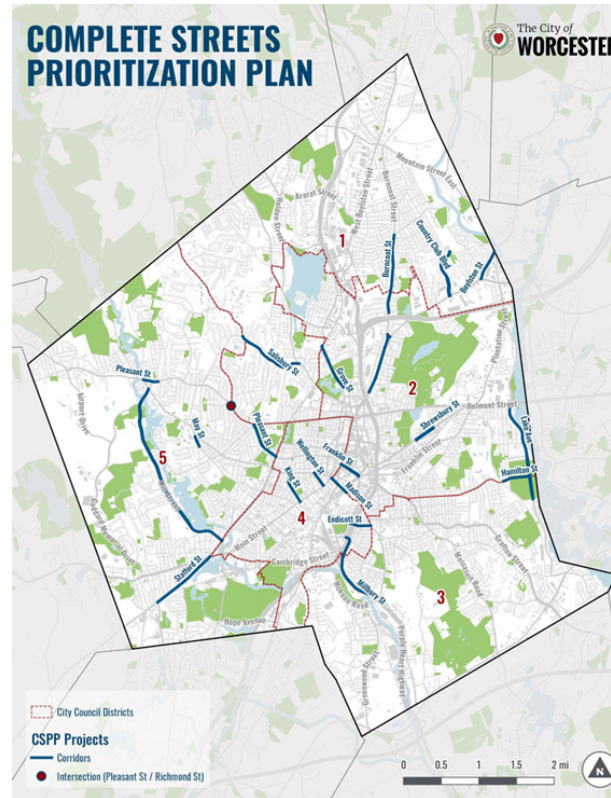


Figure 9 Complete Streets Prioritization Plan

further a network of Complete Streets which would be funded through grants (see Figure 9 for a map of the Complete Streets Prioritization Plan).

**The recommendations following support, enhance, and find new opportunities or additional avenues for accelerating Complete Streets and accessibility.**

## RECOMMENDATIONS

### STRATEGY 2.1: Conduct Corridor and Intersection Studies to Advance Complete Streets

**Primary Goal:** Safety; **Primary Objective:** Build safe streets for all users

**Score:** 12/18 **TOP 15** One of the top 15 strategies!

**Background:** City of Worcester’s Complete Streets Policy was unanimously approved by the City Council in December 2017, but the City needs additional tools and procedures to help move the effort forward into implementation. A MassDOT crash analysis identifies a handful of Worcester’s key roadway corridors as crash clusters ranking within the top 5% of the Regional Planning Agency. The corridors identified are essential transportation connectors for all modes of travel. Implementation of traffic safety countermeasures (such as road diets, narrowed vehicle lane widths, improved crossings, pedestrian medians, or reduced speed limits) can help reduce crashes on the corridor and help move the City towards a more complete and connected network for pedestrians and other vulnerable roadway users.

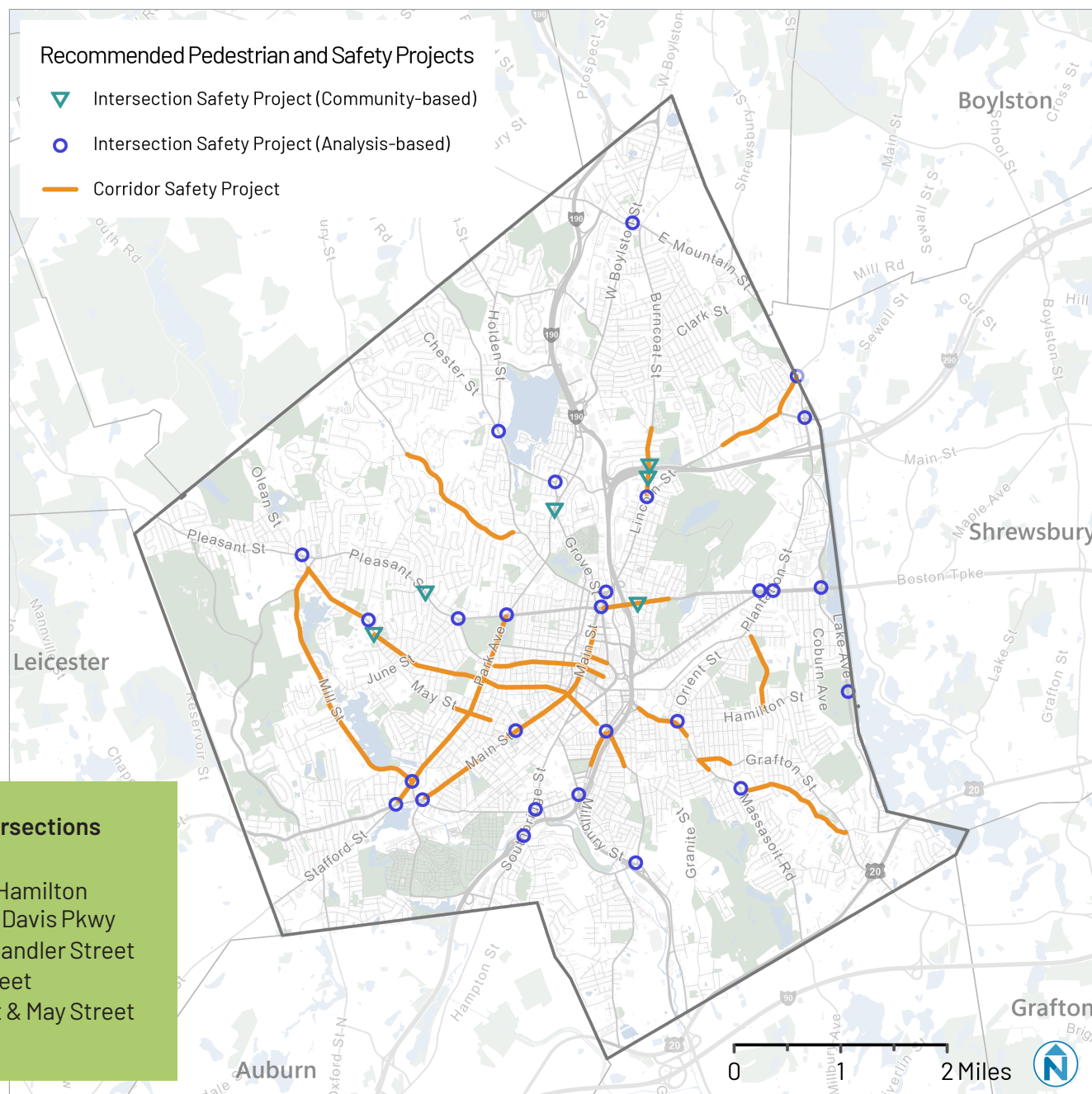
**Description:** To advance the City’s Complete Streets policy, this strategy recommends that all upcoming pavement projects undergo corridor or intersection studies to assess vehicle lane widths and capacity, sidewalk and bike facility presence and condition.



**The corridors and intersections recommended for priority safety or pedestrian projects are corridors with a high rate of crashes and intersections that pose barriers or challenges to crossing and connectivity. The intersections highlighted are a combination of intersections identified through consultant analysis and community engagement** (both as part of the Now|Next Comprehensive Plan as well as through this Mobility Action Plan process). Additional locations may be identified through the City's ongoing Vision Zero Safe Streets for All program. By integrating the assessment and upgrade of roads and intersections in more regularly scheduled City processes like repaving of roads, the City can achieve safer and Complete Streets quicker and more efficiently than by a method that requires additional funds through grants or special programs.

**During engagement, the following corridors and intersections were identified as places in need of safety projects:**

- Main Street
- Highland Street
- Pleasant Street
- Belmont Street (Route 9)
- Southwest Cutoff (Route 20) & Granite Street
- Lake Avenue & Hamilton Street/Bigelow Davis Pkwy
- May Street & Chandler Street
- Shrewsbury Street
- Chandler Street & May Street



**Figure 10** Recommended Pedestrian and Safety Projects

## STRATEGY 2.2: Execute Pilot or Pop-up Safety Projects

**Primary Goal:** Safety; **Primary Objective:** Build safe streets for all users

**Score:** 11/18

**Background:** Pilot or pop-up safety projects (also sometimes referred to as tactical urbanism projects) offer quick and inexpensive opportunities to demonstrate to decision-makers, stakeholders, and community members the outcome and effects of a street redesign. Pilot safety projects can be implemented as part of an event or be in place for several months. Projects like this are occurring in Worcester today, but can be more broadly supported and funded in the future (see **Figure 11**).

**Description:** The City should develop a protocol within existing departmental budgets to stand-up tactical urbanism projects to pilot wide sidewalks and planting zones, bike lanes, road diets, or curb extensions. These efforts will help to display the potential for greater pedestrian and bike safety and connectivity.

## STRATEGY 2.3: Implement Improved Street Lighting, Emphasizing Pedestrian-Oriented Lighting

**Primary Goal:** Safety; **Primary Objective:** Prioritize vulnerable road users

**Score:** 10/18



**Public Favorite!** This strategy scored higher during public engagement activities.

**Background:** Three out of four pedestrian deaths occur at night.<sup>8</sup> Although other unsafe behaviors help contribute to this, pedestrian-scale street lighting could help reduce the number of unnecessary crashes in Worcester and improve the overall personal safety and level of comfort for pedestrians, bikers, micro-mobility users, and transit riders.

**Description:** Support improved nighttime visibility for vulnerable roadway users by incorporating pedestrian-scale lighting in safe streets and Complete Streets projects.

## STRATEGY 2.4: Develop a Pedestrian Infrastructure Toolkit

**Primary Goal:** Connectivity; **Primary Objective:** Facilitate active transportation

**Score:** 8/18

**Background:** Pedestrian infrastructure toolkits provide a menu of tools that can help improve pedestrian safety and comfort. Toolkits can be used both internally within City staff departments and externally as a public-facing document to help educate the public on evaluation of existing conditions and selection of feasible solutions.

**Description:** Develop a toolkit of context-specific solutions for safer pedestrian network connections and crossings that are pre-vetted by Worcester DTM staff. Known pedestrian safety measures to include are: sidewalks, curb ramps, high-visibility crosswalk markings, pedestrian refuge islands, raised crosswalks, curb extensions, hardened center lines, traffic signals or rapid flashing beacons with pedestrian crossings, speed controls (such as speed bumps, cushions or tables). The toolkit would also include policy and guidance around turning movement restrictions and procedures for signal operations such as when to implement no right turn on red regulations or when to recall pedestrian phases in high pedestrian trafficked areas. Furthermore, the toolkit should provide guidance on appropriate materials selection for the noted improvements, to include long-lasting, high durability materials such as concrete sidewalks, granite curbing, and thermoplastic road marking paint. This document could be paired with the Strategy 6.1: Develop Traffic Calming Toolkit.



**Figure 11** Crosswalk daylighting demonstration project in Worcester at Harlow and McKinley Streets; Central Massachusetts Regional Planning Commission



## STRATEGY 2.5: Create a Neighborways Program

**Primary Goal:** Connectivity; **Primary Objective:** Facilitate active transportation

**Score:** 12/18 **TOP 15** One of the top 15 strategies!

**Background:** While not every street carries enough traffic to necessitate all elements of a Complete Street, creating a cohesive travel network throughout Worcester is essential in encouraging residents to take trips by means other than driving. With the current gaps in the sidewalk network, not all Worcester residents have a safe and accessible route from their homes to the larger active transportation network.

**Description:** Create a neighborhood scale greenway program on local residential streets that enhances pedestrian—and bike use—through traffic calming and other low-cost street enhancements as well as implement green infrastructure such as rain gardens. Low vehicle volume streets may be able to accommodate bike and micro-mobility travel without separated bike infrastructure, and neighborways can help to expand the bike and micro-mobility network on local residential streets. (See next section for detailed information about Strategy 3.2 Develop Bike and Micro-mobility Network.)

**During public engagement activities, the following locations were mentioned as priorities for improvements to enhance pedestrian and bike use (i.e. neighborways improvements):**

- Commonwealth Avenue
- Coburn Avenue
- Crown Street
- Irving Street
- Jennings Street
- June Street
- Main Street
- Oxford Street
- Pleasant Street
- Salisbury Street
- Sunderland Road
- Webster Square
- West Street

## STRATEGY 2.6: Complete ADA Transition Plan for the Right-of-Way

**Primary Goal:** Equity; **Primary Objective:** Improve physical accessibility

**Score:** 12/18 **TOP 15** One of the top 15 strategies!

**Background:** Public agencies are required by federal law to complete an ADA Transition Plan that identifies physical barriers to accessibility for people with disabilities and provides a plan for removal of such barriers. While the City of Worcester has completed a plan for buildings and grounds, no such plan has been prepared for the public right-of-way. This self-evaluation process is an opportunity for the City of Worcester to explicitly outline the steps for improved accessibility.

**Description:** DTM should complete an ADA Transition Plan for the public right-of-way that identifies the condition and compliance of existing pedestrian facilities and establishes a priority plan for bringing them into compliance with ADA & Public Right-of-Way Guidelines (PROWAG) standards to promote walkability for all.

## STRATEGY 2.7: Create a Sidewalk and Curb Ramp Implementation Plan

**Primary Goal:** Equity; **Primary Objective:** Improve physical accessibility

**Score:** 14/18 **TOP 15** One of the top 15 strategies!



**Public Favorite!** This strategy scored higher during public engagement activities.

**Background:** The City of Worcester's recent sidewalk condition inventory is a helpful tool for identifying citywide areas of need for new and improved sidewalks and curb ramps.

**Description:** Following the completion of the sidewalk condition inventory, DTM should pursue funding for plans and construction of compliant sidewalks and curb ramps in identified priority areas. Priority areas could be selected by focusing improvements in environmental justice areas, along designated SRTS walking routes, or along roadways near transportation barriers (shown in **Figure 7**).



**Figure 12** Wheelchair user at a crosswalk on Main Street

## STRATEGY 2.8: Eliminate Financial Disincentives to Sidewalk Construction

**Primary Goal:** Equity; **Primary Objective:** Improve physical accessibility

**Score:** 13/18 **TOP 15** One of the top 15 strategies!

**Background:** The City of Worcester's ordinances require fronting property owners to pay for the construction of new sidewalks on existing streets that do not have them, unless waived by the City Council on a case-by-case basis. This is a barrier to the development of a connected and complete pedestrian network.

**Description:** Installation of sidewalks should be a standard component of improving streets in Worcester. Existing ordinances should be modified to remove the assessment of costs to neighboring property owners except in the case of initial street construction or conversion, such as construction of subdivision roads or private street conversions.



