

# Appendix F

## The NJTPA Congestion Management Process

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# 1 | INTRODUCTION: THE NJTPA CMP

The Congestion Management Process (CMP) provides for the systematic study of the NJTPA region's complex travel patterns and supports identification of suitable approaches for improving transportation system performance. While many aspects of performance are important, the CMP focuses upon accessibility to destinations and the movement of persons and goods. The CMP is federally required<sup>1</sup> as an integral part of the planning process and supports transportation planning and investment decisions.

The CMP has a multimodal perspective, addressing the roadway network, rail and bus transit, ridesharing, walking, bicycling, other micromobility such as bike/scooter share services, and freight transportation. It particularly seeks to realize greater system reliability, provide travel options, and avoid the need for road expansions. In doing so, it considers broader goals such as protecting the environment, respecting the contexts of diverse communities in the region, and promoting equity with attention to disadvantaged or under-served populations.

Looking at accessibility as a core concept contributes to this holistic approach. The aim is for travelers' desired destinations to be "within reach" in terms of reasonable time and cost, ensuring that the transportation network serves where people live, work, shop, and play. Having good accessibility also depends on how far destinations are from one another and how the transportation system serves where households and businesses are located.

This document describes the NJTPA CMP, outlining its various elements in Section 2 and concentrating on its most recent update through an Accessibility and Mobility Strategy Synthesis. This study concluded in 2021; a summary of its findings and a companion Strategy Profiles package are presented in Section 3. A series of Technical Reports elaborate on the study's findings. The CMP overall is dynamic, informed by and contributing to other activities by the NJTPA and its partners, including the Long Range Transportation Plan, *Plan 2050: Transportation, People, Opportunity*. Section 4 outlines follow-up steps and forthcoming CMP-related efforts.

## 2 | CMP ELEMENTS

The CMP relates to many aspects of the NJTPA planning process. The CMP is guided by and contributes to NJTPA policy in the Long Range Transportation Plan (LRTP), *Plan 2050: Transportation, People, Opportunity*, and the Regional Capital Investment Strategy (RCIS). Largely, the CMP is structured around broad regional analysis of transportation needs and

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<sup>1</sup> As per 23 CFR § 450.322, a Congestion Management Process is required for transportation management areas with population over 200,000, with specific provisions applicable to non-attainment areas for high concentrations of ozone and carbon monoxide.



strategies. It operates as part of the NJTPA Unified Planning Work Program, offering potential recommendations for further planning and study by the NJTPA, its subregions and partner agencies. The CMP also includes checks of potential concepts and projects for consistency with its findings and approach. CMP strategies developed as projects and programs are implemented through the NJTPA Transportation Improvement Program and other avenues, and periodic monitoring examines whether desired policy objectives are achieved.

## **Coordination and Cooperation**

The NJTPA planning process engages a wide range of partners and stakeholders and the CMP is no exception. The regional analysis has incorporated interagency participation through a CMP Working Group, composed of representatives of NJTPA member state and subregional agencies with participation from neighboring MPOs and federal partners as well. Perspectives from public outreach for the NJTPA LRTP have been taken into account, and with an enhanced attention to equity issues, a special survey was conducted of various community groups.

Overall, the NJTPA Board of Trustees and its Planning and Economic Development Committee guide the CMP via direction in Unified Planning Work Program tasks and ongoing monitoring. Members of the NJTPA Regional Transportation Advisory Committee (RTAC) have had the opportunity to review CMP products under development. Additional forums are also utilized to coordinate on CMP activities, such as the NJDOT Complete Team which focuses on planning and operations issues.

Application of results from the CMP is continually subject to input in follow-up planning and project development and in further study as part of the normal NJTPA planning cycle.

## **Regional Capital Investment Strategy**

As a foundation for the CMP, the RCIS explicitly emphasizes safe travel, preserving existing transportation infrastructure, expanding the region's transit system, operationally improving the roadway system (while limiting new capacity), efficient goods transport, managing incidents and applying technology, supporting walking and bicycling, and increasing regional resilience. All of these priorities are in some way connected to how well the transportation system performs its essential functions, and how accessibility, mobility, and congestion issues reflect on that performance.

In this policy context, the NJTPA CMP is committed to a broad exploration of needs and strategies that are sensitive to the context of the places in the region and that prioritize accessibility and reliability for the movement of people and goods.

Equity for all travelers, synergies with land use and environmental planning, and support for public transit use and shared rides, active transportation (such as walking and biking), and

freight rail, are coupled with operational and technological approaches for making the most of the existing transportation system. The result is intended to contribute to vibrant and livable communities, a preserved natural environment, economic prosperity, and resilience for the region. These also help to avoid all but the most essential additions of new roadway capacity, which can have significant negative consequences such as overall increased vehicle volumes and more traffic congestion and air pollution over time.

## Performance Measures and Targets

Performance measures help planners and decision makers to assess regional issues and track progress. The CMP draws from and complements other [regional performance measure efforts](#), including the use of nationally established measures and regionally-specific measures in the areas of: livability; natural environment and resilience; freight and economy; infrastructure condition; and mobility, congestion, reliability, and systems operations. As federally required, the NJTPA works with partners on regular target setting and monitoring for the national measures. These address national transportation goals including: safety, infrastructure preservation; congestion reduction; system reliability; freight movement and economic vitality; and environmental sustainability.

There are substantial connections to the CMP among many of these measures. Highlighting CMP needs (often with related CMP performance measures) brings location specificity and context to reliability, mobility, congestion, freight and others. Strategies advanced and supported through the CMP contribute to the region's ability to address established performance targets and advance toward achieving its goals.

## Regional Analysis

The heart of the CMP is a technical examination of how well the transportation system works and how it might be improved. This examination is oriented toward specific goals and objectives, and applies data and performance measures to describe needs and find strategies. The current analysis, the Accessibility and Mobility Strategy Synthesis, updates previous CMP Strategy Evaluation, Strategy Refinement, Assessment of System Connectivity and related studies. The Synthesis incorporated substantial input from member and partner agencies and stakeholders, ensuring that the NJTPA CMP well reflects local, regional, state, and national priorities.

The Accessibility and Mobility Strategy Synthesis Summary Report and companion CMP Strategy Profiles are presented in Section 3 below. A series of Technical Reports further elucidates the study findings:

- Objectives and Performance Measures: defines eight CMP objectives and a series of multimodal performance measures that support them.
- Needs Assessment: relates a regional evaluation of the performance measures across various place types and including freight. A set of needs is characterized with supporting maps, tables, and descriptions.
- Equity Assessment: builds on the Needs Assessment to include needs that impact disadvantaged and/or vulnerable groups.
- Strategy Identification and Assignment: specifies the range of strategies that can be considered to address needs, assigning strategies to specific needs that were identified.

## Advancement

The NJTPA, partner state and local agencies, and other stakeholders advance transportation improvements through myriad paths. CMP information and processes support this, including for avenues such as the NJTPA Long Range Transportation Plan, projects and programs in the NJTPA Transportation Improvement Program, subregional planning studies, special NJTPA-funded projects and programs, and by encouraging and coordinating with partner agency implementers.

In project prioritization stages of the NJTPA process, well-defined project candidates are considered for inclusion in the TIP according to a broad range of goal-oriented criteria. CMP-related criteria are among these, providing consistent input as projects compete for implementation funding. The NJTPA periodically updates the project prioritization process, incorporating CMP measures and findings.

The NJTPA's [PRIME](#) tool helps regional, subregional, state and other partner planners query, draw from, and connect planning findings. CMP analysis results are included in PRIME, which can help planners package complementary strategies in particular areas, support consensus, and inform project development.

Consistency with the regional CMP analysis is considered by the NJTPA as studies, work programs and projects are advanced by NJDOT, NJ TRANSIT, TMAs, subregions and others. This contributes to implementation of more complete actions that support the region's goals and local needs.

Important to note, a great many efforts in the NJTPA region planning process are consistent with CMP priorities, supporting accessibility and mobility in ways that address broad regional goals. These include Transportation Management Association programs, CMAQ Local Mobility and Transportation Clean Air Measures, Planning for Emerging Centers, Complete Streets Technical Assistance, Climate Change Initiatives, the Street Smart Campaign, Freight Concept Development, Local Concept Development, Intelligent Transportation System Architecture, and

others. The NJTPA's lead role in Together North Jersey has been another important generator of actions for improving the region's accessibility and transportation reliability, along with many other beneficial activities. Also worth reiterating, the NJTPA CMP operates in concert with the greater focus of the state implementing agencies, including NJDOT, NJ TRANSIT, and Port Authority of New York and New Jersey, very much reflecting a collaborative planning and transportation investment agenda.

## Monitoring

The successful outcomes of all these efforts are critical to the region's residents. Examining the region's progress toward meeting its goals therefore represents important feedback to decision-makers focusing on performance. This is a defined element within the CMP.

As noted above, the NJTPA monitors the region's progress in terms of performance measures and achievement of established targets. Regularly conducted computer modeling and scenario planning also applies the best available technical knowledge to understand what strategies have accomplished and may produce in the future.

Ongoing real world data collection helps to develop insights into whether implemented strategies deliver as expected. For some types of projects this is more straightforward, but generally this is a challenging exercise, as transportation performance hinges on a great many factors well beyond the actions taken by public planning and implementing agencies. Newly available data, including that provided by the Federal Highway Administration for national performance measures, is beginning to help sort out some project-specific impacts over time.

For specific follow-up, the performance measures and data applied in the Accessibility and Mobility Strategy Synthesis are available for planners to continue to investigate actual project accomplishments, fine tune improvements, and correct for unintended consequences in the future. The NJTPA will continue to work with partners as projects are developed and implemented to encourage appropriate data collection so that before/after performance comparisons can be made. Further, as this is an evolving area, the NJTPA (along with MPOs and transportation agencies elsewhere) continues to develop new techniques for discerning the effectiveness of implemented strategies—an important aspect to ensure that the CMP supports transportation investments that are beneficial, effective, and appropriate for the region.

## 3 | ACCESSIBILITY AND MOBILITY STRATEGY SYNTHESIS

This section contains the summary final report of the current NJTPA CMP regional analysis, describing transportation needs throughout the diverse northern New Jersey region and identifying strategies to address them. Also included is a companion document containing a brief profile for each highlighted strategy offering context and insights regarding their advancement.



# Accessibility and Mobility Strategy Synthesis

Summary Report  
June 2021



**NJTPA**

**NORTH JERSEY  
TRANSPORTATION  
PLANNING AUTHORITY**

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*This report has been prepared under the direction of the North Jersey Transportation Planning Authority (NJTPA) with financing by the Federal Transit Administration and the Federal Highway Administration of the U.S. Department of Transportation. This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The NJTPA is solely responsible for its content*

*The North Jersey Transportation Planning Authority, as the federally authorized metropolitan planning organization for northern New Jersey, oversees transportation planning and expenditures of more than \$2 billion in transportation improvement projects each year.*



# Chapter 1

## Introduction

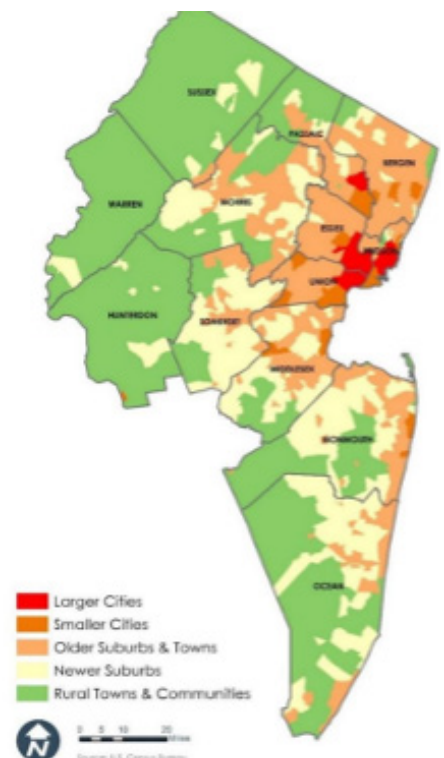
Home to about seven million residents, the NJTPA region is a place of distinctive communities, vibrant culture, and historic and natural resources, and is positioned in one of the world's most vital markets. Although many regions have a range of development patterns and transportation options, few are as extreme. Hudson County is home to the country's densest cities and offers a full range of transportation options; these include multiple rail and bus lines, ferry service, bikeshare, jitneys, and microtransit. Just 30 miles to the west (see map), the counties of Sussex, Warren, and Hunterdon are mostly rural and have far fewer transportation options. Across these diverse communities come unique transportation challenges that the NJTPA is working to address through regionwide strategies tailored to local needs.

Transportation is more than getting from Point A to Point B. The transportation policy and funding choices made at the regional level affect not just our trips, but regional quality of life, economic competitiveness, community resiliency, and the aesthetics of neighborhoods. Given the complex nature of transportation, the NJTPA has developed this report to highlight the accessibility and mobility needs for the region and to share strategies to address those needs.

With development patterns ranging from dense cities to suburbs to rural areas, the region needs a nuanced approach to implementing transportation infrastructure, programs, and policies. That said, local solutions impact the region; an improvement in one community can benefit communities one, five, or even fifty miles away. Although our region is made up of a multitude of different municipalities, transportation connects us, so **we need strategies that work at both the local and regional levels.**

This report provides an array of effective and economical strategies for consideration by planners, engineers, and elected officials as they seek solutions for local transportation challenges. Recognizing the interconnectedness of our communities, the NJTPA will continue to seek opportunities that align with a regional vision and serve to benefit the region's quality of life, economic prospects, and resilience.<sup>1</sup>

<sup>1</sup> While this study was largely conducted during the COVID-19 pandemic, data availability and the uncertainty of long-term impacts on travel patterns, the working assumption was that the region will recover many of the prior transportation trends. This perspective is consistent with that of the NJTPA Long Range Transportation Plan, Plan 2050: Transportation, People, Opportunity.



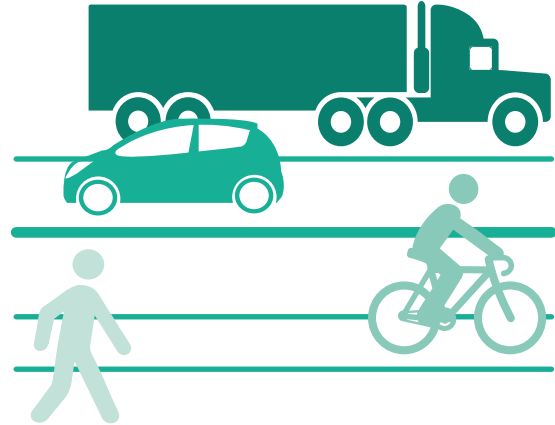
# What are Accessibility and Mobility?

## Accessibility



Accessibility refers to travelers reaching desired destinations within a reasonable time and cost. Residents should be able to access jobs, healthcare, education, shopping, recreation, or other destinations. Accessibility depends on distances between destinations and the ability of our transportation system to connect people and places.

## Mobility



Mobility addresses the movement of people and goods on the transportation network and how well that system provides safe, reliable, and efficient travel.





# Why Do a Strategy Synthesis?

The NJTPA implements a wide-reaching regional transportation planning process, led by a Board of Trustees of local elected officials and state agency representatives, in coordination with myriad stakeholders, and with significant engagement of the public. The NJTPA conducts and sponsors studies, and regularly updates its [Long Range Transportation Plan \(LRTP\)](#), [Transportation Improvement Program \(TIP\)](#), and [Unified Planning Work Program \(UPWP\)](#). Integral to the broad process, the NJTPA maintains a more focused [Congestion Management Process \(CMP\)](#) addressing accessibility and mobility. The CMP includes analysis of the region's complex travel patterns, characterizes and communicates system performance, and supports decision making about strategies to

implement. It considers the needs of people who walk, bike, drive, ride buses and trains, carpool, and take shuttles, vanpools, or other rideshare options. The analysis also looks at freight and the movement of goods.

This Accessibility and Mobility Strategy Synthesis is the NJTPA's most recent CMP analysis of the region as a whole. It identifies needs and strategies that the NJTPA might advance through its LRTP, through follow-up studies, by funding projects or programs in the TIP, in other ongoing programs or activities, or by encouraging and coordinating with partner agency implementers. It explores these issues from local and regional perspectives.



## CMP Elements

Aspects of the CMP span the NJTPA planning process. The priorities that it advances are guided by NJTPA policy in the LRTP and Regional Capital Investment Strategy. The analysis is grounded in a wealth of data and draws upon performance measures and targets established for the region. Collaboration is key

throughout, and the NJTPA looks for projects to be developed that are consistent with CMP findings. Periodic monitoring examines whether desired policy objectives are achieved. In all, the CMP is a way of systematically understanding the accessibility and mobility in the NJTPA region, framing desirable ways to make improvements.

# CMP Working Group

The NJTPA assembled a group of regional transportation stakeholders, including transit providers, local transportation agencies, federal agencies, regional planning organizations, and operators of area highways. The CMP Working

Group met five times to guide this study to discuss goals and objectives, performance measures, needs, equity, and strategies.

## CMP Working Group Members

NJTPA staff  
Local agencies (subregions)  
New Jersey Department of Transportation  
NJ TRANSIT  
Port Authority of New York and New Jersey  
New Jersey Turnpike Authority

TransOptions  
Delaware Valley Regional Planning Commission  
New York Metropolitan Transportation Council  
Federal Highway Administration  
Federal Transit Administration

## How was this Strategy Synthesis developed?

This study builds on a combination of **data-driven analysis** and **stakeholder engagement**.

### Data-driven Analysis

#### Why?

Data provide the basis for understanding conditions experienced by travelers and provide an objective way to look across the region.

#### How?

- Identification of performance measures to gauge how the transportation system works
- Collection and analysis of data addressing different aspects of performance from transportation network and community perspectives
- Selected thresholds used to define performance deficiencies or opportunities (needs)
- Analysis of needs in relation to socio-demographic characteristics (equity analysis)

### Stakeholder Perspectives

#### Why?

Accessibility/mobility is about connecting people to life's opportunities. Data do not tell the whole story, and in some cases, there is a lack of data to measure important issues.

#### How?

- Locally identified needs from a CMP stakeholder workshop
- A review of issues/needs identified in past studies
- A questionnaire/survey distributed to equity stakeholders to elicit input
- Ongoing input/feedback from the CMP Working Group

# Study Process and Products

The study developed technical reports associated with each of the following phases of the project. The Strategy Profiles detail the strategies to address regional needs and compose a companion document to this summary.<sup>2</sup>

1

Establish Objectives and Performance Measures

2

Identify Needs

3

Conduct Equity Assessment

4

Identify and Prioritize Strategies

The coming sections will identify the outcomes of each of these steps to date.



