Jersey City Traffic Calming Toolkit Final Report

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NJTPA
NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

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Prepared for:

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Disclaimer

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Executive Summary

The Jersey City Traffic Calming Toolkit helps fulfill a major initiative of the Vision Zero Action Plan. It provides a comprehensive review and updated guidelines for enhancing traffic safety throughout the city through traffic calming measures. Traffic calming reduces the negative effects of motor vehicle use, alters driver behavior, and improves conditions for non-motorized street users through physical design and other measures on existing roads to reduce vehicle speeds.

This study identified current traffic calming measures and recommended additional ones based on federal, state, and other guidelines. The study also established a methodology for prioritizing locations for traffic calming installations and developed actionable concept designs for 12 high-priority locations. Additionally, an equity assessment was completed, heavily informing the analysis and community engagement approach.

Regional Significance

Jersey City, the state's second most populous municipality with nearly 292,000 residents, serves as a regional hub for employment, commerce, and leisure activities. This prominence attracts commuters and visitors, leading to escalating traffic volumes and heightened risks of pedestrian and vehicular crashes, some of which have been fatal. In response to these challenges, Jersey City adopted a Vision Zero Action Plan in 2019 with the ambitious objective of eliminating traffic fatalities and severe injuries by 2026.

Goals & Objectives

This study aimed to create a Traffic Calming Toolkit to replace Jersey City's guidance from the 2011 Master Plan's Circulation Element. The resulting toolkit offers traffic calming principles aligned with the City's Vision Zero Action Plan and in keeping with current traffic calming practices. It also provides specific design interventions to enhance safety for pedestrians, cyclists, motorists, and transit riders, based in part on an evaluation of the effectiveness of existing traffic calming measures in the city and within the national literature.

Community Engagement

Community engagement and outreach were major components of the Jersey City Traffic Calming Toolkit, with equitable engagement throughout the study. Understanding local needs and desires was fundamental to creating recommendations that work for everyone, thereby garnering the support needed to advance proposed strategies to implementation.

The outreach process was iterative and evolved with each phase, comprising:

- Three Technical Advisory Committee (TAC) Meetings
- Three rounds of Public Meetings and Demonstration Projects (October 2023, April 2024, June 2024)
- A series of Stakeholder Interviews (August 2023)
- Digital Engagement (Project Website, Community Survey, and Interactive Map)

Overall, the community has a strong understanding of traffic calming and is supportive of the effort Jersey City puts into making streets safer, albeit with some concerns about specific traffic calming treatments. There is high demand for demonstration projects and generally positive input following their implementation (particularly from those who identify primarily as pedestrians and cyclists), however, self-identified drivers were much less supportive and the removal of parking continues to be a contentious subject. Outreach through the TAC further emphasized the importance of cross-agency coordination to continue to implement improvements with buy-in from all parties, including Hudson County. Residents see the need for significant investment and improvements on County roads and do not necessarily differentiate between the City's jurisdiction and the County's, as demonstrated by most of the requested improvements being on roads outside Jersey City's control.

Methodology

The development of the traffic calming toolkit was based on understanding appropriate traffic calming strategies for the city, fitting these measures within the City's planning framework, identifying where they are most needed, selecting appropriate measures for each location, and evaluating their effectiveness. This framework included:

- Reviewing recent plans and documents to utilize available data and understand previously identified needs and goals, and revealing that the City has the technical capacity and in-house implementation resources to achieve traffic calming goals.
- Assessing existing traffic calming measures and recommending new measures, organized into categories: horizontal deflections and closures, vertical deflections, unsignalized intersection treatments, traffic signs and pavement markings, other visual cues, and signal control.
- Developing tools such as:
    - Priority Location Selection Methodology
    - Traffic Calming Selection Criteria and Typology Framework
    - Measures of Effectiveness Review

Equity, traffic crashes, and existing traffic calming measures were all evaluated as part of this study. These analyses informed the selection of treatment types and the selection of priority locations. The equity analysis identified clusters of underserved communities within Journal Square, McGinley Square, Bergen-Lafayette, Greenville, and The Heights neighborhoods. The results of the equity analysis were then cross-referenced with the crash analysis and existing traffic calming measures assessment.

While underserved areas were not found to have higher crash rates, a set of priority block groups were identified and considered when developing the list of priority locations. They should also be referenced in the future when identifying additional locations for traffic calming.

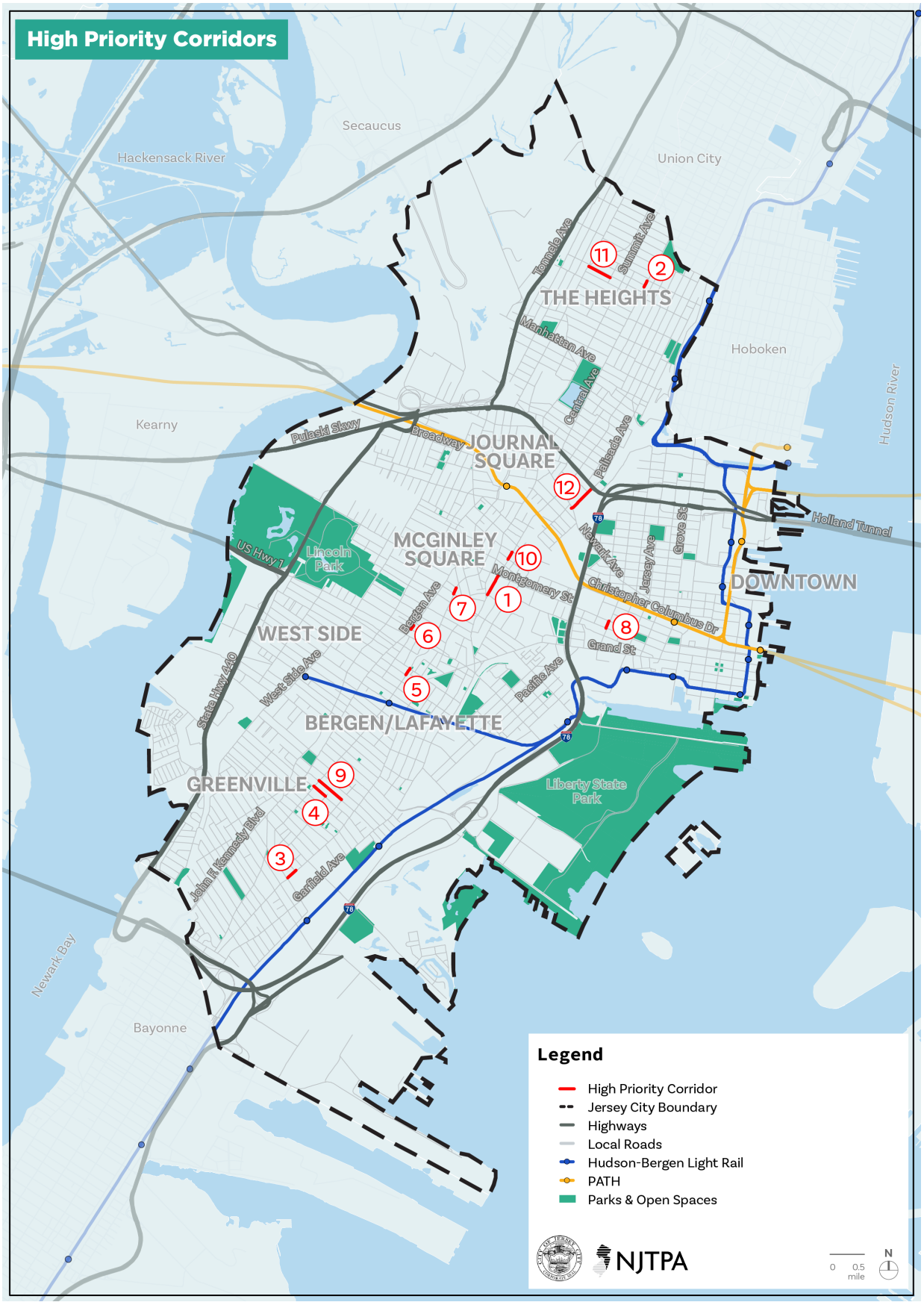
However, the data does show that traffic calming measures have disproportionately been implemented in better-off communities and underserved areas may not have received a "fair share" of traffic calming measures to date.

Key Outcomes

This study includes a Traffic Calming Measures Selection Matrix and Typology Framework to assist the City in identifying appropriate improvements by location type. Conceptual designs were developed for 12 priority locations to improve safety. Nine evaluation metrics were used to help prioritize the City's roadway segments for the future deployment of traffic calming measures, either through a demonstration project or for a permanent installation. (See Section 5 of this report for additional information on the metrics.) The evaluation identified the following priority locations:

1. Baldwin Avenue – Clifton Place to Montgomery Street
2. Central Avenue – South Street to North Street
3. Ocean Avenue – Cator Avenue to Sheffield Street
4. Fulton Avenue – MLK Drive to Rose Avenue
5. MLK Drive – Communipaw Avenue to Welsh Lane
6. Bergen Avenue – Harrison Avenue to Welsh Lane
7. Monticello Avenue – Fairview Avenue to Storms Avenue
8. Monmouth Street – Montgomery Street to Grand Street
9. Dwight Street – MLK Drive to Van Cleef Street
10. Baldwin Avenue – Montgomery Street to Vroom Street
11. Bleecker Street – JFK Boulevard to Pierce Avenue
12. Palisade Avenue – Newark Avenue to 139 Upper

Prioritized Roadway Segments



A Traffic Calming Toolkit was also created for use by Jersey City staff to improve road safety and as an educational resource for members of the public.

Next Steps

Moving forward, Jersey City should consider the following steps to build on the findings and recommendations of this study:

- **Implementation of Traffic Calming Measures**: Work towards implementation of traffic calming measures at the prioritized locations per year. Subsequently, Jersey City can identify a new set of locations, prioritizing the block groups with high equity scores and lower traffic calming investment identified as part of the Equity Assessment, for annual targeted investment.
- **Monitoring and Evaluation**: Continuously monitor the effectiveness of implemented traffic calming measures using the identified MOEs. This will provide valuable data for future decision-making and refinement of traffic calming strategies. City should conduct at least 2 full evaluations of a traffic calming installation and publish the report/findings.
- **Community Engagement**: Maintain ongoing engagement with the community, specifically the equity communities, to align with local needs and priorities and gain support for future traffic calming efforts. Target communities with high-priority roadway segments for outreach and cooperation.
- **Regular Updates to the Traffic Calming Toolkit**: The Traffic Calming Toolkit should be updated on a regular basis (every 3-4 years) to incorporate new research, best practices, and lessons learned from implementation.
- **Collaboration with Regional Partners**: Work collaboratively with regional partners, including neighboring municipalities, the County, transportation agencies, and advocacy groups, to share best practices and coordinate efforts to improve traffic safety across the region.

By taking these next steps, Jersey City can build on the foundation laid by this study and continue to make meaningful progress towards creating safer, more sustainable streets for all residents and visitors.

1. Introduction

The City of Jersey City, New Jersey, stands as the state's second most populous municipality, boasting a population nearing 292, 000 residents. It serves as a prominent regional hub for employment, commerce, and leisure activities, drawing individuals from the North Jersey region and beyond. This influx of commuters and visitors has contributed to escalating traffic volumes, leading to heightened risks of pedestrian and vehicular crashes, some of which have proven fatal.

The City's urban landscape, characterized by dense population clusters and a well-established street grid, is further complicated by its role as a key transit nexus, serving both commuters and residents alike. Over the past decade, Jersey City has witnessed an 18 percent population surge, adding over 40,000 residents to its vibrant community. Projections indicate that this growth trajectory will persist, with the population expected to approach 400,000 by 2050. This demographic expansion places considerable strain on the City's transportation infrastructure, which is already challenged by limited connectivity and roadway capacity. The resultant congestion and conflicts between travel modes underscore the urgent need for improved traffic safety measures that will accommodate growth in sustainable travel modes like walking and biking.

In response to the escalating toll of traffic-related deaths and serious injuries, particularly among pedestrians, Jersey City adopted a Vision Zero Action Plan in 2019, with the ambitious objective of eliminating traffic fatalities and severe injuries by 2026. To achieve this vision, the City recognizes the imperative of reassessing and enhancing its traffic calming strategies, ensuring the safety and well-being of all road users.

This study represents a critical step in fulfilling Action Item 1.1 of the Vision Zero Action Plan, providing a comprehensive review and updated guidelines for enhancing traffic safety throughout the City through traffic calming. Traffic calming is the combination of measures that reduce the negative effects of motor vehicle use, alter driver behavior, and improve conditions for non-motorized street users. It consists of physical design and other measures put in place on existing roads to reduce vehicle speeds.

Goals & Objectives

This study aimed to create a Traffic Calming Toolkit to replace Jersey City's current guidance, as outlined in the Circulation Element of the 2011 Master Plan. The resulting toolkit offers a set of traffic calming principles aligned with the City's Vision Zero Action Plan. It also provides specific design interventions to enhance safety for pedestrians, cyclists, motorists, and transit riders, based in part on an evaluation of the effectiveness of existing traffic calming measures in the City.

Planning Process

The development of an actionable traffic calming toolkit for Jersey City requires a thorough understanding of the most suitable strategies, their integration into the city's transportation planning framework, their targeted locations, appropriate measures for each area, and methods for evaluating their effectiveness. This study conducted this planning process through the following steps:

- Review existing transportation plans and documentation from Jersey City, Hudson County, the NJTPA, and NJDOT.
- Review current traffic calming measures and recommend additional measures based on federal, state, and other guidelines.
- Establish a methodology for prioritizing locations for traffic calming installation and identify the top 12 locations.
- Identify factors that impact the implementation of each strategy.
- Establish criteria for selecting traffic calming measures for specific road and intersection types.
- Develop a methodology for evaluating the effectiveness of implemented traffic calming measures.

2. Existing Conditions Review

The following section provides a comprehensive overview of Jersey City's current traffic calming efforts, focusing on the distribution of existing traffic calming measures, recent traffic crash data, and associated equity considerations. This analysis incorporates data from the five-year 2021 American Community Survey estimates from the Census Bureau and is conducted at the Census Block Group level to provide a detailed understanding of the City's demographic and socioeconomic landscape.