**Figure 13** Millbrook Street is one of two ways students can walk to high school from the west side of I-190, but there are sidewalk gaps. (Source: Google streetview)

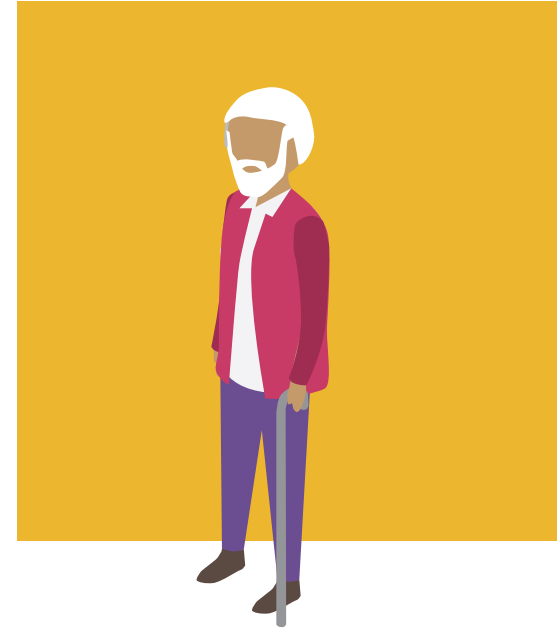


**Figure 14** Lack of sidewalks is a common concern among residents in the Salisbury Street neighborhood. (Source: Google Streetview)





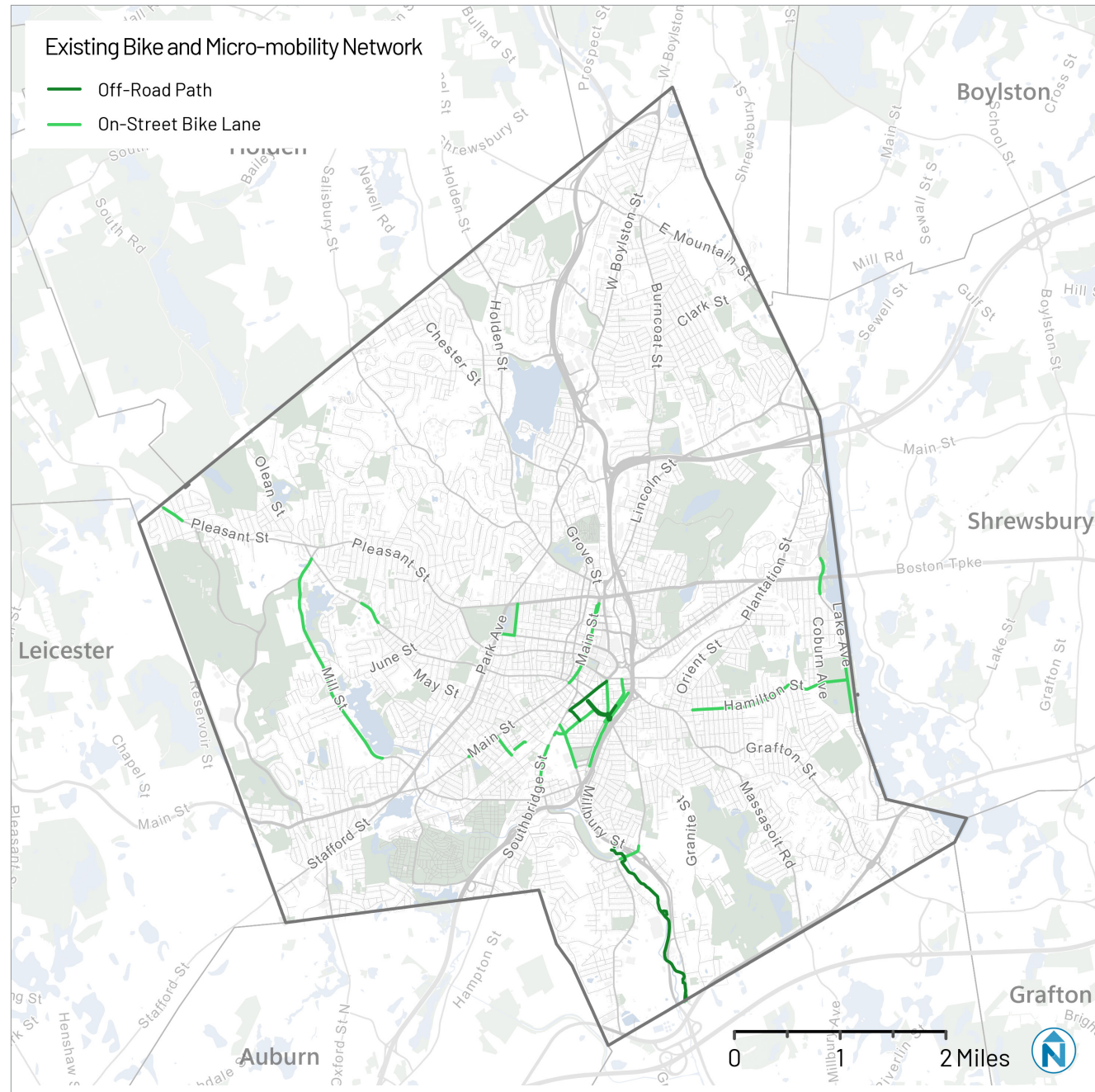
*"Connectivity  
and encouraging  
walking between  
neighborhoods  
is a can't-miss  
opportunity!"*



# Biking & Micro-mobility

## CHALLENGES & OPPORTUNITIES

Worcester's current bike and micro-mobility infrastructure consists of 7.2 miles of on-street bike lanes and 3.4 miles of off-street paths. Existing facilities (as shown in **Figure 15**) provide connections to key destinations and serve as important recreational resources. However, **the fragmented nature of the existing bike network limits overall bike and micro-mobility accessibility, which is largely due to the lack of separated and connected bike facilities.** Bike and micro-mobility accessibility will continue to be limited until the City has established a connected, safe, and comfortable network. Insights gathered from public engagement align with these findings, revealing concerns about safety issues and confusion with the current bike network. Separated bike infrastructure examples, the current best practice in accommodating bike and micro-mobility users within the right-of-way, are shown in **Figure 17**.



**Figure 15** Existing Bike and Micro-mobility Network





**Figure 16** Non-Standard Bike Parking in Worcester Demonstrates Need for Guidelines

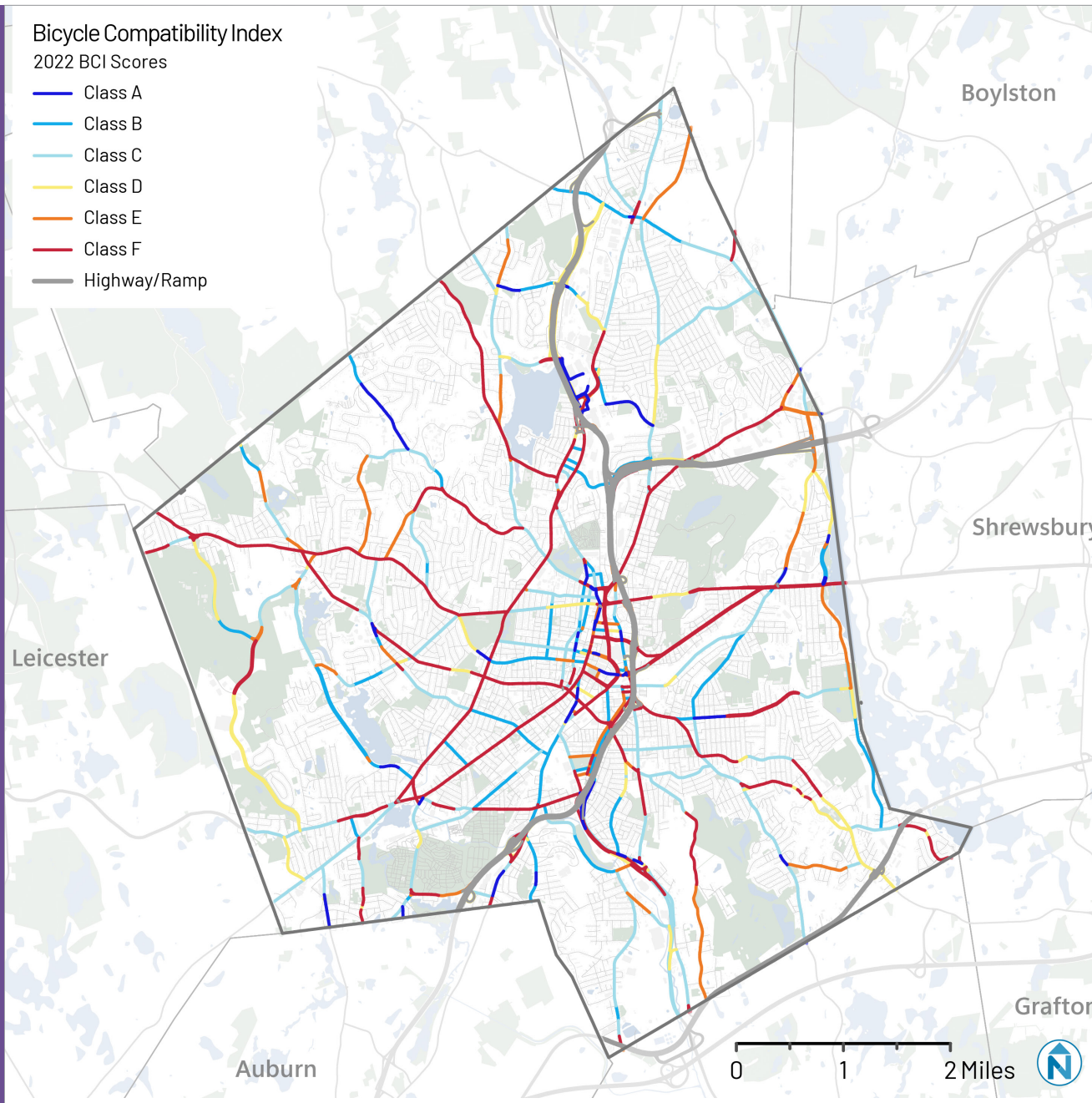
Additionally, the City lacks good bike parking options, with the limited existing bike parking primarily concentrated downtown. Options are even more limited in other mixed-use and retail areas outside of the downtown, further deterring people from biking – either as a transportation option on its own or for first/last mile travel purposes. The parking options that do exist (see **Figure 16**) often do not follow best practices.



**Figure 17** Bike Treatment Examples (Source: NACTO )







**Figure 18** Bicycle Compatibility Index Scores

A crucial step in identifying future segments of a city's bike network is an analysis of current street conditions. CMRPC's Bicycle Compatibility Index (BCI) provides a scoring of Worcester's roadways according to basic criteria around bicycle comfort, perceived safety, and rideability. The BCI analysis performed by the Central Massachusetts Regional Planning Commission (CMRPC) and as seen in **Figure 18** can help the City and planning team identify low-stress roadways that could be added to the overall bike network as signed or marked bike boulevards. Some roadways with good existing BCI (Class A-Class B) could be added to the network as a slow street with little to no interventions, while other roadways with good connectivity but higher BCI (Class C-Class F) will need some improvements (such as a striped buffered bike lane or separated bike facility with associated signage or markings) in order for them to be considered a safe and adequate part of the City's bike network.

With most existing infrastructure concentrated closer to the urban core, planned projects could extend into outer neighborhoods to help expand accessibility to safe bike and micro-mobility infrastructure. Prioritizing bike and micro-mobility network connections to major activity centers can further support existing travel flows and encourage the adoption of biking as a sustainable transportation mode within the City. Additionally, **the City's commitment to their Complete Streets Policy prioritizes projects integrating bike facilities into the overall transportation network**, aiming to create safer and more accessible streets for all users.

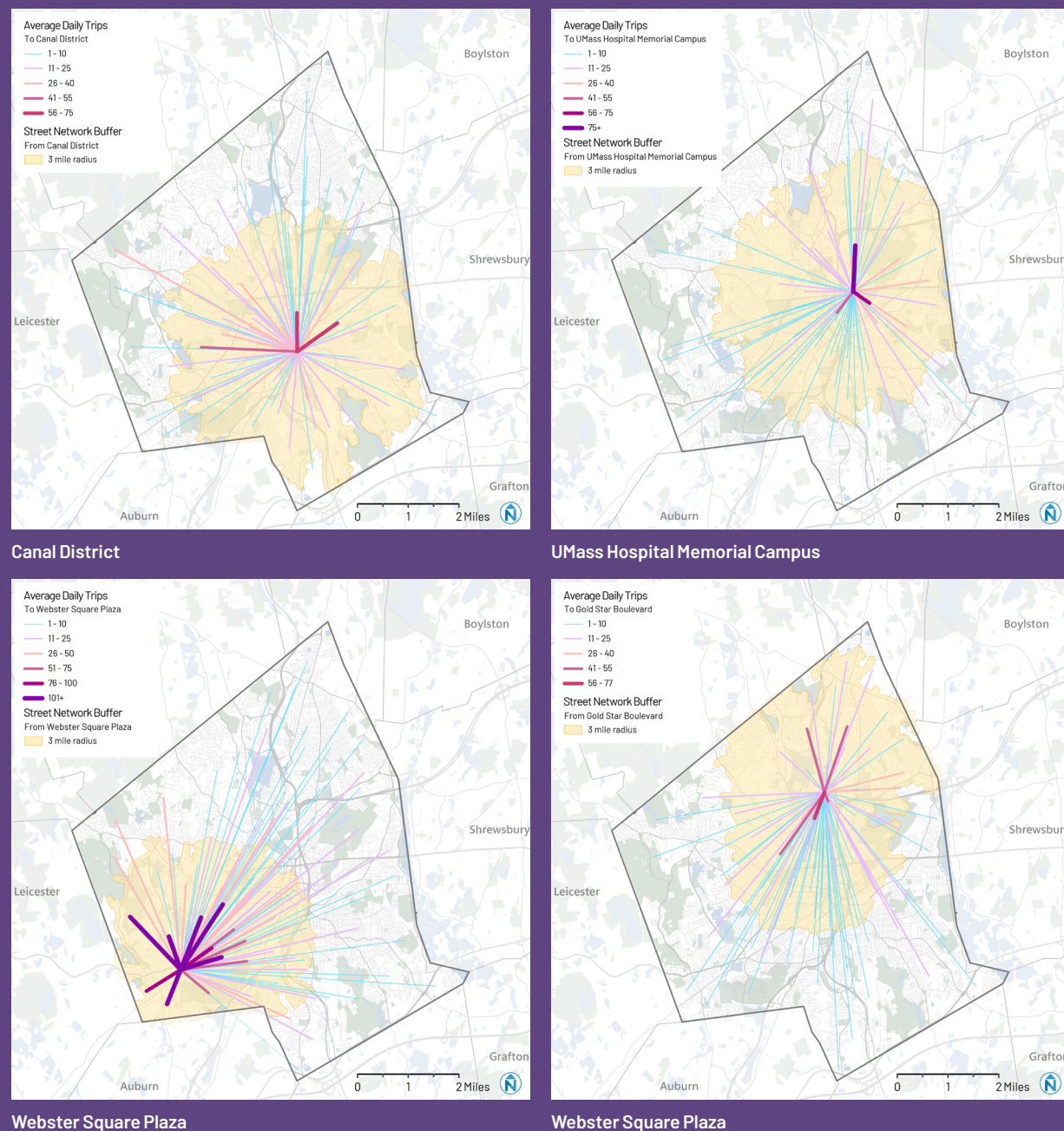


**Many major activity centers draw high traffic volumes from within a three-mile road buffer—a distance that could be travelled by bike or micro-mobility device instead.** Using StreetLight Insight<sup>®</sup> dashboard and analytics, which modeled LBS data from October 2022, **Figure 19** shows destinations that have a high number of trips occurring within a three-mile road buffer.