<sup>2</sup> The technical reports and Strategy Profiles may be found on the project website: <https://www.njtpa.org/Planning/Regional-Programs/Studies/Active/Accessibility-and-Mobility-Strategy-Synthesis.aspx>



# Equitable transportation is critical to the success of the region.

## Equity is a key focus of this study.

Some individuals are disadvantaged due to their individual circumstances, and an equitable solution is one that is tailored to meet these needs so that everyone can have a positive outcome. This study explores the accessibility and mobility needs of historically disadvantaged populations and vulnerable populations to understand the challenges, and potential solutions to support equitable outcomes.

In defining equity, the Federal Highway Administration notes that:

*Equity in transportation seeks fairness in mobility and accessibility to meet the needs of all community members. A central goal of transportation equity is to facilitate social and economic opportunities by providing equitable levels of access to affordable and reliable transportation options based on the needs of the populations being served, particularly populations that are traditionally underserved. This population group includes **low-income individuals, minority individuals, elderly persons, children, people with LEP [limited-English proficiency], and/or persons with disabilities**...An equitable transportation plan considers the circumstances that impact a community's mobility and connectivity needs, and this information is used to determine the measures needed to develop an equitable transportation network.<sup>3</sup>*

The NJTPA region is one of the country's most diverse. In addition to the groups listed above, this study included analysis of foreign-born populations and households without access to a vehicle.



<sup>3</sup> Federal Highway Administration, Environmental Justice program website, [https://www.fhwa.dot.gov/environment/environmental\\_justice/equity/](https://www.fhwa.dot.gov/environment/environmental_justice/equity/).

# Why are Accessibility and Mobility important?

**We have places to be.** Whether we drive, bike, walk, take transit, or share rides, transportation is a big part of our lives. It costs money and takes time. We need to find our way to the grocery store, and the items we buy need to find their way to the store, too. The NJTPA is a regional planning organization working to make your trips safer, more convenient, and reliable.

Accessibility and mobility do not hold the same meaning for residents throughout the region. Transportation decisions can vary depending on trip type, destinations, or an individual's needs, abilities, and motivations. To explore these ideas further, consider the following profiles of fictional New Jersey residents.



**Vivek**



**Carmen**



**Jason**



**Nancy**



**Julia**



# Meet Vivek, 29

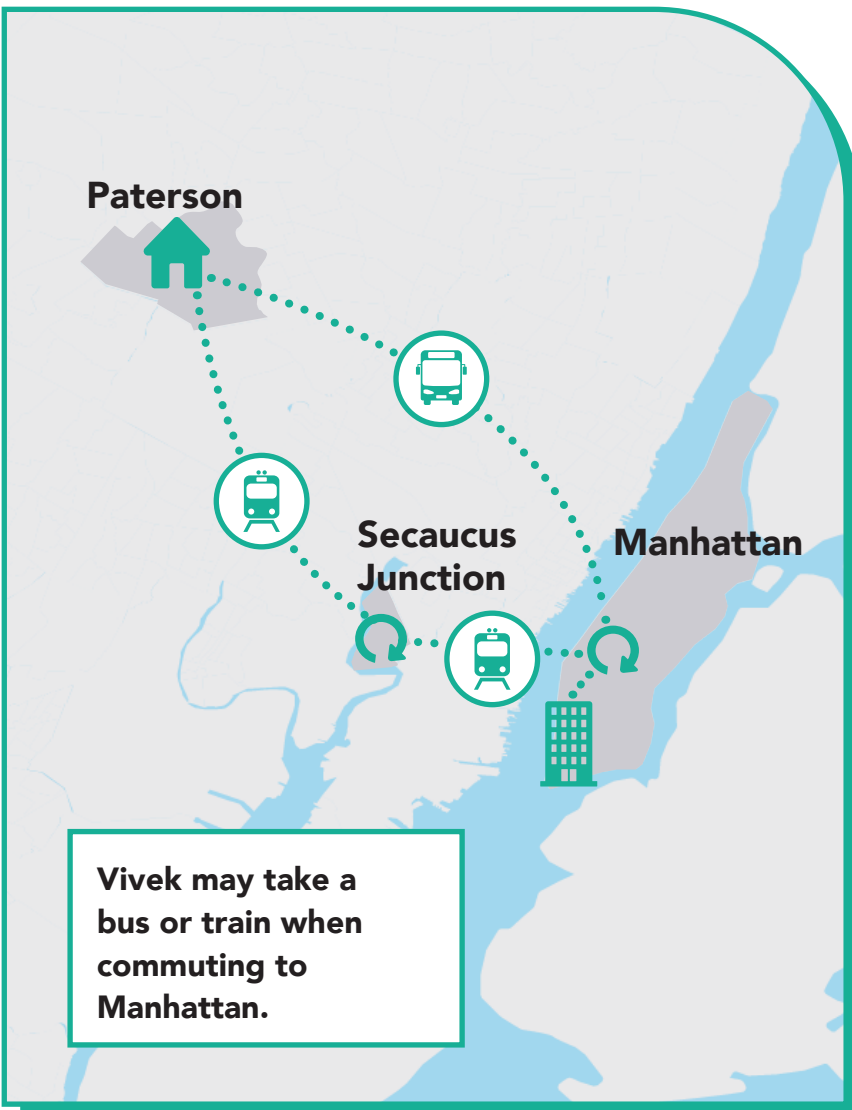
**Home** Paterson, Passaic County

**Work** New York City

Vivek commutes to New York City five times per week. His work schedule sometimes requires commuting in off-peak hours. He does not own a car, so he completes his commute by walking and taking transit.



## Map of Trips



## Trip of Concern Transit Commute to NYC

“ Normally, I catch the Main Line and transfer at Secaucus to Penn Station or take the PATH. Door to door it’s about an hour. When the train is delayed, I take the bus to the Port Authority and transfer to the subway, which takes well over an hour. ”

## Key Motivations

Cost

Time

Minimizing transfers

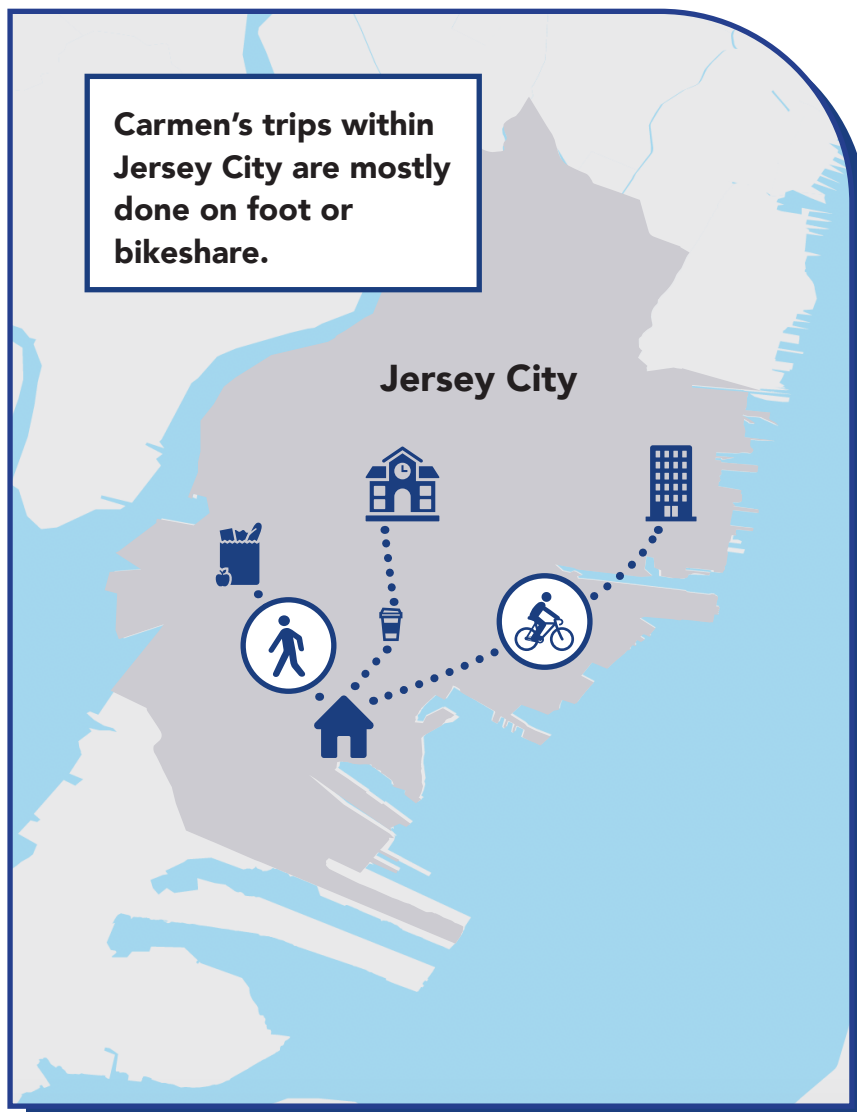
# Meet Carmen, 22

**Home** Jersey City, Hudson County

**Work** Jersey City, Hudson County

Carmen is a part-time student and works in downtown Jersey City part time. She generally takes shorter trips throughout the day around Jersey City. She has access to a car some days, but her family is considering selling. Carmen has limited English proficiency, which can pose certain challenges when navigating the transit system in a new neighborhood. She's a frequent user of bikeshare, which offers the flexibility she needs in her highly variable schedule.

## Map of Trips



## Trip of Concern Bike from School to Work

“ I work about two miles from campus. I used to take the bus, but bikeshare is cheaper and often faster. I don't think it's the safest option. I wish there were a bike path from Journal Square to Downtown. ”

## Key Motivations



Cost



Time



Health/  
being active



Options/  
flexibility

# Meet Jason, 51

**Home** Franklin Township, Somerset County

**Work** Somerville, Somerset County

Jason drives within Somerset County for most of his trips. He and his partner have two children who are 10 and 12. They both attend the same school, so he drops them off on the way to work. The family owns two cars so his partner can commute and pick up the kids when school lets out.

## Map of Trips



## Trip of Concern Work Commute

“ I used to commute to Newark. I’d park at Jersey Ave and take the train to Newark Penn. I’m starting a new job in Somerville and planning to drive three days and work remotely twice a week. I’d rather not deal with sitting in traffic, but the bus takes too long. ”

## Key Motivations

 Convenience

 Low stress commuting



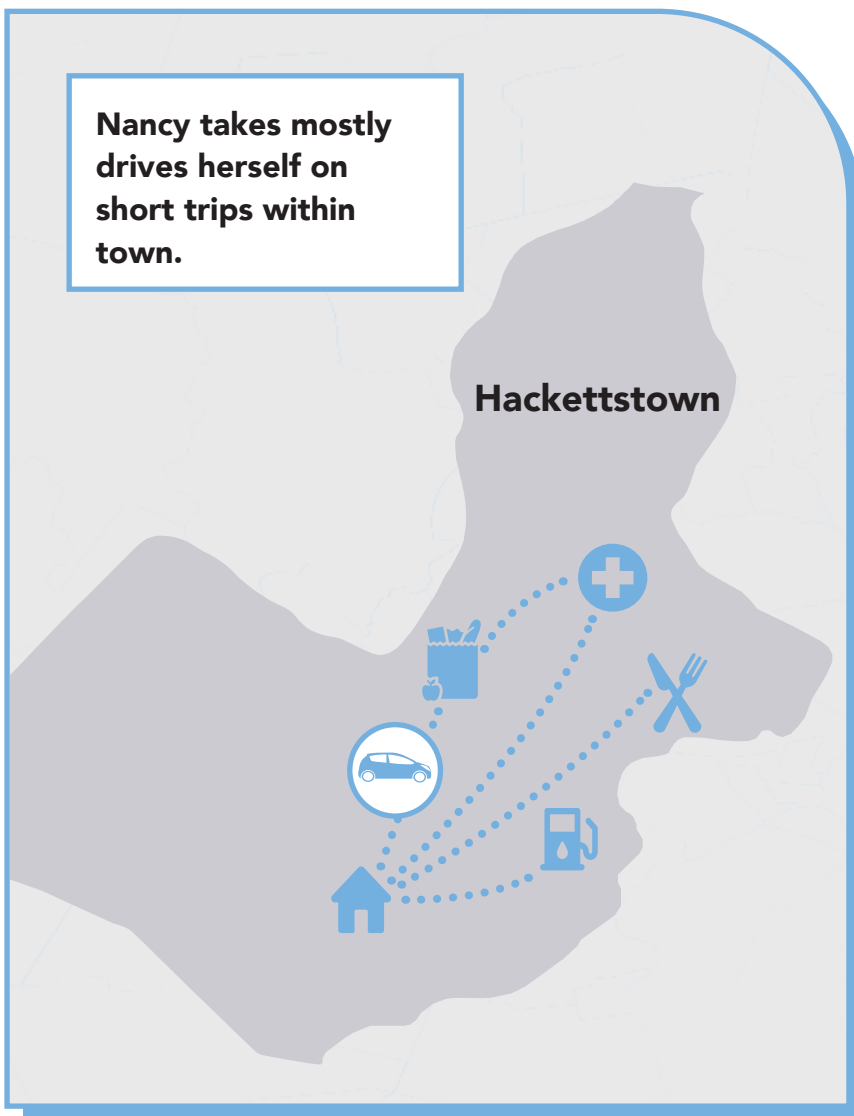
# Meet Nancy, 75

**Home** Hackettstown, Warren County

**Work** Retired

Nancy takes short trips to the grocery store, medical appointments, and social outings. She maintains her independence but has a lower level of mobility than she used to. She is considering giving up driving in the coming year. She does not have a smart phone, but her family has offered to order cars for her when she needs them.

## Map of Trips



## Trip of Concern Life Beyond Driving

“ I’m worried about my options beyond driving. I’ve looked into using the shuttle, but I’ve never taken it before. It would certainly be more affordable than calling a car every time I need to go out. ”

## Key Motivations

-  Cost
-  Ease
-  Accessibility
-  Safety

# Meet Julia, 45

**Home** Elizabeth, Union County

**Work** Newark, Essex County

Julia drives to work each morning. Her primary transportation concerns relate to her business. She manages a warehouse that generates a lot of truck traffic. The warehouse needs to expand, and she is looking for places that are convenient for the truck deliveries as well as transit accessible for her on-site employees.



## Trip of Concern Employee Commute

“  
Moving the warehouse to a less congested location may help the truck drivers get in and out, but how will my employees get to the warehouse? Most of them take transit.  
”

## Map of Trips



## Key Motivations



Efficiency



Maintaining workforce

# Chapter 2

## Objectives

### What do we want to achieve?

Planning for the region's future starts with determining what we want to achieve. The CMP is guided by adopted NJTPA policy, especially the Regional Capital Investment Strategy (RCIS) and planning goals in the long range transportation plan. As a crucial foundation, the RCIS emphasizes safe travel, preserving existing transportation infrastructure, expanding the region's transit system, improving roadway system operations, efficient goods transport, managing incidents and applying technology, supporting walking and bicycling, and increasing regional resilience. All these

priorities are in some way connected to accessibility and mobility.

The CMP Working group helped develop a set of objectives that **support the region's overall planning goals**. The objectives emphasize a focus on the **movement of people and goods**, not on moving vehicles or simply addressing congestion. The conversations resulted in three overarching objectives, supported by five additional objectives, which pertain to either travel choices or freight and facilities.

#### Overarching

Improve accessibility to destinations

Ensure equitable access for all

Enhance reliability of travel for all modes

#### Travel Choices Focused

Ensure alternatives to driving alone are supported

Enhance usability of public transit

Increase viability of walking, biking, and other micromobility options

#### Freight & Facility Focused

Optimize freight movement, sensitive to local context

Address bottlenecks, excessive delay, optimizing existing roadway capacity

Accessibility and reliability of the transportation system across all modes are the most critical desired outcomes. In the context of the RCIS and other regional policies, the NJTPA recognizes that traffic congestion is complex to address. Vibrant urbanized areas and important transportation facilities experience recurring congestion cannot be realistically eliminated at

reasonable costs and without impacting quality of life. Consequently, the NJTPA's multimodal CMP is used to explore the primary needs associated with accessibility, equitable access, and reliable travel; it explores a full range of transportation solutions, including finding alternatives to avoid all but the most essential additions to roadway capacity.



Vivek

“ Enhancing the usability of transit means not having a wallet full of different kinds of transit passes. My commute is a little over an hour, I’d love to pay just once!” ”



Julia

“ Don’t forget about freight! It keeps businesses like mine going.” ”

“ Supporting alternatives to driving is important to me. I want to maintain my independence as I get older.” ”



Nancy

“ I expect there to be traffic in New Jersey, but sometimes the delays are excessive. I’d love to spend less time in the car and more time with my family.” ”



Jason



Carmen

“ Yes to more walking and biking! I’d love safer streets in cities in New Jersey ” ”

# How are we doing?

Performance measures help to characterize mobility in the region, assess whether goals and objectives are being met, and identify deficiencies or needs. The CMP utilized a wide array of performance measures and data.



## Transportation Network Measures

These assess performance of the transportation network across the entire multimodal network.

- **Roadway measures** include data related to traffic congestion and network reliability.
  - Travel time index
  - Person hours of excessive delay
  - Level of travel time reliability
  - Interstate truck travel time reliability ratio
- **Transit rail and bus measures** include frequency, reliability, and transit access data.
  - Transit on-time performance
  - Frequency of transit service
  - Householders within ½ mile of transit
  - Jobs within ½ mile of transit
- Other measures include park-and ride lot utilization and bicycle level of comfort.



## Community-based Measures

The previous measures are centered on the transportation system itself. Community-based measures consider the conditions of the community and the people who live there.

- **Accessibility measures** consider employment and commute opportunities.
  - Average commute trip time
  - Number of jobs within a 45-minute drive, current and projected for 2045
  - Number of jobs within a 45-minute transit trip, current and projected for 2045
- Other conditions characterize the community's transportation environment.
  - Transit score
  - Walkability index
  - Percent of commuters who do not drive



## Location-specific Data

These measures provide information on the locations of specific problems in the network. The measures include bicycle and pedestrian crash data and flooding on roadways.



# Equity-related Needs and Challenges

The needs of environmental justice communities do not always differ from the population at large. Low income, minority, and disabled populations have all the same needs listed above; members of these communities are seeking more convenient commutes, more efficient transit trips, safe communities for walking and biking, and more transportation options.

For many communities, however, these needs are much more acute. For instance, **supportive transit infrastructure such as shelters and benches** is particularly necessary for seniors and people with disabilities. **Reverse commute challenges** and **long transit travel times** are a strong concern among members of the public do not have access to a vehicle and need to access suburban or rural employment centers, such as distribution centers. **Bicycle and pedestrian safety/infrastructure needs** are particularly pressing in environmental justice communities, which are disproportionately represented in crashes.

In addition to the needs listed above, **affordability** and **difficulty accessing travel information** have been added to the list of needs given the relative importance to environmental justice populations.

## **Affordability**

Affordability of transportation services is a concern for low-income and other vulnerable populations, both challenges of owning a vehicle (including the cost or vehicle ownership and parking), and the cost of transit fares. For low-income people, trains are not as affordable and so may rely on buses. With limited transit services during off-peak hours, people may need to pay for ridehailing or taxi services, which are more expensive.