Existing Traffic Calming Measures

In 2019, when the City renewed its commitment to a safer city with the release of its Vision Zero Action Plan, it did so in part intending to utilize traffic calming techniques found in the Circulation Element of the City's Master Plan. This document identifies 13 measures and includes a selection matrix, that establishes guidance regarding which measures would be most appropriate and effective given a typical City roadway. Additional information on the existing traffic calming measures review can be found in **Appendix A**. Of the 13 measures, speed humps, multi-way stops, and no right turns on red (Traffic Signage and Markings) are among the most common traffic calming measures within the City. Locations of all existing traffic calming measures are shown in **Figure 1**.

Equity Assessment

Equity is a key aspect of evaluating Jersey City's previous traffic calming efforts and making recommendations for future traffic calming within the City. This Equity Assessment develops equity metrics based on a range of demographic and socioeconomic factors to understand the distribution of neighborhoods with access to fewer opportunities within Jersey City. Underinvested communities are composed of groups of people who experience a combination of economic, health, and environmental burdens. This may include people with low income, disabilities, and limited English proficiency. To better understand this relationship, the geographical spread is within Jersey City is, then, compared to the locations of existing traffic calming measures, as well as the traffic crashes in recent years. The following sections provide a summary of the equity assessment; for the full analysis see **Appendix B**.

Figure 1. Existing Traffic Calming Measures in Jersey City

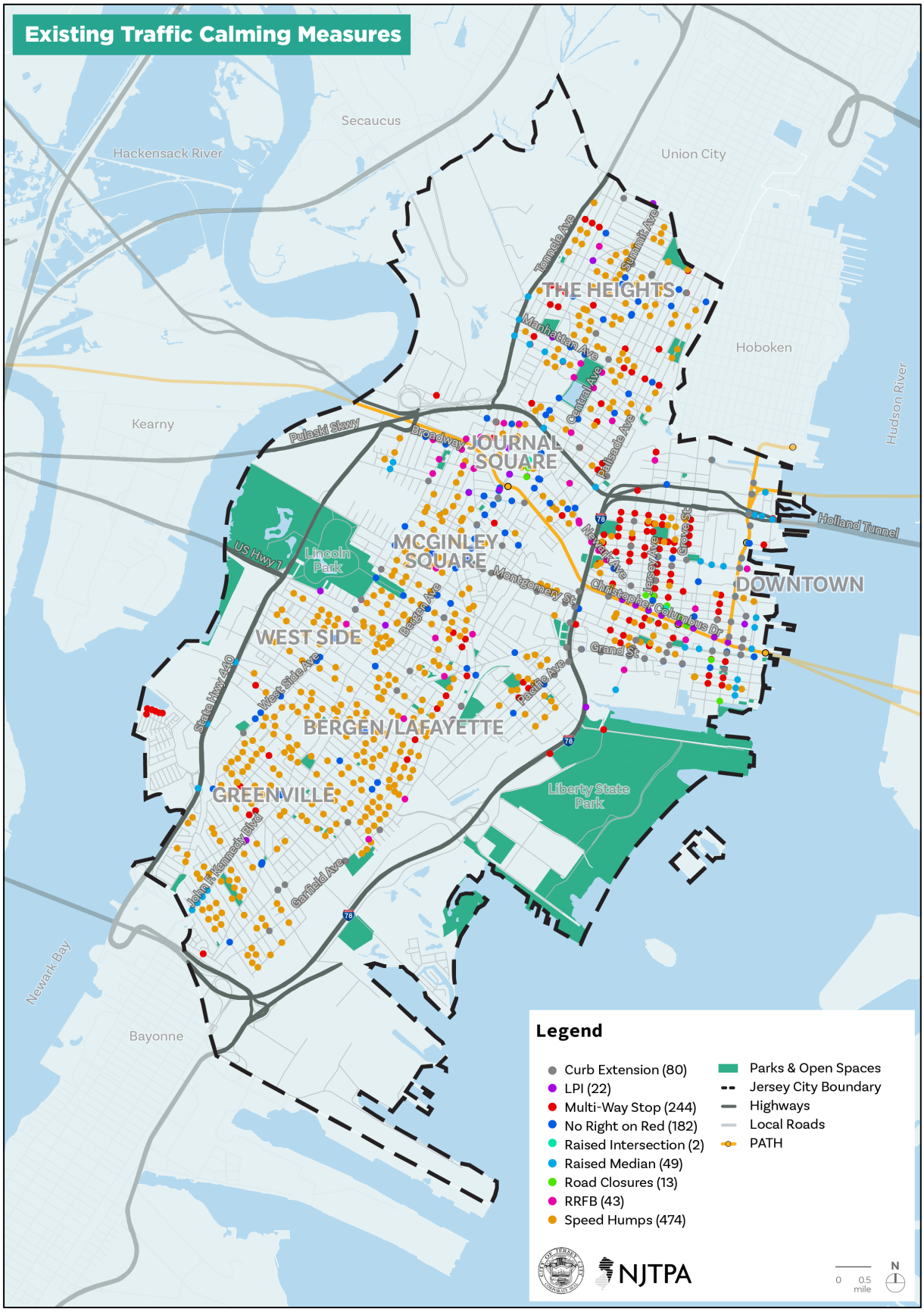


Table 1. NJTPA Region and Jersey City Equity Factor Average

Equity Factor	Regional Average	Jersey City Average
1. Minority Population	48%	68%
2. Low-Income Population	22%	43%
3. Limited English Proficiency	14%	7%
4. Disability Status	10%	8%
5. Young Children (Under 5 Years of Age)	6%	8%
6. Children (5-17 Years of Age) School Aged- Population	16%	13%
7. Seniors	16%	19%
8. No Vehicle Access	12%	16%
9. Foreign-Born Population	26%	42%
10. Female Population	51%	50%
11. Highest Education Attainment	10%	8%

Analysis Approach

The analysis approach is based on the North Jersey Transportation Planning Authority (NJTPA) Equity Analysis methodology, which includes combining 11 demographic and socioeconomic factors into a Composite Equity Measure. The included factors are listed below:

- **Minority Population**: people that are non-white.
- **Low-Income Population**: people earning within 200 percent of the poverty rate.
- **Limited English Proficiency**: people 5 years and older who speak English less than very well.
- **Disability Status**: people who report experiencing some form of disability.
- **Young Children**: people under 5 years old.
- **Children (School-Aged Population)**: people between 5 and 17 years old.
- **Seniors**: people who are 65 years old or older.
- **No Vehicle Access**: households that own no vehicles.
- **Foreign-Born Population**: people who are born outside the United States.
- **Female Population**: people who identify as female.
- **Highest Education Attainment**: adults with no high school GED and less education.

The data for this analysis comes from the five-year 2021 American Community Survey estimates from the Census Bureau. The analysis is conducted at the Census Block Group level, which is a granular geography comprising 600-3,000 residents. By focusing on a small geographic unit, we can more precisely identify areas of concentrated underrepresented communities.[1]

Table 1 compares the citywide average for each factor to the regional average (as calculated for the NJTPA Equity Analysis). While Jersey City has some similar demographic characteristics to the region at large (such as age-based criteria, no vehicle access, and disability status), Jersey City includes a substantially higher proportion of minority, foreign- born, and low-income residents.

1 Where equity factors are only available at the Census Tract level (a larger geographic unit, containing up to 8,000 residents), the population within the Census Tract is distributed to the Block Groups proportionally based on population. For example, if a Block Group has 25 percent of the Census tract's total population, then it is assumed that 25 percent of the zero-vehicle households within the Census Tract are located within that Block Group.


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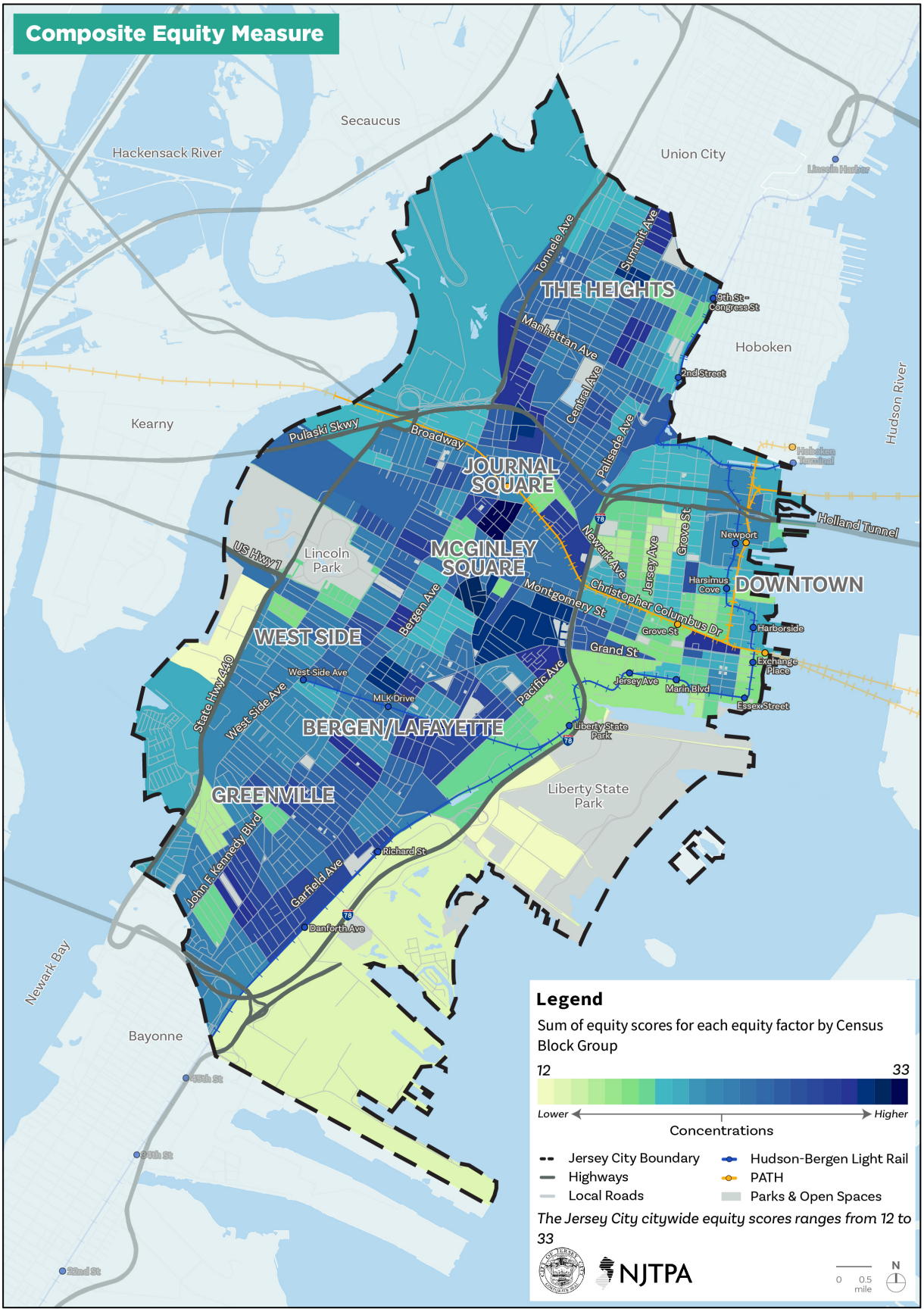
Figure 2. Composite Equity Measure



Composite Equity Measure

While each of the individual equity factors is potentially instructive on its own, it is difficult to surmise citywide equity trends across 11 separate metrics. As a result, a Composite Equity measure has been developed to combine these factors. Each Block Group is assigned a score for each of the 11 factors based on the thresholds noted above. The Composite Equity Measure is determined for each Block Group by adding together the scores for each of the 11 factors. Thus, a Block Group's total score can range from 0 to 44. A score of zero would mean that every equity factor in that Block Group is categorized as "Well Below Average," while a score of 44 would indicate that every equity factor in the Block Group is categorized as "Well Above Average."

The scores within Jersey City range from 12 to 33 – each Block Group has a mix of concentrations of different equity factors, and none have very low or very high concentrations across all 11 equity factors. This is similar to the NJTPA analysis, where scores ranged from 10 to 37.

The distribution of scores is shown in **Figure 2**. Overall, the individual equity factors, as well as the Composite Equity Measure, highlight some of the areas with a concentration of households with one or more types of equity factors. These key areas include clusters of blocks within Journal Square, McGinley Square, Bergen-Lafayette, Greenville, and The Heights. Jersey City is made of up a patchwork of diverse communities; no one portion of the city is high across all equity factors.

As discussed, the link between equity areas and the implementation of traffic calming is an important crossroads for this study to assess. This next analysis reviews the equity scores relative to existing traffic calming measures. In Jersey City, there are nearly 1,100 locations with some form of traffic calming measure. The types of traffic calming measures across the City are shown in **Table 2**.