Future bike and micro-mobility network connections in these areas could encourage mode shift from private vehicle to bike or micro-mobility devices in these densely traveled areas. For more information about the analyses using StreetLight Insight<sup>®</sup>, see the “Analysis Summary” on page 10.

**Figure 19** Trip Volumes and Bike Shed Analysis at Key Activity Centers (StreetLight<sup>®</sup> Insight analysis)

The Canal District, UMass Hospital Memorial Campus, Webster Square Plaza, and Gold Star Boulevard have a high number of trips occurring within the immediate or nearby vicinity.



## STRATEGIES

### STRATEGY 3.1: Develop Bike and Micro-mobility Facility Standards that comply with contemporary design standards

**Primary Goal:** Safety; **Primary Objective:** Build safe streets for all users

**Score:** 12/18 **TOP 15** One of the top 15 strategies!

**Background:** The need for bike and micro-mobility facility standards arises from the City's fragmented bike lane network and the City's commitment to building safer streets. These guidelines will help address infrastructure gaps and incorporate contemporary design standards appropriate for the street characteristics to ensure safety and accessibility for all bike and micro-mobility facilities moving forward.

**Description:** Develop a plan that includes context-specific guidelines for bike infrastructure in Worcester, such as guidance around when to implement protected intersections for bike infrastructure, as well as considerations for implementing bike signals at intersections where appropriate (see bike signal example in **Figure 20**). The document should also include an analysis and actionable recommendations for needed policy changes.



**Figure 20** Example of Bike Signal in Cambridge, MA

### STRATEGY 3.2: Develop Bike and Micro-mobility Network

**Primary Goal:** Connectivity; **Primary Objective:** Facilitate active transportation

**Score:** 16/18 **TOP 15** One of the top 15 strategies!

**Background:** Enhancing connectivity and promoting active transportation are key components of Worcester's transportation initiatives. However, the scale and condition of the current bike and micro-mobility network is insufficient to meet the growing demand.

**Description:** Develop concept designs and secure funding to install more bike and micro-mobility infrastructure. Planned bike facilities, which should include separated off-street paths or on-street facilities achieved through methods such as road diets or narrowing lane widths, offer significant potential for improving bike and micro-mobility use as a viable mode of transportation throughout the City. **Figure 22** provides a vision for the long-term bike and micro-mobility network with recommended routes for improved connections. The upcoming Vision Zero Plan may identify additional locations for future bike and micro-mobility projects. Taken all together, the individual recommendations add up to a robust network that would provide low-stress access across the

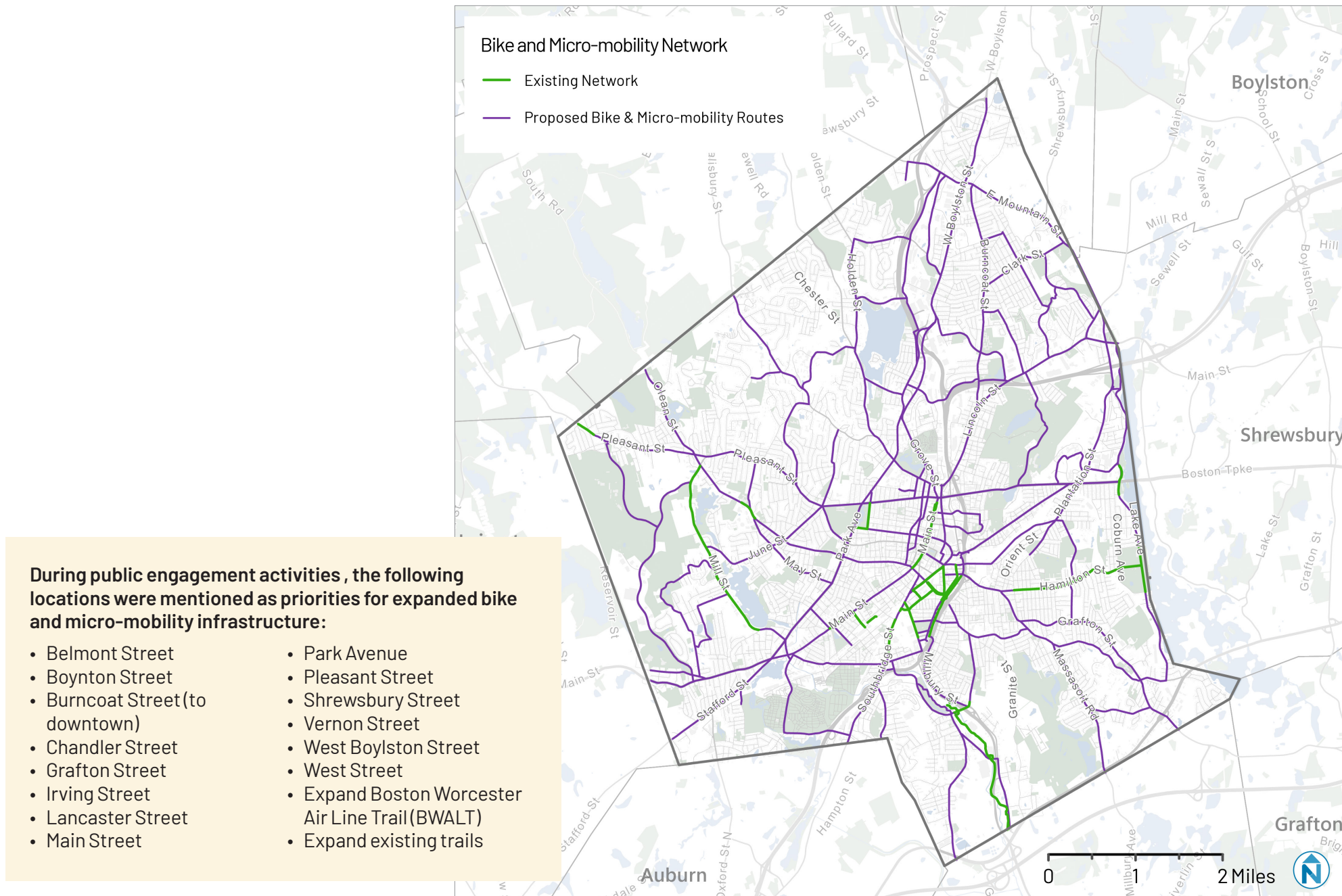
City of Worcester. It is not reasonable to assume that this entire network be implemented all at once – although the benefits of doing so would be enormous. Most important is to remember that bike mode share in Worcester cannot be expected to increase dramatically until the network is complete enough to be truly useful.

The bike and micro-mobility network can be expanded or extended through the implementation of Strategy 2.5: Create a Neighborways Program. On lower volume, lower speed streets, bike infrastructure can be implemented as bike boulevards—or neighborways—through the use of signage, roadway striping, and other traffic calming techniques such as traffic diverters and curb extensions as seen in Denver, CO in **Figure 21**.

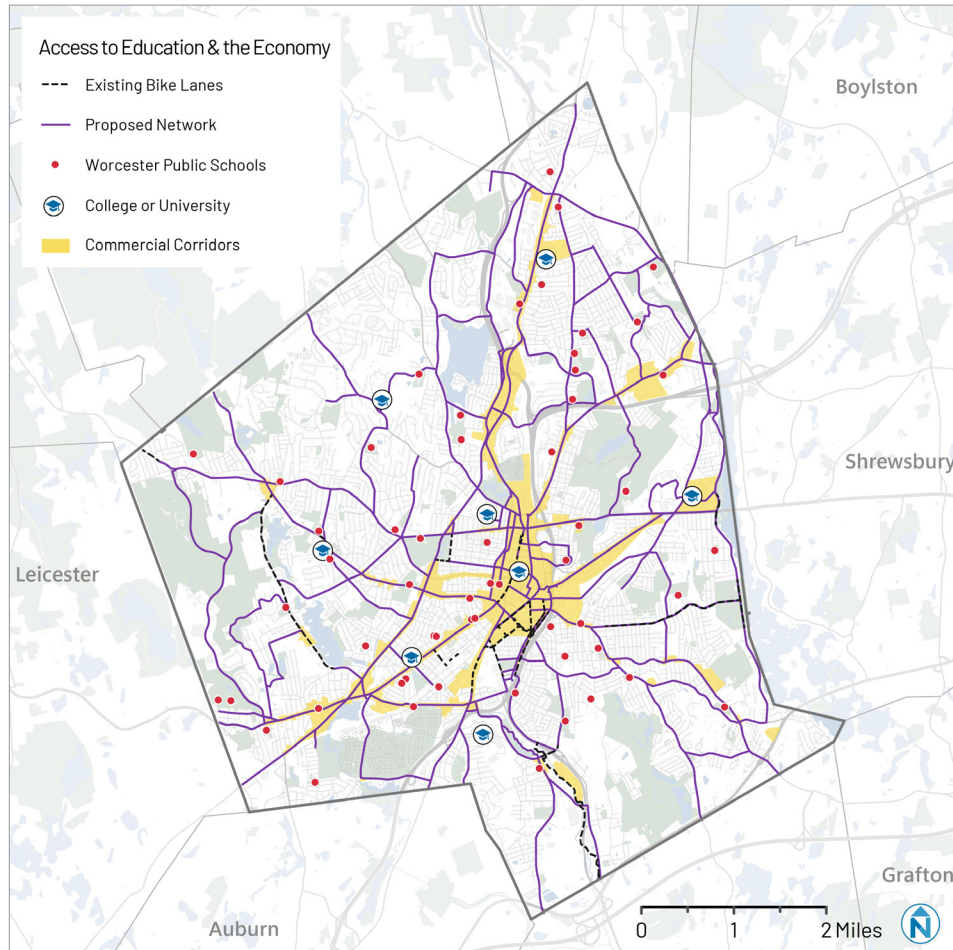


**Figure 21** Bike Boulevard Infrastructure in Denver, CO

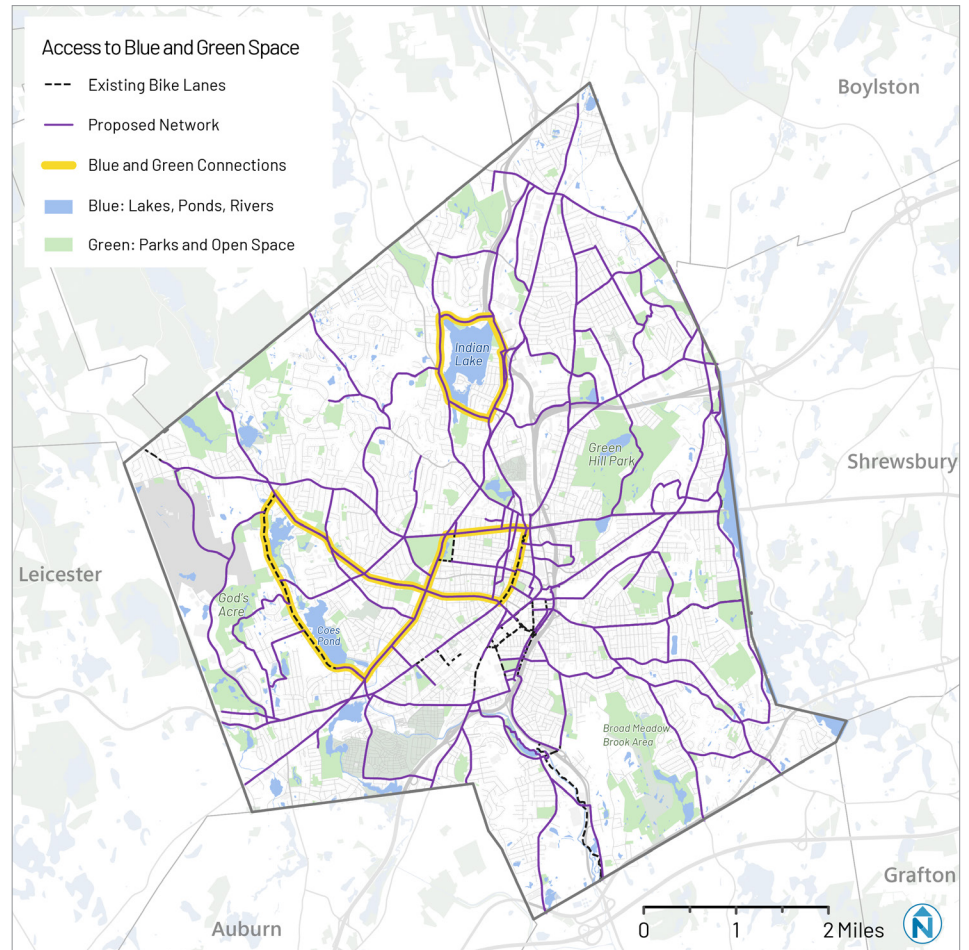




## The Bike and Micro-mobility Network Can Increase Access to Service, Education, and Recreation Destinations



The bike and micro-mobility network is envisioned to create a connected system of safe bikeways to give people access to everyday destinations within the City without requiring the use of a car. The network creates connections between neighborhoods and popular destinations such as lakes and parks, schools and universities, and commercial districts where people shop, dine, and work. The focus of the network is on major corridors; many everyday destinations people need to safely access are located along these roadways.



The bike and micro-mobility network also serves the goals set in the Green Worcester Plan related to sustainability and resilience from climate change. That plan calls for the creation of a bike network to better connect residents to Worcester's parks, open spaces, lakes, and ponds. Visualizing the bike and micro-mobility network as a series of interconnected loops can help residents plan recreational trips from their homes to nearby green and blue spaces. This map shows a few examples of how this idea can create better connectivity to these important spaces with a focus on access by environmental justice communities.





**Figure 23** Park Avenue, which runs adjacent to Elm Park, is a key bike and micro-mobility network connection, as well as one which provides access to blue and green spaces in Worcester. (Google Street View)

### **STRATEGY 3.3: Inventory Bike Parking, Develop Guidelines, and Deploy Additional Parking**

**Primary Goal:** Sustainability; **Primary Objective:** Increase non-auto mode share

**Score:** 6/18

**Background:** Increasing the availability of bike parking is essential to encourage more residents to choose active transportation as a sustainable mode of transportation, but the City currently lacks standardized guidelines for bike parking infrastructure. Short-term bike parking is ideal for quick trips, errands, or shopping, while long-term options provide secure solutions suitable for commuters leaving their bikes at train stations.