## **Access to Information**

Challenges accessing information on transportation services can make trip planning complex, with needs related to:

- **Multilingual information –** Stakeholders identified a need for more bilingual information and staff resources to support LEP populations.
- **Access to varied information sources –** Dissemination of user-friendly transit information, particularly to seniors and those without smartphones or Internet access, was cited as a need.



The study team organized the needs to reflect both place types and travel perspectives.

## Travel Perspectives

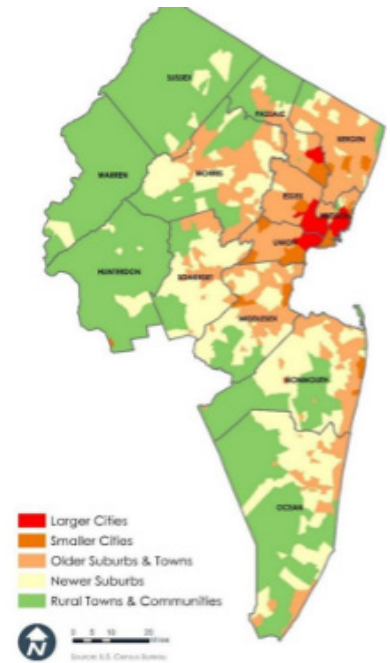
Transportation in the region is made up of a series of different kinds of trips: local trips within your community and longer trips to adjacent communities or even across the region. Some drivers are commuting and others are carrying freight. To consider these different perspectives, the study team developed three categories:

- 1. Regional travel** reflects personal travel to/from any part of the region to major destination points in northern New Jersey and New York City. Typically these focus on regional rail, bus, roadway, and bicycle networks.
- 2. Local travel** are mostly short trips that may be taken by a full array of travel modes, including walking, biking, transit, driving, bikeshare, or scooters.
- 3. Freight trips** have a unique set of characteristics and constraints relative to personal trips so are considered separately from regional and local travel.

## Place Types

Regional transportation needs depend on location. The performance of various transportation system components as well as expectation for jobs and housing accessibility is different in large cities relative to rural areas. This study categorized needs into three place types:

- 1. Urban areas** like Newark, Jersey City, and Paterson
- 2. Suburban areas** including both newer and older suburbs
- 3. Rural areas** including rural towns such as those found in much of Sussex, Hunterdon, and Warren Counties



















The following table includes the list of needs organized by Place Types and Travel Perspectives.

		Place Types		
		Urban Areas	Suburban Areas	Rural Areas including rural towns
Travel Perspectives	Regional Travel	To/from Urban Areas and NYC	Within and between Suburban Areas	Within and between Rural Areas
	Local Travel	Within Urban Areas	Within and between Suburban Areas	Within and between Rural Areas
	Freight	Freight Mobility		



# Summary of Regional Needs

Check marks indicate in which Place Type and Travel Perspectives Key Needs present the biggest challenges.

		To/from Urban Areas and NYC	Within Urban Areas	Within and between Suburban Areas	Within and between Rural Areas	Freight Mobility
Key Needs	 Trans-Hudson transit capacity	X				
	 Transit crowding	X	X			
	 Transit reliability issues	X	X			
	 Bottlenecks and unreliable highways / major roadways, including interstate truck reliability issues and congested freight corridors	X	X	X	X	X
	 Long transit travel times from some areas/reverse commute challenges/ limited alternatives to driving in some areas/opportunities to Reduce SOV	X		X	X	
	 Lack of connectivity between transportation service payment systems	X				
	 Pedestrian safety/infrastructure needs		X	X	X	
	 Bicycle safety/ infrastructure needs		X	X	X	
	 Need for supportive transit infrastructure, such as bus shelters and benches		X			
	 First-mile/last-mile challenges accessing transit/opportunities for micromobility options		X	X		
	 Park and ride availability, capacity constrains, lack of park and rides in some areas			X	X	
	 Freight rail capacity					X
	 Truck access to warehouses and distribution centers					X
	 Difficulties in Accessing Information	X	X	X	X	
	 Affordability	X	X	X	X	
	 Truck Reliability					X

# Mobility to/from Urban Areas and New York City

Approximately 25% of the region's workforce works in Hudson, Essex, and Union Counties, which contain the largest cities in New Jersey. Additionally, 12% of the region's workforce commutes to New York City. Added to these are trips associated with shopping, entertainment, and recreation. Such regional trips are characterized by:

- Frequent transit services but crowding
- Robust highway network with unpredictable travel times and significant delays
- High levels of transit use



Vivek

“Any given week, I’ll take NJ TRANSIT, MTA, and PATH. Sometimes I need to take a jitney. I like having options, but I wish transit were more reliable and less crowded so I could stick with a routine.”

## Key Needs



**Trans-Hudson Transit Capacity:** Rail and bus service to New York City have crowding and capacity constraints.



**Transit Crowding:** Crowding is tied to issues related to Trans-Hudson capacity, as well as capacity issues at certain stations. Examples include crowding on platforms at Journal Sq. and Grove St.



**Transit Reliability:** Bus reliability is associated with traffic congestion and poor roadway reliability. NJ TRANSIT buses to New York City have some of the worst on-time performance of all bus routes. For instance, there are 32 bus routes into New York City that are on time only 60% of the time or less.



**Bottlenecks and Unreliable Highways:** The tunnels, bridges, and major roadways leading to New York City all experience recurring delays and reliability challenges.

Unreliability impacts drivers and bus riders alike.



**Long Transit Travel Times/Reverse Commute Challenges:** Many locations have considerably longer transit travel times than driving travel times. This is due to indirect connections and the need to transfer. Reverse commutes from urban to suburban areas can be particularly challenging.



**Lack of Connectivity Between Transportation Service Payment Systems:** There is no unified fare payment system for NJ TRANSIT, PATH, MTA, and private sector transportation service providers. Without an integrated payment system, transfer to other systems can accrue additional costs for the same trip.

# Mobility to/from Urban Areas & New York City: Key Needs

*This map shows just some of the many transportation needs identified for travel to/from urban areas and New York City.*



## Trans-Hudson Capacity

Both bus and rail heading to Manhattan have significant crowding and reliability challenges.



## Bottlenecks and Unreliable Highways

The tunnels, bridges, and major roadways leading to New York City all experience recurring delays and reliability challenges.



## Reverse Commute Challenges

Not everyone is going to Manhattan! Commutes from urban areas to suburban areas are challenging, particularly for transit users.



Cities

Older Suburbs and Towns

Newer Suburbs

Rural



N

# Accessibility and Mobility within Urban Areas

Local travel within urban areas is characterized by significant transit services, including local buses and light rail, as well as a dense network of arterial and local roadways. Urban areas by nature are densely populated, and traffic volumes are relatively high in many urban locations because of the concentration of population and employment. In general, the density of development makes urban areas conducive to pedestrian activity, yet these areas have a relatively high number of pedestrian crashes involving fatalities and serious injuries, and the bicycle level of comfort is reduced due to traffic volumes. As centers of economic activity, urban areas also have a large amount of goods movement activity relating to ports, trucking, and rail freight, and there is a need to accommodate freight flows while balancing this need with potential community impacts.



Carmen

“We need safer walking and biking infrastructure. Most of my trips are very short, so I usually walk or bike. I sometimes feel unsafe with the speeding cars, though. Can we get more bike paths separated from traffic?”

## Key Needs



### **Pedestrian Safety/Infrastructure**

**Needs:** Urban areas have a relatively high number of pedestrian crashes, and some parts of cities lack adequate sidewalks and crosswalks.



### **Bicycle Safety/Infrastructure Needs:**

Roads in urban areas have a relatively low bicycle level of comfort. This is caused by high traffic volumes, speeding vehicles, and the limited availability of bicycle infrastructure.



### **Congested and Unreliable Major**

**Roadways:** Roadway congestion and unreliability due to accidents, traffic signal timing, and other conditions contributes to bus reliability issues.



**Transit Crowding:** Bus services in urban areas face challenges in operations and performance due to heavy traffic congestion on roadways, which can lengthen travel times and lead to on-time performance issues.



**Transit Reliability Issues:** Crowding on local buses and those accessing rail stations are also challenges.



### **Need for Supportive Infrastructure:**

Bus shelters, benches, and other supporting infrastructure are needed in urban areas, many of which have high numbers of vulnerable populations.



## Opportunities for Micromobility

**Options:** While there is bikeshare available in some cities, bikeshare and scooter-share have been hampered by safety and liability concerns.

## Mobility within Urban Areas: Key Needs



# Accessibility and Mobility within and between Suburban Areas


Northern New Jersey has a wide array of suburban communities, including both older suburban neighborhoods developed post-World War II and newer suburbs. Suburban areas are characterized by large office and industrial parks, retail suburban centers, and residential neighborhoods often disconnected from other land uses, making auto travel more prevalent. Suburban communities tend to have lower frequency and coverage of transit services compared to cities and are not as pedestrian-friendly. In many suburban areas, access to and from rail stations and bus stops can be challenging via walking or bicycling. Moreover, many roadways experience significant congestion.




Jason

“Traffic seems to get worse each year, so I’m concerned about how unreliable my commute to Somerville will become.”


## Key Needs


 **Long Transit Travel Times/Reverse Commute Challenges/Limited Alternatives to Driving in Some Areas:** Suburban development patterns are often auto-oriented and not very friendly for pedestrians, creating challenges for operating fixed-route suburb-to-suburb transit services. Limited alternatives to driving create challenges for households without vehicles to access jobs and other destinations.

 **Park and Ride Availability:** Many NJ TRANSIT park-and-ride facilities have very high demand and often are at or over capacity.

 **First-Mile, Last-Mile Challenges in Accessing Transit:** Beyond parking

constraints, many transit stations are not walkable or easily bikeable.

 **Pedestrian and Bicycle Safety/ Infrastructure Needs:** Many roads have high rates of pedestrian and bicycle crashes, and those walking and biking face challenges including high vehicle volumes, fast travel speeds, lack of roadway shoulders or bike lanes, as well as lack of connections.

 **Bottlenecks and Unreliable Highways/ Major Roadways:** Roadway congestion and unreliability due to accidents, traffic signal timing, and other conditions contributes to bus reliability issues and challenges for drivers in suburban areas.



# Mobility within and between Suburban Areas: Key Needs

*This map shows just some of the many transportation needs identified for travel within and between suburban areas.*



## **Bottlenecks and Unreliable Highways/Major Roadways**

Examples include many parts of I-287, I-80 between Parsippany and Roxbury Township, and NJ-10 in Morris Plains/Hanover/Parsippany.



## **Park and Ride Availability**

Parking spaces can be hard to come by in some locations.



## **Pedestrian and Bicycle Safety/Infrastructure**

Examples of locations with high rates of pedestrian crashes include areas near Rutgers University and downtown Morristown.



## **Long Transit Travel Times/Reverse Commute Challenges/Limited Alternatives to Driving**

Both bus and rail services are geared toward movement into and out of the urban core, with limited transit services available for suburb-to-suburb trips and during off-peak periods.



**Cities**



**Older Suburbs and Towns**



**Newer Suburbs**



**Rural**



**N**

# Accessibility and Mobility within and between Rural Areas


Northern New Jersey has a substantial amount of area that is classified as rural. In some cases, these areas are somewhat like newer suburban areas, with office and business parks, retail centers, and residential neighborhoods, but the uses are even more dispersed and lower-density than in suburban areas. Rural areas have very low coverage and frequency of transit service due to low population and employment densities. Options such as walking and bicycling are generally limited, and automobile travel is even more predominant. However, there are recreational areas and village centers that often have small, walkable centers.





Nancy


“ I tend to avoid busy roadways in my county like NJ-31. I like to take slower, quieter streets, even if it takes longer ”

## Key Needs

 **Limited Alternatives to Driving:** Most rural areas do not have the density and land use patterns to support fixed-route public transit services. In Sussex County, Andover will be served by a future NJ TRANSIT rail extension, and may support services when the station opens.

 **Park and Ride Availability:** Few park and ride facilities are available in rural areas but may be viable in some areas and allow for increased commuter bus lines and ridesharing opportunities.

 **Pedestrian and Bicycle Safety/ Infrastructure Needs:** While rural areas generally have low walkability due to low densities, even some downtown areas have limited pedestrian and bicycle facilities within the town and neighboring communities.

 **Bottlenecks and Unreliable Highways/ Major Roadways:** Roadway congestion and unreliability due to crashes, traffic signal timing, and volumes is less an issue in rural areas than in other areas, but there are still some roadways with poor reliability.



# Mobility within and between Rural Areas: Key Needs

This map shows just some of the many transportation needs identified for travel within and between rural areas.



## Limited Alternatives to Driving

A few towns in rural communities, such as Branchville, Franklin, and Sussex in Sussex County, and Alpha, Belvidere, and Washington in Warren County, have characteristics that might support public transit.



## Bottlenecks and Unreliable Highways/Major Roadways

Roadway congestion and unreliability is less an issue in rural areas, but roads such as NJ-31 and NJ-57 in Warren County have poor travel time reliability.



## Pedestrian and Bicycle Safety/Infrastructure

Some downtown areas such as Flemington, Newton, and Sparta have pedestrian and bicycle facilities.



Cities



Older Suburbs and Towns



Newer Suburbs



Rural



# Freight Mobility

The Northern New Jersey region is home to major freight facilities and corridors, including:

- The Port of New York and New Jersey, which is the home of the largest container port on the Atlantic seaboard.
- Rail, with the region served by two Class I railroads, CSX and Norfolk Southern.
- Air, via Newark Liberty International Airport.
- Trucking, using the region's interstates and roadway network.
- Industrial properties, with northern and central New Jersey having one of the leading concentrations in North America.




Julia

“ I can almost see the New Jersey Turnpike from the warehouse, but some days it takes the drivers 20 minutes to get there. Some say the last mile is the hardest part of their trip.”

Freight activity is not only vital to the economy but also affects community mobility issues, including the environment for pedestrians, bicyclists, and drivers of personal vehicles.

## Key Needs

 **Truck Reliability:** Interstate truck travel time reliability is poor on many segments of key corridors throughout the urban and suburban parts of the region, in counties throughout the region. Truck travel time reliability problems also occur in more rural areas, such as along I-78 in Hunterdon County.

 **Congested Freight Corridors:** Freight corridors experiencing congestion include Critical Urban Freight.



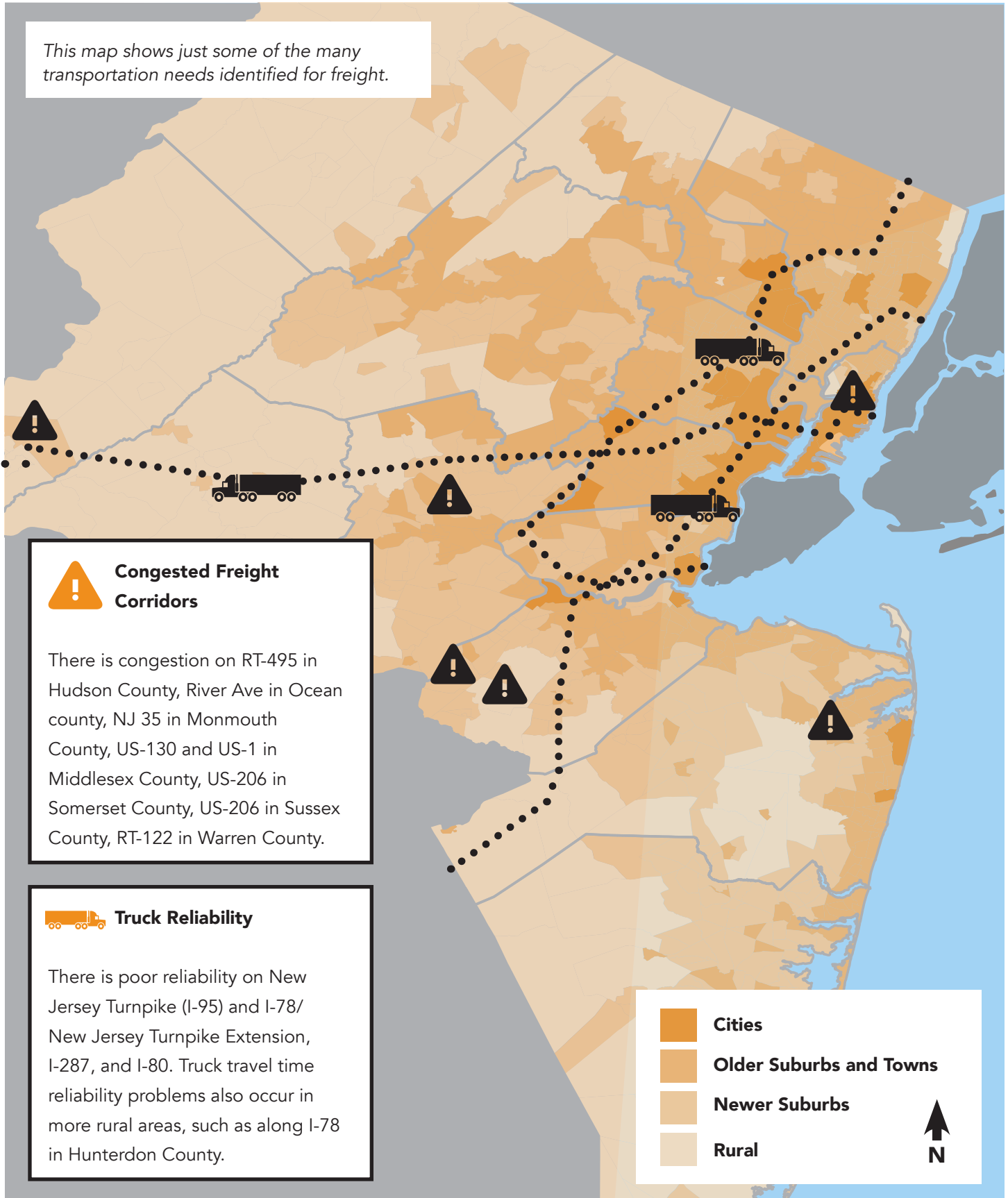
**Truck Access to Warehouses and Distribution Centers:** Some facilities are not accessible within 10 minutes of a main highway, and may create challenges with truck traffic on arterial roads in communities; locations outside of those accessible by transit also can create challenges for employees seeking jobs.



**Freight Rail Capacity:** Weight and height restrictions create constraints on rail freight efficiency.

# Freight Mobility: Key Needs

This map shows just some of the many transportation needs identified for freight.



# Chapter 4

## Strategies

A starting point for addressing the region's accessibility and mobility needs is to identify a full range of possible strategies to consider. Strategies represent potentially beneficial actions in appropriate locations that the NJTPA might advance through its Long Range Transportation Plan, through follow-up studies, by funding projects or programs in the Transportation Improvement Program, in other ongoing programs, or by encouraging and coordinating with partner agency implementers.