Table 2. Existing Traffic Calming Measures in Jersey City

Traffic Calming Measure	Number of Locations	Percentage of Location
Curb Extension	81	8%
Leading Pedestrian Interval (LPI)	12	1%
Multi-way Stop Controlled Intersections	238	22%
No Right-turn on Red Signal	182	17%
Raised Median	49	5%
Raised Speed Tables	2	0%
Rectangular Rapid Flashing Beacon (RRFB)	22	2%
Road Closures	13	1%
Speed Humps	474	44%
Total	**1,073**	**100%**

Figure 3. Distribution of Population and Traffic Calming Measures

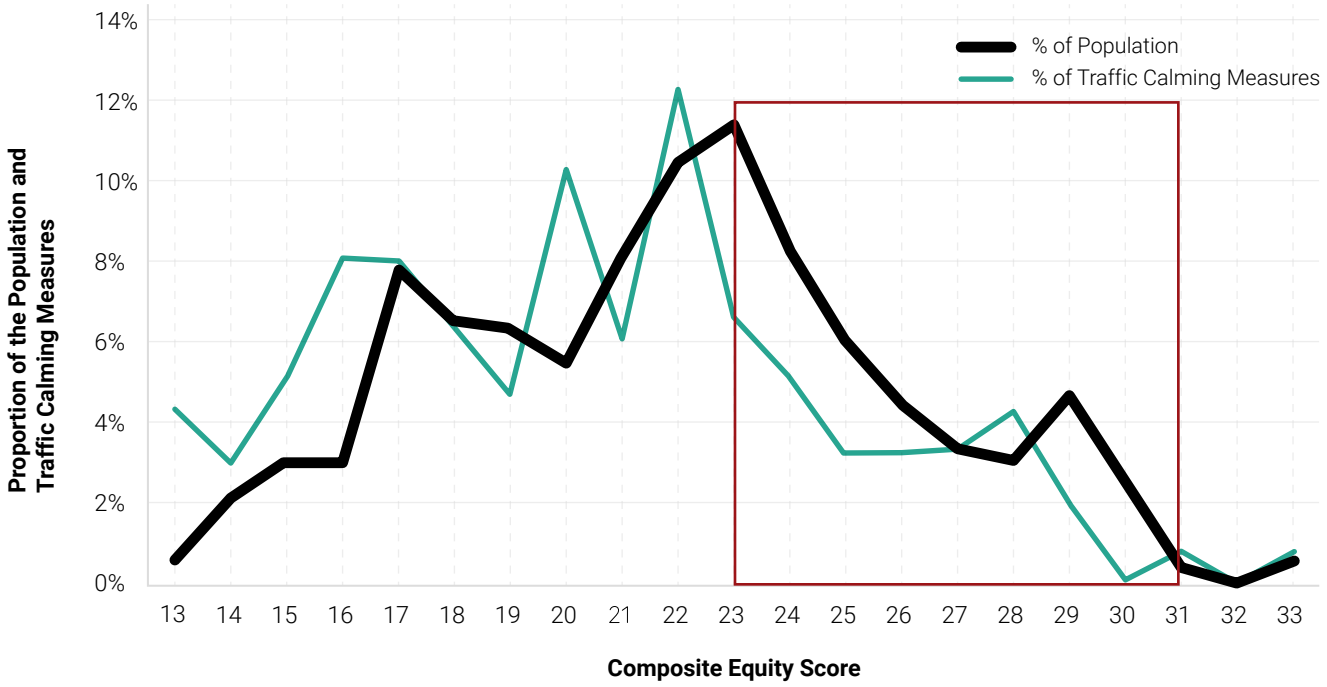


Figure 3 shows the distribution of population and traffic calming measures. Where the percentage of the population (the black line) is at a similar level to the green line, the traffic calming measures in Block Groups with that score are proportional to the population living in Block Groups with that score.

This indicates that the number of traffic calming measures is not disproportionately higher or lower than expected. Where the black line is higher, there are disproportionately fewer traffic calming measures in Block Groups with that score. Where the black line is lower, there are disproportionately more traffic calming measures in Block Groups with that score.

The data does show a disparity between equity scores and the implementation of traffic calming measures. Traffic calming measures have disproportionately been implemented in communities with lower equity scores, meaning that areas with high equity scores do not have their "fair share" of traffic calming measures. To move towards more equitable implementation of traffic calming measures, future traffic calming investments should be focused on areas with high equity scores. The equity score developed in this assessment is one of the prioritization criteria for selecting locations for future traffic calming measures in Jersey City.

The analysis shows a disparity in where existing traffic calming measures have been located – more traffic calming measures are present in better-off neighborhoods (i.e. Block Groups with low equity scores) relative to population, and fewer are located in disadvantaged Block Groups with high equity scores (see the red box for scores 23 to 30).

In addition to a comparison between equity and traffic calming measures, an assessment of equity and crash history was also conducted. While a correlation was not identified between equity scores and crash trends, a set of priority Block Groups as identified. These locations were taken into consideration when developing the list of priority locations and should be referenced in the future when identifying additional locations. This map as well as the full crash analysis can be found in **Appendix B**.

3. Community Engagement & Outreach

Community engagement and outreach were a major component of the Jersey City Traffic Calming Toolkit. The project team was committed to equitable engagement and outreach throughout the project timeline. Understanding local needs and desires was fundamental to the creation of recommendations that work for and are accessible to everyone. This helps create the support needed to advance proposed strategies to implementation.

The overall outreach process was intended to be iterative and evolve with the results of each phase. It was ultimately comprised of the following components:

- Three Technical Advisory Committee (TAC) Meetings
- Three Rounds of Public Meetings and Two Demonstration Projects
  - October 2023
  - April 2024
  - June 2024
- A series of Stakeholder Interviews (August 2023)
- Digital Engagement
  - Project Website
  - Community Survey and Interactive Map
- The project team was able to receive feedback and input from participants at each phase of outreach to help ensure that recommendations were developed with the specific needs of different Jersey City communities in mind. For additional information regarding the outreach conducted for this study see **Appendix C**.

Public Engagement Process

Overall Engagement Goals and Objectives

Our overall goal for engagement was to incorporate public input and feedback directly into the update of the Traffic Calming Toolkit. To reach these goals, engagement was divided into multiple phases, allowing for feedback loops and participants to see their input reflected to them.

Stakeholder Interviews Summary

Stakeholder Interviews were conducted to obtain feedback from key community groups and individuals. These have the opportunity to provide insight into specific neighborhood needs. These were group interviews, held virtually via Zoom, over the phone, and via Google survey. Over Zoom, interviews were 30 minutes in length, while a Google survey created using the same questions from the interview guide could be completed at participants' leisure. Interviews took place during the end of August 2023.

The interviews convened members of neighborhood associations across all Jersey City Wards and citywide advocacy groups to discuss traffic calming in Jersey City by Ward. Conversations focused on familiarity with traffic calming, overall impressions toward common tools, identifying specific locations where traffic calming was needed or desired, and gaining insight into how best to communicate with the represented groups and organizations.

The interviews were conducted entirely in English and hosted over Zoom. One interview took place over the phone, and six responses were gained through the Google Form survey.

A few major topics were discussed in the conversation:

1. Understanding and Perception of Traffic Calming
2. Places that Traffic Calming Could Be Needed
3. Getting in Contact with Community Organizations

Participant Overview

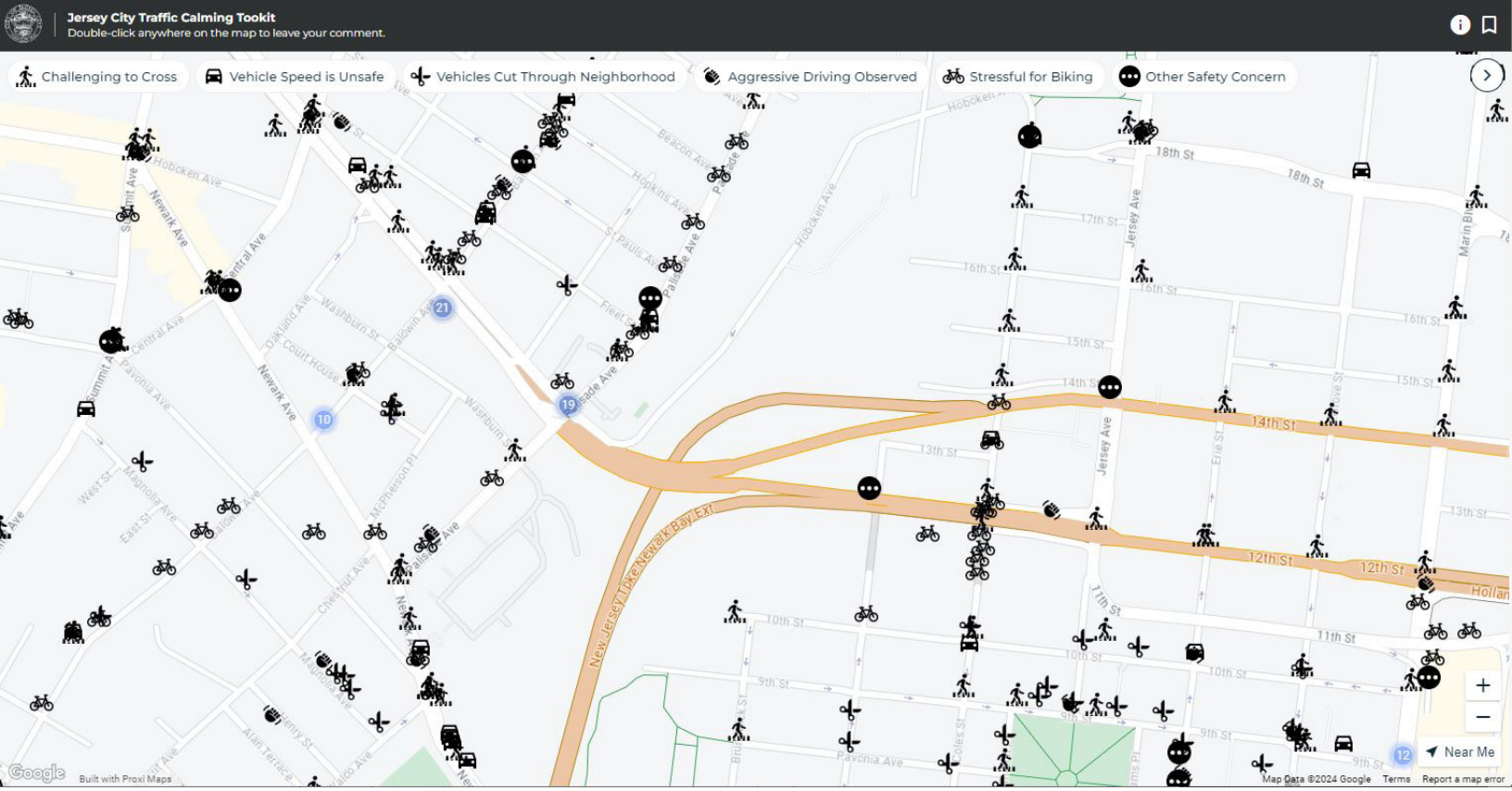
The interviewees were members of community organizations in Jersey City. Interviews were divided by category: Advocates, Ward A, Ward B, Ward C/D, Ward E/F. An equal number of participants were invited from each Ward. Participants unable to join the virtual interview were also provided an online form to provide answers to the interview questions.

The following Organizations were represented:

- Bike JC
- Safe Streets JC
- I Love Greenville Community Partnership
- Friends of Lincoln Park
- Lincoln Park North
- Kensington-Jewett Association
- Riverview Neighborhood Association
- Bergen Hill Neighborhood Association
- Morris Canal Redevelopment Area Community Development Corporation
- Powerhouse Arts District Neighborhood Association
- Van Vorst Neighborhood Association

Key Takeaways

During interviews, several key points emerged. Firstly, there was significant concern regarding rolling stops and people running stoplights, with many suggesting that increased enforcement or better stoplight monitoring could address these issues. Secondly, there was interest in implementing smaller roundabouts in the city. However, there was also a lack of familiarity with traffic calming among some interviewees, while others viewed it as ineffective or an imposition. This created a nuanced conflict, where many desired the benefits of traffic calming but found the tradeoffs of implementation to be unacceptable inconveniences. Additionally, common sentiments were expressed regarding specific traffic calming measures: plastic delineators were often crushed or disregarded by drivers, lane narrowing was perceived to make streets feel more unsafe and was criticized for removing parking, and speed bumps were deemed ineffective due to their narrow width and the belief that people would continue to speed. To spread awareness, connecting with schools and local Facebook groups and newsletters was identified as the most effective method. Finally, JFK Boulevard and Columbus Drive were commonly identified as areas in Jersey City in need of traffic calming measures.



Interactive Mapping Results

An interactive mapping tool was developed and publicized for community input. The mapping tool allowed people to identify intersections and streets where people drive aggressively, cut through neighborhoods, or where walking or cycling felt unsafe. The ability to add comments and pin locations was open from September 2023 through January 2024. The following categories were provided for members of the public to pick from:

- Aggressive Driving Observed
- Challenging to Cross
- Other Safety Concerns
- Stressful for Biking
- Vehicle Speed is Unsafe
- Vehicles Cut through the Neighborhood

There was also the opportunity for participants to elaborate and include additional detail in their responses.

In total, the interactive map received 2,201 responses. “Challenging to cross” was the most selected issue, closely followed by aggressive driving, unsafe vehicle speeds, and stressful biking. Responses to the “Other Safety Concerns” category were primarily focused on a need for enforcement, the need for pedestrian safety infrastructure improvements (i.e., sidewalks), the amount of double parking and vehicles blocking pedestrians, a need for traffic lights or stop signs, and highlighting visibility issues for drivers that make them block crosswalks.

The results of this interactive mapping activity were utilized throughout the priority locations selection process to better understand existing issues and develop potential recommendations.

Technical Advisory Committee (TAC) Meetings

The purpose of the TAC was to help guide the project team and provide information and insight where possible, helping to shape the study. The committee was comprised of City department leaders, County department leaders, and State and regional transportation agency leaders who were invited to participate. In addition to providing technical direction and feedback, TAC members assisted the project team with the promotion of the study via their outlets and networks and provided insight on ways to increase engagement with the public. The TAC members conducted virtual meetings with the project team on September 22, 2023; and January 4, 2024, and May 9, 2024.

Demonstration Projects

As a part of these efforts, two demonstration projects were held in different neighborhoods of Jersey City. A Demonstration Project is a temporary, low-cost, and scalable intervention that allows communities to test and evaluate potential improvements to the built environment before committing to permanent change. They are typically installed using materials like paint, tape, and temporary barriers that can be quickly added and removed from the street. Treatments identified for inclusion in the Traffic Calming Toolkit, that were appropriate for the selected location, were implemented as a part of these demonstration projects in order to gain community feedback and test their calming effectiveness.

Demonstration Project #1

A demonstration project of traffic calming elements was installed on North Street from Central Avenue to Hancock Avenue, in front of Washington Park, in Jersey City on October 28, 2023.

Temporary curb extensions, temporary removal of parking, realignment of the bike lane, and a lateral shift were added to the street using paint and plastic delineators. During the installation and for several hours after, an information tent with project posters and inputs was set up and staffed for participants and passersby to learn more about the demonstration and the project as a whole. Multiple feedback opportunities were provided:

- Verbal interactions with staff
- Day-of survey responses
- Post-event survey responses open through November 14, 2023
- General comment box on the project website

Thoughts from the public were overwhelmingly positive during the demonstration project installation event, with participants indicating the improvement it would bring to safety in this area. Many people expressed interest in having a similar installation or similar traffic elements reproduced elsewhere in Jersey City. The post-implementation survey results showed more division among respondents, with more focus on parking and driver-oriented needs than in the feedback received on the day of the event.

Demonstration Project #2

The second demonstration project was installed on Monticello Avenue between Fairview Avenue and Fairmount Avenue on April 6, 2024.

Temporary curb extensions and median refuge islands were installed on the street using paint, traffic tape, and plastic delineators. During the installation, an information tent with project posters and inputs was set up and staffed for participants and passersby to learn more about the demonstration and the project as a whole. Unfortunately, due to inclement weather involving rain and wind, the posters received little interaction, and most inputs were provided verbally between participants and project staff.