**Description:** DTM should conduct an inventory of existing bike parking facilities and develop guidelines and define bike parking infrastructure criteria or standards for short- and long-term bike parking. Using the inventory, staff can then identify locations of higher demand and prioritize locations for initial installation within the public right-of-way and other publicly owned properties.

# Public Transportation & Transit

## CHALLENGES & OPPORTUNITIES

Worcester is served by two main transit agencies with the Worcester Regional Transit Authority (WRTA) operating local bus and paratransit service and the Massachusetts Bay Transit Authority (MBTA) providing commuter rail service to Boston. WRTA operates 23 fixed route buses and two community shuttle van services in Worcester. WRTA experienced an average of 12,514 daily weekday boardings in 2022, up from 10,318 average daily boardings in 2019. In 2022, less than 3% of Worcester residents commuted to work via public transportation.

Despite low transit commute share, analysis indicates there is strong latent transit demand in Worcester. A main factor in determining transit demand is density: where people live and work, and how those areas are concentrated. In addition to density, socioeconomic characteristics influence people's propensities towards using transit. Many population groups, often those historically and currently marginalized, rely on transit more than the general public.

**Figure 26** shows the transit demand for the City of Worcester, with the highest potential transit demand concentrated in and around downtown Worcester and along major arterial roads. **Current WRTA bus routes appear to be well-matched with demand, but ridership remains low, indicating there is strong potential for growth.** Routes serve most of the high demand areas, though there is potential for increased frequency and alternative service types to serve areas that lack the density for all-day fixed-route service.



**Figure 24** The WRTA transit hub is located in downtown Worcester off Foster Street and adjacent to the Worcester train station.



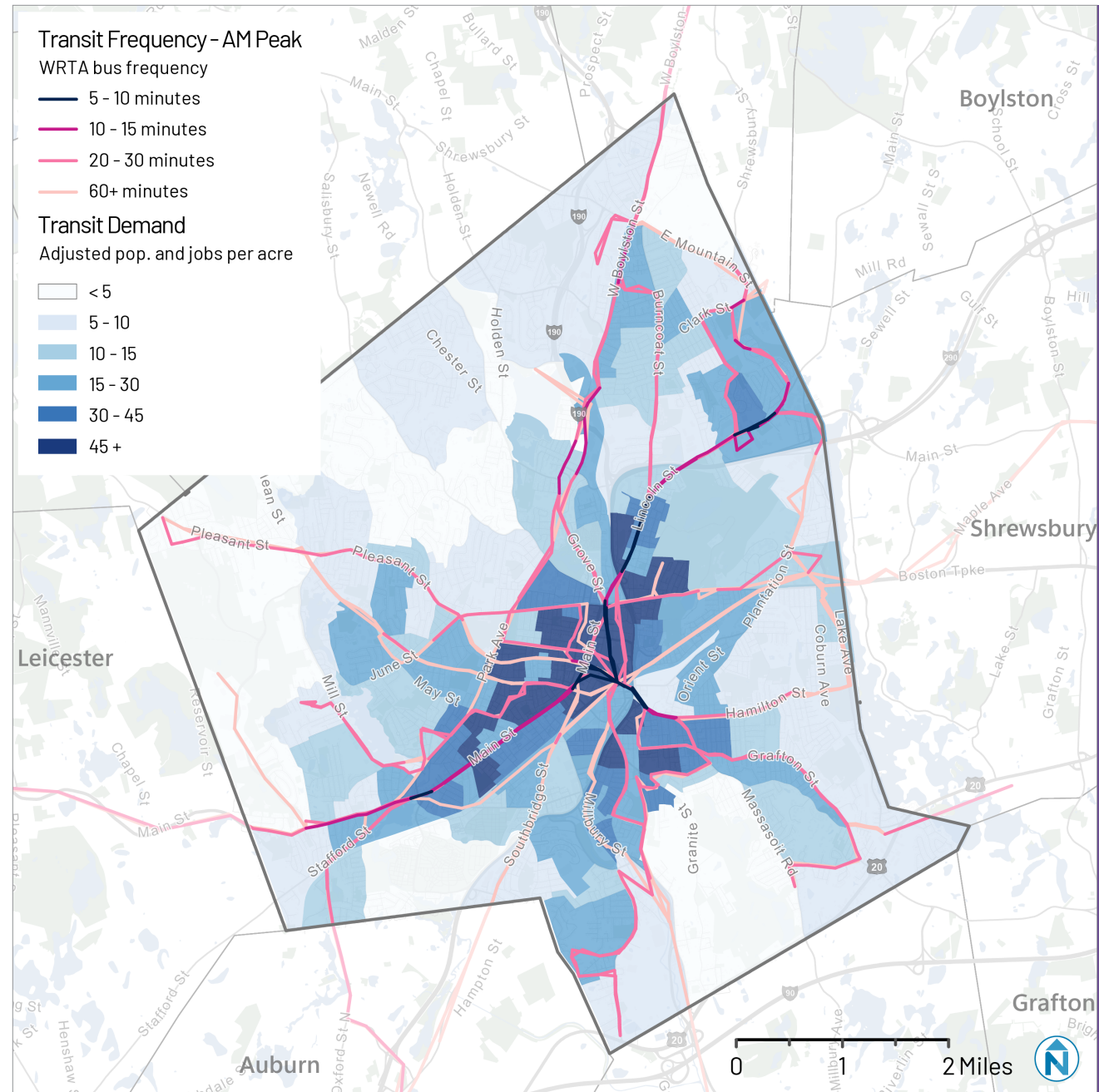
**Figure 25** WRTA services the City of Worcester and 36 surrounding communities in Central Massachusetts with both diesel-electric hybrid and clean diesel buses.



# Transit Demand Methodology

In order to plan transit equitably, transit agencies should focus their investments on areas with higher populations of people more likely to need transit. The Transit Propensity Index (TPI) is the ratio between transit mode share for a specific group and the transit mode share for the general population and helps to highlight and prioritize transit dependent populations by measuring their relative demand for transit.

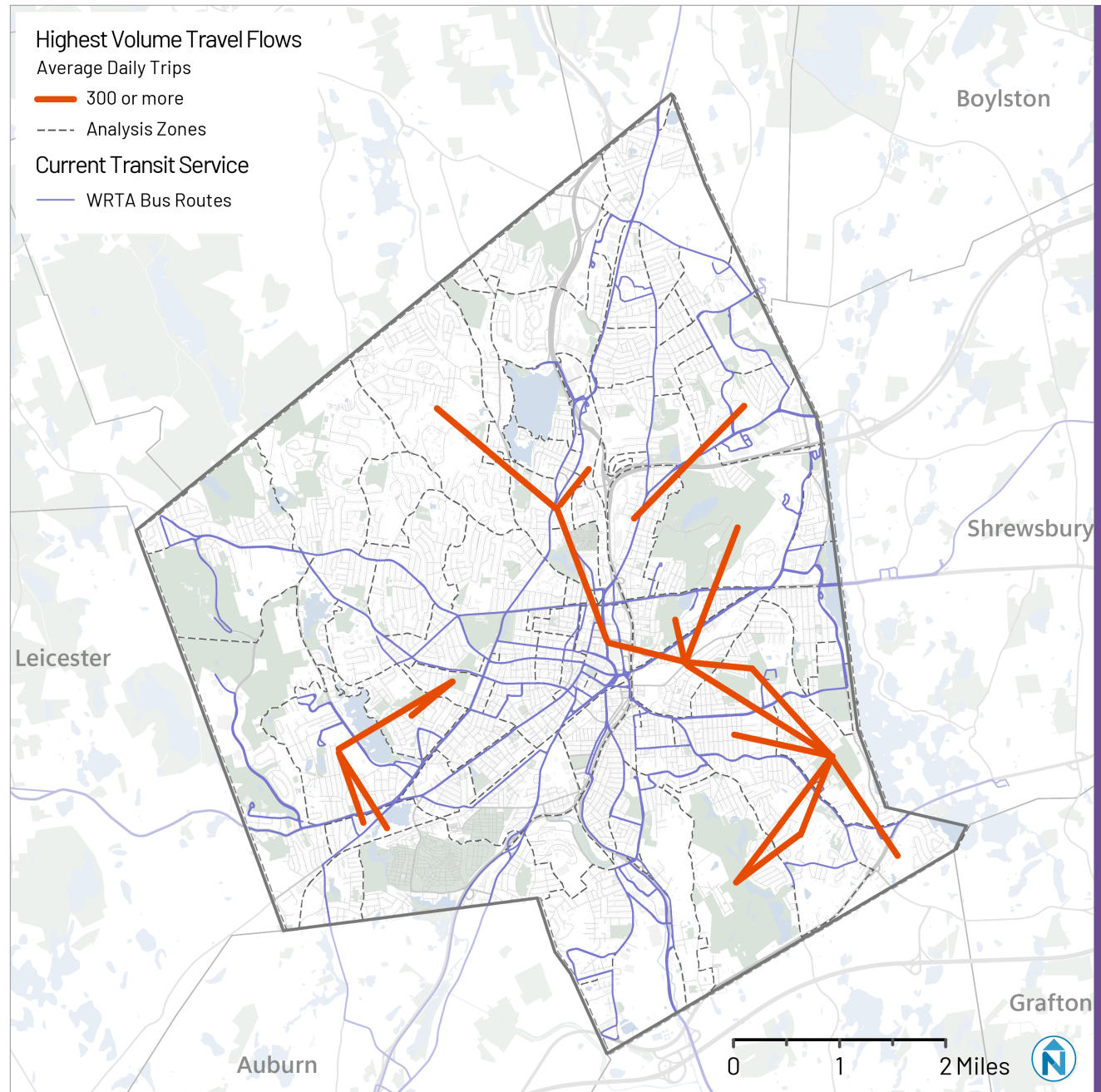
When a significant number of people from transit-dependent socioeconomic groups live in clustered areas, the underlying demand for transit in these areas may be higher than is captured by just looking at population density. Conversely, in areas where transit-supportive groups have lower representation, the transit demand may be lower than what is captured purely by population density. The TPI ratio is applied to the demographic breakdown of a particular geographic area to create an adjusted population density that more closely reflects the density of likely transit riders. To finalize a Transit Demand score, the adjusted population density is combined with job density, where higher scores indicate the potential for more frequent transit service.



**Figure 26** City of Worcester Transit Demand and AM Bus Frequency Along Routes

The Streetlight travel flow analysis also highlighted travel patterns that were not well matched with the bus network, which is currently designed with radial routes that bring riders into the downtown core. **Figure 27** shows that many current trips in Worcester are not served by current bus routes, including the lack of bus service to key destinations such as Assumption University, Jewish Community Center, and Stop & Shop.

**Bus reliability is a major concern raised frequently by riders. Residents have also expressed that the limited hours of service and low frequency on many routes prevent them from using WRTA.** These concerns were echoed by public engagement participants, in addition to emphasizing a need for more bus shelters and benches, improved snow clearance measures at bus stops, and the continuation of fare-free transit to ensure equitable access for all residents.



**Figure 27** Transit Network and High-Volume Travel Patterns



# STRATEGIES

WRTA is a separate entity from the City of Worcester and provides transit services to 36 municipalities surrounding the City. Strategies for improving public transportation therefore include changes that would be outside the purview of City departments implementing the other aspects of the Mobility Action Plan. However, the City of Worcester does have a role to play in designing streets, facilitating conversations with WRTA, and advocating on behalf of residents, and can aid in supporting or informing appropriate actions.

Limited transit funding is a clear barrier to increasing the level of service or quality of service, as well as to executing any of the recommended public transportation strategies provided in this plan. But while transit ridership patterns have changed since COVID-19, reducing transit service would be shortsighted. Public transportation remains a lifeline for those who rely on it most, including essential workers and low-income individuals. Maintaining robust transit service ensures equitable access to jobs, healthcare, and other essential services, supporting the resilience and inclusivity of communities. Increased transit funding for WRTA would allow for improved service to match the needs of the Worcester community, and improved service would then encourage mode shift and increase ridership.

## STRATEGY 4.1: First/Last Mile Strategic Plan to Improve Access to Transit

**Primary Goal:** Connectivity; **Primary Objective:** Expand transportation options

**Score:** 11/18 **TOP 15** One of the top 15 strategies!



**Public Favorite!** This strategy scored higher during public engagement activities.

**Background:** Transit agencies in every city contend with the “first mile/last mile” problem, where a transit rider needs to cover the distance between a centrally located bus stop and their destination. An appropriate walking distance to a bus stop is typically considered to be ¼ mile; a person may choose an alternative mode of transportation to travel distances further than ¼ mile. Both municipalities and transit agencies have roles to play in addressing this gap, balancing the location of bus stops with conditions of travel surrounding the stops, especially in lower density areas where a bus stop cannot be right outside every person’s front door.

**Description:** DTM should develop a plan that provides recommendations to improve walking, micro-mobility, and/or biking access to bus stops. The plan could include prioritization of bus stops in areas of higher transit demand or stops with current or historically high ridership. In the future, if a bikeshare program is implemented in Worcester, bikeshare stations should be co-located with high-ridership bus stops to help people access jobs and services beyond the immediate transit network. DTM should also work with the WRTA to install bike racks on buses that can support popular e-bike models and invest in secure bike storage at high-volume stops.