As discussed in the previous section, needs vary by place type and travel perspectives, so the strategies will need to recognize these nuances before they can be implemented. The following pages outline identified strategies. More detail regarding the potential locations where these strategies could be suitable, responsible organizations, and equity considerations can be found in the Strategy Profiles companion document.

### Menu of Strategies

The strategies are divided into eight categories:

**Public Transit**

**Pedestrian, Bike and  
Micromobility**

**Travel Demand  
Management**

**Land Use**

**Transportation  
Systems Management  
and Operations**

**Roadway Capacity/  
Resilience**

**Freight**

**Direct Safety**



# Integrating Equity Perspectives into Strategies

Achieving equitable outcomes is supported by integrating equity into all aspects of transportation decision making. Some approaches to better integrate equity include:

## Prioritizing investments in areas with high levels of vulnerable populations

As part of the process of prioritizing projects, the NJTPA and transportation agencies throughout the region should consider opportunities to advance projects to meet the needs of disadvantaged populations. Vulnerable populations may not be as engaged in the transportation decision-making process, often due to barriers such as language, education, ability, time constraints, or other issues. Proactive efforts to reach out to these communities can help to address these barriers.

## Considering the impacts of freight and goods movement

While many of the strategies identified to enhance equity focus on moving people, freight movement often disproportionately affects low-income and minority communities. Large volumes of truck traffic create noise, vibration, air pollution, and other impacts on surrounding communities, and these impacts should be mitigated wherever possible.

## Exploring projects from a multi-purpose perspective

Many times, transportation projects that focus on one issue may create unintended challenges to access or mobility. Exploring solutions in the context of all modes and working to balance diverse needs helps to maximize the benefits of projects. For instance, a road safety or rehabilitation project could offer an opportunity to add or enhance bicycle lanes, sidewalks, or other improvements that enhance accessibility for nonmotorized users.

## Considering opportunities to rectify past injustices.

In addition to addressing existing needs, transportation projects have played a historic role in inequality. For instance, many highways bisected minority and/or low-income communities, resulting in displacement of homes and businesses, among other harmful effects. The NJTPA and other partner agencies can look to advance strategies that help to rectify past impacts on communities, such as through addressing nuisances, enhancing the visual environment, capping highways, improving connectivity of the local road and pedestrian network, and other efforts to enhance community livability.

# Public Transit

Transit needs encompassed frequency, reliability, technology, payment, and service areas, so addressing these needs will require a multipronged effort. Strategies include expanding and enhancing services, modernizing the fare system and transfer policies, and growing ridership through supporting mobility-impaired accessibility, expanding park-and-rides, and improving transit-supportive infrastructure.



Vivek

“  
I’ve seen dedicated bus lanes on Staten Island and have wondered if this could be an option in New Jersey.  
”

- Transit Priority/Transit-supportive Roads
- Improve Bus Stop Infrastructure
- Support Mobility-Impaired Accessibility
- Add/Improve First-Last Mile Access
- Fare, System Interconnectivity
- Park-and-Ride Enhancement/Expansion
- Expand/Enhance Bus Service
- Expand/Enhance Rail Service
- Expand/Enhance Ferry Service
- Transit Preservation/Resilience
- Traveler Information



# Public Transit

		Key Needs												
		Trans-Hudson	Transit Crowding	Transit Reliability	Bottlenecks	Transit Travel Time	Lack of Connectivity	Pedestrian Safety	Bicycle Safety	Transit Infrastructure	First-mile/last-mile	Park and Ride	Information	Affordability
Key Strategies	Transit Priority/Transit-supportive Roads		X	X	X	X				X				
	Improve Bus Stop Infrastructure									X				
	Support Mobility-Impaired Accessibility					X		X		X	X			
	Add/Improve First-Last Mile Access			X		X	X	X	X		X	X		X
	Fare, System Interconnectivity					X	X			X				X
	Park-and-Ride Enhancement/Expansion				X		X					X		X
	Expand/Enhance Bus Service	X	X	X	X	X						X		X
	Expand/Enhance Rail Service	X	X	X	X	X								
	Expand/Enhance Ferry Service	X	X		X									
	Transit Preservation/Resilience	X		X	X									
Traveler Information					X				X			X		

Recognize limits on transit to reduce roadway congestion, but to some extent

# Pedestrian, Bicycle and Micromobility

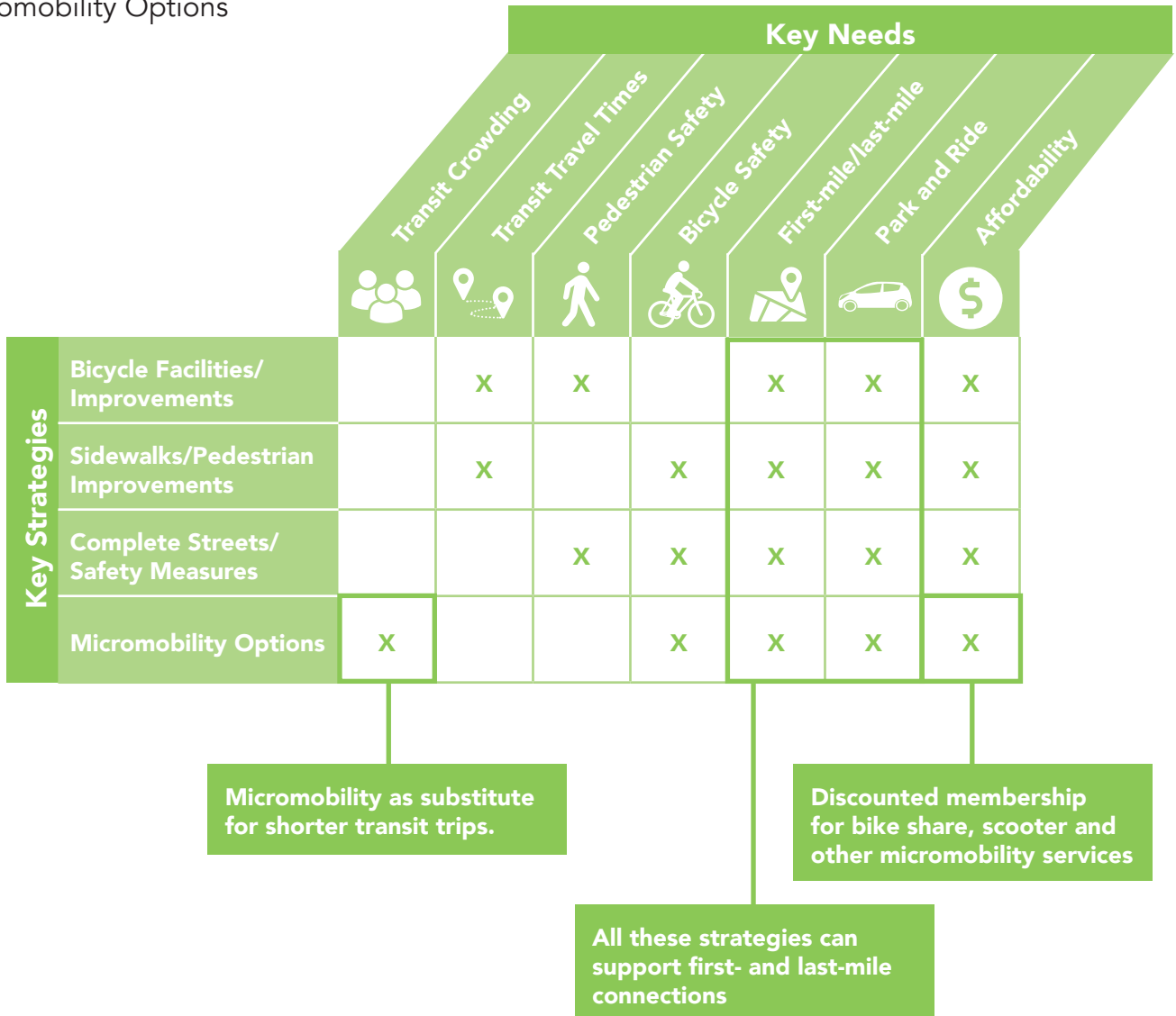
Many of the trips people take every day are less than two miles. Although walking and biking is not an option for everyone, many would prefer to have an affordable, active, and fun alternative to driving. These strategies look to improve and expand sidewalks and bike infrastructure. Exploring micromobility options (e.g., bike share, scooter share) could provide additional choices for community members.



**Carmen**

“  
A bike lane here and there isn't enough. We need a connected network!”

- Bicycle Facilities/Improvements
- Sidewalks/Pedestrian Improvements
- Complete Streets/Safety Measures
- Micromobility Options



# Travel Demand Management

Travel demand management refers to the suite of strategies that aim to reduce single-occupant vehicle use, particularly for commuting. Strategies include parking pricing strategies to employer-based programs that encourage telework, ridesharing, and other community benefits.



Jason

“One of the reasons I switched jobs is the new one allows me to work from home at least twice a week. That’s one less car on the road on Mondays and Fridays!”

- Employer-based TDM
- Regional/Local TDM Programs & Incentives
- Pricing Strategies

		Key Needs								
		Transit Crowding	Bottlenecks	Transit Travel Times	Pedestrian Safety	Bicycle Safety	First-mile/last-mile	Park and Ride	Affordability	Truck Reliability
Key Strategies	Employer-based TDM	X	X	X		X	X	X	X	
	Regional/Local TDM Programs & Incentives	X	X	X	X	X	X	X	X	
	Pricing Strategies		X					X	X	X

Employer-based initiatives to encourage teleworking.

Discounted transit fares reduce transportation costs while incentivizing transit.



# Land Use

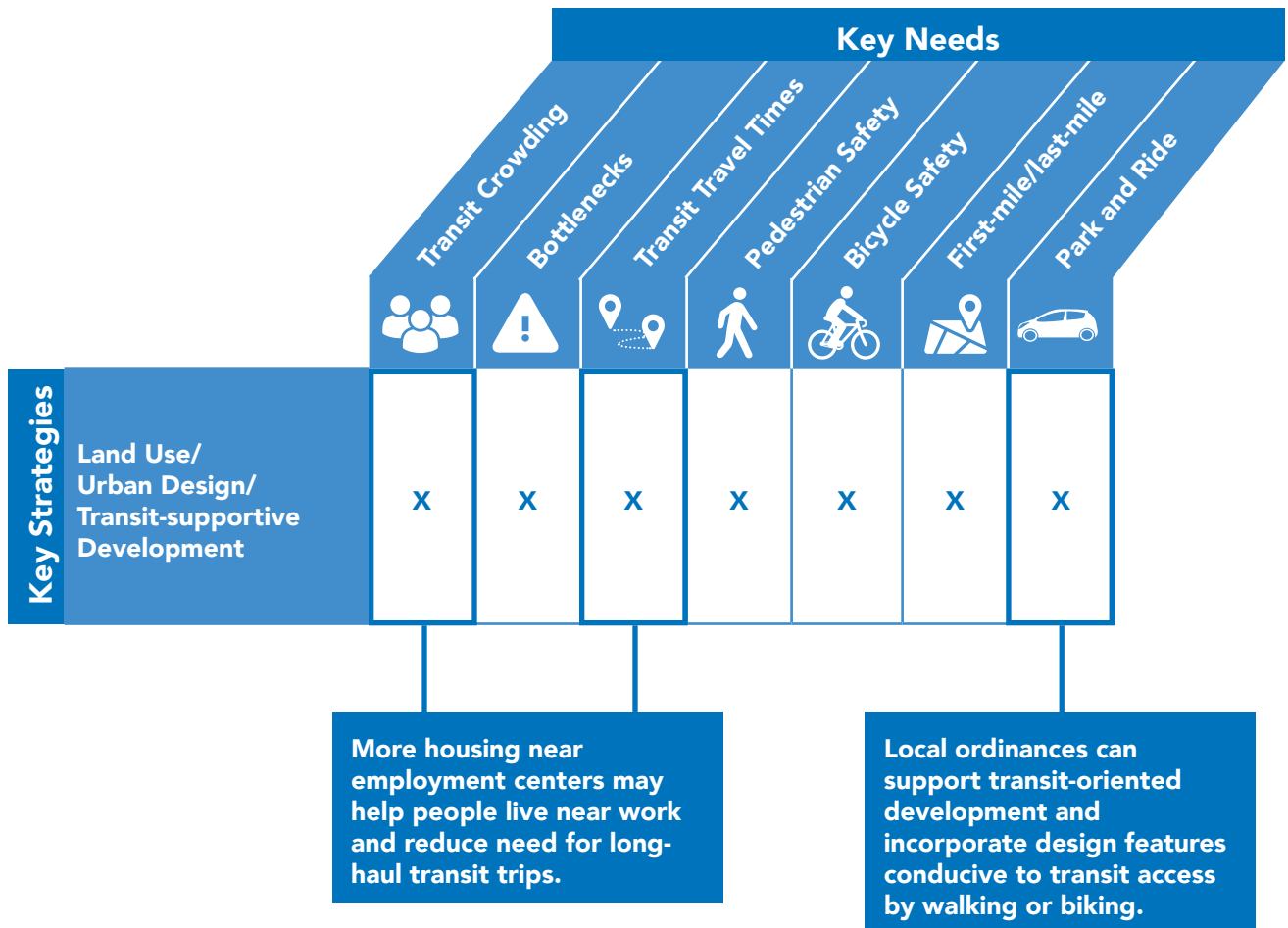
Land use and transportation are very interconnected. Transit, biking, and walking tend to work best in denser communities with a mix of uses. While land use falls largely outside the NJTPA's jurisdiction, this strategy highlights the agency's support for communities to prioritize multifamily homes and denser commercial development near major transit hubs and other coordination of local development with transportation infrastructure.



Nancy

“ I love visiting places where I just have to park my car once.”

- Land Use/Urban Design/Transit-supportive Development



# Transportation Systems Management and Operations

Improving roadway conditions (as discussed on previous pages) can alleviate delays and improve reliability for trucks as well as passenger vehicles. A host of other strategies (fully explored in other venues such as the New Jersey Statewide Freight Plan) facilitate the movement of goods throughout the region. These emphasize transporting freight by rail where possible, interconnecting the network better, and improving operations.



Julia

“Offering delivery zones in front of businesses makes our deliveries much more reliable and reduces the frustration of my drivers, my customers, and all other drivers.”

- Arterial Operations
- Freeway Operations/Regional System Management
- Traveler Information/Trip Planning
- Parking Lane/Curb Management



# Transportation Systems Management and Operations

		Key Needs												
		Trans-Hudson	Transit Crowding	Transit Reliability	Bottlenecks	Transit Travel Times	Lack of Connectivity	Pedestrian Safety	Bicycle Safety	Transit Infrastructure	First-mile/last-mile	Truck Access	Information	Truck Reliability
Key Strategies	Arterial Operations			X	X			X	X			X		X
	Freeway Operations/ Regional System Management			X	X									X
	Traveler Information/ Trip Planning	X	X	X	X	X	X					X	X	
	Parking Lane/Curb Management					X	X	X	X	X				

Dedicated bus lanes and transit signal priority can make buses more reliable.

Bilingual transit traveler information can help support trip planning for non-English speakers.

# Road Capacity/Resilience

The strategies to address bottlenecks, unreliable highway conditions, and disruptions due to weather events require thoughtful investment in redesigning roadways and bridges, providing geometric improvements, and implementing managed lane strategies. These strategies are less about expanding the roadways and more about optimizing the roads we currently have.



Jason

“Some of the roads are pretty rough. We should probably maintain the roads we have before building more.”

In fact, new road capacity is a last resort due to its expense, adverse environmental impacts, and potential to generate new traffic and therefore provide only short-lived benefits. The CMP emphasizes the range of other strategies first, including travel demand management, trip reduction, and support for alternate modes. If new road capacity is warranted, complementary strategies are utilized to attempt to manage traffic and mitigate negative effects.

- Road Geometry
- Managed Lanes
- New Road Capacity
- Expand Bridge, New Bridge
- Road and Bridge Preservation/Resilience
- Reduce or Remove Highway Capacity/Barriers

		Key Issues								
		Trans-Hudson	Transit Reliability	Bottlenecks	Transit Travel Times	Lack of Connectivity	Pedestrian Safety	Bicycle Safety	Truck Access	
Key Strategies	Road Geometry			X			X	X	X	
	Managed Lanes	X	X	X	X	X			X	
	Road and Bridge Preservation/Resilience			X						
	Reduce or Remove Highway Capacity/Barriers			X		X	X	X		
	Expand Bridge, New Bridge			X	Lane reconfigurations, interchange modifications, and safety countermeasures can work to reduce crashes that cause delays.					
	New Road Capacity			X					X	

# Freight

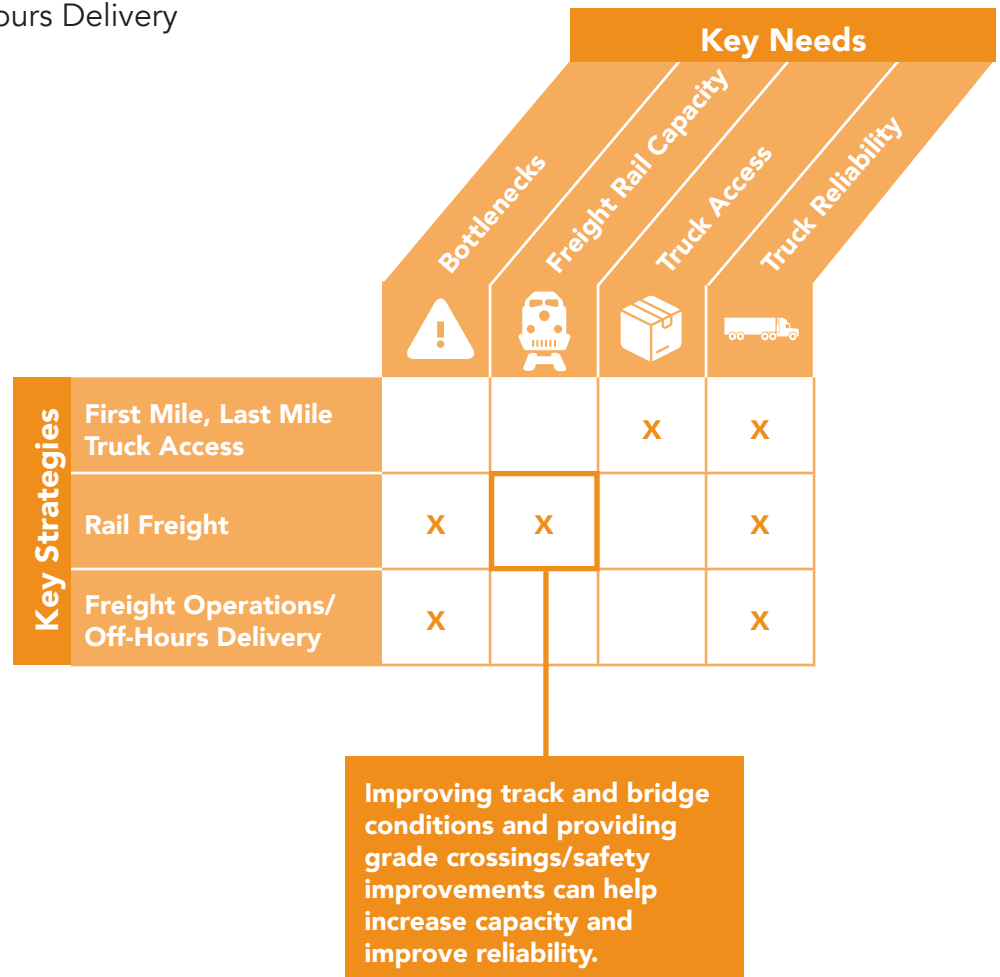
Improving roadway conditions (as discussed on previous pages) can alleviate delays and improve reliability for trucks as well as passenger vehicles. A host of other strategies (fully explored in other venues such as the New Jersey Statewide Freight Plan) facilitate the movement of goods throughout the region. These emphasize transporting freight by rail where possible, interconnecting the network better, and improving operations.