An estimated 55 members of the public asked questions or stopped by the information table, engaged in conversations about the traffic calming toolkit, and were told about a day-of physical and online survey. Fifteen (15) members of the public signed into the public meeting and participatory installation, with a least 24 members of the public, ranging from children to adults, participating in painting the street. Overall feedback from participants and survey respondents was approval for the installation.

This demonstration project also involved a speed study. To evaluate the impact of the installation, a speed camera was set up before and during the demonstration project. Results showed an 11.54 percent decrease in speed for all vehicles headed northbound and a four percent decrease for southbound vehicles. Additionally, prior to installation, 16.25 percent of all vehicles, heading both north and southbound, exceeded the speed limit, while 6.7 percent of all north and southbound vehicles exceeded it post-installation.

4. Traffic Calming Measures Identification & Selection

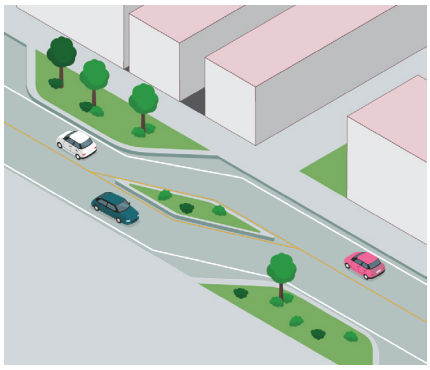
The existing conditions analysis identified potential traffic calming measures and technical guidance missing from Jersey City's documentation. A Traffic Calming Measures Scan was conducted to identify feasible measures that would help the City advance its Vision Zero goals.

As discussed in Section 2, now that the common traffic calming measures implemented by the City and their distribution throughout City roadways has been analyzed, it is important to identify any gaps in the treatment types. To do this, a review was conducted of the following resources to determine if additional traffic calming techniques could be considered by the City:

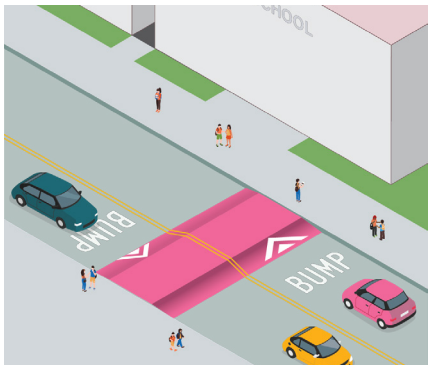
- Institute of Transportation Engineers (ITE) Traffic Calming Measures Fact Sheets
- Federal Highway Administration (FHWA) Traffic Calming ePrimer
- National Association of City Transportation Officials (NACTO) Urban Street Design Guide
- NACTO Urban Bikeway Design Guide
- NACTO Transit Street Design Guide
- NACTO Global Street Design Guide
- New Jersey Complete Streets Design Guide
- Let's Ride JC Bikeway Design Guide
- NYC DOT Street Design Manual, Third Edition

The result of the review indicates that, in general, the Circulation Element describes and discusses a set of traffic calming measures that are both feasible and appropriate for the City to implement, many of which are already included in the resources listed above. However, 11 additional traffic calming measures were identified from the resources listed above that could be added to the measures already identified. These measures are organized in **Table 3** within the following categories:

- **Horizontal Deflections and Closures**: Curbing or other physical obstruction that narrows the roadway, requires a shift in the travel lane, or closes one or more directions of traffic flow. If these measures are being permanently implemented, consideration should be given to also installing green stormwater infrastructure.
- **Vertical Deflections**: Measures that require vehicles to slow to accommodate a vertical shift in the roadway surface.
- **Unsignalized Intersection Treatments**: Measures applied at unsignalized intersections to reduce travel speeds and enhance the visibility of pedestrians.



Horizontal Deflections and Closures



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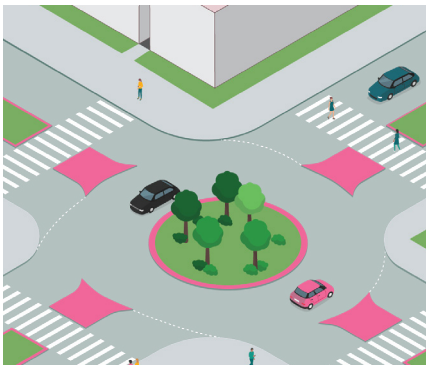
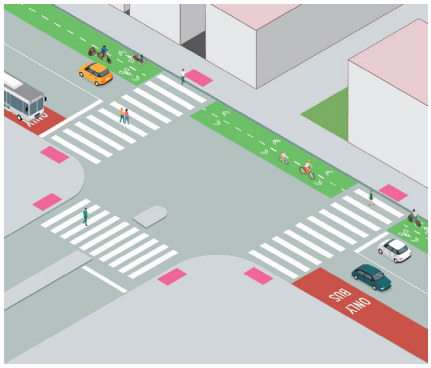


Unsignalized Intersection Treatments

Signs and Pavement Treatments



Other Visual Cues

Signal Control

- **Signs and Pavement Treatments**: Signs, striping, or other pavement treatments designed to encourage awareness of vehicle speeds or the presence of pedestrians or cyclists on or near the roadway.
- **Other Visual Cues**: Other measures, which may include components of traffic calming measures from the other categories, that change the operating environment along the full length of a street, encouraging slower speeds and/or enhancing accommodations for pedestrians and cyclists.
- **Signal Control**: Modifications to signal operations to control vehicle speeds and/or provide improved operations for pedestrians, cyclists, or transit.

It should be noted that "Traffic Circles" were originally included in the list of potential traffic calming measures in the Jersey City Master Plan Circulation Element. However, the typical definition of a traffic circle is different than that provided in the Circulation Element. The description in the Circulation Element is more in line with the description of a mini roundabout. Therefore, the table reflects a combined measure of "Roundabouts and Mini Roundabouts." In addition, **Table 3** indicates, by an asterisk, which traffic calming measures are already included in the Circulation Element. It should also be noted that the information and criteria presented in the table are general guidelines and not standards or rules. In addition, **Table 3** includes anticipated and predicted effects of each traffic calming measure on speed, volume, and/or crashes where established measures of effectiveness were found. Additional information can be found in **Appendix A**.

Table 3. Traffic Calming Measures for Further Consideration

Category	Measure	Description	Functional Classification	Cartway Width	Traffic Volume	Maximum Posted Speed Limit	Percent Heavy Vehicles	Roadway Grade	Anticipated and Predicted Effect on Speed, Volume, and/or Crashes	Comments and Recommendations
Horizontal Deflections and Closures	Lateral Shift	A realignment of an otherwise straight street that causes travel lanes to shift in at least one direction.	Arterials, collectors, and local streets	48-feet or less	All	35 MPH	Less than 5%	Less than 6%	Predicted to reduce speeds by up to 5 MPH.	
	Choker	A mid-block curb extension that results in a narrower roadway section. In some cases, a choker can be used to form a single bi-directional lane where vehicles must yield to opposing traffic.	All	48-feet or less	Up to 15,000 ADT	40 MPH	Less than 5%	Less than 8%	Predicted to reduce speeds by approximately 3-6 MPH.	
	Bump Outs, Neckdowns, and Gateways*	An extension of the curb line to narrow the street width and shorten the length of the crosswalk at the entrance to a street. Neckdowns reduce the curb-to-curb roadway width, making the intersection more pedestrian-friendly, by shortening the crossing distance and improving visibility of the crosswalk and the intersection via raised peninsulas. Neckdowns can also tighten curb radii, which reduces the speed of turning vehicles.	All	48-feet or less	Up to 15,000 ADT	40 MPH	Less than 5%	Less than 8%	Precited to reduce speeds by approximately 1-10 MPH.	Emergency services and transit should be consulted
	Chicanes*	A series of mid-block curb extensions approximately 50 to 100 feet apart staggered on alternating sides of the street force drivers to negotiate a serpentine (or “zig-zag”) alignment.	Local residential and local park	40-feet or less	Less than 3,500 ADT	35 MPH	Less than 5%	Less than 8%	Predicted to reduce speeds by approximately 3-9 MPH on approach and 5-13 MPH within chicane. Predicted to reduce vehicle crashes by 29%.	

* Indicates traffic calming measure is already included in the Jersey City Master Plan Circulation Element .

Table 3. Traffic Calming Measures for Further Consideration

Category	Measure	Description	Functional Classification	Cartway Width	Traffic Volume	Maximum Posted Speed Limit	Percent Heavy Vehicles	Roadway Grade	Anticipated and Predicted Effect on Speed, Volume, and/or Crashes	Comments and Recommendations
Horizontal Deflections and Closures	Raised Medians, Pedestrian Refuges, and Staggered Crossings*	A curbed island within the center of a street. This island narrows the travel lanes at that location and can provide a pedestrian refuge area in the center of the street. It also reduces the crossing distance for pedestrians by allowing them to cross half of the street at one time. Crossings can also be staggered using a raised median to improve safety when crossing wider roads.	All	Up to 6 lanes	Up to 15,000 ADT	40 MPH	No Limit	Less than 8%	Predicted to reduce speeds by approximately 1-8 MPH. Predicted to reduce pedestrian crashes by approximately 32-56% and all crashes by 46%.	Emergency services and transit should be considered
	Turn Hardening	Turn hardening refers to the use of modular curbs, vertical delineators, and striping at intersections to reduce turning speeds and prevent "corner cutting." It emphasizes the separation between travel directions, guides vehicles into the receiving lane, and reduces turning speeds, reducing the conflict zone between turning vehicles and people biking and walking.	All	All – Must have left turn lane	Less than 10,000 ADT	35 MPH	Less than 2%	No Limit	Predicted to reduce turning speeds up to 50%. Predicted to reduce pedestrian injury and fatal crashes by approximately 18%.	Emergency services and transit should be considered
	Road Closures*	Full or partial road closures, including directional diverters, semi-diverters, median barriers, forced turn islands, pork chops, right turn islands, plazas, etc. These traffic-calming measures are designed to control traffic volumes on residential roadways and are often used to reduce cut-through traffic.	Local residential and local park	Two lane roads	Less than 3,500 ADT	35 MPH	No Limit	No Limit	No established MOE was found for this traffic calming measure.	

* Indicates traffic calming measure is already included in the Jersey City Master Plan Circulation Element .

Table 3. Traffic Calming Measures for Further Consideration

Category	Measure	Description	Functional Classification	Cartway Width	Traffic Volume	Maximum Posted Speed Limit	Percent Heavy Vehicles	Roadway Grade	Anticipated and Predicted Effect on Speed, Volume, and/or Crashes	Comments and Recommendations
Vertical Deflections	Speed Cushion	Two or more raised areas are placed laterally across a roadway with gaps between raised areas. The spacing of the gaps allows emergency vehicles to pass at higher speeds.	Collectors and local streets	Two-lane roads	Less than 3,500 ADT	30 MPH	Less than 5%	Less than 8%	Predicted to reduce 85th percentile speed (i.e. the speed at or below which 85% of vehicles travel) by approximately 15-20 MPH when crossing the cushion. Predicted to reduce volumes by approximately 20% when used in series.	
	Speed Humps*	A raised surface within the traveled way is designed to reduce speeds by creating a gentle rocking motion that discourages drivers from driving quickly.	Local residential and local park	40-feet or less	Less than 3,000 ADT	25 MPH	Less than 5%	Less than 8%	Predicted to reduce 85th percentile speed by approximately 15-20 MPH when crossing the hump. Predicted to reduce volumes by approximately 20% when used in series. Predicted to reduce all crash types by approximately 40-50%.	Emergency services and transit should be consulted
	Speed Tables, and Raised Crosswalks*	Long, raised speed humps with a flat section in the middle and ramps on the ends. They are sometimes constructed with brick or other textured materials on the flat section. If placed at a pedestrian crossing, it is referred to as a raised crosswalk.	Local residential and local park	40-feet or less	Less than 3,000 ADT	25 MPH	Less than 5%	Less than 8%	Predicted to reduce 85th percentile speed by 20-35 MPH when crossing the table. Predicted to reduce volumes by approximately 20% when used in a series. Predicted to reduce pedestrian crashes by approximately 45% and all crashes by approximately 25-33%.	Emergency services and transit should be consulted
Unsignalized Intersection Treatments	Roundabouts and Mini-Roundabouts*	Raised circular islands located in the center of an un-signalized intersection restrict drivers from speeding through intersections by impeding the straight-through movement and forcing vehicles to reduce speed.	Minor collector, local residential, and local park	One- and two-lane approaches	Up to 2,500 VPH for a single lane	45 MPH	No Limit	No Limit	Predicted to reduce speeds by approximately 1-13 MPH.	Aprons should be included to accommodate large, heavy vehicles
	Raised Intersections*	The entire intersection, including the crosswalks, is raised 6 inches above the street level to be flush with the sidewalk and curb. Long ramps are provided on all approaches.	Minor collector, local residential, and local park	40-feet or less	Less than 10,000 ADT	35 MPH	Less than 5%	Less than 8%	Predicted to reduce 85th percentile speed by approximately 25-35 MPH.	Emergency services and transit should be consulted
	Multi-way Stops*	An intersection where all (three or four) roadway approaches are stop-controlled. Multi-way stop control is used where the volume of intersecting traffic is approximately equal.	Minor collector, local residential, and local park	Single lane approaches	500 VPH for 8 hours	40 MPH	No Limit	No Limit	Predicted to reduce all crash types by approximately 60-72%.	Traffic calming is not the primary purpose

* Indicates traffic calming measure is already included in the Jersey City Master Plan Circulation Element .