## STRATEGY 4.2: Expand WRTA Service Through Addition of Crosstown Services

**Primary Goal:** Connectivity; **Primary Objective:** Expand transportation options

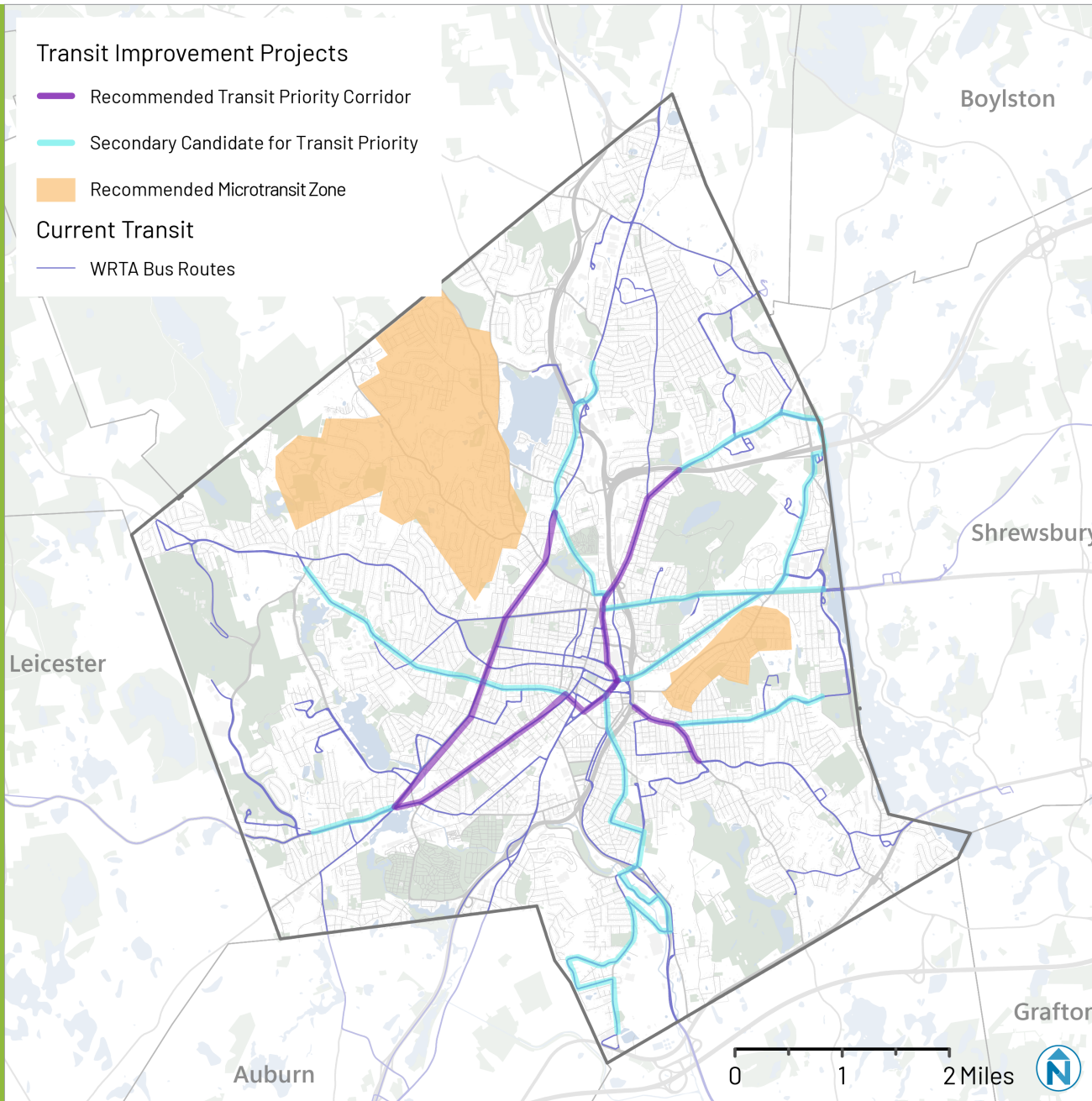
**Score:** 10/18



**Public Favorite!** This strategy scored higher during public engagement activities.

**Background:** As seen in **Figure 27**, there is significant crosstown travel occurring in Worcester that is not served by the current bus network.

**Description:** To complement the hub and spoke pattern of the current network, WRTA should study adding additional crosstown routes to better serve travel patterns in Worcester. New routes could be considered individually, as extensions to current routes, or as part of a full network redesign.



**Figure 28** Transit Improvement Projects

### **STRATEGY 4.3: Study Potential for On-demand Microtransit**

**Primary Goal:** Connectivity; **Primary Objective:** Expand transportation options

**Score:** 8/18

**Background:** WRTA partners with Via to provide on-demand shuttle service in parts of Westborough and Shrewsbury where there is no fixed-route bus service. This type of microtransit service provides customers a low-cost alternative to ridehailing services such as Uber or Lyft and is designed to provide travel options in areas without the density or an adequate road network to support a fixed bus route.

**Description:** The City should encourage WRTA to study the potential for on-demand transit service in lower-density areas within Worcester that lack connections to transit and/or have popular destinations. Microtransit zones could be 'node-based', which would focus on connecting the existing fixed route network to key destinations, or zone-based, like the existing Via-WRTA service. Potential locations for microtransit service are shown in **Figure 28**.

#### STRATEGY 4.4: Expand WRTA Paratransit Service to Provide Responsive On-demand Service

**Primary Goal:** Connectivity; **Primary Objective:** Expand transportation options

**Score:** 8/18

**Background:** WRTA currently offers complementary ADA Paratransit service within  $\frac{3}{4}$  mile of its fixed route bus service, and the entire City of Worcester falls within the service area. Eligibility is limited to persons with disabilities that prevent them from using regular accessible fixed route buses for some or all of their trips. Under the current ADA Paratransit service, rides must be booked by 4 PM the day prior to the desired departure time. Paratransit customers are therefore not able to travel with the same freedom or flexibility as fixed-route transit riders or travelers using an app-based ride-hailing service. The Metropolitan Transportation Authority (MTA) in New York is currently piloting an “E-Hail” program that provides on-demand travel to eligible paratransit customers by partnering with multiple ride-hailing companies that already operate within the City.<sup>9</sup>

**Description:** WRTA should study the potential to use Via or other ride-hailing company to support on-demand paratransit service citywide. WRTA should also explore expanding eligibility for paratransit to include older adults who may not have a qualifying disability but still face mobility challenges.

#### STRATEGY 4.5: Improve Transit Real-Time Information

**Primary Goal:** Equity; **Primary Objective:** Improve transit rider experience

**Score:** 5/18

**Background:** Access to real-time information for a bus’s location on route and its predicted arrival time at a particular bus stop greatly improves the convenience of bus service and can minimize the time riders need to wait at a bus stop, particularly if a bus is delayed. Public comments have expressed that the current real-time information sources for WRTA routes are not easily accessible, intuitive, or accurate enough to be useful.

**Description:** WRTA should improve their real-time tracking application and ensure the information available is correct. This may include upgrading or changing the technology, providing training to operators, and finding alternative ways of communicating with customers. WRTA, MBTA, and the City of Worcester should also work together to ensure key transfer hubs, such as Union Station, have schedule and wayfinding information available to riders in multiple languages and for people with disabilities.



#### STRATEGY 4.6: Develop and Implement Bus Shelter and Bench Policy

**Primary Goal:** Equity; **Primary Objective:** Improve transit rider experience

**Score:** 6/18



**Public Favorite!** This strategy scored higher during public engagement activities.

**Background:** Bus stops are the gateway to transit and can significantly impact the experience of riding the bus: clean, comfortable, and well-designed bus stops encourage ridership and improve the travel experience. Without specific bus stop policies or design guidelines beyond minimum ADA requirements, bus stops are often uncomfortable, with no standardized process for adding seating, lighting, shelters, or other amenities where needed. This can make transit use less desirable, especially for the elderly or those with disabilities who cannot stand for long periods of time.

**Description:** The City should work with WRTA and use national best practices to develop a policy on the allocation of resources to bus stop amenities and responsibilities around maintenance and snow clearance. This policy could also include bus stop design guidelines like Southeastern Regional Transit Authority (SRTA)’s Bus Stop Design Guidelines which was created in 2022 with input from the municipalities where the agency operates.<sup>10</sup>

**Figure 29** WRTA Bus Stop with Shelter and Bench, Grove Street (Google Streetview)



#### **STRATEGY 4.7: Continue Fare-Free WRTA Transit Service**

**Primary Goal:** Equity; **Primary Objective:** Increase economic accessibility

**Score:** 9/18



**Public Favorite!** This strategy scored higher during public engagement activities.

**Background:** Due to the COVID-19 pandemic, WRTA and many agencies throughout the country suspended fare collection on public transit and have continued to operate fare-free service to encourage riders to return, often with the support of federal relief funding. WRTA has extended the suspension of fares on its fixed route and paratransit services through June 2024, but the future of fares beyond that point is not yet certain. In a March 2024 poll of WRTA service area residents, 70% of respondents either somewhat or strongly supported continuing fare-free transit service.<sup>11</sup>

**Description:** WRTA should continue fare-free transit service as long as is viable without reductions in service. WRTA should work with the City and key state and local stakeholders to identify potential funding opportunities to substitute fare revenue, ensuring both affordable and high-quality services.

#### **STRATEGY 4.8: Implement Transit Signal Priority on Key Corridors**

**Primary Goal:** Sustainability; **Primary Objective:** Improve transit reliability

**Score:** 8/18

**Background:** To make transit a viable and attractive option, bus service should be fast and reliable, with minimal obstacles to getting people where they need to go. Delayed buses and inconsistent arrival times discourage transit use among those who have other options and make daily life more difficult for those who rely on transit. Reliability of transit service has been cited as a key concern by Worcester residents throughout the public engagement process. Transit Signal Priority (TSP) gives preferential treatment to buses at signalized intersections, supporting faster and more reliable travel times through a corridor, through coordination between the municipalities operating the traffic lights and the transit agency. Recently released by the MBTA, the Greater Boston Bus Priority Toolkit outlines common obstacles for reliable bus service and the available transit priority treatments municipalities can implement to improve bus service locally, including multiple TSP options.<sup>12</sup>

**Description:** The City and WRTA should work together to implement transit priority measures in areas with frequent bus service, coordinating between City DTM staff and WRTA planners to determine appropriate priority measures for key corridors and intersections. Potential corridors for transit priority are shown in **Figure 28**, which was identified based on frequency of bus travel along corridors (as identified in **Figure 26**) and public comment.

#### **STRATEGY 4.9: Coordinate Scheduling Between Key WRTA Bus Routes and MBTA Commuter Rail**

**Primary Goal:** Sustainability; **Primary Objective:** Improve transit reliability

**Score:** 8/18



**Public Favorite!** This strategy scored higher during public engagement activities.

**Background:** The MBTA provides sustainable transportation between downtown Worcester, Metro West, and metro Boston with a commuter rail line that operates 20 inbound trips per day. Previously, the MBTA Heart to Hub train provided direct service between Boston and Worcester; recent changes to the service added interim stops and increased the travel time between the two cities. Reducing travel by private motor vehicle between Worcester and Boston as well as within Worcester would support both the goals of this plan and broader regional sustainability and congestion goals.

**Description:** The City should coordinate with the MBTA to increase frequency and reliability of the Commuter Rail service between the City and Boston. The City should also work with the WRTA to coordinate the schedules of key bus routes with the commuter rail schedules to improve transfers between the two modes.



**STRATEGY 4.10: Rebalance Bus Stops and Consider In-Line Stops Where Appropriate to Reduce Transit Delay and Improve Reliability**

**Primary Goal:** Sustainability; **Primary Objective:** Improve transit reliability

**Score:** 10/18

**Background:** The distance between bus stops significantly impacts travel times and route reliability. Frequent stopping increases the travel time for bus riders, which makes it more difficult for people to efficiently travel by bus and may dissuade them from taking the bus at all. Ideal bus stop spacing provides the appropriate balance between easy bus stop access, while avoiding an excessive number of bus stops. Providing fewer, but safer and more accessible, bus stops create a better experience for people taking the bus.

**Description:** DTM and WRTA should coordinate an effort to identify bus stops for rebalancing or relocation and flag locations where bus stops should be improved for safe access and adequate dwelling for improved bus speed and reliability. The City and WRTA should then support the implementation process of rebalancing and/or redesigned stops.

**STRATEGY 4.11: Improve Transit Headways and Hours of Service**

**Primary Goal:** Sustainability; **Primary Objective:** Increase non-auto mode share

**Score:** 11/18



**Public Favorite!** This strategy scored higher during public engagement activities.

**Background:** Increasing how often the bus arrives, also known as its headway or frequency, is a proven way to increase ridership and support mode shift to transit.<sup>13</sup> Ensuring the bus is operating when people most want and need to ride, particularly outside traditional peak commute hours, is essential in establishing transit as an alternative to driving.

**Description:** WRTA should prioritize improved frequency and span of bus services to meet the needs of Worcester residents.

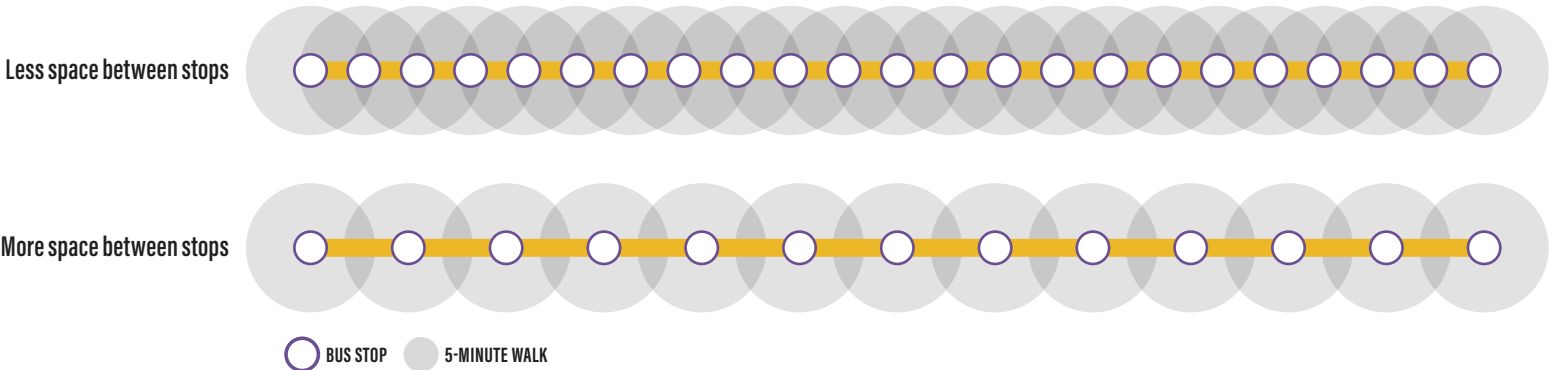
**STRATEGY 4.12: Explore and Pursue Transit Electrification**

**Primary Goal:** Sustainability; **Primary Objective:** Reduce vehicle emissions

**Score:** 5/18

**Background:** Bus electrification eliminates the tailpipe emissions found in diesel, compressed natural gas (CNG), and hybrid buses. Along with procurement and funding, electrifying a transit bus fleet requires planning around operations, maintenance, training, and charging facilities.

**Description:** The City and general public should encourage WRTA to electrify their fixed route bus system – or portions of their system. To prioritize improved air quality in disadvantaged neighborhoods, WRTA could consider prioritizing routes that serve Environmental Justice communities (which is what King County Metro<sup>14</sup> in Seattle did). WRTA could also partner with job training programs (such as in Oakland, California<sup>15</sup>), or tie their electrified bus charging grid to renewable energy (like Martha's Vineyard<sup>16</sup>).