Julia

“Everyone relies on a functioning freight network. The last mile or two of the delivery can be the most challenging for our drivers.”

- First Mile, Last Mile Truck Access
- Rail Freight
- Freight Operations/Off-Hours Delivery





# Direct Safety

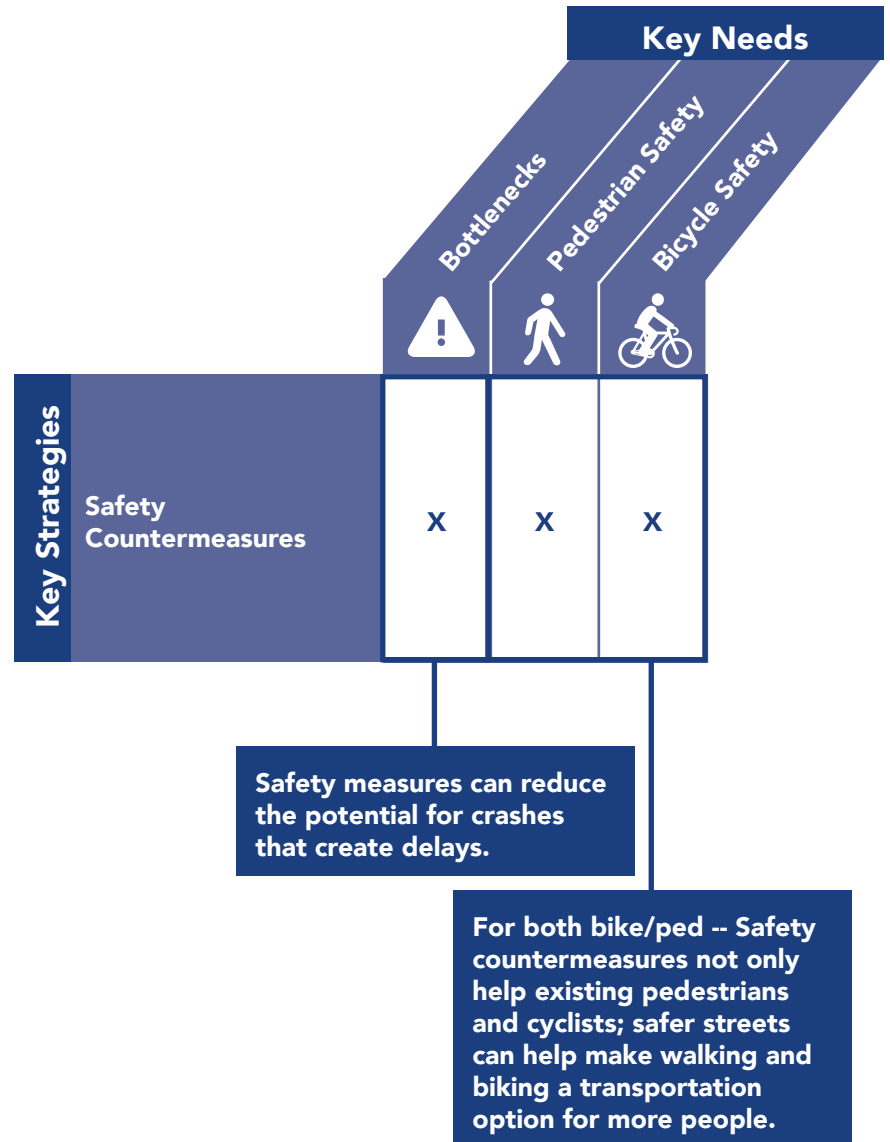
Safety, as the highest priority for the transportation system, is addressed in conjunction with many of the strategies described earlier. From an accessibility and mobility standpoint, specific safety improvements warrant calling out as an important foundation. Redesigning roadways to discourage speeding and reduce crashes can help increase roadway reliability and foster environments that are more comfortable for walking and biking.



**Carmen**

“  
**Lots of my friends would walk and bike more if it felt safe to do so. Cars drive so fast, even through neighborhoods.**  
 ”

- Safety Countermeasures



# Chapter 5

## Next Steps

### What's next?

The results of this planning effort are potentially beneficial actions in appropriate locations that the NJTPA, partner state and local agencies, and other stakeholders may advance. The NJTPA does so by incorporating such actions in its Long Range Transportation Plan, through follow-up studies, by funding projects or programs in the Transportation Improvement Program (TIP), in other ongoing programs, or by encouraging and coordinating with partner agency implementers. The resources produced in this study are available for all to make use of. The following considerations will help to advance identified actions and support implementation:

#### 1. Prioritizing Strategies and Actions that Advance Regional Policies Effectively and Fairly

Strategies should be prioritized that:

- Address established regional, local, state and national policies
- Take into account the magnitude of needs in terms of how people are affected now and in the future;
- Consider multiple needs or issues – for instance, core trans-Hudson capacity rail improvements address various needs, including transit crowding and reliability;
- Support other regional planning and funding efforts, with a focus first on transit, bicycle/ped, and land use, as well as system management and operations prior to capacity increases; and
- Support equitable access and mobility, taking into account challenges facing vulnerable populations that may have few options.

#### 2. Incorporating Equity-Focused Decision Making

Equitable access is a primary objective in the NJTPA's CMP. The information contained in the equity assessment conducted as part of the Accessibility and Mobility Strategy Synthesis can complement other equity oriented work already in practice at the NJTPA and partner agencies, including in public engagement, planning efforts, project and program design, and project prioritization. Understanding the locations of vulnerable populations and the specific needs and challenges faced by vulnerable populations can bring to light additional strategies or priorities to be placed upon solutions that address these issues.

### 3. Supporting Locations for Strategy Applications

Selecting locations for applying particular strategies should address factors such as:

- Key locations with identified poor performance in relation to CMP performance measures or to fill gaps in the network (data-driven analysis);
- Contextual land use and infrastructure that support strategy success;
- Packaging mutually supportive complementary strategies to magnify their impacts;
- Relative number of people affected and/or criticality to freight;
- Locations that serve vulnerable populations and support challenges facing vulnerable populations (data-driven analysis); and
- Local input and stakeholder-identified concerns.

### 4. Using the NJTPA's PRIME Interactive Online Database

The findings on needs and areas to consider for strategies from this study have been uploaded to the NJTPA's [PRIME](#) system. PRIME is an interactive online database that allows NJTPA and partner agency planners to identify needs and recommendations from various studies and supports finding relationships among them. A benefit of the PRIME system is that it helps to emphasize projects that meet multiple purposes and allows a more informed consideration of various needs and project plans or proposals recommendations across the geography of the region. As an inventory of all the needs and strategies applicable for any given location, the PRIME tool can be used as a resource to provide the context behind project-related decisions.

### 5. Continuing to Assess and Refine Solutions

The findings of this study support additional analyses or studies to further assess and refine solutions within corridors and subareas for specific accessibility and mobility needs. These may be in the form of corridor studies, local area studies, or specialized studies (e.g., transit service studies, freight studies), accounting for factors such as:

- Viability of strategies, particularly transit and infrastructure solutions, based on benefit-cost of individual strategies/treatments (including addressing co-benefits);
- Resiliency of strategies and consideration related to uncertainty (including climate change impacts, as well as other disruptions to the transportation system); and
- Local stakeholder and public input.

### 6. Monitoring Outcomes

The NJTPA and its partners regularly collect data and track how well the transportation system performs. This is particularly of interest in light of CMP strategies that are implemented. Continuing to understand the effectiveness of projects and programs is key to helping planners and decision makers to choose the best courses of action in the future. This also allows [the CMP](#) to serve broader performance based planning and programming activities, including the NJTPA's commitments to address a range of regional performance measures and to address established targets for national performance measures.

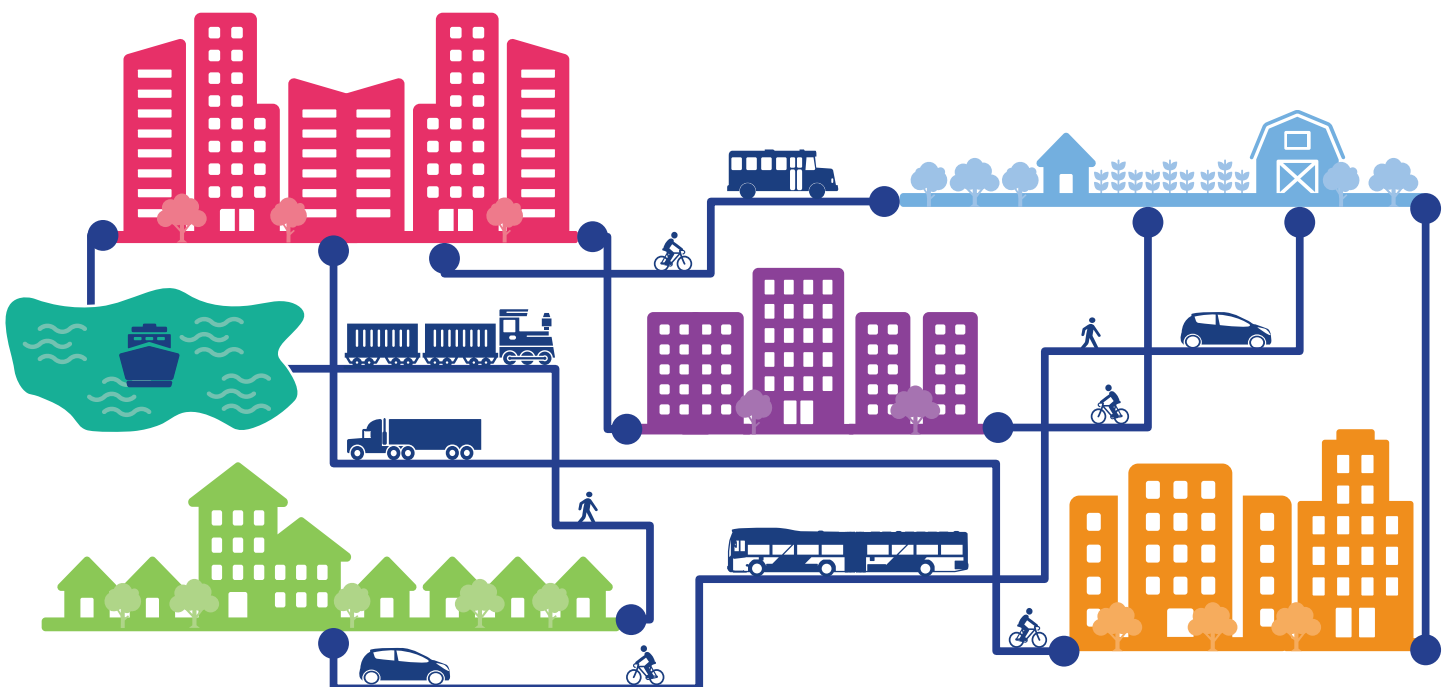
## 7. Partnering Across Agencies

Finally, it is important to recognize that successful strategy implementation often involves a wide array of partners – such as the NJTPA, state agencies, local governments, transportation management associations, private sector transportation service providers, property owners, or others – working together. Having a common framework as presented in

this Accessibility and Mobility Strategy Synthesis will support partners working together with a common vision and focus on the outcomes of enhanced accessibility and mobility. Extensive collaborative planning processes support this approach at local and regional levels, across the state, and with neighboring jurisdictions.

## Looking Ahead

How residents of our region get around is guided by transportation and land use decisions at the regional and local levels. These choices affect not just our trips, but regional quality of life, economic competitiveness, and community resiliency. In our region, we have the benefit of robust transportation systems but also a particularly challenging task of coordinating these systems within varied contexts. From its dense cities to suburban and rural communities, the NJTPA region faces diverse challenges and needs for improving the accessibility and mobility of people and goods. At the same time, we are one region. No matter the location, we seek to improve accessibility to destinations, ensure equitable access, and provide reliable travel options. The needs and strategies identified in this report will help the NJTPA, counties, state agencies, and other partner organizations identify and develop effective approaches to achieve this vision.





Vivek

“ I’m so glad I have more than one choice for my commute trips by transit. It’s good to know that when the trains are delayed, I can hop on a bus. ”



Julia

“ New Jersey will stay a great place for businesses like mine as long as they continue to design streets with both freight and transit in mind. ”

“ Maybe one day we can be a one car family! ”



Jason

“ I’m happy to hear there are resources available if I need to learn to use the shuttle system in my county. ”



“ Joining a bikeshare program was a huge benefit to my life. I’d love to see similar programs in new neighborhoods and cities. ”



Nancy







# Accessibility & Mobility Strategy Synthesis: Strategy Profiles

Prepared for the North Jersey Transportation Planning Authority

Prepared by



with support by AECOM and FHI Studio

June 2021



# NJTPA

**NORTH JERSEY  
TRANSPORTATION  
PLANNING AUTHORITY**

## A Menu of Strategies to Support Accessibility and Mobility Needs

As the northern New Jersey region works to enhance accessibility and mobility, it is important for the North Jersey Transportation Planning Authority (NJTPA) and partner agencies to consider what strategies are most effective and appropriate to address identified needs. This document provides a menu of strategies to be considered to address identified regional needs. The strategies are grouped into eight categories:



### Strategy Profiles

For each strategy, this document includes a one-page profile. Each profile includes information on: needs addressed by the strategy, specific tactics or applications of the strategy; assessment factors to consider; benefits in relation to regional objectives; costs, qualitatively assessed; equity considerations; and organizations that are responsible or typically play a role in implementation. Each profile also includes information on locations to consider and related projects.

It is most valuable to look at problems holistically and to consider the most appropriate strategy or combination of strategies to apply to address specific needs. The NJTPA encourages partner organizations to look at the Regional Capital Investment Strategy and the analyses conducted as part of the Congestion Management Process – including the *Strategy Identification and Prioritization Report* (which includes matrices that connect regional needs to strategies) and the *Equity Assessment Report* (which identifies locations with vulnerable populations and particular needs) – as a guide to help in selecting strategies. These strategies often involve multiple partner agency implementers, and strategies may be advanced through the NJTPA’s long-range transportation plan, through follow-up studies, by funding projects or programs in the Transportation Improvement Program (TIP), in other ongoing programs, or by coordinating with other agency implementers.



## Transit Priority / Transit-Supportive Roads (TR-1)

Public Transit

### Needs Addressed

Transit crowding, unreliable transit, long and uncompetitive transit travel times, congested and unreliable roadways (by encouraging shifts to transit)

### Specific Strategies

Dedicated lanes, business and access transit (BAT) lanes, bus on shoulder treatments, transit signal priority, queue jumps, and other bus rapid transit (BRT) support facilities; express/limited-stop service.

### Assessment Factors

- How many riders would benefit?
- What are the current peak traffic conditions and transit travel times?
- What is the potential for decreasing transit travel times and improving reliability?
- What is the physical feasibility of implementing improvements with manageable traffic impacts? What are impacts on on-street parking, loading zones, etc.?
- What is the potential for the improvements to attract new transit ridership?

### Benefits

- Improves accessibility to destination by reducing transit travel time (more destinations accessible in same travel time)
- Enhances transit reliability (on-time performance)
- Enhances usability of transit
- Optimizes existing roadway capacity by increasing transit ridership and passenger throughput

### Equity Considerations

Consider routes serving high levels of vulnerable populations that would benefit from faster and more reliable transit. Recognize important role to enhance jobs access via transit, rather than focusing on primarily road users.

### Locations to Consider

- Roadways with congestion, poor reliability, and high transit frequency
- Roadways serving transit routes with poor on-time performance
- *See CMP Analysis for areas to consider*

### Related Projects

- GO Bus 25 and 28 (current service)
- US 9 in Monmouth County (current and planned service)
- I-78 Corridor Transit Study
- Bergen County BRT (proposed)
- Greater New Brunswick area (Route 18) BRT (proposed)
- US 1 BRT, Middlesex County (proposed)

### Costs

- Relatively low for lane striping and other treatments
- Medium when incorporating BRT support facilities

### Responsible Organizations

Requires collaboration among many agencies:

- NJDOT – responsible for roadway construction, maintenance, and operations
- NJ TRANSIT – responsible for bus stations / stops, service planning, and operations
- Municipalities – responsible for station / stop location, design, and access; coordination with local businesses and communities



## Improve Bus Stop Infrastructure / Amenities (TR-2) *Public Transit*

### Needs Addressed

Need for supportive transit infrastructure; lack of shelter, shade, lighting, or other conditions that are important for transit riders, especially vulnerable population segments, such as older adults and persons with disabilities.

### Specific Strategies

Add benches, bus shelters, sidewalks and ADA improvements, lighting, improve placement and design of bus stops, schedule information, and/or real-time bus information.

### Assessment Factors

- What is level of current transit service?
- What is the current and potential ridership?
- What are the conditions of facilities?
- Are there safety/security issues?

### Benefits

- Enhances usability of transit, making transit more comfortable and attractive
- May increase transit ridership, helping to optimize roadway capacity
- May improve safety and security

### Costs

Relatively low (plus on-going maintenance costs)

### Equity Considerations

Strive for universal access to accommodate people with disabilities, seniors, and limited-English proficiency riders. Be aware that disadvantaged communities may not advocate or request bus shelters or supporting infrastructure to the same extent as other communities; consider ways to ensure these areas are not disadvantaged in terms of obtaining equitable quality of bus stops.

### Locations to Consider

- High transit ridership locations
- Areas with high numbers of disadvantaged / vulnerable populations
- Areas identified by local stakeholders
- Examples locations to consider include: South Kearny; Blackwell & Bergen Streets, Dover; Main & Day Streets, City of Orange; Essex & Huyler/State Streets, Hackensack; Fairmount & Newark Avenues, Elizabeth; U.S. Route 9 & Fairway Lane, Old Bridge; U.S. Route 9 & Adelpia Road, Freehold Township; 18th Street & Irvine Turner Boulevard, Newark

### Related Projects

- NJ TRANSIT Local Bus Shelter Modernization Program
- Route 126 improvements in Hoboken
- Planned bus terminal upgrades: Secaucus Junction, Hackensack, Passaic

### Responsible Organizations

Requires coordination between:

- NJ TRANSIT – installs and maintains bus stop signs and poles, provides funding for shelters
- Municipalities – approves stop locations, approves shelters and maintains, repairs, and replaces them, if needed





## Support Mobility-impaired Accessibility (TR-3)

Public Transit

### Needs Addressed

Need for additional services or multimodal connections to enable use of transit for entire trips. Reverse commute challenges. Need for supportive transit infrastructure.