Table 3. Traffic Calming Measures for Further Consideration

Category	Measure	Description	Functional Classification	Cartway Width	Traffic Volume	Maximum Posted Speed Limit	Percent Heavy Vehicles	Roadway Grade	Anticipated and Predicted Effect on Speed, Volume, and/or Crashes	Comments and Recommendations
Signs and Pavement Markings	Traffic Signage & Markings*	Signs include posted speed limits, turn prohibitions, commercial vehicle and weight prohibitions, pedestrian crossing ahead, and "yield to pedestrian in crosswalk" in road, flexible signposts. Pavement markings include school crossings, pedestrian crossings, speed limits, and warning signs installed with thermoplastic retro-reflective tape.	All	No Limit	No Limit	No Limit	No Limit	No Limit	Predicted to reduce speeds by up to 5 MPH. Transverse markings are predicted to reduce speed-related crashes by approximately 52-68%.	Low-cost measures
	Rectangular Rapid Flashing Beacons (RRFBs)	RRFBs consist of two, rectangular-shaped yellow indications, each with a light-emitting diode (LED)-array-based light source. RRFBs flash with an alternating high frequency when activated to enhance the conspicuity of pedestrians at the crossing to drivers.	All	One- and two-lane approaches	No Limit	40 MPH	No Limit	No Limit	Predicted to reduce pedestrian crashes by up to 47%.	
	Speed Detector Signs*	Signs that display the speed of approaching vehicles to alert motorists when they are driving at unsafe speeds.	All	No Limit	No Limit	No Limit	No Limit	No Limit	Predicted to reduce speeds by approximately 2-7 MPH. Predicted to reduce crashes by approximately 5-7%.	Must be implemented in conjunction with an enforcement program
	Bike Lanes	Bike lanes provide a separation between vehicles and cyclists that are more accessible to novice bikers. Parking protection is preferred where a buffer can be provided between the parked cars and bike lanes. If parking protection is not possible, delineators, flex curbs, and jersey barriers can be used.	Minor arterials, collectors, and local streets	Up to 4 lane cross-section	No Limit	40 MPH	No Limit	No Limit	No established MOE was found for this traffic calming measure.	Most likely to be paired with a road diet.
	Shared Lane Markings	Road markings are used to indicate a shared lane environment for bikes and automobiles.	Collectors and local streets	One- and two-lane roads	Less than 3,000 ADT	25 MPH	Less than 5%	No Limit	Predicted to reduce speeds by approximately 1-3 MPH.	Not a facility type and should not be considered a substitute for bike lanes, cycle tracks, or other separation treatments where these types of facilities are otherwise warranted or space permits
	Advisory Lanes	A bike lane where the outside stripe is dashed indicates that vehicles may drive over it if necessary, but they should watch for and yield to cyclists as with any bike facility.	Local streets	One- and two-lane roads	Less than 3,000 ADT	25 MPH	Less than 5%	Less than 8%	Predicted to reduce crashes by approximately 36-44%.	The minimum width for an advisory lane is six feet, however, seven feet is recommended

* Indicates traffic calming measure is already included in the Jersey City Master Plan Circulation Element .

Table 3. Traffic Calming Measures for Further Consideration

Category	Measure	Description	Functional Classification	Cartway Width	Traffic Volume	Maximum Posted Speed Limit	Percent Heavy Vehicles	Roadway Grade	Anticipated and Predicted Effect on Speed, Volume, and/or Crashes	Comments and Recommendations
Other Visual Cues	On-Street Parking	As a traffic calming measure, on-street parking reduces travel lane width and increases side friction to traffic flow, resulting in slower speeds. It can be applied to one or both sides of the roadway and is usually combined with other traffic calming measures, such as chicanes and curb extensions.	Arterials, collectors, and local streets	One lane with one side parking: min. 19-feet One lane with two sides parking: min. 27-feet	No Limit	35 MPH	No Limit	Less than 8%	Predicted to reduce speeds by approximately 1-5 MPH. Predicted to reduce vehicle-pedestrian crashes.	Should only be considered a traffic calming measure when parking is utilized consistently throughout the day
	Skinny Street and Queuing Street	Narrow residential streets that require low motor vehicle speeds and accommodate travel in a bi-directional lane. These types of streets calm traffic as drivers must yield to each other to allow one direction of travel at a time to pass.	Local streets	36-feet or less	Less than 3,500 ADT	25 MPH	Less than 5%	Less than 8%	No established MOE was found for this traffic calming measure.	Emergency services and transit should be consulted
	Residential Shared Street	Narrow streets that have raised pavement that is flush with the curb support a mixing of vehicle, pedestrian, and bike traffic within the street area.	Local streets	30-feet or less	Less than 3,000 ADT	25 MPH	Less than 5%	Less than 8%	Predicted to reduce speeds by approximately 1-5 MPH. Predicted to reduce peak hour volumes by 33%. Predicted to reduce crashes by 40%.	Emergency services and transit should be consulted
	Textured Pavement, and Crosswalks*	Concrete pavers, stamped concrete, and/or decorative pavement are placed at intersections to warn motorists they are approaching a pedestrian crossing.	Minor collector, local residential, and local park	Up to 4 lane cross-section	Up to 10,000 ADT	45 MPH	No limit	No limit	Predicted to reduce pedestrian crashes by approximately 48%.	Road Opening Permit Ordinance must be revised to include restoration
	Road Diet	Modification to the number and use of lanes on a roadway, typically to enhance safety and accessibility by reallocating pavement space to provide space for dedicated bike facilities, left-turn lanes, on-street parking, raised medians, pedestrian refuge islands, curb extensions, sidewalks, and other traffic calming measures along a corridor.	Arterials, collectors, and local streets	Up to 4 lane cross-section	Up to 1,000 vehicles per direction per peak hour	35 MPH	No Limit	No Limit	Predicted to reduce speeds by approximately 1-5 MPH. Predicted to reduce crashes by approximately 29%.	Emergency services and transit should be consulted
	Plazas and Parklets	Reallocate excess pavement space for plazas and parklets to provide visual cues to drivers that they are entering a pedestrian-friendly area.	Collectors and local streets	No Limit	No Limit	No Limit	No Limit	No Limit	Predicted to reduce speeds by approximately 3-10 MPH.	Used in conjunction with permanent road closures when used for traffic calming purposes. Emergency services and transit should be consulted

* Indicates traffic calming measure is already included in the Jersey City Master Plan Circulation Element .

Table 3. Traffic Calming Measures for Further Consideration

Category	Measure	Description	Functional Classification	Cartway Width	Traffic Volume	Maximum Posted Speed Limit	Percent Heavy Vehicles	Roadway Grade	Anticipated and Predicted Effect on Speed, Volume, and/or Crashes	Comments and Recommendations
Signal Control	Signal Progression	Coordinated signal timing that is optimized for slower vehicle speeds, creating an uninterrupted flow for cyclists or low vehicle progression speeds for a pedestrian-friendly downtown. Signals may also be timed to coordinate transit headways.	All	No Limit	No Limit	No Limit	No Limit	No Limit	Predicted to have some effect on speed reduction when adjusting timing plans as appropriate.	Typically applied on corridors with closely spaced intersections (1/4 mile or less), and where there is a desire for platooning
	Leading Pedestrian Intervals	A 3–7 second head start for pedestrians to enter a signalized intersection. LPIs enhance the visibility of pedestrians in the intersection and reinforce their right-of-way over-turning vehicles, especially in locations with a history of conflict.	All	No Limit	No Limit	No Limit	No Limit	No Limit	Predicted to reduce pedestrian and vehicle crashes by approximately 13%	Typically applied where both pedestrian volumes and turning volumes are high enough to warrant an additional dedicated interval for pedestrian-only traffic
	Pedestrian Scramble	Separate phase in the cycle specifically for pedestrian movements across all crosswalks. It can also support diagonal crossings.	All	No Limit	No Limit	No Limit	No Limit	No Limit	Predicted to reduce pedestrian crashes by approximately 36%.	Capacity analyses are recommended before implementation. Should be avoided at signals with long cycle lengths due to pedestrian delay and potential non-compliance.

* Indicates traffic calming measure is already included in the Jersey City Master Plan Circulation Element .

Traffic Calming Measures Selection Matrix

The traffic calming measures identified in the Traffic Calming Measures Scan (**Table 3**) were further evaluated to compare how each would contribute to achieving the City's traffic calming goals. The selection matrix shown in **Table 4** is intended to assist the City in shortening the long list of potential strategies shown in **Table 3** based on high-level criteria that can be evaluated qualitatively. It is intended that after this matrix is used to reduce the list of potential traffic calming measures, the City would then utilize the Traffic Calming Typology Framework matrix (**Table 5**) to help further identify the most appropriate measure(s) for a specific location and application.

Table 4 shows that most measures would have positive environmental impacts and be able to fit within the range of typical right-of-way widths throughout the City. Additionally, costs associated with the construction, operation, and maintenance of the different measures would vary.

For additional information on the criteria used in this matrix, see **Appendix A**.

Table 4. Traffic Calming Measures Selection Matrix

Category	Traffic Calming Measure	Criteria							
		Safety		Environmental	Community	Roadway		Cost	Other
		FHWA proven safety countermeasure	Identified as reducing crashes on the CMF[1] Clearinghouse	Provides an opportunity for green stormwater management and infrastructure	Potential for community participation and maintenance	Ability to fit within the range of typical ROW[2] widths throughout the City	Potential utility impacts	Relative cost of construction, operation, and maintenance	Further action is needed to become compliant with federal and state standards
Horizontal Deflections and Closures	Lateral Shift			X	X	X	Only if traffic calming measures are hardscaped	$-$$	
	Choker			X	X	X		$-$$	
	Bump Outs, Neckdowns, and Gateways			X	X	X		$-$$	
	Chicanes			X	X	X		$-$$	
	Raised Medians, Pedestrian Refuges, and Staggered Crossings	X	X	X	X	Consider site-specific conditions		$-$$	
	Turn Hardening					X		$-$$	
	Road Closures				X	X		$-$$	
Vertical Deflections	Speed Cushion					X		$$	
	Speed Humps					X		$$	
	Speed Tables and Raised Crosswalks		X			X		$$-$$$	
Unsignalized Intersection Treatments	Roundabouts and Mini Roundabouts	X	X	X	X	Consider site-specific conditions	X	$$$-$$$$	
	Raised Intersections					X	X	$$$	
	Multi-way Stops		X			X		$	
Signs and Pavement Markings	Traffic Signage and Markings		X			X		$-$$	
	Rectangular Rapid Flashing Beacons (RRFBs)	X				X	X	$$	
	Speed Detector Signs		X			X	X	$-$$$	
	Bike Lanes	X				X		$-$$$$	
	Shared Lane Markings					X		$	X
	Advisory Lanes					X		$-$$	X

1 Crash Modification Factor
2 Right-of-Way

Table 4. Traffic Calming Measures Selection Matrix

Category	Traffic Calming Measure	Criteria							
		Safety		Environmental	Community	Roadway		Cost	Other
		FHWA proven safety countermeasure	Identified as reducing crashes on the CMF[1] Clearinghouse	Provides an opportunity for green stormwater management and infrastructure	Potential for community participation and maintenance	Ability to fit within the range of typical ROW[2] widths throughout the City	Potential utility impacts	Relative cost of construction, operation, and maintenance	Further action is needed to become compliant with federal and state standards
Other Visual Cues	On-Street Parking					X		$	
	Skinny Street and Queuing Street					X		$	X
	Residential Shared Street			X	X	X		$-$$	X
	Textured Pavement and Crosswalks					X		$	X
	Road Diet	X	X	X	X	X	X	$$-$$$$	
	Plazas and Parklets			X	X	X	X	$$-$$$$	
Signal Control	Signal Progression					X		$$-$$$	
	Leading Pedestrian Intervals	X	X			X		$-$$	
	Pedestrian Scramble					X		$-$$	

1 Crash Modification Factor
2 Right-of-Way

Traffic Calming Measures Typology Framework

After narrowing down the number of feasible traffic calming measures to consider based on the Traffic Calming Measures Selection Matrix, the City should evaluate the measures further based on a variety of site-specific conditions including roadway type and cross-section, intersection type, traffic volume, posted speed, heavy vehicle volumes, and engineering judgment. The Typology Framework Matrix (Matrix) (**Table 5**) is intended to provide the city with a decision-making tool that identifies where each type of traffic calming measure could be applicable in Jersey City based on location-specific conditions. The guidance in the Matrix is based on the general guidance documented in the Traffic Calming Measures Scan section but has been adapted to fit the typical roadway conditions experienced in Jersey City.

Roadway Conditions Considered in the Matrix

The Matrix outlines as to the applicability of each traffic calming measure for a variety of roadway conditions. The guidance is based on the information documented in the Traffic Calming Measures Scan section. Furthermore, the roadway conditions in the Matrix were selected because the data associated with each condition is relatively easy to acquire, either through existing online sources or through typical field data collection methods. The guidance included in the matrix is as follows:

- **Street Type** by Federal Highway Administration (FHWA) functional classification (local, collector, and arterial) and by number of through lanes in each direction. The functional classification of a roadway can be determined utilizing NJDOT's Functional Classification Maps. The number of lanes in the Matrix is based on an assessment of the typical number of through vehicular travel lanes on Jersey City's local, collector, and arterial streets. Turn lanes or auxiliary lanes are not considered a full lane in the Matrix. It should also be noted that interstates, freeways, and other limited-access roadways are not defined in the Matrix because it was assumed that traffic calming measures would not be appropriate or implementable by the City on those types of roadways, as they require unique approaches to traffic calming due to typically higher speeds and higher volumes.
    - **Local streets** have high accessibility to areas adjacent to land uses and provide connections to collector and arterial streets. They are not typically used for through traffic. Most residential streets in the City are this type of street.
    - **Collector streets** provide connections between local streets and arterial streets while balancing access and mobility. Examples include Martin Luther King Drive, Manhattan Avenue, and Pacific Avenue.
    - **Arterial streets** generally provide the fastest method of travel and typically have lower accessibility than neighboring roads. This analysis considers minor arterials only. Examples include Ocean Avenue, Grand Street, West Side Avenue, Central Avenue, Marin Boulevard, and Sip Avenue.
- **Intersection Type** (signalized, directional stop-control, multi-way stop control). It should be noted that this category is intended to identify traffic calming measures that would be applicable specifically at an intersection. Therefore, many of the treatments that are intended to be applied along a roadway segment are identified as "Not Applicable" to these types of intersections. Signalized intersections are those with a traffic signal. Stop-Control (directional or multi-way) are intersection locations that are controlled by the presence of Stop signs.
- **Traffic Volume (Average Daily Traffic (ADT))**. This data may be available through existing traffic counts conducted by the city, NJDOT, Hudson County, or the NJTPA. If no traffic volume data is available, it is recommended that the city conduct a minimum 48-hour traffic count to estimate the ADT. Three thresholds were established based on the research conducted for the Traffic Calming Measures Scan:

    - < 3,000 vehicles per day
    - 3,000 to 15,000 vehicles per day
    - 15,000 to 25,000 vehicles per day
- It should be noted that if a roadway's ADT exceeds 20,000 vehicles per day, engineering judgment should be applied to all measures listed as "Applicable" within the 15,000 to 25,000 vehicles per day range.
- **Percentage of Heavy Vehicles (Trucks and Buses)**. This data may be available through existing traffic counts conducted by the city, NJDOT, Hudson County, or other vehicle counts. If no heavy vehicle volume data is available, it is recommended that the city conduct a minimum 48-hour traffic count to estimate the percentage of heavy vehicles. Heavy vehicles must be considered because they require larger turning radii and wider lanes which may make it difficult to implement some traffic calming measures which impact those elements. Two thresholds were established based on the research conducted for the Traffic Calming Measures Scan:
    - < 5 percent Heavy Vehicles
    - > 5 percent Heavy Vehicles
- **Maximum Posted Speed**. Two thresholds were established based on the research conducted for the Traffic Calming Measures Scan:
    - 30 MPH or less
    - 35 MPH – 40 MPH
- It should be noted that if a roadway's posted speed exceeds 40 MPH, engineering judgment should be applied to all measures listed as "Applicable" within the 35 – 40 MPH range.