**Figure 30** Closely Spaced Bus Stops Slow Service without Significantly Increasing Access to Transit

# Shared Mobility

## CHALLENGES & OPPORTUNITIES

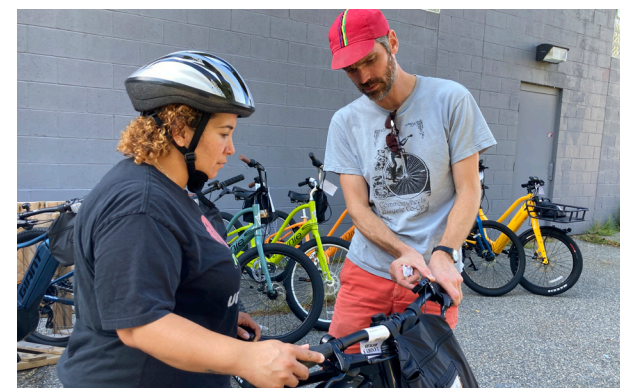
In 2022, 1.3 million rides were initiated in Worcester through ride-hailing companies like Uber and Lyft, making it the third highest year behind 2019 and 2018. Ride-hailing provides a flexible way to get around without a personal vehicle, but costs may be prohibitive for some community members, and therefore these services are not ideal means to travel daily to school, work, or other regular appointments. The City of Worcester should consider ride-hailing as one of many ways that people can get to where they need to go.

Zipcar, a car share company, operates at two locations in the City. Currently, no public or private bike or e-scooter share companies operate citywide in Worcester. Ofo, a private bikeshare company, operated in the City between 2017 and 2018. Both Worcester Polytechnic Institute and Worcester State University operate bike share programs for their student bodies. The City is working to ensure that, in the future, private companies are given specific guidance and use restrictions to ensure safe travel and storage of shared bike and micro-mobility devices.

**Other programs that help to increase biking as a mode of transportation and expand bike access are ownership pathway models which provide vouchers or rebates for bike purchases.** MassBike, Massachusetts' statewide bike advocacy coalition, was awarded a grant to distribute 100 electric bikes to low-income residents of Worcester as part of a 2-year program. The e-bikes were deployed between fall 2022 and early 2023. A second phase of the program was launched with new funding awarded in 2024. Programs such as this will benefit from expanded infrastructure, as well as supporting programs and policies, such as TDM (see Access for All).



**Figure 31** Zipcar is a car-sharing company that operates in many cities across the United States, Canada, and the United Kingdom. (Worcester Business Journal)



**Figure 32** MassBike deployed e-bikes to qualifying program participants between 2022 and 2023 (MassBike)

## STRATEGIES

### STRATEGY 5.1: Implement a Bikeshare and/or Micro-mobility Share Program

**Primary Goal:** Sustainability; **Primary Objective:** Increase non-auto mode share

**Score:** 12/18 **TOP 15** One of the top 15 strategies!

**Background:** Bike and micro-mobility sharing programs can introduce people to modes of transportation new to them. The ability to travel one-way with a device also grants people flexibility to travel options.

**Description:** Implement a bikeshare program for denser areas of the City; revisit policy to allow private micro-mobility companies to operate in Worcester; explore public/private partnerships. Encourage bike and e-bike use through starting up neighborhood-based bike libraries.

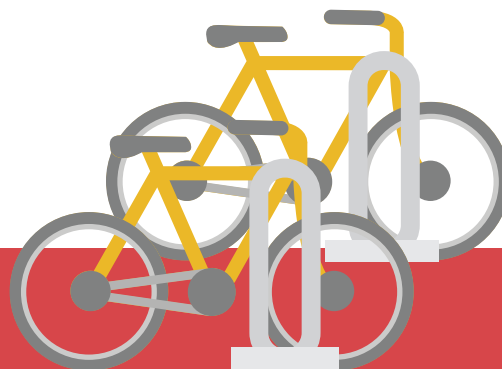
### STRATEGY 5.2: Encourage and Expand Electric Vehicle Carshare

**Primary Goal:** Sustainability; **Primary Objective:** Reduce vehicle emissions

**Score:** 8/18

**Background:** Newer carshare models incorporate electric vehicles (EVs) to help reduce emissions and expand education around EVs.

**Description:** Encourage e-carshare opportunities by offering discounted or free parking spaces to carshare companies with EVs or provide nearby charging infrastructure. Charging infrastructure can be installed through grants, larger capital streetscape, roadway, or other municipal projects.





# Vehicular Network, Parking, and Curb Management

## CHALLENGES & OPPORTUNITIES

Aside from Interstates 190 and 290, which run north-south through the City’s spine, Worcester’s vehicular network is characterized by a mix of major roads serving as primary arterials (Figure 34). These roads serve as key corridors for commercial and retail activity, while smaller neighborhood and local streets wind through residential areas across the City. These roadways often feature wide lanes and multiple travel lanes which contribute to a design that encourages high driving speeds, posing safety concerns for all road users. Most streets in Worcester have a speed limit of 30 miles per hour, and only three small road segments in Worcester have a speed limit of 25 miles per hour (also shown in Figure 34). Without having a network of slow speed street in the City, safety risks are exacerbated, particularly

for pedestrians who are more vulnerable to severe injuries and fatalities in the event of collisions (i.e., older persons, see Figure 33). **Community feedback received during the public engagement process highlighted the prevalence of speeding throughout the City, as well as challenges with illegal parking on sidewalks.** Addressing the design and speeds of Worcester’s roadways presents a significant opportunity to enhance road safety and create a more pedestrian and bike-friendly environment.

The City of Worcester manages curbside use in the urban core with app-enabled parking meters and kiosks. Most metered spaces are located downtown and in the Canal District, with some metered parking at UMass Memorial Hahnemann Family Health Center and at small shopping areas across the City. Parking meters are enforced from 8 AM to 8 PM Monday to Saturday, and until 9 PM in the Canal District. Additionally, there is a two-hour limit for parking on Sundays in the Canal District. There are also 12 paid municipal parking lots and garages in central Worcester. Even with the introduction of strategies such as app-based parking mechanisms and expanded paid parking areas beyond downtown, Worcester continues to face challenges including congestion and inconsistent enforcement, contributing to inefficiencies in curbside use.

**To address the challenges posed by Worcester’s non-grid road layout and wide-lane roadways, the City must reassess their street design principles to prioritize safer driving speeds and pedestrian-friendly infrastructure.** Additionally, investments in more sustainable transportation modes including public transit and active transportation can further alleviate traffic congestion and other driving and parking-related challenges.

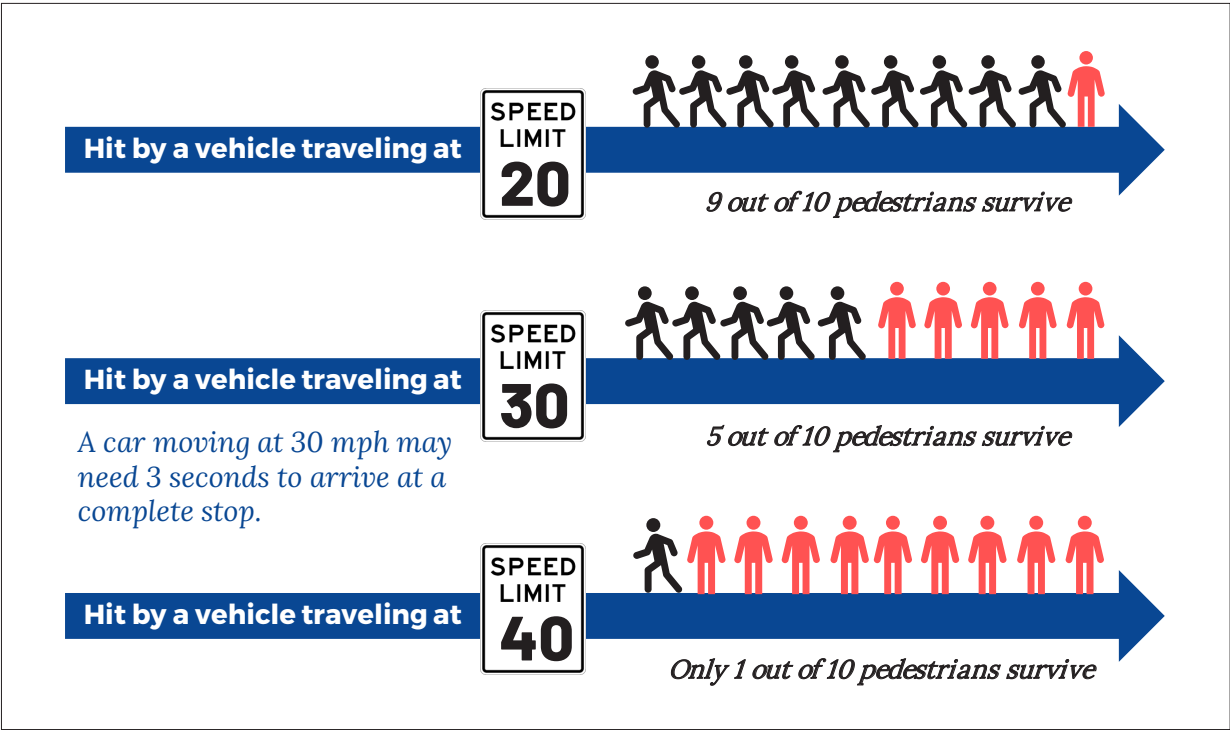


Figure 33 Survival rates for pedestrians hit by cars at speeds of 20, 30, and 40 miles per hour.

## STRATEGIES

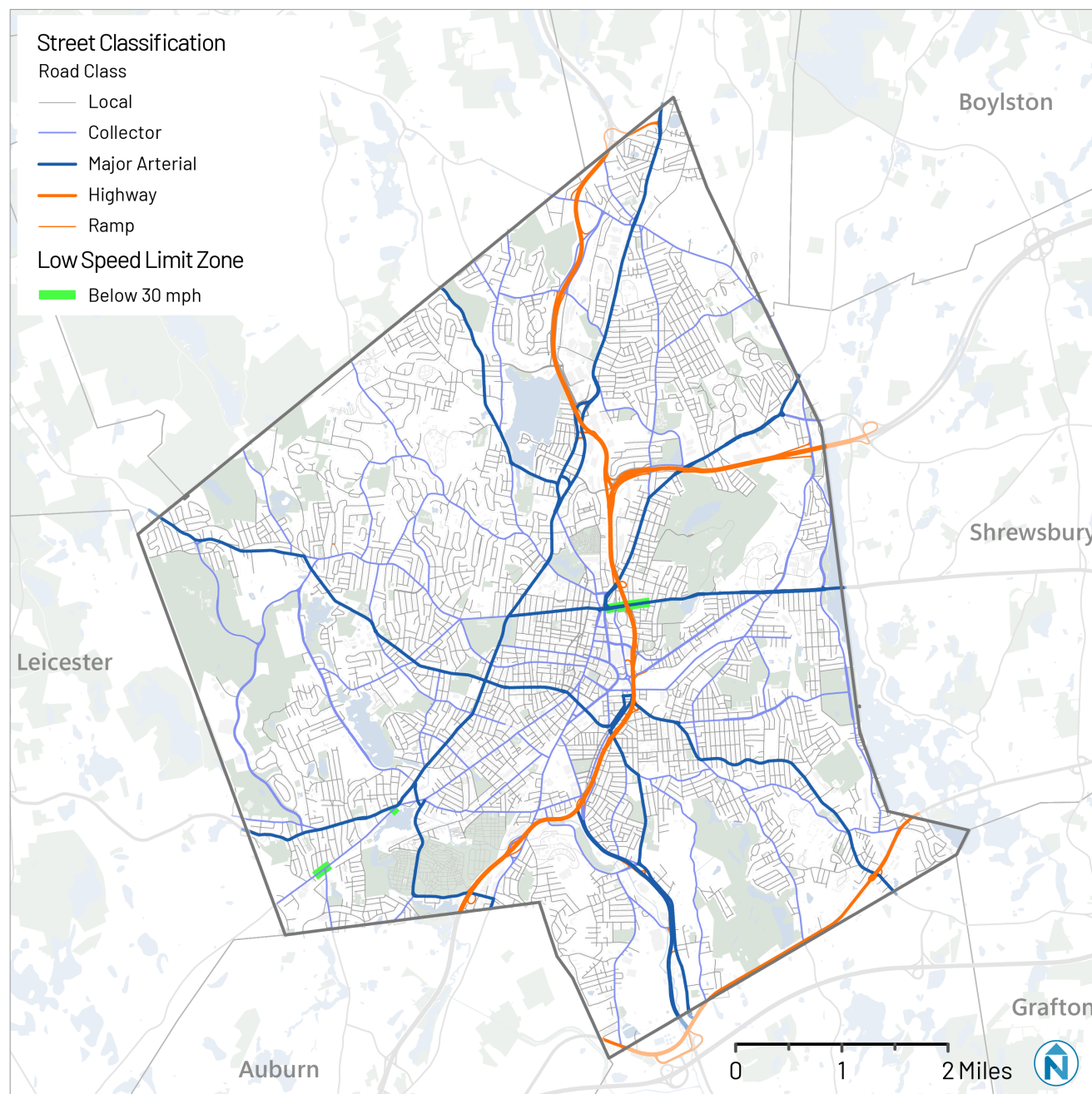
### STRATEGY 6.1: Develop Traffic Calming Toolkit

**Primary Goal:** Safety; **Primary Objective:** Build safe streets for all users

**Score:** 10/18

**Background:** Enhancing street safety is critical to creating an urban environment that is conducive for all road users. Currently, the City lacks clear guidance on which traffic calming measures are most effective in different contexts. There is a need for a standardized toolkit to guide the deployment of traffic-calming measures consistently citywide based on industry best practices.

**Description:** DTM should develop a brief guidance document on department-approved traffic calming measures that can be implemented during regular pavement management projects on corridors flagged for safety improvements. Priority will be given to roadways identified as MassDOT high crash clusters, Environmental Justice (EJ) areas, school zones, high transit demand zones, and areas with poor sidewalk conditions. The toolkit will provide recommendations for appropriate traffic calming measures tailored to the specific needs of each street segment.



**Figure 34** Worcester Road Classification and Roads with Speed Limits Lower than 30 mph

### STRATEGY 6.2: Conduct Road Diets

**Primary Goal:** Safety; **Primary Objective:** Build safe streets for all users

**Score:** 10/18

**Background:** Road diets, which involve reducing the number of lanes on a roadway, improve roadway safety by slowing down traffic and creating space for other modes of transportation such as walking, biking, and micro-mobility use as well as street trees and other green infrastructure. However, implementing road diets requires careful analysis to ensure compatibility with existing traffic patterns and community needs.

**Description:** DTM should conduct road diet studies to evaluate roadways in Worcester that could accommodate lane reductions. These studies will assess factors including traffic volume, speed, crash history, and community input to identify suitable roadways.

### STRATEGY 6.3: Develop and Launch Traffic Signal Improvement Program

**Primary Goal:** Safety; **Primary Objective:** Build safe streets for all users

**Score:** 10/18



**Public Favorite!** This strategy scored higher during public engagement activities.

**Background:** Traffic signals are important in managing traffic flow and ensuring safety of all roadway users. Signals across the City are of varying age and capabilities. An implementation strategy for upgrading all signals to a uniform appearance with up-to-date technologies can help to improve traffic safety through increased visibility, communications and advanced detection abilities.