### Specific Strategies

Americans with Disabilities Act (ADA) accessibility improvements, enhanced transit amenities (shelters, information, et al.), paratransit and targeted service, possible new service models

### Assessment Factors

- What are the locations / densities of older and disabled persons?
- What are key destinations, such as shopping areas, medical services, and community / civic uses?
- What are the current levels of transit service and amenities?

### Benefits

- Equitable access, including increased mobility and access for vulnerable populations to a wide variety of destinations (jobs, health care, groceries, etc.)
- May improve multi-modal safety

### Costs

Relatively low to moderate

### Equity Considerations

Strive for universal access to accommodate people with mobility, vision, and hearing disabilities

### Locations to Consider

- 30 commuter rail stations with identified ADA access limitations
- Access to VA hospitals in East Orange and Lyons, among others

### Related Projects

- NJ TRANSIT Access Link
- NJ TRANSIT bus shelter replacement program
- County-based paratransit and shuttle services
- NJ TRANSIT Regional Rail Station Modernization & Access Program
- NJ TRANSIT Local Bus Shelter Modernization Program
- NJTPA's Coordinated Human Services Transportation Plan

### Responsible Organizations

Many different agencies are responsible for different facilities and may need to coordinate:

- NJDOT – responsible for state roadways
- NJ TRANSIT – responsible for rail stations, bus and paratransit operations
- Port Authority of New York and New Jersey – responsible for rail stations and ferry terminals
- Counties – responsible for county roads; provide shared-ride paratransit services
- Municipalities – responsible for municipal roadways, shelter maintenance; provide shared-ride paratransit services
- Transportation Management Associations – may provide on-demand services



## Add/Improve First-Last Mile Access (TR-4)

Public Transit

### Needs Addressed

Need for additional services or multimodal connections to enable use of transit for entire trips. Reverse commute challenges.

### Specific Strategies

Feeder bus / shuttle services, enhanced pedestrian, bicycle, or micromobility connections to transit stations and stops

### Assessment Factors

- What are the current transit services?
- What are the key origins and destinations that may not be fully served?
- What is the estimated demand for supplemental services?

### Benefits

- Improves accessibility to destinations by transit
- Supports equitable access
- Enhances the usability of public transit
- Encourages increased transit ridership, helping to optimize roadway capacity
- Supports pedestrian and bicycle activity, which may benefit non-transit users as well

### Costs

Relatively low to moderate

### Equity Considerations

First-mile last-mile access is often a particular barrier for low-income and zero vehicle households, who cannot access jobs or other destinations in suburban areas, particularly during off-peak hours. In prioritizing services, consider needs for these populations, particularly at employment outside of central business districts.

### Locations to Consider

- Rail stations with limited bus service frequency or multimodal connections
- Bus stops at major activity centers or along corridors with frequent service
- *See CMP Analysis for areas to consider*
- Areas identified by stakeholders include near Rutgers University New Brunswick/Piscataway Campuses, Freehold area, and downtown Morristown

### Related Projects

- EZ Ride shuttles serve Secaucus Junction rail station
- DASH 851 and 852 run between New Brunswick rail station and employment locations
- South Orange rail station is served by South Orange jitney routes and West Orange shuttle routes

### Responsible Organizations

Many different organizations can play a role in supporting first-mile/last-mile access, including:

- NJ TRANSIT – operates and provides funding for local services
- NJTPA – administers CMAQ program and Local Mobility Initiatives program in coordination with NJ TRANSIT
- Private transportation service providers – operate some local transit services
- Transportation Management Associations – some assist in planning and operating local shuttle services





## Fare, System Interconnectivity (TR-5)

Public Transit

### Needs Addressed

Lack of connectivity between transit services, challenges transferring between different service providers

### Specific Strategies

Improve coordination of scheduling, fares, and transfers; increase use of passes and automated fare purchase and payment; unified one-payment fare system

### Assessment Factors

- What is the location of key connection / transfer points among transit services?
- What is the usage for transfers among services?
- What is the potential demand for increased transfers among services?
- How can fare policy and pricing help serve travelers that must use multiple services?

### Benefits

- Supports equitable access, reducing costs to riders
- Enhances the usability of public transit, including connectivity of services and efficiency and convenience of transfers
- Encourages increased transit ridership, helping to optimize roadway capacity

### Costs

Potentially high; requires fare and revenue coordination

### Equity Considerations

Could consider fare policies that offer lower fares for low-income populations. Consider how fare transfer policies affect different socio-economic groups.

### Locations to Consider

- Systemwide, addressing connections between NJ TRANSIT rail and bus, PATH, MTA subways, ferries, and other options

### Related Projects

- NJ TRANSIT MyTix allows for automated fare purchase and payment.
- NJ TRANSIT rail riders with passes can ride light rail and bus for free.
- NJ TRANSIT offers continuous trip tickets on some bus routes.
- PATH has Smart Link fare payment option and is planning to integrate with OMNY, which will enable seamless transfer to MTA subways

### Responsible Organizations

Many partners would need to work together, including:

- NJ TRANSIT – establishes fare structures and payment mechanisms and options
- Port Authority of New York and New Jersey – establishes fare structure and payment mechanisms and options
- Private bus operators and other service providers – establish fare structures and payment mechanisms and options



Source: Google Streetview

## Park-and-Ride Enhancement/Expansion (TR-6)

Public Transit

### Needs Addressed

Limited available capacity to support potential public transit and carpooling options. Many current facilities are near or at capacity.

### Specific Strategies

Expand capacity of existing park-and-ride facilities, add new facilities, enhance amenities at or near facilities, adjust transit schedules as needed to serve facilities, improve multi-modal connections, provide enhanced real-time information on parking availability and next train/bus information

### Assessment Factors

- What is the presence of current transit services that serve the park-and-ride facility?
- What is the nearby residential population who may use the facility?
- What is the potential use of the facility and increase in transit ridership?
- What other options, such as pedestrian, bicycle, micromobility options, shuttles, or micro-transit could be applied instead of adding parking capacity?

### Benefits

- Improves accessibility to destinations
- Supports alternatives to driving alone and the usability of public transit
- Encourages increased transit ridership, helping to optimize roadway capacity
- May support pedestrian and bicycle activity, which may benefit non-transit users as well

### Costs

Low to Medium-high (depend on station context, available land, types of enhancements)

### Locations to Consider

- Existing locations with over capacity demand for parking – approximately 20 locations identified
- Potential new locations in suburban/rural areas with potential for demand for commuter bus services
- *See CMP Analysis for areas to consider with overcapacity parking*

### Related Projects

- Pompton Lakes Study Transit Access Study
- I-78 Corridor Transit Study

### Equity Considerations

Ensure universal access so people with disabilities can access transit from parking spaces. Balance parking demand with other ways to access transit that may benefit households without vehicles.

### Responsible Organizations

- NJDOT – may own property for current or potential park-and-ride facilities
- NJ TRANSIT – provides services to and from park-and-ride facilities
- Private bus operators – provide services to and from park-and-ride facilities
- Municipalities – may need to revise plans / ordinances to authorize and support park-and-ride facilities
- Private property owners – may own property for potential park-and-ride facilities





## Expand / Enhance Bus Service (TR-7)

Public Transit

### Needs Addressed

Trans-Hudson capacity, transit crowding, transit reliability issues, long and uncompetitive transit travel times, reverse commute challenges

### Specific Strategies

Increase service frequency, extend hours of operation, extend routes, add stops, add new routes, consider new service models, e.g., specialized or dynamic reverse commute services.

### Assessment Factors

- What are the current transit services and what are the expansion possibilities?
- What is the current peak transit ridership, and what is the potential for attracting new ridership?
- Is there sufficient demand for fixed route service?
- What are the development densities and the key origins and destinations for potential service?
- What is the potential for linking increased service with multi-modal access including park-and-rides, pedestrian facilities, and bicycle facilities?

### Benefits

- Improves accessibility to destinations
- Enhances equitable access
- Enhances usability of public transit
- Encourages increased transit ridership, helping to address traffic congestion

### Equity Considerations

Many transit services are geared toward typical rush-hour commuters, and do not effectively serve low-income workers and other populations that work during off-peak hours/late night or have reverse commutes. Affordable, convenient local and intercity access is needed for a variety of trip types (e.g., employment centers, medical centers, recreational opportunities, schools). Consider these population needs.

### Locations to Consider

- Areas with potential for relatively high transit demand (based on land use and other factors) with relatively long transit commutes
- *See CMP Analysis for areas to consider.*
- Areas identified by stakeholders include: Routes serving Journal Square Transportation Center, routes along major Newark corridors including Broad Street, Market Street, and Raymond Boulevard; and .access to Middlesex County suburban destinations and employment centers

### Related Projects

- Greater Newark Bus Study
- Route 202 Corridor Assessment and Multi-Modal Mobility Plan
- Southern Middlesex County Transit Needs and Service Enhancement Study
- NewBus Newark

### Costs

Medium (depends on level of enhancement, new services)

### Responsible Organizations

- NJ TRANSIT – responsible for stations and stops, service planning, and operations
- Municipalities – responsible for station and stop location, design, and access





## Expand / Enhance Rail Service (TR-8)

Public Transit

### Needs Addressed

Trans-Hudson capacity, transit crowding, transit reliability issues, long and uncompetitive transit travel times in some locations, reverse commute challenges

### Specific Strategies

Add new tunnels (Trans-Hudson capacity), increase service frequency, extend lines, add stations, add new lines.

### Assessment Factors

- What are the current services and what are the expansion possibilities?
- What is the current peak ridership, and what is the potential for attracting new ridership?
- What are the development densities and the key origins and destinations for potential service?
- What is the potential for linking increased service with multi-modal access including park-and-rides, bus / shuttle service, and bike-ped facilities?

### Benefits

- Improves accessibility to destinations
- Enhances equitable access
- Enhances reliability of travel
- Enhances usability of public transit
- Encourages increased transit ridership, helping to address traffic congestion

### Costs

High

### Equity Considerations

Provide connecting bus/shuttle service to and from rail stations to expand access to high-capacity transit.

### Locations to Consider

- Hudson River rail crossing / Northeast Corridor
- Raritan Valley Line
- Northeastern Bergen County
- Potential rail expansions to outer suburbs

### Related Projects

- Northeast Corridor, Gateway Program
- Lackawanna Cutoff
- Raritan Valley Line extension to Phillipsburg
- West Trenton Line
- Middlesex – Ocean – Monmouth Line

### Responsible Organizations

- NJ TRANSIT – responsible for lines and stations, service planning, and operations
- Port Authority of New York and New Jersey – responsible for lines and stations, service planning, and operations
- Municipalities – may be responsible for items relative to station location, design, and access



## Expand/Enhance Ferry Service (TR-9)

Public Transit

### Needs Addressed

Trans-Hudson capacity, transit crowding

### Specific Strategies

Increase fleet size, improve terminal facilities, improve multi-modal connections

### Assessment Factors

- What are the current ferry services and what are the expansion possibilities?
- What is the current peak transit ridership, and what is the potential for attracting new ridership?
- What are the development densities and the key origins and destinations for potential service?
- What is the potential for linking increased service with multi-modal access including buses, shuttles, pedestrian facilities, and bicycle facilities?

### Benefits

- Improves accessibility to destinations
- Enhances usability of public transit, including improved rider comfort
- Enhances reliability / provides service redundancy
- Encourages increased transit ridership, helping to address traffic congestion

### Costs

Medium

### Equity Considerations

Consider service affordability and access to low-income waterfront communities

### Locations to Consider

- Potential route origins include Jersey City, Bayonne, Elizabeth, Carteret, Englewood Cliffs, South Amboy, and Alpine.
- Other potential sites for expanded or new ferry service include Edgewater, Long Branch, Newark, Elizabeth, and Belford / Highlands / Atlantic Highlands.

### Related Projects

- Hudson Ferry Study
- NJTPA Inventory and Assessment of Waterborne Transportation Resources
- NJ TRANSIT Ferry Customer Study Report
- Port Authority of New York and New Jersey Trans-Hudson Commuting Capacity Study

### Responsible Organizations

- NJ TRANSIT – responsible for some terminals, service planning, and operations
- Port Authority of New York and New Jersey – responsible for some terminals, service planning, and operations
- Private operators – responsible for other terminals, service planning, and operations
- Municipalities – may be responsible for items relating to terminal location, design, and access



## Transit Preservation/Resilience (TR-10)

Public Transit

### Needs Addressed

Disruptions to service due to infrastructure conditions, impacts of extreme weather events; rehabilitation and maintenance needs

### Specific Strategies

New bridges with higher vertical profiles, track rehabilitation and elevation, signal and communication system protection, rolling stock rehabilitation and replacement

### Assessment Factors

- What is the current condition of facilities?
- What is the current service frequency and ridership on those facilities?
- What are the threats associated with extreme weather impacts? What infrastructure is most vulnerable?
- What is the lowest life-cycle cost?

### Benefits

- Improved service reliability / fewer delays
- Reduced bridge and track deterioration

### Costs

High but necessary, and important for overall preservation of the system

### Equity Considerations

Needs of transit dependent, Title VI, and environmental justice populations must be considered for full community resiliency

### Locations to Consider

- NJ TRANSIT and PATH facilities including rail system bridges, tracks and other facilities in low-lying areas and those vulnerable to climate change

### Related Projects

- Long Slip Fill and Rail Enhancement
- Signals and Communications Resilience project
- Rail bridge projects: Raritan River Bridge replacement, Brielle Draw Bridge replacement, HX Draw Bridge replacement, Shark River Draw Bridge replacement, Morgan Draw Bridge replacement

### Responsible Organizations

- NJ TRANSIT – owns and maintains rail system infrastructure and rolling stock
- Port Authority of New York and New Jersey – owns and maintains infrastructure and rolling stock





## Sidewalks/Pedestrian Improvements (PB-1)

*Pedestrian, Bike & Micromobility*

### Needs Addressed

Lack of pedestrian access, comfort, and safety

### Specific Strategies

Sidewalks, crosswalks, trails, safer street crossings, pedestrian countdown signals *[May be part of a broader complete streets strategy (PB-3)]*

### Assessment Factors

- What are key nearby destinations, such as transit stations / stops, schools, shopping areas, etc. ?
- What is current or anticipated potential for pedestrian activity?
- What is the crash history or identified safety hazards?

### Benefits

- Improves accessibility to destinations
- Supports equitable access
- Enhances the usability of public transit
- Increases the viability of walking, bicycling, and other micromobility options
- Improves safety
- May reduce vehicle trips, and reduce traffic congestion and emissions
- May enhance economic vitality

### Costs

Relatively low in many locations

### Equity Considerations

Provides an affordable transportation option but needs to be designed with consideration of all abilities. Designs should consider strollers and people in wheelchairs (i.e., ample widths, ADA-accessible ramps). Prioritization may consider needs of zero-vehicle households/vulnerable populations.

### Locations to Consider

- Locations accessing transit and connecting to activity centers, areas with high pedestrian crashes, areas with high walkability potential based on land use patterns, and gaps in sidewalk networks
- Examples from Needs Assessment include Market St. / Broad St. area of downtown Newark; Bloomfield Ave. in Newark through Bloomfield, Glen Ridge, and Montclair; JFK Blvd. and Bergenline Ave.; and New Brunswick Ave. in Perth Amboy

### Related Projects

- Safe Routes to School and Walkability in Elizabeth
- Complete Streets Concept Plan for Morris Avenue
- Pedestrian Bridge over Route 440 (TIP project)
- Essex County Complete Streets Implementation Action Plan
- Borough of Keyport Complete Streets Policy and Implementation Plan
- Complete Streets Design and Implementation Plan: City of Hoboken

### Responsible Organizations

- Counties and municipalities – incorporate pedestrian accommodations into roadway improvement projects
- NJDOT – administers grant programs including Safe Routes to Schools
- NJ TRANSIT – provides pedestrian safety education



## Bicycle Facilities/Improvements (PB-2)

Pedestrian, Bike & Micromobility

### Needs Addressed

Lack of bicycle access, comfort, and safety

### Specific Strategies

Bicycle routes, on-street bike lanes, lane markings, cycle tracks, trails, signage *[May be part of a broader complete streets strategy (PB-3)]*

### Assessment Factors

- What are the origins and destinations of current and potential future bicycle trips?
- What are the current / potential links to other multi-modal facilities?
- What is the crash history, identified safety factors?

### Benefits

- Improves accessibility to destinations
- Supports equitable access
- Enhances the usability of public transit
- Increases the viability of walking, bicycling, and other micromobility options
- Improves safety
- May reduce vehicle trips, and reduce traffic congestion and emissions

### Costs

Relatively low

### Equity Considerations

Provides an affordable transportation option but needs to be designed with consideration of all abilities. Prioritization may consider needs of disadvantaged populations.

### Locations to Consider

- Locations accessing transit and connecting to activity centers, areas with high bicycle crashes, and areas with few facilities with high bicycle level of comfort or to fill gaps in networks, and based on local priorities
- Examples include Newark; Hackensack, along Prospect Street; Essex Street; Polifly Road and Summit Avenue; Palisades Avenue and Anderson Avenue in Cliffside Park and Fort Lee

### Related Projects

- Morris Canal Greenway Study
- Middlesex Greenways Wayfinding and Middlesex Greenways Access Plan
- Exploration of Public Bike Share Program in Hudson County
- City of Newark Pedestrian & Bicycle Safety Action Plan
- Newark Riverfront Bicycle-Pedestrian Access Plan (TIP project)
- New York, Susquehanna & Western Bicycle-Pedestrian Path (TIP project)

### Responsible Organizations

- NJDOT – administers bikeway grant program and bicycle safety initiatives
- NJ TRANSIT – allows bicycles on trains and buses, provides bicycle parking at most train stations
- Counties and municipalities – incorporate bicycle accommodations into road improvement projects





## Complete Streets/Safety Measures (PB-3)

*Pedestrian, Bike & Micromobility*

### Needs Addressed

Lack of pedestrian and bicycle access, comfort, and safety, first-mile/last-mile transit needs

### Specific Strategies

Traffic calming and road diets, intersection improvements for pedestrians, pedestrian plazas, turning restrictions, protected lanes

### Assessment Factors

- Is the corridor an important connection between residential areas, retail centers, community / civic uses, multi-modal transportation connections, et al.?
- What is the presence and frequency of bus service along the corridor?
- Are there high crash rates, high traffic volumes, cut-through traffic, frequent turning movements, speeding, parking violations, and other dangerous driving behavior?
- Is the corridor frequently used by emergency vehicles, and are there alternative vehicular travel routes?