Using the Matrix

The Matrix utilizes a simple color-coded system to identify the applicability of each traffic calming measure. The applicability of the measures to Jersey City was determined utilizing the research and analysis documents in the Traffic Calming Measures Scan section of this memorandum. The color-coded system is as in **Table 5**.

A person using the Matrix should first evaluate each traffic calming measure based on the roadway or intersection type (denoted as "Step 1" in the Matrix). If a traffic calming measure is designated as "recommended for consideration" or "use engineering judgment" for the intersection or roadway type, the user should then check ADT, percentage of heavy vehicles, and posted speed to determine if the measure would still be recommended under those conditions (denoted as "Step 2" in the Matrix). It is also important to note that any recommended traffic calming measure should consider localized conditions, such as proximity to schools, parks, hospitals, and industrial areas. The Traffic Calming Measures Selection Matrix can be utilized to compare potential traffic calming measures based on other criteria such as safety, environmental impacts, community participation, right-of-way and utility impacts, relative cost, and whether additional measures are needed for the measure to comply with federal and state standards.

Table 5. Traffic Calming Measures Matrix

N/A	The traffic calming measure does not apply to the roadway or intersection type.
●	The traffic calming measure is recommended for consideration for this type of roadway condition.
▲	Engineering judgment of specific localized conditions is needed before considering the traffic calming measure for this type of roadway condition.
×	This traffic calming measure is not recommended for this type of roadway condition.

Table 6. Typology Framework Matrix

Category	Traffic Calming Measure	Step 1: Check Applicability of the Traffic Calming Measure Based on Roadway or Intersection Typology								Step 2: Verify if the Traffic Calming Measure Still Applies Based on These Roadway Conditions						
		Street Type					Intersection Type			Traffic Volume (ADT)			% Heavy Vehicles		Maximum Posted Speed	
		Local	Collector		Arterial											
		1 Lane Per Direction	1 Lane Per Direction	2 Lanes Per Direction	1 Lane Per Direction	2+ Lanes Per Direction	Signalized	Directional Stop Control	Multi-Way Stop Control	< 3,000 Vehicles Per Day	3,000 - 15,000 Vehicles Per Day	15,000 - 25,000 Vehicles Per Day*	< 5%	> 5%	30 MPH or Less	35 - 40 MPH*
Horizontal Deflections and Closures	Lateral Shift	●	●	×	▲	×	N/A	N/A	N/A	●	●	▲	●	×	●	▲
	Choker	●	●	×	▲	×	N/A	N/A	N/A	●	●	▲	●	×	●	▲
	Bump Outs, Neckdowns, and Gateways	●	●	●	●	●	●	●	●	●	●	●	●	×	●	●
	Chicanes	●	×	×	×	×	N/A	N/A	N/A	●	▲	×	●	×	●	▲
	Raised Medians, Pedestrian Refuges, and Staggered Crossings	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Turn Hardening	●	●	●	▲	▲	●	●	●	●	▲	×	▲	×	●	●
	Road Closures	●	▲	×	×	×	▲	▲	▲	●	×	×	●	●	●	●
Vertical Deflections	Speed Cushion	●	▲	×	×	×	N/A	N/A	N/A	●	×	×	●	×	●	×
	Speed Humps	●	▲	×	×	×	N/A	N/A	N/A	●	×	×	●	×	●	×
	Speed Tables and Raised Crosswalks	●	▲	▲	×	×	N/A	N/A	N/A	●	×	×	●	×	●	×
Unsignalized Intersection Treatments	Roundabouts and Mini Roundabouts	▲	●	●	●	●	●	●	●	●	●	▲	●	▲	●	●
	Raised Intersections	●	▲	▲	×	×	×	●	●	●	▲	×	●	×	●	●
	Multi-way Stops	●	▲	×	×	×	×	●	●	●	▲	×	●	●	●	●
Signs and Pavement Markings	Traffic Signage and Markings	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Rectangular Rapid Flashing Beacons (RRFBs)	●	●	●	●	●	N/A	N/A	N/A	●	●	▲	●	●	●	●
	Speed Detector Signs	●	●	●	●	●	N/A	N/A	N/A	●	●	●	●	●	●	●
	Bike Lanes	●	●	●	▲	▲	N/A	N/A	N/A	●	●	▲	●	●	●	●
	Shared Lane Markings	●	▲	▲	×	×	N/A	N/A	N/A	●	×	×	●	×	●	×
	Advisory Lanes	●	×	×	×	×	N/A	N/A	N/A	●	×	×	●	×	●	×

*Engineering judgment required for ADT's over 15,000 vehicles per day and/or speeds greater than 40 mph

Table 6. Typology Framework Matrix

Category	Traffic Calming Measure	Step 1: Check Applicability of the Traffic Calming Measure Based on Roadway or Intersection Typology								Step 2: Verify if the Traffic Calming Measure Still Applies Based on These Roadway Conditions						
		Street Type					Intersection Type			Traffic Volume (ADT)			% Heavy Vehicles		Maximum Posted Speed	
		Local	Collector		Arterial											
		1 Lane Per Direction	1 Lane Per Direction	2 Lanes Per Direction	1 Lane Per Direction	2+ Lanes Per Direction	Signalized	Directional Stop Control	Multi-Way Stop Control	< 3,000 Vehicles Per Day	3,000 - 15,000 Vehicles Per Day	15,000 - 25,000 Vehicles Per Day*	< 5%	> 5%	30 MPH or Less	35 - 40 MPH*
Other Visual Cues	On-Street Parking	●	●	●	●	●	N/A	N/A	N/A	●	●	▲	●	▲	●	▲
	Skinny Street and Queuing Street	●	×	×	×	×	N/A	N/A	N/A	●	×	×	●	×	●	×
	Residential Shared Street	●	×	×	×	×	N/A	N/A	N/A	●	×	×	●	×	●	×
	Textured Pavement and Crosswalks	●	▲	▲	×	×	●	●	●	●	●	×	●	●	●	●
	Road Diet	N/A	N/A	●	N/A	●	N/A	N/A	N/A	●	●	●	●	●	●	▲
	Plazas and Parklets	●	●	●	▲	▲	N/A	N/A	N/A	●	●	▲	●	●	●	●
Signal Control	Signal Progression	●	●	●	●	●	●	N/A	N/A	●	●	●	●	●	●	●
	Leading Pedestrian Intervals	●	●	●	●	●	●	N/A	N/A	●	●	●	●	●	●	●
	Pedestrian Scramble	●	●	●	●	●	●	N/A	N/A	●	●	●	●	●	●	●

*Engineering judgment required for ADT's over 15,000 vehicles per day and/or speeds greater than 40 mph

Traffic Calming Toolkit

As a part of this effort, a Traffic Calming Toolkit has been developed for use by Jersey City staff. This document is a public-friendly, visually appealing tool that uses the results of the analyses discussed in-depth in this document. It will be utilized as a tool to select appropriate traffic calming measures for locations throughout the City.

The Traffic Calming Toolkit has two primary sections:

- **Location Types**: In this section, users can identify which traffic calming treatments could be applicable given the location where the user wants to slow vehicle speeds. Location types include local streets, collector streets, arterial streets, signalized intersections, directional stop control intersections, and multi-way stop control intersections. In addition to considering location type, this section assesses the suitability of the traffic calming treatment given daily motor vehicle traffic and the number of vehicle travel lanes.
- **Traffic Calming Treatments**: This section provides a comprehensive look at each traffic calming treatment in the toolkit. Each treatment is summarized, including the treatment's purpose, description, cost, installation time, applicable locations, speed and volume effects, safety benefits, design guidance, and any additional considerations.

To identify what traffic calming treatments may be suitable on a particular corridor or at a particular intersection, users will start by identifying applicable treatments based on the Location Type. Once the list has been narrowed down to applicable treatments, users can review the Traffic Calming Treatments to further clarify what treatment best addresses the speeding or access challenges at their location.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5. Priority Location Recommendations

Prioritization of potential locations for the installation of traffic calming measures is just as important as the selection of interventions to be implemented.

There is often a variety of factors driving the decision as to where traffic calming measures are deployed, including community-driven input as well as requests from local officials based on community concerns.

However, solely relying on community input may result in the inequitable distribution of traffic calming measures and reduce the potential impact of the project, because higher-income residents have typically had more input on transportation investment. Therefore, a standardized method for the prioritization of roadway segments for demonstration and permanent projects was developed for Jersey City that considers a variety of factors, described below.

Selection Methodology

Under the Measures of Effectiveness Review, the project team worked with the City to establish metrics meant to measure the effectiveness of traffic calming measures once they are deployed. After reviewing the availability of the data or information needed to analyze each metric, nine evaluation metrics were selected to help prioritize the City's roadway segments for the future deployment of traffic calming measures, either through a demonstration project or for a permanent installation. These criteria were determined to have data that exists for the entire City street network and that is readily available. The selected quantitative criteria and their weight and data source are shown in **Table 7**. It should be noted that interstates, limited access facilities, state routes, county routes,

Table 7. Quantitative Selection Criteria

Selection Criteria	Data Source	Score					Weight
		1	2	3	4	5	
Percentage of crashes on the roadway segment (including intersections) resulting in an injury	NJDOT SafetyVoyager	< 10%	10% - 25%	25% - 50%	50% - 75%	> 75%	1
Composite Equity Score	Equity Assessment	10 - 14	15 - 19	20 - 24	25 - 30	> 30	1

and several major arterials (including Summit Avenue, Garfield Avenue, Montgomery Street, West Side Avenue, Communipaw Avenue, Marin Boulevard, and Sip Avenue) were excluded from the selection methodology process because it was assumed that either the type of facility would not support traffic calming measures, traffic calming work was already underway, and/or the City would not be able to conduct a traffic calming demonstration project on the facility due to the higher volume nature of those roadways. However, upon future iterations of priority location selection these locations could be reintroduced into the selection process.

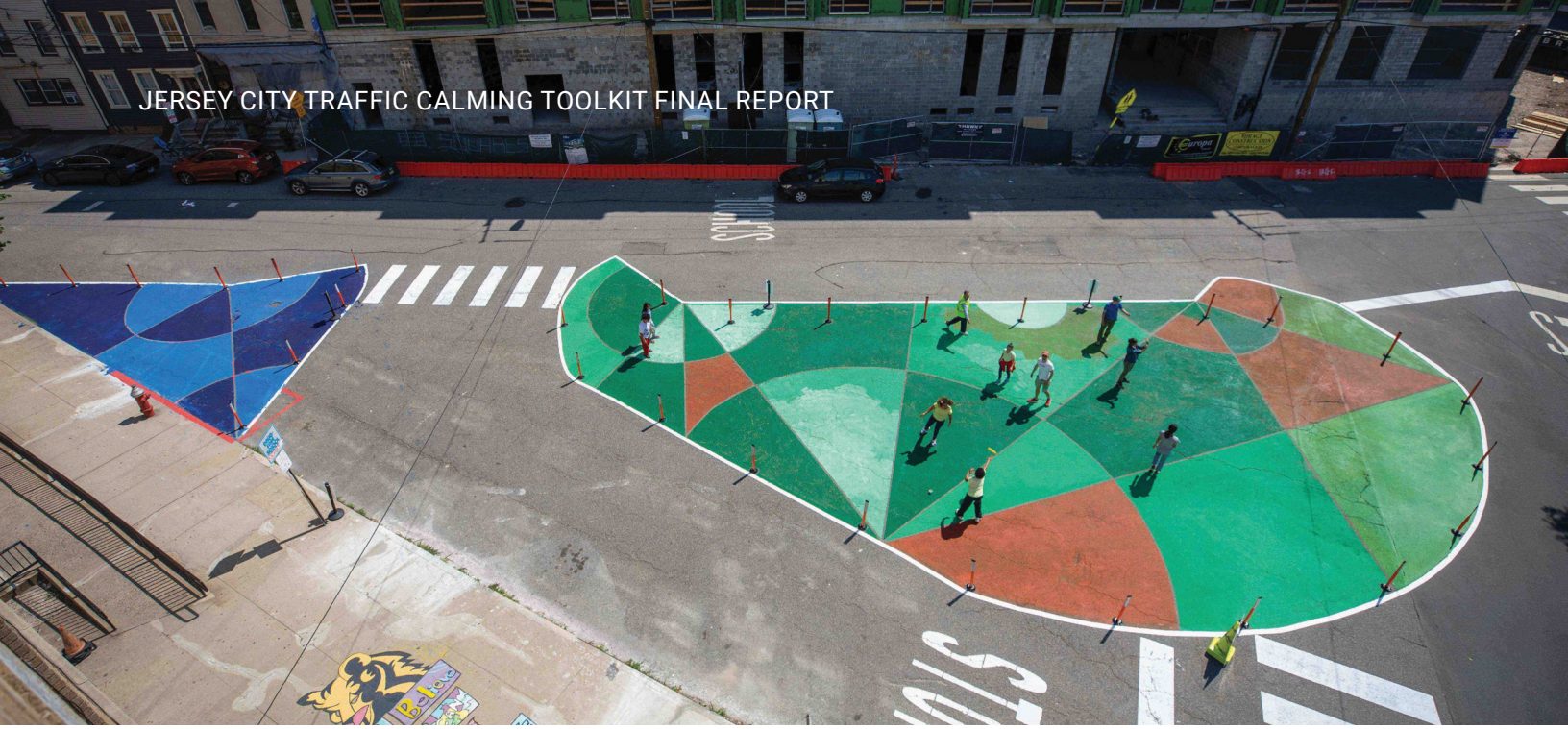
The project team obtained crash data for the entire City street network from NJDOT's SafetyVoyager system for the five years between 2018 and 2022. The percentage of injury crashes was selected instead of total crashes because total crashes on a segment do not consider the volume of traffic on a segment. It should also be noted that segment crashes include those occurring at intersections as well as mid-block. Utilizing the percentage of crashes that resulted in an injury or fatality allows the City to identify segments with concentrations of severe crashes. It should be noted that roadway segments with fewer than 10 crashes of all types over the five years were not scored to avoid the potential for a segment with a few crashes from skewing the results.