**Description:** DTM should develop and implement a traffic signal improvement program aimed at modernizing Worcester's traffic signal infrastructure. This program will involve connecting and upgrading aging traffic signals to ensure ADA compliance and to prioritize the movement of people/not cars, enable pro-active centralized management, extend detection technologies to modes beyond motor vehicles, adapt configurations to improve efficiency for all modes, and actively monitor for safety issues on roadways.

### STRATEGY 6.4: Lower Statutory Speed Limit Citywide and Enact Safety Zone Speed Limits at Appropriate Locations

**Primary Goal:** Safety; **Primary Objective:** Reduce crashes and severity of outcomes

**Score:** 9/18



**Public Favorite!** This strategy scored higher during public engagement activities.

**Background:** Speeding contributes significantly to the severity of crashes and poses a serious threat to road safety for all travelers. Lowering the statutory speed limit citywide and implementing safety zone speed limits at appropriate locations has been proven to mitigate the risks associated with excessive speed.

**Description:** DTM should collaborate with decision-makers to lower statutory (de-facto) speed limit from 30 mph to 25 mph, with a focus on revising the speed limit of all roads classified as local streets to 25 mph. Additionally, 20 mph safety zone speed limits should be enacted in areas with high pedestrian activity, school zones, and other sensitive locations. This reduction in speed will help create a safer environment for all road users by reducing the severity of crashes and providing more reaction time to prevent collisions.



### STRATEGY 6.5: Study and Prioritize Curb Space for Best Uses

**Primary Goal:** Connectivity; **Primary Objective:** Expand transportation options

**Score:** 8/18

**Background:** Curb space is a valuable and finite resource in urban areas, often challenged by competing demands for its use. Efficient allocation of curb space is essential to support a variety of transportation modes and uses, such as parking, commercial and passenger loading, bus stops, bike lanes, and pedestrian amenities.

**Description:** DTM will study existing curb space to evaluate and prioritize curbside usage across the City. Research will involve assessing current curb space allocation, identifying areas with conflict or where efficiency could be improved, and recommending strategies for optimizing curb space.

### STRATEGY 6.6: Conduct Parking and Curbside Management Studies in Key Districts

**Primary Goal:** Equity; **Primary Objective:** Expand transportation options

**Score:** 6/18

**Background:** Conducting parking studies in key districts allows for a comprehensive assessment of current parking inventory, utilization patterns, and challenges, which can help to inform strategies that will help optimize parking resources and improve accessibility for those who need it most.

**Description:** DTM should fund a citywide parking study focusing on key districts and corridors with high parking demand and utilization. This study will assess on- and off-street parking inventory, analyze parking utilization patterns, and identify priority areas for parking management. This will help inform the development of a management and pricing plan, including signage improvement and enforcement strategies. The study could build off of the existing 'Safe & Lawful Parking Campaign' aimed to reduce parking on sidewalks.

### STRATEGY 6.7: Expand Publicly Accessible Electric Vehicle Charging

**Primary Goal:** Sustainability; **Primary Objective:** Reduce vehicle emissions

**Score:** 4/18

**Background:** The transition to EVs is essential for reducing emissions and working toward meeting Worcester's climate goals. However, the widespread adoption of EVs will depend on the availability of accessible charging infrastructure. Expanding publicly accessible EV charging stations throughout the City is important to support the growing number of EV owners and help promote sustainable solutions.

**Description:** DTM should continue to collaborate with the Department of Sustainability and Resilience (DSR) to prioritize the installation of publicly accessible EV chargers throughout the City on municipal properties and high-traffic areas. This initiative will involve collaborating with public and private partners to identify suitable locations and increase expansion of publicly accessible chargers to ensure equitable access into all parts of the City including EJ neighborhoods and the urban core. Coordinating closely with Strategy 5.2 Encourage and Expand Electric Vehicle Carshare will ensure this strategy is valuable to those who cannot afford personal EVs.



**Figure 35** Old walk signal at Stafford and Heard Streets

# Getting It Done

## CHALLENGES & OPPORTUNITIES

The Department of Transportation & Mobility collaborates with other departments to plan, design, and implement transportation and mobility projects, as well as to appropriately address the impact of transportation across everyday lives. Depending on the topic, DTM collaborates with Public Health, Planning, Economic Development, Police, Fire, Schools, and Sustainability & Resilience departments. DTM works very closely with the Department of Public Works and Parks (DPW&P), which has responsibility of street construction and maintenance, while DTM is responsible for planning, traffic engineering, and overseeing the implementation of Complete Streets through design, lane markings, traffic calming, curb management, and more. Coordination and collaboration between these two departments is crucial. **New processes are being created for incorporating Complete Streets into standard operations such as the annual pavement management program, signage, ensuring ADA-compliance in our sidewalks and curb ramps, and updating the Standard Construction Specifications and Details document.**

Other examples of collaboration include working with the Police Department on speeding through enforcement, crash analyses, policy, and roadway design to influence how fast people drive and the number and severity of crashes, which has a direct impact to people's health and welfare.



**Figure 36** Volunteers help plant a Miyawaki forest in part of a public parking lot in downtown Worcester. The project is part of a state-funded effort to combat heat island effects. (*Bio4Climate.org*)

DTM interplays with Planning and Economic Development Departments when considering appropriate roadway designs to match land use and development. Likewise, DTM collaborates with the School Department and Public Health to ensure safe routes to school.

When DTM improves streets to make it easier to choose less-polluting modes of transportation

(such as walking, biking, micro-mobility, transit, and EVs), they are working to help the Sustainability & Resilience Department achieve their goals to improve air quality. **Streets can be designed with trees and green infrastructure which increases shade, reduces temperatures during the summer, and helps manage stormwater, other major goals of the Sustainability & Resilience Department.**



## STRATEGIES

### STRATEGY 7.1: Design and Process Standardization

**Primary Goal:** Safety; **Primary Objective:** Build safe streets for all users

**Score:** 7/18

**Background:** City department staff have varying backgrounds and expertise around roadway safety and design. The City could implement efforts to ensure that all staff have a baseline understanding of current City policies—and values—around Complete Streets.

**Description:** The City should (1) standardize policies and practices around staff training to include a Complete Streets understanding, (2) standardize processes and decision-making around upgrading or constructing new sidewalks and roadways based on best available data, and (3) standardize guidance materials around right-of-way design standards.

### STRATEGY 7.2: Traffic Analysis Requirements & Development Code Audit

**Primary Goal:** Safety; **Primary Objective:** Build safe streets for all users

**Score:** 10/18

**Background:** Cities often grapple with outdated zoning and development codes that inadvertently prioritize personal vehicle use over safety and walkability. Older zoning regulations often emphasize minimum parking requirements and vehicle level of service without requiring necessary Complete Streets elements such as continuous sidewalks, leading to lower density developments and less walkable neighborhoods. Consequently, these regulations not only impede urban vibrancy but can also exacerbate traffic congestion because they limit access to alternative modes of transportation.

**Description:** City departments should collaboratively embark on an effort to review development codes and traffic analysis requirements to identify needed updates to requirements around parking, sidewalk connectivity, vehicle level of service, and other policies that contradict intentions of walkability and Complete Streets. The City should update these regulatory documents and include newer policies such as TDM requirements which can help encourage the use of other transportation modes aside from personal vehicles.

### STRATEGY 7.3: Create and Implement Vision Zero Safety Action Plan

**Primary Goal:** Safety; **Primary Objective:** Reduce crashes and severity of outcomes

**Score:** 14/18 **TOP 15** One of the top 15 strategies!



**Public Favorite!** This strategy scored higher during public engagement activities.

**Background:** Vision Zero is an international street safety movement dedicated to eliminating traffic fatalities and serious injuries. In February 2023, the City obtained funding to develop a Safety Action Plan (or Vision Zero Plan) and Demonstration Project through the Safe Streets and Roads for All (SS4A) discretionary program, administered by the U.S. Department of Transportation. Once the plan is completed, the City will be eligible to apply for funding to implement road safety projects through future rounds of the SS4A grant program.

**Description:** The City, through guidance by DTM, should adopt a Vision Zero Policy (with a goal to eliminate all traffic fatalities and severe injuries — while increasing safe, healthy, and equitable mobility for all), develop a Vision Zero Plan, and prioritize its implementation. Progress is already underway on this strategy, as DTM has already kicked off their Vision Zero Plan development, funded through the SS4A grant.



### STRATEGY 7.4: Prioritize Active Transportation and Transit in Corridor and Network Planning

**Primary Goal:** Equity; **Primary Objective:** Increase economic accessibility

**Score:** 12/18 **TOP 15** One of the top 15 strategies!

**Background:** With 19% of Worcester households not owning a vehicle, City departments should place more consideration and accommodations on transportation modes beyond the private automobile.

**Description:** City departments should incorporate and prioritize active transportation and transit in all plans and projects. Travel by public transportation, by foot, or on wheels should become a priority, as shorter travel times, greater reliability, and improved safety can help improve access to economic opportunities (such as jobs and education) and services (such as food and healthcare).

### STRATEGY 7.5: Incorporate Green Infrastructure (Trees, Rain Gardens, etc.) in Roadway Projects

**Primary Goal:** Sustainability; **Primary Objective:** Green the streets

**Score:** 9/18



**Public Favorite!** This strategy scored higher during public engagement activities.

**Background:** Green infrastructure is the use of plants, soils, or permeable surfaces to store and infiltrate stormwater to reduce direct output into sewer systems or waterways. Green infrastructure can be incorporated into City rights-of-way along landscape strips with street trees or shrubs and enhanced with swales to

create linear rain gardens. The addition of vegetation in rights-of-ways is also an easy and effective way to reduce urban heat island effect in cities. Green infrastructure can be implemented into roadway reconstruction efforts as part of the streetscape as wide planter areas adjacent to sidewalks or landscaped medians (**Figure 37**).

**Description:** City departments should incorporate green infrastructure elements into the design of roadway reconstruction projects to help manage stormwater and reduce the urban heat island effect.



**Figure 37** Green infrastructure example (DC Department of Energy & the Environment)

## STRATEGY 7.6: Develop Streetscape and Street Tree Standards

**Primary Goal:** Sustainability; **Primary Objective:** Green the streets

**Score:** 8/18

**Background:** Trees are great additions to a Right Of Way; in addition to contributing to environmental benefits, street trees also help reduce crashes through traffic calming effects.

**Description:** The City should develop streetscape and street tree standards, led by DTM, DSR, and the Parks Division of the DPW&P. The guidance could include recommended tree species, appropriate tree spacing guidelines, and best practices around improved tree growth. This guidance could be incorporated into Strategy 7.1 Design and Process Standardization.



## List of Prioritized Recommendations

STRATEGY NUMBER	STRATEGY NAME	PRIMARY GOAL	PRIMARY OBJECTIVE	ADDITIONAL EVALUATION Top 15 scoring strategies and strategies highly rated by the public are noted here.	PROJECT PRIORITIZATION SCORE (total possible points: 18)
Access for All Strategies					
1.1	Expand Safe Routes to School Program	Safety	Prioritize safety of vulnerable roadway users	TOP 15	14
1.2	Review and Update Ordinance on Biking on Sidewalks	Safety	Prioritize safety of vulnerable roadway users		11
1.3	Incorporate Age- and Dementia-friendly Design Guidance in City Code and Design Manuals	Safety	Prioritize safety of vulnerable roadway users	TOP 15	14
1.4	Encourage Community-based Education Programs	Connectivity	Expand transportation options	TOP 15	13
1.5	Identify and Address Transportation Barriers by Past Transportation Decisions.	Equity	Foster engagement and participation with communities	TOP 15	15
1.6	Develop a Transportation Equity Framework	Equity	Foster engagement and participation with communities		10
1.7	Develop Public Engagement Toolkit	Equity	Foster engagement and participation with communities		8
1.8	Pursue Employer Commute Programs or Transportation Demand Management Plan (TDM)	Sustainability	Increase non-auto mode share		9



*Public Favorite! This strategy scored higher during public engagement activities.*



*TOP 15 Strategy. This strategy is one of the fifteen highest scoring strategies.*



EVALUATION METRICS (0 to 3 points)					
SAFETY Vision Zero: Does this project work towards eliminating traffic-related fatalities?	SAFETY Complete Streets: Does this project add to a complete streets network—and green network—or contribute to an all-ages and abilities bike network?	CONNECTIVITY Improve Access: Does the project improve access to schools, parks, green space, grocery stores, institutions, employment areas, and/or high demand destinations?	EQUITY Reduce Cost or Delay: Does the project reduce the transportation cost burden or reduce travel delay for public transit for lower income neighborhoods or environmental justice communities?	EQUITY Community Input: Will this project be developed through co-creation with the community or driven by community input?	SUSTAINABILITY Mode Share & Emissions: Does this project increase mode share of walkers, bikers, and rollers or increase mode share of public transportation riders (i.e., does this project reduce VMT) OR does the project reduce vehicle emissions?
3	2	3	1	2	3
2	1	2	1	3	2
3	3	3	1	2	2
2	1	2	2	3	3
3	3	3	1	3	2
1	2	2	1	2	2
1	1	1	1	3	1
1	1	1	2	1	3

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## List of Prioritized Recommendations, continued

STRATEGY NUMBER	STRATEGY NAME	PRIMARY GOAL	PRIMARY OBJECTIVE	ADDITIONAL EVALUATION Top 15 scoring strategies and strategies highly rated by the public are noted here.	PROJECT PRIORITIZATION SCORE (total possible points: 18)
<b>Walking &amp; Accessibility Strategies</b>					
2.1	Conduct Corridor and Intersection Studies in Advance of Pavement Projects to Advance Complete Streets (+project-specific items on MAP)	Safety	Build safe streets for all users	TOP 15	12
2.2	Execute Interim or Pop-up Safety Projects	Safety	Build safe streets for all users		11
2.3	Implement Improved Street Lighting, Emphasizing Pedestrian-oriented Lighting	Safety	Prioritize safety of vulnerable roadway users		10
2.4	Develop a Pedestrian Infrastructure Toolkit	Connectivity	Facilitate active transportation		8
2.5	Create a Neighborways Program	Connectivity	Facilitate active transportation	TOP 15	12
2.6	Complete ADA Transition Plan for the Right-of-Way	Equity	Improve physical accessibility	TOP 15	12
2.7	Create a Sidewalk and Curb Ramp Implementation Plan	Equity	Improve physical accessibility	 TOP 15	14
2.8	Eliminate Financial Disincentives to Sidewalk Construction	Connectivity	Facilitate active transportation	TOP 15	13



*Public Favorite! This strategy scored higher during public engagement activities.*



*Top 15 Strategy. This strategy is one of the fifteen highest scoring strategies.*