### Benefits

- Improves accessibility to destinations
- Supports equitable access
- Enhances the usability of public transit
- Increases the viability of walking, bicycling, and other micromobility options
- Improves safety
- May reduce vehicle trips, and reduce traffic congestion and emissions
- May enhance economic vitality

### Costs

Relatively low

### Equity Considerations

Complete streets promote beneficial health outcomes and affordable transportation options

### Locations to Consider

- See CMP Analysis for areas to consider.
- Based on stakeholder identified needs, examples include within urban areas: Market St. / Broad St. area of downtown Newark; Bloomfield Ave. in Newark through Bloomfield, Glen Ridge, and Montclair; JFK Blvd. and Bergenline Ave.; New Brunswick Ave. in Perth Amboy; Hackensack, along Prospect Street, Essex Street, Polifly Road and Summit Avenue; and Palisades Avenue and Anderson Avenue in Cliffside Park and Fort Lee
- Examples between / within suburban areas include: Near Rutgers U. New Brunswick/Piscataway Campuses, Freehold area, downtown Morristown, along NJ-27 and NJ-28 in Somerset County

### Related Projects

- NJTPA Technical Assistance projects
- Together North Jersey Demonstration projects

### Responsible Organizations

- NJDOT – responsible for state roadways
- NJ TRANSIT – responsible for rail stations, bus operations
- Counties – responsible for county roadways
- Municipalities – responsible for municipal roadways, planning / zoning for adjacent land uses



## Micromobility Options (PB-4)

*Pedestrian, Bike & Micromobility*

### Needs Addressed

Congestion on urban streets, lack of travel options, opportunity to substitute for short transit trips

### Specific Strategies

Bike share, electronic scooters, dockless bikes, etc. with supporting infrastructure such as lane and curb management [See strategy SM-4]

### Assessment Factors

- What are likely locations for demand?
- What are key origins and destinations?
- What safety issues need to be considered?

### Benefits

- Improves accessibility to destinations
- Supports equitable access
- Enhances the usability of public transit
- Increases the potential for multi-modal travel options
- May reduce vehicle trips, and reduce traffic congestion and emissions
- May enhance economic vitality

### Costs

Relatively low

### Equity Considerations

Micromobility has the potential to benefit low-income communities with a new, affordable transportation options; special pricing for low-income members of the community can boost participation. Note that micromobility options may not serve all facets of the community (e.g., individuals with disabilities)

### Locations to Consider

- Urbanized areas with a density of land uses, activity centers, transit station areas

### Related Projects

- Jersey City and Hoboken joint bicycle share program – Lyft / Citi Bike
- Plainfield bike share program
- Elizabeth – pilot electric scooter share program (terminated)
- Asbury Park – pilot electric scooter share program

### Responsible Organizations

May involve coordination among agencies

- Counties and municipalities – for roads under local jurisdiction
- Municipalities – typically responsible for entering into legal agreements with service providers and enforcing regulations
- Transportation Management Associations – may play a role
- NJDOT – for roads under state jurisdiction





# Employer-Based TDM (DM-1)

Travel Demand Management

## Needs Addressed

Bottlenecks and unreliable roadways, overcrowded and unreliable bus transit, opportunities to reduce single-occupant vehicle travel

## Specific Strategies

Encourage telework, encourage ridesharing, vanpool assistance, shuttles, commuter benefits ordinances, employer outreach and incentive programs

## Assessment Factors

- Where are the major employment and residential concentrations, and flows of commuters driving alone that could be matched ?
- What is the willingness of employers to support, participate, and contribute to programs?
- What is the estimated effectiveness of various programs and incentives to workers to participate?

## Benefits

- Improves accessibility to destinations
- Supports equitable access
- Enhances the usability of public transit
- Increases the potential for multi-modal travel options
- Reduces vehicle trips, and may reduce traffic congestion and emissions
- May enhance economic vitality

## Costs

Relatively low

## Equity Considerations

Providing transportation options or helping lower transportation costs to job sites not on fixed-route transit could expand job opportunities for low-income workers.

## Locations to Consider

- Systemwide
- Prioritize major employment centers and congested commute corridors

## Related Projects

- NJTPA TMA Program
- NJ TRANSIT TMA Program

## Responsible Organizations

- NJDOT – provides funding to Transportation Management Associations (TMAs)
- TMAs (EZ Ride, Hudson TMA, RideWise, goHunterdon, KMM, TransOptions, Greater Mercer TMA) – administer various alternative commute programs
- NJ TRANSIT – funds the TMAs to promote transit and vanpooling
- Municipalities – adopt TDM ordinances
- Private sector – employers, developers implement programs



## Regional/Local TDM Programs & Incentives (DM-2)

*Travel Demand Management*

### Needs Addressed

Bottlenecks and unreliable roadways (including weekend and seasonal locations), opportunities to reduce single-occupant vehicle travel

### Specific Strategies

Regional ridesharing support, programs to encourage biking/walking, incentives for ridesharing or transit for special events or seasonal events, promotions, discount/ reward programs, targeted bus and shuttle service, mobility on demand

### Assessment Factors

- What kinds of options are feasible to shift travel behavior (e.g., spread time of trips, shift to transit or other modes)?
- What are opportunities and willingness of the business community, venues, and others to sponsor or participate in programs?
- Where are areas with high travel peaks and bottlenecks for seasonal activities and special events?

### Benefits

- Improves accessibility to destinations
- Enhances the usability of public transit
- Increases the potential for multi-modal travel options
- Reduces vehicle trips, and may reduce traffic congestion and emissions
- May enhance economic vitality, including attractiveness of resorts and special event destinations

### Costs

Relatively low

### Locations to Consider

- Systemwide
- Shore areas in Monmouth and Ocean Counties and other tourism locations.
- Event locations, including Meadowlands Sports Complex, Prudential Center, Rutgers University sports facilities, Monmouth Park, and PNC Bank Arts Center
- Schools and community centers

### Related Projects

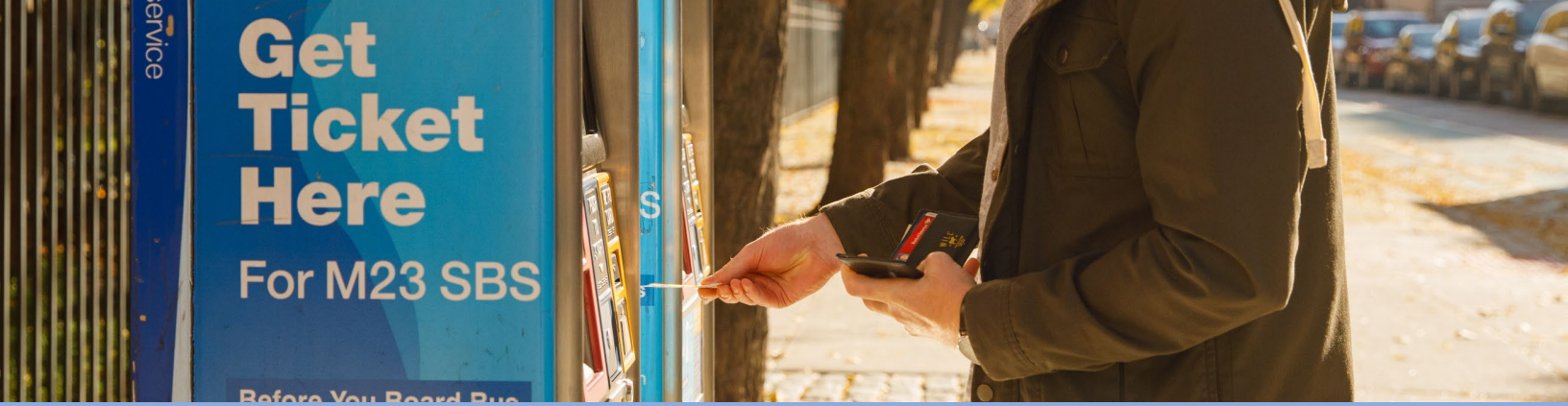
- Bicycle and Pedestrian Ambassadors
- Safe Routes to Schools programs
- NJ TRANSIT special event service to and from Meadowlands Sports Complex
- Long Beach Island Shuttles
- Gameday shuttle service between downtown New Brunswick and SHI Stadium

### Equity Considerations

Affordable transportation options can help reduce financial burdens on low-income families.

### Responsible Organizations

- NJ TRANSIT – schedules, promotes, and provides special transit service
- TMAs – develop and promote programs
- Municipalities – provide local shuttle services
- Private sector – venue operators, business associations
- Schools and other public/private organizations



## Pricing Strategies (DM-3)

Travel Demand Management

### Needs Addressed

Bottlenecks and unreliable roadways, overcrowded and unreliable bus transit, opportunities to reduce single-occupant vehicle travel

### Specific Strategies

Peak hour road / bridge tolls, other road pricing, discounted transit fares, other transit pricing policies, parking pricing (peak hour pricing, dynamic pricing)

### Assessment Factors

- Where are areas with high travel peaks / bottlenecks?
- How much does the peak travel demand exceed transportation system capacity?
- What is the estimated impact of pricing in reducing peak hour travel or parking demand?
- What is anticipated impact on other facilities?

### Benefits

- Increases use of multi-modal options
- Improves reliability
- Reduces vehicle trips, traffic congestion, and emissions

### Costs

Relatively low

### Equity Considerations

Consider who is affected by pricing and in what ways, particularly low-income populations. Consider equitable distribution of revenue and how it might work to increase or improve transit options in low-income communities.

### Locations to Consider

- Major activity centers
- Congested roadways

### Related Projects

- Peak hour toll rates for Port Authority bridge and tunnel crossings
- Off-peak toll discounts on NJ Turnpike and Garden State Parkway
- Free light rail and bus service for NJ TRANSIT rail riders with passes
- Continuous trip tickets on some NJ TRANSIT bus routes

### Responsible Organizations

- NJ Turnpike Authority – manages NJ Turnpike and Garden State Parkway
- NJ TRANSIT – provides transit services
- Port Authority of New York and New Jersey – manages bridge and tunnel crossings, PATH
- Delaware River Joint Toll Bridge Commission – manages bridge crossings
- Municipalities – responsible for parking policies





Source: NJTPA

## Land Use/Urban Design/Transit-supportive Development

Land Use

### Needs Addressed

Preponderance of single-occupancy vehicle (SOV) travel

### Specific Strategies

Municipal planning and zoning that enables high-density mixed-use development; municipal redevelopment planning; Transit Village designation

### Assessment Factors

- What is the presence of current transit services, and how much new service possibly could be justified by increased station-area development?
- What is current ridership and how much new ridership could station-area development generate?
- What is the development and redevelopment potential in the station area?

### Benefits

- Improves accessibility to destinations
- Supports equitable access
- Enhances feasibility of increased public transit
- Increases the potential for multi-modal travel options
- Reduces vehicle trips, and may reduce traffic congestion and emissions
- May enhance economic vitality

### Costs

May yield cost savings

### Equity Considerations

Potential to pair affordable housing with transit-oriented uses

### Locations to Consider

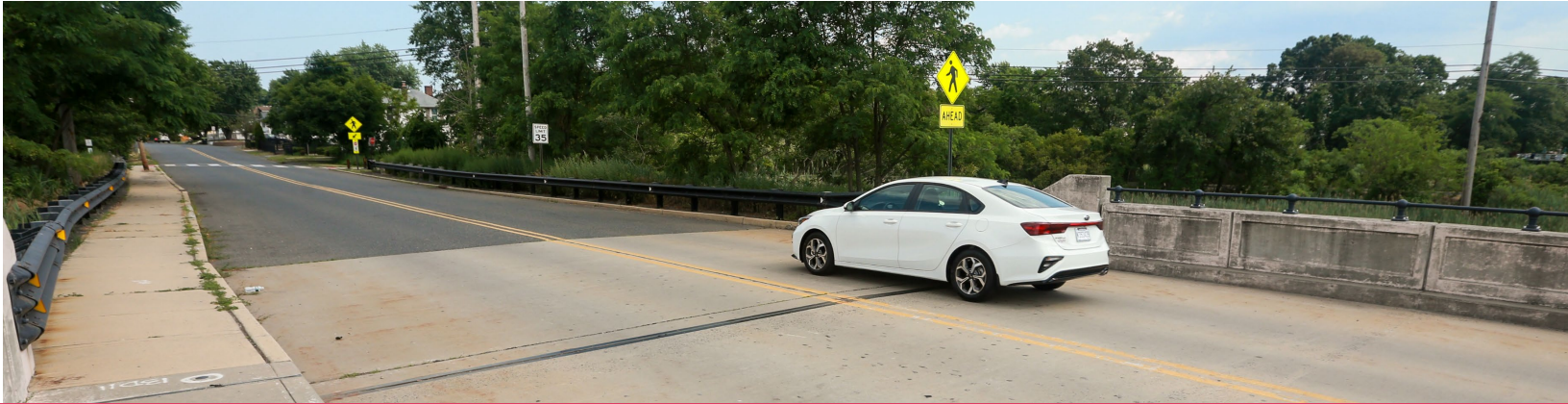
- Systemwide
- Prioritize locations near transit stations and major activity centers, consistent with community plans

### Related Projects

- Town of Boonton Transit Village Initiative Planning
- Borough of Freehold Transit Village Initiative Planning
- Green Brook Township Village Center Re-zoning Project
- Bound Brook Urban Design Plan Implementation Project
- Passaic Eastside TOD Strategic Plan

### Responsible Organizations

- Municipalities – responsible for conducting planning and preparing planning documents in support of transit-oriented development, e.g., authorizing mixed-use development
- NJDOT – along with NJ TRANSIT, responsible for administering Transit Village program
- NJ TRANSIT – responsible for transit service planning and station maintenance / improvements



## Arterial Operations (SM-1)

Transportation Systems  
Management & Operations

### Needs Addressed

Bottlenecks and unreliable major roadways

### Specific Strategies

Traffic signal upgrades, signal coordination and optimization, active traffic management, adjustable lanes

### Assessment Factors

- What are the current congestion levels, and what is the potential for reducing congestion?
- What are the current peak hour traffic volumes; how many vehicles would benefit from improvements?

### Benefits

- Improves reliability
- Reduces congestion delay, optimizing existing capacity
- Reduces bus travel times
- Reduces vehicle emissions

### Costs

Relatively low

### Equity Considerations

Consider operations strategies that support multimodal mobility, rather than just vehicle mobility (e.g., improvements to transit operations, walking, bicycling). Ensure that local movements and accessibility are not hindered by emphasis on regional mobility.

### Locations to Consider

- See *CMP Analysis* for areas to consider.
- Roadways with poor reliability
- Examples from Needs Assessment include:
  - Urban: Locations along NJ-21 south of downtown Newark; Broad St., Newark; Paterson Plank Rd, and NJ-440 in Jersey City; along CR-675/Willow Avenue in Hoboken
  - Suburban: NJ-10 in Morris Plains/Hanover/ Parsippany, NJ-208 from Midland Park to Fairlawn, NJ-18 in No. Brunswick and East Brunswick

### Related Projects

- Meadowlands Adaptive Signal System for Traffic Reduction
- Coordinated signal timing for NJ 72 corridor
- Adaptive signal timing control technology along NJ 70 corridor
- US 1 peak hour shoulder use in South Brunswick
- Newark Broad Street Traffic Signal Optimization (in TIP)

### Responsible Organizations

- NJ Turnpike Authority – responsible for NJ Turnpike and Garden State Parkway
- NJDOT – responsible for roadway construction, maintenance, and operations
- Counties and municipalities – responsible for roads under their jurisdiction





## Freeway Operations/Regional System Management (SM-2)

*Transportation Systems  
Management & Operations*

### Needs Addressed

Bottlenecks and unreliable highways/major roadways

### Specific Strategies

Traffic incident management, work zone management, special events management, central reporting, coordinated responses, ramp control, dynamic junction control, lane control, shoulder use, variable/dynamic speed limits, queue warning, real-time information to travelers

### Assessment Factors

- What existing operational strategies are in place?
- What are primary causes of delay?
- How do the high-crash locations relate to traffic volumes?

### Benefits

- Improves reliability (improves incident clearance time)
- Reduces travel time and congestion delay, optimizing existing capacity
- Reduces bus travel times
- Reduces vehicle emissions

### Costs

Relatively low

### Equity Considerations

The need for affordable, convenient travel alternatives

### Responsible Organizations

- NJ Turnpike Authority – responsible for NJ Turnpike and Garden State Parkway
- NJDOT – responsible for state roads

### Locations to Consider

- See *CMP Analysis* for areas to consider.
- To and from NYC: Tunnels and bridges accessing NYC, Garden State Parkway, NJ-17 South toward I-80, I-95/New Jersey Turnpike into Newark, I-287 into Edison
- Urban: Locations along NJ-21 south of downtown Newark; Broad St., Newark; NJ-139, Paterson Plank Rd, and NJ-440 in Jersey City; along NJ-495/NJ-3 in Secaucus, North Bergen, Union City, Weehawken; along CR-675/Willow Avenue in Hoboken
- Suburban: Several locations along I-287, I-80 between Parsippany and Roxbury, NJ-10 in Morris Plains/Hanover/ Parsippany, NJ-208 from Midland Park to Fairlawn, near American Dream, NJ-18 in No. Brunswick and East Brunswick

### Related Projects

- NJDOT programs – Traffic operations centers, central dispatch unit, safety service patrols, variable message signs, real-time information
- TRANSCOM TRANSMIT



STARTING MONDAY  
CONSTRUCTION  
11 PM - 5 AM

Source: NJDOT

## Traveler Information/Trip Planning (SM-3)

*Transportation Systems  
Management & Operations*

### Needs Addressed

Bottlenecks and unreliable highways/ major roadways; transit reliability; opportunities to reduce single-occupant vehicle travel

### Specific Strategies

Web-based real-time multimodal information, traffic camera video, variable message signs, construction project information

### Assessment Factors

- What are ways in which travelers access travel information pre-trip? While en-route?
- What private sector and other opportunities are there?

### Benefits

- Reduces travel time and congestion delay, optimizing existing capacity
- Encourages multimodal options
- Reduces vehicle emissions

### Costs

Relatively low

### Equity Considerations

Information should be accessible to limited English proficiency populations and populations without access to web/mobile technology

### Locations to Consider

- Systemwide
- Particularly prioritize for congested corridors, routes, and for multimodal travel information
- Targeted applications for special events, road weather management, and work zones

### Related Projects

- 511NJ.org
- I-78, Route 22 to Drift Road/Dale Road ITS: dynamic message signs, camera surveillance systems, travel time sensors, and traffic signal systems (in TIP)
- Route 46, I-287 to CR 644 ITS: dynamic message signs, camera surveillance systems, travel time sensors, and traffic signal systems (in TIP)

### Responsible Organizations

- NJ Turnpike Authority – responsible for NJ Turnpike and Garden State Parkway
- NJDOT – responsible for state roads



## Parking/Lane/Curb Management (SM-4)

*Transportation Systems  
Management & Operations*

### Needs Addressed

Opportunities for micro-mobility options

### Specific Strategies

New parking management approaches, including dynamic parking pricing; designation of short-term and off-street passenger and freight loading zones; bicycle and scooter parking facilities; charging stations; mobility hubs that co-locate bus stops, ridehailing locations, and package delivery zones; flex lanes for parklets, bike corrals, in-street dining, markets, and special events.