The composite equity score was also used as a quantitative measure. This score represents the sum of the equity scores for each equity factor analyzed in the Equity Assessment. A higher score indicates a census block group with a higher concentration of people who fall within more than one equity factor. Five threshold groups were then developed based on the range of total scores in Jersey City.

The selected qualitative criteria and their weights and data sources are listed in **Table 8**. The project team obtained the relevant data, developed for previous studies, from Jersey City.

Table 8: Qualitative Selection Criteria

Selection Criteria	Data Source	Score		Weight
		0	1	
Is the roadway segment within 500 feet of a park?	GIS shapefile of Jersey City's park system – provided by Jersey City	No	Yes	1
Does the roadway segment lie within a high transit need/low transit access area?	GIS shapefile for these areas within Jersey City – provided by Jersey City	No	Yes	1
Is the roadway segment on a Key Street?	GIS shapefile developed for the Pedestrian Enhancement Plan – provided by Jersey City	No	Yes	1
Is the roadway segment within a Jersey City School Travel Plan Priority Area?	GIS shapefile developed for the Jersey City School Travel Plan – provided by Jersey City	No	Yes	1
Is the roadway segment identified as a proposed bike corridor?	GIS shapefile developed for Let's Ride JC – provided by Jersey City	No	Yes	1
Is the roadway segment on a high-injury network street?	GIS shapefile for Jersey City's high injury network – provided by Jersey City	No	Yes	2
Is the roadway segment within 500 feet of a bus stop or 1,000 feet of a rail station?	NJ TRANSIT Bus Stops by Line - GIS shapefile from NJ TRANSIT downloaded from NJGIN Jersey City light rail and PATH stations – GIS shapefile from Jersey City downloaded from Jersey City Open Data	No	Yes	1



An analysis totaled the quantitative and qualitative scores for each one-block roadway segment to develop a priority ranking. The maximum possible score was 18. A higher score indicates that a particular roadway segment may be a better potential candidate for the implementation of traffic calming measures when compared to other roadway segments. The number of segments per range of scores is shown in **Figure 4**, where higher scores are shown in a darker color. It should be noted that the highest score of any analyzed segment achieved was 15.

Prioritization of City Roadway Segments

Finally, to develop a prioritized list of roadway segments, the project team reviewed all individual segment scores and listed the segments in order from highest to lowest. The project team collaborated with the City to identify the top two segments to be prioritized in each of the six City wards for purposes of preparing illustrative examples in the Traffic Calming Toolkit, for a total of 12 segments. In addition to providing specific design guidance for these street segments, elements of these designs can be applied to streets with similar characteristics throughout the City.

Table 9 provides the prioritized list of roadway segments, noting starting and ending cross-streets, for the consideration of traffic calming measures. To avoid multiple one-block adjoining segments on the same street being ranked above other individual street segments, adjoining high-scoring (10 or above) roadway segments were combined into the same street segment. If several segments were combined, the critical higher-scoring segment was identified and the score in **Figure 4** reflects the score of this segment. For segments with the same overall total score, the segments were ranked according to the actual percentage of injury crashes in the segment. **Figure 5** shows the 12 locations on a map.

Figure 4. Traffic Calming Selection Criteria Score by Roadway Segment

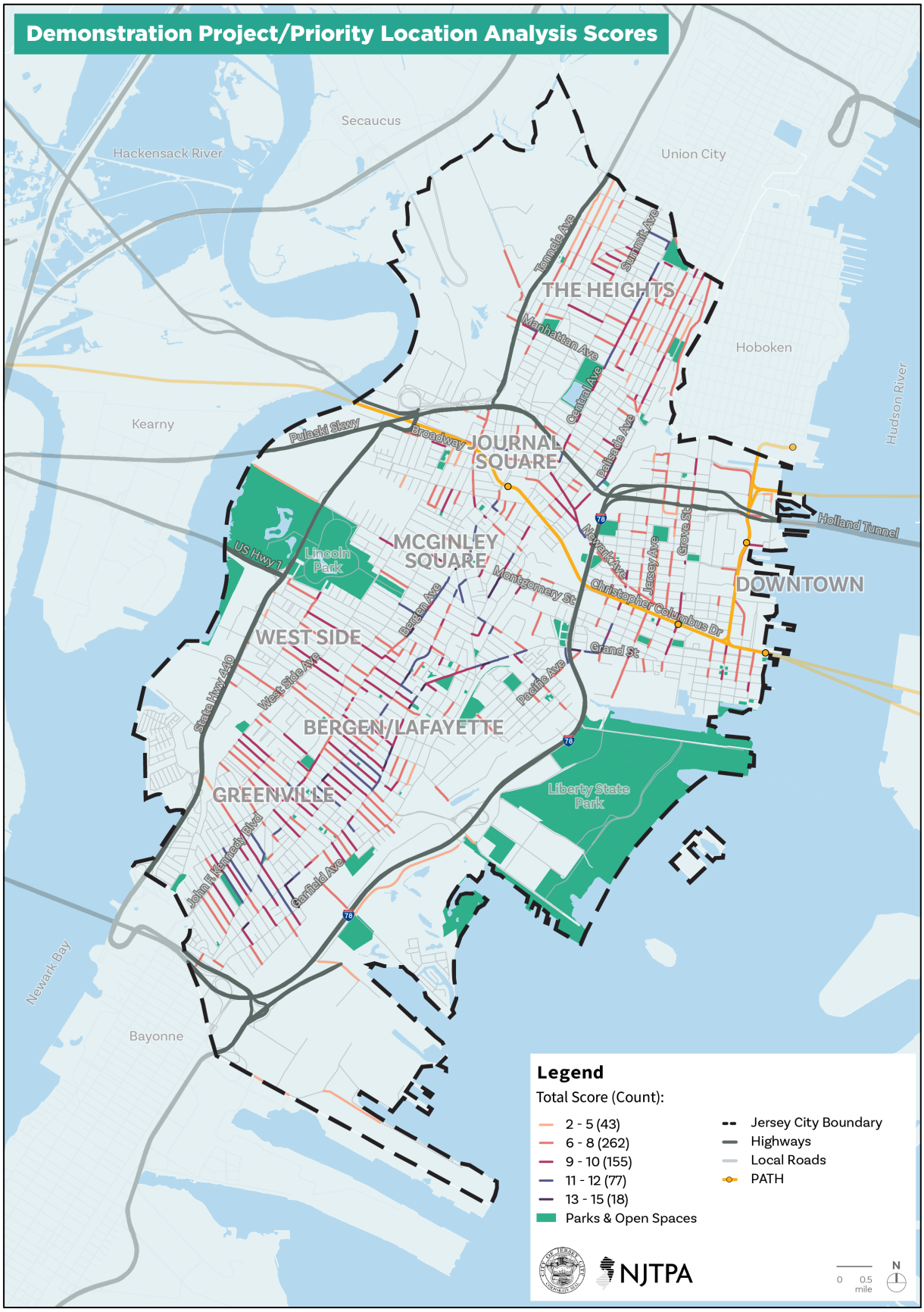
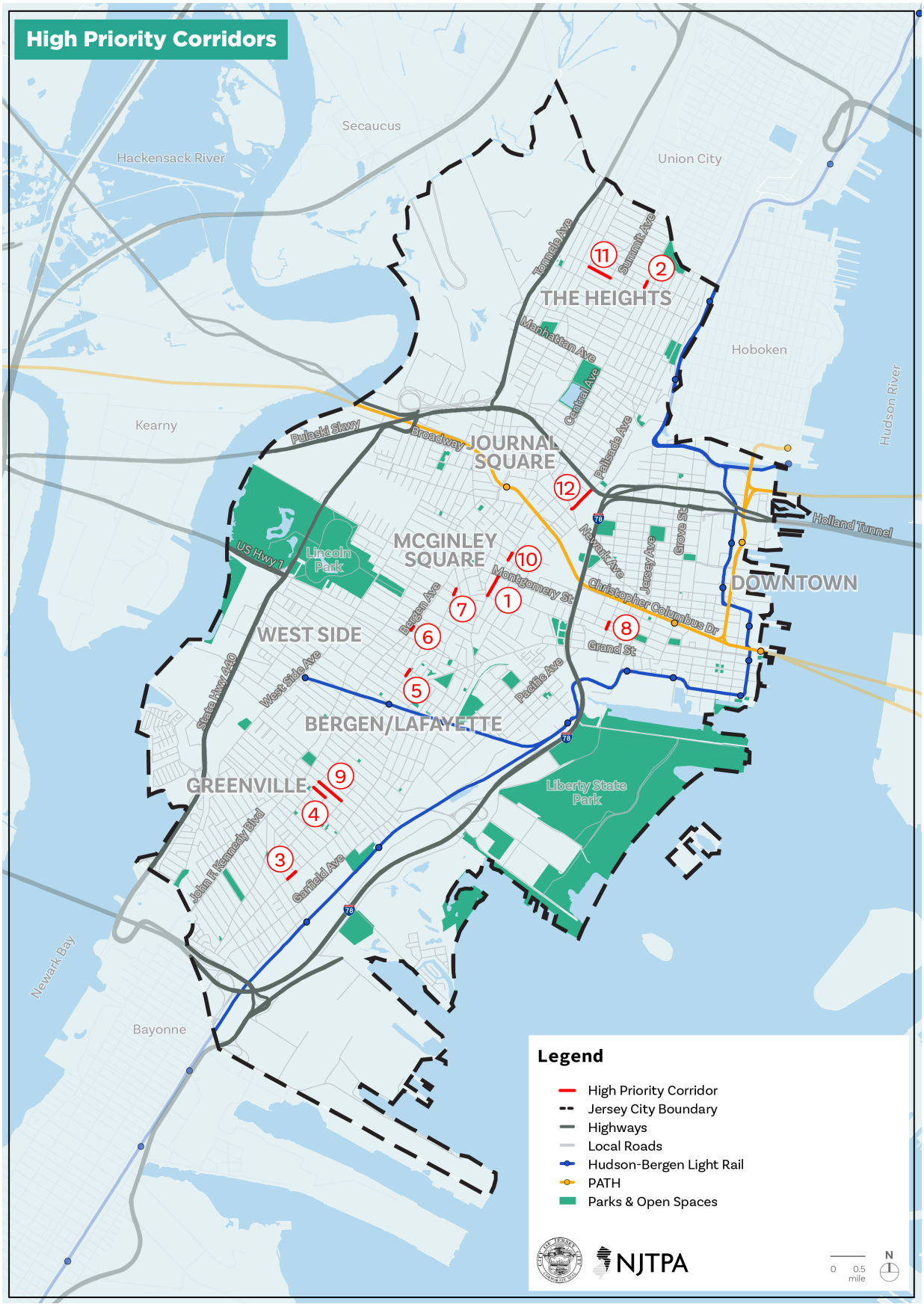


Table 9. Prioritized List of Roadway Segments

Rank	Corridor	Critical Segment	Weighted Criteria Score									Total
			Injury Crashes	Comp. Equity Score	Parks	High Need/ Low Access	Key Street	School Priority Area	Proposed Bike Corridor	High Injury Network	Rail Station	
1	**Baldwin Ave: Clifton Pl to Montgomery St**	-	3	5	1	1	1	0	1	2	1	15
2	**Central Ave: South St to North St**	Paterson St to Congress St	3	5	0	1	1	0	1	2	1	14
3	**Ocean Ave: Cator Ave to Sheffield St**	Cator Ave to New St	3	3	1	0	1	1	1	2	1	13
4	**Fulton Ave: MLK Dr to Rose Ave**	-	3	4	1	0	1	0	1	2	1	13
5	**MLK Dr: Communipaw Ave to Union St**	Bramhall Ave to Atlantic St	2	5	1	0	1	0	1	2	1	13
6	**Bergen Ave: Communipaw Ave to Welsh Ln**	Harrison Ave to Welsh Ln	3	4	0	0	1	1	1	2	1	13
7	**Monticello Ave: Fairview Ave to Storms Ave**	Fairview Ave to Reed St	3	5	0	0	1	1	1	0	1	12
8	**Monmouth St: Montgomery St to Grand St**	Montgomery St to York St	3	4	0	0	1	0	1	2	1	12
9	**Dwight St: MLK Dr to Van Cleef St**	-	3	4	1	0	0	1	0	2	1	12
10	**Baldwin Ave: Montgomery St to Vroom St**	Wayne St to Vroom St	3	3	0	0	1	0	1	2	1	11
11	**Bleecker St: JFK Blvd to Pierce Ave**	-	2	3	0	1	1	1	1	0	1	10
12	**Palisade Ave: Newark Ave to NJ 139 Upper**	Newark Ave to Washburn St	2	4	0	0	1	1	1	0	1	10

Figure 5. Prioritized Roadway Segments



Priority Location Concept Designs

Conceptual designs were developed for each of the identified priority locations. These designs are located in **Appendix D**. Below are descriptions for each priority location. Recommended improvements include bike facilities, curb extensions, turn hardening, high-visibility crosswalks, as well as other traffic calming treatments. To move these projects forward into the implementation phase, additional outreach and engineering would need to be completed.

Location #1: Baldwin Avenue from Clifton Place to Montgomery Street

Baldwin Avenue from Clifton Place to Montgomery Street is a minor arterial that is two lanes wide. The traffic volume on this segment is between 3,000 and 15,000 ADT. The interactive map included several comments on this location, noting that the location is challenging to cross and stressful for biking. The recommended improvements include intersection improvements at Clifton Place, installation of a buffered bike lane, curb extensions, raised crosswalks, and RRFBs.

Location #2: Central Avenue from Paterson Street to Congress Street

Central Avenue from Paterson Street to Congress Street is a minor arterial that is two lanes wide. The traffic volume on this segment is between 3,000 and 15,000 ADT. The interactive map included several comments on this location, including that the location sees aggressive driving, is stressful for biking, and is difficult to cross. The recommended improvements include turn hardening, left turn restrictions, curb extensions with green infrastructure, and signal timing adjustments.