EVALUATION METRICS (0 to 3 points)					
<b>SAFETY</b> <b>Vision Zero:</b> Does this project work towards eliminating traffic-related fatalities?	<b>SAFETY</b> <b>Complete Streets:</b> Does this project add to a complete streets network—and green network—or contribute to an all-ages and abilities bike network?	<b>CONNECTIVITY</b> <b>Improve Access:</b> Does the project improve access to schools, parks, green space, grocery stores, institutions, employment areas, and/or high demand destinations?	<b>EQUITY</b> <b>Reduce Cost or Delay:</b> Does the project reduce the transportation cost burden or reduce travel delay for public transit for lower income neighborhoods or environmental justice communities?	<b>EQUITY</b> <b>Community Input:</b> Will this project be developed through co-creation with the community or driven by community input?	<b>SUSTAINABILITY</b> <b>Mode Share &amp; Emissions:</b> Does this project increase mode share of walkers, bikers, and rollers or increase mode share of public transportation riders (i.e., does this project reduce VMT) OR does the project reduce vehicle emissions?
2	3	2	2	1	2
3	2	3	0	2	1
3	2	2	0	1	2
2	1	1	1	1	2
3	3	2	1	1	2
2	3	2	2	1	2
3	3	3	2	1	2
3	3	2	2	1	2

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## List of Prioritized Recommendations, continued

STRATEGY NUMBER	STRATEGY NAME	PRIMARY GOAL	PRIMARY OBJECTIVE	ADDITIONAL EVALUATION Top 15 scoring strategies and strategies highly rated by the public are noted here.	PROJECT PRIORITIZATION SCORE (total possible points: 18)
<b>Bicycling &amp; Micromobility Strategies</b>					
3.1	Develop Bike and Micro-mobility Facility Standards that comply with contemporary design standards.	Safety	Build safe streets for all users	TOP 15	12
3.2	Develop Bike and Micromobility Network	Connectivity	Facilitate active transportation	TOP 15	16
3.3	Inventory Bike Parking, Develop Guidelines, and Deploy Additional Parking	Sustainability	Increase non-auto mode share		6
<b>Public Transportation Strategies</b>					
4.1	First/Last Mile Strategic Plan to Improve Access to Transit	Connectivity	Expand transportation options	 TOP 15	12
4.2	Expand WRTA Service Through Addition of Crosstown Services	Connectivity	Expand transportation options		10
4.3	Study Potential for On-Demand Microtransit	Connectivity	Expand transportation options		8
4.4	Expand WRTA Paratransit Service to Provide Responsive On-demand Service.	Connectivity	Expand transportation options		8
4.5	Implement Transit Real-Time Information	Equity	Improve transit rider experience		5
4.6	Develop and Implement Bus Shelter and Bench Policy	Equity	Improve transit rider experience		6



Public Favorite! This strategy scored higher during public engagement activities.




Top 15 Strategy. This strategy is one of the fifteen highest scoring strategies.

EVALUATION METRICS (0 to 3 points)					
SAFETY Vision Zero: Does this project work towards eliminating traffic-related fatalities?	SAFETY Complete Streets: Does this project add to a complete streets network—and green network—or contribute to an all-ages and abilities bike network?	CONNECTIVITY Improve Access: Does the project improve access to schools, parks, green space, grocery stores, institutions, employment areas, and/or high demand destinations?	EQUITY Reduce Cost or Delay: Does the project reduce the transportation cost burden or reduce travel delay for public transit for lower income neighborhoods or environmental justice communities?	EQUITY Community Input: Will this project be developed through co-creation with the community or driven by community input?	SUSTAINABILITY Mode Share & Emissions: Does this project increase mode share of walkers, bikers, and rollers or increase mode share of public transportation riders (i.e., does this project reduce VMT) OR does the project reduce vehicle emissions?
3	2	2	1	2	2
3	3	3	2	2	3
0	0	2	1	1	2
2	2	3	2	1	2
0	0	3	3	1	3
0	0	3	2	1	2
0	0	2	2	1	3
0	0	1	1	1	2
1	0	1	0	2	2

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## List of Prioritized Recommendations, continued

STRATEGY NUMBER	STRATEGY NAME	PRIMARY GOAL	PRIMARY OBJECTIVE	ADDITIONAL EVALUATION Top 15 scoring strategies and strategies highly rated by the public are noted here.	PROJECT PRIORITIZATION SCORE (total possible points: 18)
<i>Public Transportation Strategies, continued</i>					
4.7	Continue Fare-Free WRTA Transit Service	Equity	Increase economic accessibility		9
4.8	Implement Transit Signal Priority on Key Corridors	Sustainability	Improve transit reliability		8
4.9	Coordinate Scheduling Between Key WRTA Bus Routes and MBTA Commuter Rail	Sustainability	Improve transit reliability		8
4.10	Consolidate Bus Stops and Consider In-Line Stops Where Appropriate to Reduce Transit Delay and Improve Reliability.	Sustainability	Improve transit reliability		10
4.11	Improve Transit Headways and Hours of Service	Sustainability	Increase non-auto mode share		11
4.12	Explore and Pursue Transit Electrification	Sustainability	Reduce vehicle emissions		5
<b>Shared Mobility Strategies</b>					
5.1	Implement a Bikeshare and/or Micro-mobility Share Program	Sustainability	Increase non-auto mode share	<b>TOP 15</b>	12
5.2	Encourage and Expand Electric Vehicle Carshare	Sustainability	Reduce vehicle emissions		8



*Public Favorite! This strategy scored higher during public engagement activities.*



*Top 15 Strategy. This strategy is one of the fifteen highest scoring strategies.*



EVALUATION METRICS (0 to 3 points)					
<b>SAFETY</b> <b>Vision Zero:</b> Does this project work towards eliminating traffic-related fatalities?	<b>SAFETY</b> <b>Complete Streets:</b> Does this project add to a complete streets network—and green network—or contribute to an all-ages and abilities bike network?	<b>CONNECTIVITY</b> <b>Improve Access:</b> Does the project improve access to schools, parks, green space, grocery stores, institutions, employment areas, and/or high demand destinations?	<b>EQUITY</b> <b>Reduce Cost or Delay:</b> Does the project reduce the transportation cost burden or reduce travel delay for public transit for lower income neighborhoods or environmental justice communities?	<b>EQUITY</b> <b>Community Input:</b> Will this project be developed through co-creation with the community or driven by community input?	<b>SUSTAINABILITY</b> <b>Mode Share &amp; Emissions:</b> Does this project increase mode share of walkers, bikers, and rollers or increase mode share of public transportation riders (i.e., does this project reduce VMT) OR does the project reduce vehicle emissions?
0	0	1	3	2	3
0	0	2	3	1	2
0	0	3	2	1	2
1	1	2	3	1	2
0	0	3	3	2	3
0	0	1	1	1	2
1	1	3	3	1	3
0	0	3	2	1	2

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## List of Prioritized Recommendations, continued

STRATEGY NUMBER	STRATEGY NAME	PRIMARY GOAL	PRIMARY OBJECTIVE	ADDITIONAL EVALUATION Top 15 scoring strategies and strategies highly rated by the public are noted here.	PROJECT PRIORITIZATION SCORE (total possible points: 18)
<b>Vehicular Network, Parking, and Curb Management Strategies</b>					
6.1	Develop Traffic-calming Toolkit	Safety	Build safe streets for all users		10
6.2	Conduct Road Diets	Safety	Build safe streets for all users		10
6.3	Develop and Launch Traffic Signal Improvement Program	Safety	Build safe streets for all users		10
6.4	Lower Statutory Speed Limit City-wide and Enact Safety Zone Speed Limits at Appropriate Locations	Safety	Reduce crashes and severity of outcomes		9
6.5	Study and Prioritize Curb Space for Best Uses	Connectivity	Expand transportation options		8
6.6	Conduct Parking Studies in Key Districts	Equity	Increase economic accessibility		6
6.7	Expand Publicly Accessible Electric Vehicle Charging	Sustainability	Reduce vehicle emissions		4
<b>Getting It Done Strategies</b>					
7.1	Design and Process Standardization	Safety	Build safe streets for all users		7
7.2	Traffic Analysis Requirements & Development Code Audit	Safety	Build safe streets for all users		10



*Public Favorite! This strategy scored higher during public engagement activities.*





*Top 15 Strategy. This strategy is one of the fifteen highest scoring strategies.*

EVALUATION METRICS (0 to 3 points)					
SAFETY Vision Zero: Does this project work towards eliminating traffic-related fatalities?	SAFETY Complete Streets: Does this project add to a complete streets network—and green network—or contribute to an all-ages and abilities bike network?	CONNECTIVITY Improve Access: Does the project improve access to schools, parks, green space, grocery stores, institutions, employment areas, and/or high demand destinations?	EQUITY Reduce Cost or Delay: Does the project reduce the transportation cost burden or reduce travel delay for public transit for lower income neighborhoods or environmental justice communities?	EQUITY Community Input: Will this project be developed through co-creation with the community or driven by community input?	SUSTAINABILITY Mode Share & Emissions: Does this project increase mode share of walkers, bikers, and rollers or increase mode share of public transportation riders (i.e., does this project reduce VMT) OR does the project reduce vehicle emissions?
3	2	1	1	1	2
2	3	2	0	1	2
3	2	2	1	1	1
3	2	1	1	1	1
1	2	2	1	1	1
1	0	1	1	0	3
0	0	0	1	1	2
1	2	1	1	1	1
2	2	2	1	1	2

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List of Prioritized Recommendations, continued

STRATEGY NUMBER	STRATEGY NAME	PRIMARY GOAL	PRIMARY OBJECTIVE	ADDITIONAL EVALUATION Top 15 scoring strategies and strategies highly rated by the public are noted here.	PROJECT PRIORITIZATION SCORE (total possible points: 18)
Getting It Done Strategies, continued					
7.3	Create and Implement Vision Zero Safety Action Plan	Safety	Reduce crashes and severity of outcomes	 TOP 15	14
7.4	Prioritize Active Transportation and Transit in Corridor and Network Planning	Equity	Increase economic accessibility	TOP 15	12
7.5	Incorporate Green Infrastructure (Trees, Rain Gardens, etc.) in Roadway Projects	Sustainability	Green the streets		9
7.6	Develop Streetscape and Street Tree Standards	Sustainability	Green the streets		8

 *Public Favorite! This strategy scored higher during public engagement activities.*

 *Top 15 Strategy. This strategy is one of the fifteen highest scoring strategies.*

EVALUATION METRICS (0 to 3 points)					
<b>SAFETY</b> <b>Vision Zero:</b> Does this project work towards eliminating traffic-related fatalities?	<b>SAFETY</b> <b>Complete Streets:</b> Does this project add to a complete streets network—and green network—or contribute to an all-ages and abilities bike network?	<b>CONNECTIVITY</b> <b>Improve Access:</b> Does the project improve access to schools, parks, green space, grocery stores, institutions, employment areas, and/or high demand destinations?	<b>EQUITY</b> <b>Reduce Cost or Delay:</b> Does the project reduce the transportation cost burden or reduce travel delay for public transit for lower income neighborhoods or environmental justice communities?	<b>EQUITY</b> <b>Community Input:</b> Will this project be developed through co-creation with the community or driven by community input?	<b>SUSTAINABILITY</b> <b>Mode Share &amp; Emissions:</b> Does this project increase mode share of walkers, bikers, and rollers or increase mode share of public transportation riders (i.e., does this project reduce VMT) OR does the project reduce vehicle emissions?
3	3	3	1	2	2
2	2	2	2	2	2
2	3	2	0	1	1
1	2	2	1	1	1

# Endnotes

- 1 Data obtained from MassDOT: Crash Data Portal in May 2024
- 2 MassDOT Top Crash Locations, <https://gis.massdot.state.ma.us/topcrashlocations/>
- 3 MassDOT Safe Routes to School Program: <https://www.mass.gov/safe-routes-to-school>
- 4 MassDOT Massachusetts Age-and Dementia Friendly Integration Toolkit: <https://www.mass.gov/info-details/view-resources-by-focus-area#transportation->
- 5 [https://www.seattle.gov/documents/departments/sdot/transportationequity/transportationequity\\_framework\\_report\\_41422.pdf](https://www.seattle.gov/documents/departments/sdot/transportationequity/transportationequity_framework_report_41422.pdf)
- 6 [https://www2.minneapolismn.gov/media/content-assets/www2-documents/residents/Racial-Equity-Framework-for-Transportation-\(REF\).pdf](https://www2.minneapolismn.gov/media/content-assets/www2-documents/residents/Racial-Equity-Framework-for-Transportation-(REF).pdf)
- 7 <https://legislature.vermont.gov/assets/Legislative-Reports/2023-Act-55-Section-41-Transportation-Equity-Framework-Final-Report.pdf>
- 8 USDOT FHWA Center for Accelerating Innovation Nighttime Visibility for Safety: [https://www.fhwa.dot.gov/innovation/everydaycounts/edc\\_7/nighttime\\_visibility.cfm#:~:text=The%20nighttime%20fatality%20rate%20on,during%20darkness%20will%20save%20lives.](https://www.fhwa.dot.gov/innovation/everydaycounts/edc_7/nighttime_visibility.cfm#:~:text=The%20nighttime%20fatality%20rate%20on,during%20darkness%20will%20save%20lives.)
- 9 <https://new.mta.info/ehail>
- 10 SRTA Bus Stop Design Guidelines, [https://www.srtabus.com/wp-content/uploads/SRTA\\_BSDG\\_-\\_Final-Draft-with-Appendices\\_20221121\\_reduced-size.pdf](https://www.srtabus.com/wp-content/uploads/SRTA_BSDG_-_Final-Draft-with-Appendices_20221121_reduced-size.pdf)
- 11 <https://mass.streetsblog.org/2024/03/20/poll-finds-overwhelming-public-support-for-worcesters-fare-free-buses>
- 12 <https://cdn.mbta.com/sites/default/files/2023-11-1-mbta-bus-transit-priority-toolkit.pdf>
- 13 <https://transitcenter.org/wp-content/uploads/2018/06/Frequency.compressed-1.pdf>
- 14 [https://kingcounty.gov/~media/depts/metro/programs-projects/zero-emissions-fleet/battery\\_buses\\_august\\_2019\\_final.pdf](https://kingcounty.gov/~media/depts/metro/programs-projects/zero-emissions-fleet/battery_buses_august_2019_final.pdf)
- 15 [https://www.actransit.org/sites/default/files/2022-06/0162-22%20ZEB%20Transition%20Plan\\_052022\\_FNL.pdf](https://www.actransit.org/sites/default/files/2022-06/0162-22%20ZEB%20Transition%20Plan_052022_FNL.pdf)
- 16 <https://www.masstransitmag.com/bus/maintenance/fuel-systems-fueling-equipment/press-release/21222997/arup-marthas-vineyard-transit-authority-launches-renewable-energy-microgrid-for-new-electrified-electric-bus-system>