### Assessment Factors

- Physical dimensions of travel lanes, cartway, on-street parking, and right-of-way
- Location of driveways / curb cuts
- Location of parking signs / regulations, including loading zones
- Current on-street parking and loading zone usage
- Location of multi-modal facilities, including bus stops and bicycle lanes
- Location of stormwater management infrastructure, including manholes and drains / grates, and fire hydrants
- Adjacent and nearby land uses

### Benefits

- Improves parking utilization
- Improves vehicular traffic flow and less congestion
- Increases utilization of multi-modal options including micromobility
- Increases efficiency of freight deliveries
- Improves multi-modal safety.

### Costs

Relatively low

### Locations to Consider

- Within urban and suburban activity center areas, including Newark, Jersey City, and Hoboken

### Related Projects

- Jersey City parking study
- New York City, PARK Smart, on-street parking pricing strategy, and Off-Hours Delivery pilot

### Equity Considerations

Affordable modes of transportation (e.g., buses, bicycles) often compete for street space with on-street parking. Consider the needs of these users.

### Responsible Organizations

- NJDOT – for streets under state jurisdiction
- Counties – for streets under county jurisdiction
- Municipalities – program management, inventory and mapping, et al.





## Road Geometry (RC-1)

## Roadway Capacity/Resiliency

### Needs Addressed

Bottlenecks and unreliable highways/ major roadways

### Specific Strategies

Bottleneck removal: lane reconfiguration, clearance widening, interchange modifications, intersection improvements / turning lanes, roundabouts, other geometric elements.

### Assessment Factors

- What is the extent of current congestion and the potential for reducing the congestion?
- What are the peak period traffic volumes, i.e., how many travelers are affected by current delays and could benefit from improvements?
- What is the availability of alternative travel routes?

### Benefits

- Improves vehicular traffic flow and less congestion
- Reduces bus travel times
- Potential for increased utilization of multi-modal options including micromobility
- Improves multi-modal safety
- Reduces vehicle emissions

### Costs

Medium

### Locations to Consider

- See CMP Analysis for areas to consider.

### Related Projects

- Roundabout at intersection of CR 31 & CR 639 in Ocean County (planned)

### Equity Considerations

Wide roadways create longer pedestrian crossing times, especially for people with lower mobility.

### Responsible Organizations

- New Jersey Turnpike Authority – responsible for NJ Turnpike and Garden State Parkway
- NJDOT – responsible for state roadway construction, maintenance, and operations
- Counties and municipalities – responsible for roads under their jurisdiction



Source: Google Streetview

## Managed Lanes (RC-2)

## Roadway Capacity/Resiliency

### Needs Addressed

Bottlenecks and unreliable highways/ major roadways

### Specific Strategies

High-occupancy vehicle (HOV) lanes, high-occupancy toll (HOT) lanes, reversible / adjustable lanes

### Assessment Factors

- What are the current congestion levels, and what is the potential for reducing congestion?
- What are the current peak hour traffic volumes; how many vehicles would benefit from improvements?
- What are the physical requirements of the lane, relative to existing travel lanes and available right-of-way?

### Benefits

- Enhances reliability
- Improves vehicular traffic flow and less congestion
- Reduces bus travel times
- Encourages alternatives to single-occupant vehicles
- May reduce vehicle emissions

### Costs

Potentially high, may consider public-private partnership opportunities

### Equity Considerations

Consider benefits for transit vehicles to provide more reliable, efficient transit service. Consider implications of tolling/pricing on low-income and disadvantaged population groups.

### Locations to Consider

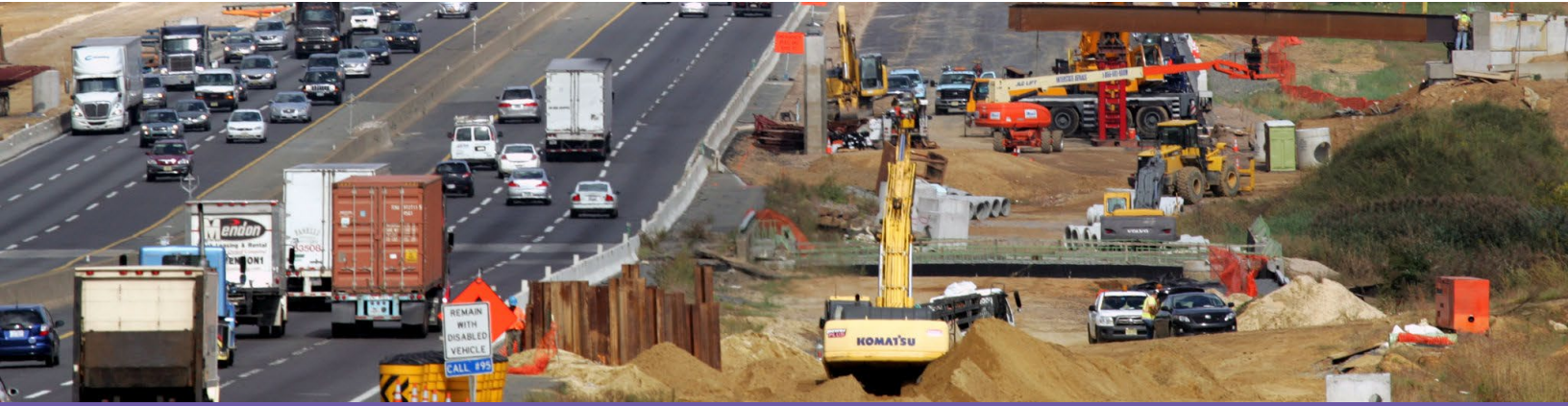
- Roadways with congestion, poor reliability, and high transit frequency
- *See CMP Analysis for areas to consider*
- Examples for consideration include: Tunnels and bridges accessing NYC, Garden State Parkway, NJ-17 South toward I-80, I-95/New Jersey Turnpike into Newark, I-287 into Edison

### Related Projects

- Lincoln Tunnel reversible lanes
- NJ Turnpike HOV lane between Exits 11 and 14
- I-80 between Exits 34 and 43 (discontinued)
- I-287 between I-78 and I-80 (discontinued)

### Responsible Organizations

- NJ Turnpike Authority – responsible for NJ Turnpike and Garden State Parkway
- NJDOT – responsible for state roads
- Private sector – may play role in developing managed lanes



## New Road Capacity (RC-3)

*Roadway Capacity/Resiliency*

### Needs Addressed

Bottlenecks and unreliable highways/ major roadways

### Specific Strategies

New roadway connections, add lanes, widen lanes

### Assessment Factors

- What is the extent of current congestion and the potential for reducing the congestion?
- What are the peak period traffic volumes, i.e., how many travelers are affected by current delays and could benefit from improvements?
- What is the availability of alternative travel routes and travel modes?

### Benefits

- Improves vehicular traffic flow and less congestion
- May reduce vehicle emissions

### Costs

Potentially high

### Equity Considerations

Consider the full range of air quality, noise, traffic, and safety impacts roadway expansion can have on surrounding community, especially environmental justice communities.

### Locations to Consider

- Last resort – to consider only if travel demand management, alternate mode, operations, or geometric improvement solutions are insufficient; consider managed lane capacity before general capacity
- May be needed for areas with significant bottlenecks, or anticipated growth and development needs that cannot be accommodated by other strategies
- Must include complementary operations and demand management strategies

### Related Projects

- NJ Turnpike and Garden State Parkway widening, various projects
- US 206 – new road in Somerset County
- US 1 widening in Middlesex County
- NJ 31 widening in Hunterdon County (in TIP)

### Responsible Organizations

- New Jersey Turnpike Authority – responsible for NJ Turnpike and Garden State Parkway
- NJDOT – responsible for state roadway construction, maintenance, and operations
- Counties and municipalities – responsible for roads under their jurisdiction





Source: Google Streetview

## Expand Bridge, New Bridge (RC-4)

Roadway Capacity/Resiliency

### Needs Addressed

Bottlenecks and unreliable highways/ major roadways

### Specific Strategies

Widen bridge, build replacement bridge, add new span

### Assessment Factors

- What is the extent of current congestion and the potential for reducing the congestion?
- What are the peak period traffic volumes, i.e., how many travelers are affected by current delays and could benefit from improvements?
- What is the availability of alternative travel routes and travel modes?

### Benefits

- Improves vehicular traffic flow and less congestion
- May reduce vehicle emissions

### Costs

Potentially high

### Equity Considerations

Build bridges with pedestrians, cyclists, and transit users in mind; consider ways bridges can enhance connectivity among environmental justice communities

### Responsible Organizations

- NJ Turnpike Authority – responsible for NJ Turnpike and Garden State Parkway
- NJDOT – responsible for bridge construction, maintenance, and operations
- Counties and municipalities – responsible for bridges under their jurisdiction

### Locations to Consider

- Last resort – to consider only if operations or geometric improvement solutions are insufficient; consider managed lane capacity before general capacity
- May be needed for areas with significant bottlenecks, or anticipated growth and development needs that cannot be accommodated by other strategies
- Must include complementary operations and demand management strategies

### Related Projects

- Route 3 Passaic River Bridge
- Route 52 Causeway Bridge
- Pulaski Skyway
- Wittpenn Bridge



### Needs Addressed

Disruptions to service due to infrastructure conditions, impacts of extreme weather events; rehabilitation and maintenance needs

### Specific Strategies

New bridges with higher vertical profiles and improved design (to prevent scour), raised roadway profiles, sheet piling, increased pavement overlay thickness, maintenance activity such as culvert clearing

### Assessment Factors

- What are the threats due to inland flooding, sea level rise / storm surge, and temperature extremes?
- What facilities may be vulnerable: roads, bridges, signals, other?
- What is the current condition of facilities, and what is their vulnerability?
- What are the current and projected traffic volumes?
- What is the availability of alternative emergency travel routes?

### Benefits

- Improved reliability / fewer delays due to road closures and related impacts
- Reduced road and bridge deterioration

### Costs

High but necessary, and important for overall preservation of the system

### Equity Considerations

Consider full community resiliency, such as the travel needs of transit dependent, Title VI, and environmental justice populations, when selecting roads for resiliency improvements

### Locations to Consider

- Roads, bridges, and other facilities in areas vulnerable to extreme weather impacts
- Identified needs based on pavement and bridge management systems; asset management plan

### Related Projects

- NJDOT Transportation Asset Management Plan (TAMP)
- NJ 72 bridge over Manahawkin Bay
- Route 7 drainage improvements, Kearny (in TIP)

### Responsible Organizations

- NJDOT – responsible for state roads and bridges
- Port Authority of New York and New Jersey – responsible for six crossings
- Counties and municipalities – responsible for roads and bridges under their jurisdiction



Source: MKSK

## Reduce or Remove Highway Capacity/Barriers (RC-6)

Road Capacity/Resiliency

### Needs Addressed

Roadway reliability and safety issues, lack of safe and comfortable pedestrian and bicycle connections, opportunities to reduce single-occupant vehicle travel through transit-oriented development and other strategies

### Specific Strategies

Remove highway, convert highway to urban boulevard, tunnel the highway, cap the highway, reduce number of lanes

### Assessment Factors

- To what extent is the highway creating barriers to local accessibility and connectivity?
- What are the peak period traffic volumes, and how could the volumes be redistributed?
- What are the multi-modal circulation opportunities?
- What are the redevelopment opportunities?
- How would removal of the highway compare to rehabilitating it in terms of costs and benefits?
- How can past adverse impacts to disadvantaged communities be addressed?

### Benefits

- New walkable urban space
- Improved street and multi-modal connectivity
- Increased community development and redevelopment opportunities
- Reduced environmental and public health impacts.

### Costs

High

### Locations to Consider

- Highways running through urban centers and neighborhoods

### Related Projects

- West Side Highway, New York City
- Sheridan Expressway, New York
- Inner Loop, Rochester, NY
- Robert Moses Parkway, Niagara Falls, NY
- Route 29, Trenton (proposed)

### Equity Considerations

Reducing or removing highway capacity and enhancing connectivity has the potential to restore communities (often environmental justice communities) disrupted by the original highway construction and on-going effects

### Responsible Organizations

- NJDOT – responsible for state roadway construction, maintenance, and operations
- Counties and municipalities – responsible for local street network, land use planning, and redevelopment



Source: Google Streetview

## First Mile, Last Mile Truck Access (FR-1)

Freight

### Needs Addressed

Trucks may not have efficient access between employment centers and main roads, truck traffic may have negative impact on local roads

### Specific Strategies

Planning and zoning regarding location of centers relative to main roads, traffic impact analysis, designated truck routes, physical improvements to truck routes, address geometric deficiencies, e.g., tight turns, low clearances.

### Assessment Factors

- What are the local land use patterns relative to the current / potential location of warehouses and distribution centers?
- What is the estimated size of the employment center, number of employees, number of truck trips?
- What are the truck travel patterns relative to the local roadway network, and what are the impacts to local roads, other transportation system users, and surrounding land uses?
- What are the physical / geometric constraints of the local roadway network?

### Benefits

- Reduced truck travel time between centers and main roads while also mitigating increases in congestion, impacts on local roads, and adjacent land uses

### Costs

Varies but generally low to medium

### Locations to Consider

- Close to I-95 in rural Middlesex County
- North of I-195 in Monmouth County
- Sussex County
- Between I-80 and I-78 in Warren County
- South of I-78 in Hunterdon County

### Related Projects

- Industrial Highway improvements, Carteret
- Union County Truck Mobility Study
- Secaucus Road Preservation Project, Secaucus
- Edgeboro Road Improvements, East Brunswick

### Equity Considerations

Consider noise and air quality impacts of congested freight on surrounding communities, particularly environmental justice communities; consider workforce development opportunities.

### Responsible Organizations

- NJDOT – for state roads
- Counties/municipalities – for roads under their jurisdiction
- Municipalities – for land use planning and development approval decisions





## Rail Freight (FR-2)

Freight

### Needs Addressed

Rail capacity needs, congested and unreliable freight corridors

### Specific Strategies

Improve system connections, address weight / clearance issues, improve track and bridge conditions, upgrade / add sidings, provide grade crossing / safety improvements

### Assessment Factors

- What is the current condition of facilities, what is the extent of physical restrictions?
- What are current and potential rail freight volumes?
- Who are the current customers, and what are the economic / business development opportunities?
- What are potential issues associated with access to rail yards and localized traffic congestion?

### Benefits

- Improve rail operating speeds and service reliability
- Reduce traffic congestion by increasing goods movement by rail
- Reduce roadway noise and emissions from trucks in communities

### Costs

Varies medium to high

### Equity Considerations

Consider grade crossing delays, safety, air quality, and noise impacts on surrounding community; consider workforce development opportunities, particularly in underrepresented communities.

### Locations to Consider

- Priority areas from New Jersey Freight Rail Strategic Plan. Examples include:
  - HX Corridor
  - Raritan Valley Corridor
  - Amboy Corridor
  - Coast Line Corridor
  - Morris/Warren Corridor
  - Black River & Western Corridor
  - Northeast Corridor

### Related Projects

- NJTPA Rail Freight Capacity and Needs Assessment to the Year 2040
- NJTPA Freight Rail Industrial Opportunities Corridors program
- Morris / Warren County Rail Corridor Study
- Improved rail freight service to Port Newark and Port Elizabeth
- Rehabilitation of Kenil Team Track in Morris County

### Responsible Organizations

- Private operators – responsible for rail infrastructure and operations
- Counties – some counties (e.g., Morris) may own lines
- NJDOT – provides funding for selected strategic improvements





Source: Google Streetview

## Freight Operations / Off-Hours Delivery (FR-3)

Freight

### Needs Addressed

Congested freight corridors, bottlenecks and unreliable highways/ major roadways

### Specific Strategies

Attended deliveries (received by business staff), unattended deliveries, freight lockers, urban distribution

### Assessment Factors

- What is the extent of current truck traffic and its impact?
- What is the current availability and use of on-street loading zones?
- How many potential receiving businesses (retail, food stores, restaurants) are there, and how many shippers / carriers are involved?
- How many deliveries potentially could be shifted?
- What is the potential for unattended deliveries?

### Benefits

- Reduces delivery times
- Reduces on-street congestion in immediate area of business and surrounding roadway network
- Improves multi-modal safety
- Reduces emissions

### Costs

Low, policy-based

### Equity Considerations

Consider impacts of congested freight on surrounding communities, particularly communities with poor air quality. Collaborate with communities, educational organizations, agencies, and private sector companies to market, recruit, and retain workers from under-represented demographics and communities.

### Responsible Organizations

- Private businesses – willing to accept off-hour deliveries
- Suppliers / trucking companies – willing to make off-hour deliveries
- Public agencies – coordinate with businesses and suppliers, provide information and education, possibly provide financial incentives

### Locations to Consider

- Within urban areas

### Related Projects

- New York City, Off-Hours Delivery pilot program



# Safety Countermeasures

*Direct Safety*

## Needs Addressed

Bottlenecks and unreliable highways/ major roadways, roadway reliability issues, pedestrian safety issues, bicycle safety issues, roadway safety

## Specific Strategies

For roadway departures, design improvements at curves; for intersections, turning lanes at stop-controlled intersections; for bike-ped, medians and refuge islands; enforcement; and education.

## Assessment Factors

- What are the most frequent crash factors?
- What factors involve roadway design and what factors involve driver/bicyclist/pedestrian behavior?

## Benefits

- Improved safety – reduced crashes, fatalities, injuries, and property damage
- Improves reliability
- Enhances the usability of public transit
- Increases the viability of walking, bicycling, and other micromobility options

## Costs

Generally low

## Equity Considerations

Consider disproportionate number of crashes in environmental justice communities and the need to equitably implement safety countermeasures

## Locations to Consider

- Areas with identified high numbers of crashes.
- Examples include:
- Hudson County – JFK Boulevard
  - Monmouth County – Memorial Drive
  - Morristown - Intersection of Morris Street and Ridgedale Avenue
  - Newark - Bergen Street
  - Toms River - Intersection of Hooper Ave. and Church Road/Kettle Creek Road
- Paterson - Lakeview Avenue
- Franklin (Somerset Co.) - Hamilton Street

## Related Projects

- NJDOT Highway Safety Improvement Program
- NJTPA Local Safety and High Risk Rural Roads Program
- NJ TRANSIT Safety Education Program

## Responsible Organizations

- NJDOT – responsible for state roadways
- NJ TRANSIT – responsible for rail stations, bus operations
- Counties – responsible for county roadways
- Municipalities – responsible for municipal roadways