Location #3: Ocean Avenue from Cator Avenue to New Street

Ocean Avenue from Cator Avenue to New Street is a minor arterial that is two lanes wide. The traffic volume on this segment is between 3,000 and 15,000 ADT. The interactive map included a comment that this location is difficult to cross as a pedestrian. The recommended improvements include all-way stop control, curb extensions, parking protected bike lane, sharrows, and a floating bus boarding island.

Location #4: Fulton Avenue from MLK Drive to Rose Avenue

Fulton Avenue from MLK Drive to Rose Avenue is a local road with one lane for motor vehicle travel. The traffic volume on this segment is less than 3,000 ADT. Recommended improvements for this location include curb extensions and chokers with green infrastructure at existing speed hump locations.

Location #5: MLK Drive from Atlantic Street to Bramhall Avenue

MLK Drive from Atlantic Street to Bramhall Avenue is a major collector with two lanes. The traffic volume on this segment is between 3,000 and 15,000 ADT. Recommended improvements for this location include curb extensions, high-visibility crosswalks, and pedestrian refuge islands.

Location #6: Bergen Avenue from Harrison Avenue to Welsh Lane

Bergen Avenue from Harrison Avenue to Welsh Lane is a minor arterial with two lanes. The traffic volume on this segment is between 3,000 and 15,000 ADT. The interactive map included a comment that this location has unsafe vehicle speeds.The recommended improvements include the installation of a traffic signal and curb extensions.

Location #7: Monticello Avenue from Fairview Avenue to Reed Street

Monticello Avenue from Fairview Avenue to Reed Street is a minor arterial, two-lane roadway. Recommended improvements at this location include curb extensions, pedestrian refuge islands, chokers, and sharrows. This location and the recommended improvements were a part of the second demonstration project held in April 2024.

Location #8: Monmouth Street from York Street to Montgomery Street

Monmouth Street from York Street to Montgomery Street is a local road with one lane for motor vehicle travel. The traffic volume on this segment is between 3,000 and 15,000 ADT. The interactive map included several comments along this segment, noting that the location is difficult to cross and that vehicles use this as a cut-through. Recommended improvements include curb extensions and improvements to the existing bike facilities.

Location #9: Dwight Street from MLK Drive to Van Cleef Street

Dwight Street from MLK Drive to Van Cleef Street is a local road with one lane for motor vehicle travel. The traffic volume on this segment is less than 3,000 ADT. Recommended improvements include curb extensions, buffered bike lane, raised intersections, high visibility crosswalks, rectangular rapid flashing beacons and concrete islands with green infrastructure.

Location #10: Baldwin Avenue from Wayne Street to Vroom Street

Baldwin Avenue from Wayne Street to Vroom Street is a minor arterial with two lanes. The traffic volume on this segment is between 3,000 and 15,000 ADT. The interactive map included several comments on this location, noting that is it difficult to cross, stressful for biking, and used as a cut- through for vehicles. Recommended improvements include curb extensions and a lateral shift.

Location #11: Bleecker Street from JFK Boulevard to Pierce Avenue

Bleecker Street from JFK Boulevard to Pierce Avenue is a local street with one lane for motor vehicle travel. The traffic volume on this segment is less than 3,000 ADT. The interactive map included several comments on this location that note it is difficult to cross as a pedestrian. Recommended improvements at this location include installation of an advisory bike lane, curb extensions, and chokers.

Location #12: Palisade Avenue from Newark Avenue to NJ 139 Upper

Palisade Avenue from Newark Avenue to NJ 139 Upper is a minor arterial with two lanes. The traffic volume on this segment is between 3,000 and 15,000 ADT. The interactive map included several comments on this location that note it is challenging to cross, stressful for biking, unsafe vehicle speeds, and aggressive driving. Recommended improvements include the implementation of a buffered bike lane, bike box, high visibility crosswalks with RRFBs, and signal timing adjustments with LPI.

6. Measures of Effectiveness

An effective traffic calming program is constantly evolving, responding to changing needs in a community and how certain traffic calming measures have performed in the past.

Even though there is substantial guidance available regarding traffic calming measures from FHWA, state Departments of Transportation, counties, and other municipalities, traffic conditions and driver behavior can vary significantly in different locations.

A traffic calming measure may be highly effective in one city, but not as effective in another. Therefore, Jersey City must evaluate traffic calming measures as they are deployed so that their effectiveness can be measured and the City can begin developing a repository of data that can then be used to effectively evaluate the application of traffic calming measures. To this end, a variety of measures of effectiveness (MOEs) can be used to evaluate the performance of a traffic calming measure, as well as to determine which traffic calming measure may be best suited to address a particular need. The suggested MOEs shown in **Table 10** and **Table 11** were divided into two categories:

- Quantitative MOEs utilize numerical and measurable data to analyze how the traffic calming measures have performed. Many of these measures require the collection of data before and after implementation. **Table 10** suggests a timeline for post-implementation data collection to ensure that drivers have had some time to adjust to the traffic calming measure.
- Qualitative MOEs (**Table 11**) require the collection and interpretation of non-numerical data to evaluate the performance of a traffic calming measure. The scoring of these types of MOEs can be subjective, and thus there may be a greater need to collaborate with multiple stakeholders and/or the community to determine the effectiveness of the traffic calming effort. The collection of post-implementation qualitative data should occur around the same time as the collection of the post-implementation quantitative data.

Scoring Methodology

Each MOE has been assigned a score range of 1 through 5, with 1 being a degradation and 5 being a substantial improvement when compared to existing conditions. After determining the score for each MOE, the score is then multiplied by the weight, which is based on this study's outreach efforts (Technical Advisory Committee, stakeholder interviews, public meetings, etc.). Weighted scores are then added to develop an overall score for the traffic calming measure. It should also be noted that the MOEs are intended to be flexible in their application, whether they are being used to evaluate an individual traffic calming measure or the effectiveness of a corridor where multiple traffic calming measures were implemented. It is not anticipated that all MOEs will be evaluated for every traffic calming measure. The availability of data, as well as the applicability of that data, may affect which MOEs are used. For example, a change in sight distance/visibility may not be an appropriate MOE for a speed hump.

Initially, some of the MOEs, such as speed and crash reductions, should be used to evaluate the performance of existing traffic calming measures as they are deployed in the field as part of a "before and after" study. As data is gathered for each type of measure using cameras, radar, pneumatic tubes, surveys, community feedback, etc., it can then be possible to utilize these MOEs to project the effectiveness of potential traffic calming measures before they are deployed in other locations. For example, if the City has evaluated existing chicanes[2] and has determined that a chicane has generally reduced average speed by 3-4 MPH after deployment, then a proposed chicane could be projected to operate similarly.

2 A series of mid-block curb extensions approximately 50 to 100 feet apart staggered on alternating sides of the street that force vehicles to negotiate a serpentine alignment.

Table 10. Quantitative Measures of Effectiveness (MOEs)

Category	Measure of Effectiveness	Score						Suggested Weight	Post-Implementation Data Collection Timeline
		0	1	2	3	4	5		
Speed Management	Change in average speed	Increase	No change	Decrease by 1-3 MPH	Decrease by 3-4 MPH	Decrease by 4-5 MPH	Decrease by 5+ MPH	5	At least 3 months from implementation*
	Percent reduction in the difference between average speed and posted speed	Increase	No Change	Decrease by < 25%	Decrease by 25-50%	Decrease by 50-100%	Decrease > 100%	5	
Crash Management	Change in crash rate	Increase	No change	Decrease by < 15%	Decrease by 15-30%	Decrease by 30-50%	Decrease by > 50%	5	At least 3 years from implementation
	Change in fatal and/or injury crashes	Increase	No change	Decrease by < 15%	Decrease by 15-30%	Decrease by 30-50%	Decrease by > 50%	5	
Volume Management	Change in vehicle volume over a typical non-summer, non-holiday week	Increase	No change	Decrease by < 5%	Decrease by 5-10%	Decrease by 10-25%	Decrease by > 25%	1	At least 3 months from implementation*
	Change in bike and pedestrian volume over a typical non-summer, non-holiday week	Decrease	No change	Increase by < 5%	Increase by 5-10%	Increase by 10-25%	Increase by > 25%	2	
Geometric Management/ Operations Management	Percent increase in sight distance or visibility	Decrease	No change	Increase by < 25%	Increase by 25-50%	Increase by 50-100%	Increase by > 100%	3	At implementation
	Operations Management	Increase	No change	Decrease by 1-2 points	Decrease by 2-3 points	Decrease by 3-4 points	Decrease by 4+ points	3	
	Percent reduction in pedestrian crossing distance at existing crosswalk	Increase	No change	Decrease by < 10%	Decrease by 10%-25%	Decrease by 25%-50%	Decrease by > 50%	3	
	Percent reduction in distance from the middle of the block to the nearest crosswalk	Increase	No change	Decrease by < 10%	Decrease by 10%-25%	Decrease by 25%-50%	Decrease by > 50%	3	
	Percent increase in lane miles of protected bike facilities	Decrease	No change	Increase by < 25%	Increase by 25-50%	Increase by 50-100%	Increase by > 100%	2	
Driver Compliance	Change in the percentage of vehicles yielding to pedestrians in the crosswalk.	Decrease/No change	Increase by 1-20%	Increase by 21-40%	Increase by 41-60%	Increase by 61-80%	Increase by 81-100%	5	At least 3 months from implementation*

* In general, data should be collected on a typical weekday when schools are in session. Some projects may require data collection on weekends, holidays, over the summer, or during special events if the traffic calming measure intends to address an issue during those periods.

Table 11. Qualitative Measures of Effectiveness (MOEs)

Category	Measure of Effectiveness	Score						Suggested Weight
		0	1	2	3	4	5	
Cost and Implementation	Cost Range	-	High Cost	-	Moderate Cost	-	Low Cost	3
	Implementation Requirements	-	Significant effort requiring substantial roadway construction and/or ROW impacts	-	Requires some minor curb, drainage, or pavement work	-	Easy to implement (i.e. striping only)	4
Community feedback*	Is the traffic calming measure generally regarded as effective by the community?	Things are worse	There was no change	-	Minor improvement	-	Noticeable improvement	4
Aesthetics and place-making*	Does the project improve the aesthetics of the community?	No, looks worse	-	-	No change	-	Yes	2
	Does the project create opportunities for stormwater management and/or landscaping?	No	-	-	-	-	Yes	2
	Does it create a sense of place for the community?	No	-	-	-	-	Yes	2
How well it meets local/ county/state/regional goals and standards	Does it meet local/county/state/regional goals?	Does not meet any goals	No change	Meets local goals	Meets local and county goals	Meets local, county, and state goals	Meets local, county, state, and regional goals	5
	Does it meet local/county/state/regional standards?	Does not meet any standards	No change	Meets local standards	Meets local and county standards	Meets local, county, and state standards	Meets local, county, state, and regional standards	5
	Is the project located along a High Priority Greenway Connection corridor?	No	-	-	-	-	Yes	5
	Is the project located on a Key Street from the Jersey City Pedestrian Enhancement Plan?	No	-	-	-	-	Yes	5
	Is the project within a Jersey City School Travel Plan Priority Area?	No	-	-	-	-	Yes	5
	Is the project located along a proposed bike corridor identified in Let's Ride JC?	No	-	-	-	-	Yes	5
	Is the project located along a High Injury Network street?	No	-	-	-	-	Yes	5
	Is the project part of a systemic improvement approach?	No	-	-	-	-	Yes	5
Emergency Response	Does the project impact emergency response access?	Substantial negative impacts	-	Minor negative impacts	-	-	No negative impacts/All impacts are positive	3
Equity	Is the project located in an EJ neighborhood?	No	-	-	-	-	Yes	5
	Does the project enhance ADA accessibility?	No	Somewhat (a few ADA facilities have been improved)	-	Moderately (some ADA facilities have been improved)	-	Significantly (all facilities within the project area are fully ADA compliant)	5
Transit Access	Does the project enhance access to transit in a transit desert area?	No	-	-	-	-	Yes (The project is within 500 feet of a bus stop or 1,000 feet of a rail station)	3
	Does the project facilitate improved connections to a transit stop or station?	No	-	-	-	-	Yes (The project is within 500 feet of a bus stop or 1,000 feet of a rail station)	3

*Community feedback and aesthetics/placemaking MOEs should be determined through community outreach, such as meetings, focus groups, or surveys.
Note: Some qualitative measures do not have a range of answers and therefore scores and weights are assigned as shown.

7. Conclusion and Next Steps

This Traffic Calming Toolkit represents a significant milestone for Jersey City in enhancing the safety and livability of the city's streets. Through comprehensive analysis, community input, and the development of practical tools, this study has laid the groundwork for meaningful improvements in traffic safety. By aligning with the Vision Zero Plan, Jersey City has demonstrated its commitment to eliminating traffic fatalities and severe injuries, making its streets safer for all road users.

Moving forward, Jersey City should consider the following steps to build on the findings and recommendations of this study:

- **Implementation of Traffic Calming Measures**: Work towards implementation of traffic calming measures at the prioritized locations per year. Subsequently, Jersey City can identify a new set of locations, prioritizing the block groups with high equity scores and lower traffic calming investment identified as part of the Equity Assessment, for annual targeted investment.
- **Monitoring and Evaluation**: Continuously monitor the effectiveness of implemented traffic calming measures using the identified MOEs. This will provide valuable data for future decision-making and refinement of traffic calming strategies. City should conduct at least 2 full evaluations of a traffic calming installation and publish the report/findings.
- **Community Engagement**: Maintain ongoing engagement with the community, specifically the equity communities, to align with local needs and priorities and gain support for future traffic calming efforts. Target communities with high-priority roadway segments for outreach and cooperation.
- **Regular Updates to the Traffic Calming Toolkit**: The Traffic Calming Toolkit should be updated on a regular basis (every 3-4 years) to incorporate new research, best practices, and lessons learned from implementation.
- **Collaboration with Regional Partners**: Work collaboratively with regional partners, including neighboring municipalities, the County, transportation agencies, and advocacy groups, to share best practices and coordinate efforts to improve traffic safety across the region.

By taking these next steps, Jersey City can build on the foundation laid by this study and continue to make meaningful progress towards creating safer, more sustainable streets for all residents and visitors.


Monticello Ave
TRAFFIC Calming
POP-UP EVENT
TOMA NUESTRA ENCUESTA SOBRE EL PROYECTO DE REDUCCIÓN DE TRÁFICO EN MONTICELLO AVE!
TINYURL.COM/MONTICELLOAVESURVEY
NJTPA
CITY

Jersey City Traffic Calming Toolkit Final Report

NJTPA
NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY