Accessibility and Mobility Strategy Synthesis

Summary Report
June 2021
(updated November 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

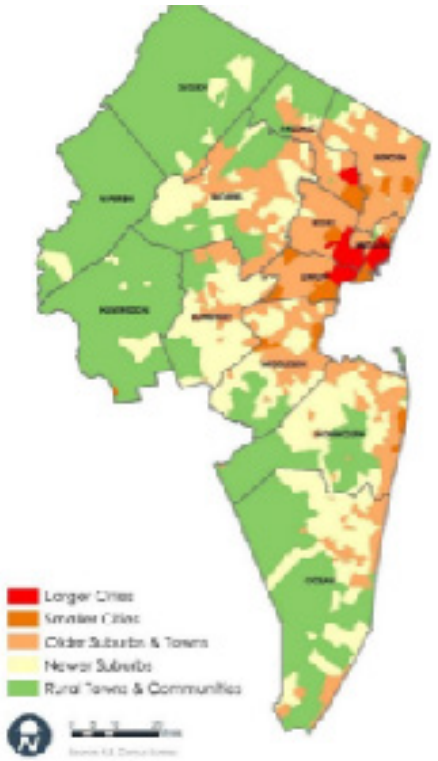
The North Jersey Transportation Planning Authority, as the federally authorized metropolitan planning organization for northern New Jersey, oversees transportation planning and expenditures of more than $2 billion in transportation improvement projects each year.

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.[1]

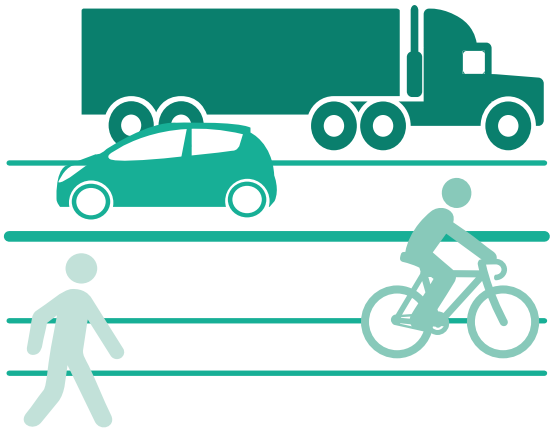
1 While this study was largely conducted during the COVID-19 pandemic, data availability and the uncertainty of long-term impacts on travel patterns, the working assumption was that the region will recover many of the prior transportation trends. Understandably, this is not assured and might not apply equally to all modes and aspects of transportation. 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.[2]

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.

2 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.*[3]

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.

3 Federal Highway Administration, Environmental Justice program website, 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.

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."

Map of Trips

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.

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."**

Map of Trips

Jason plans to drive to his job in Somerville and make stops along the way.

Key Motivations

- **Convenience**
- **Low stress commuting**

Meet Nancy, 75

Home Hackettstown, Warren County

Work Retired

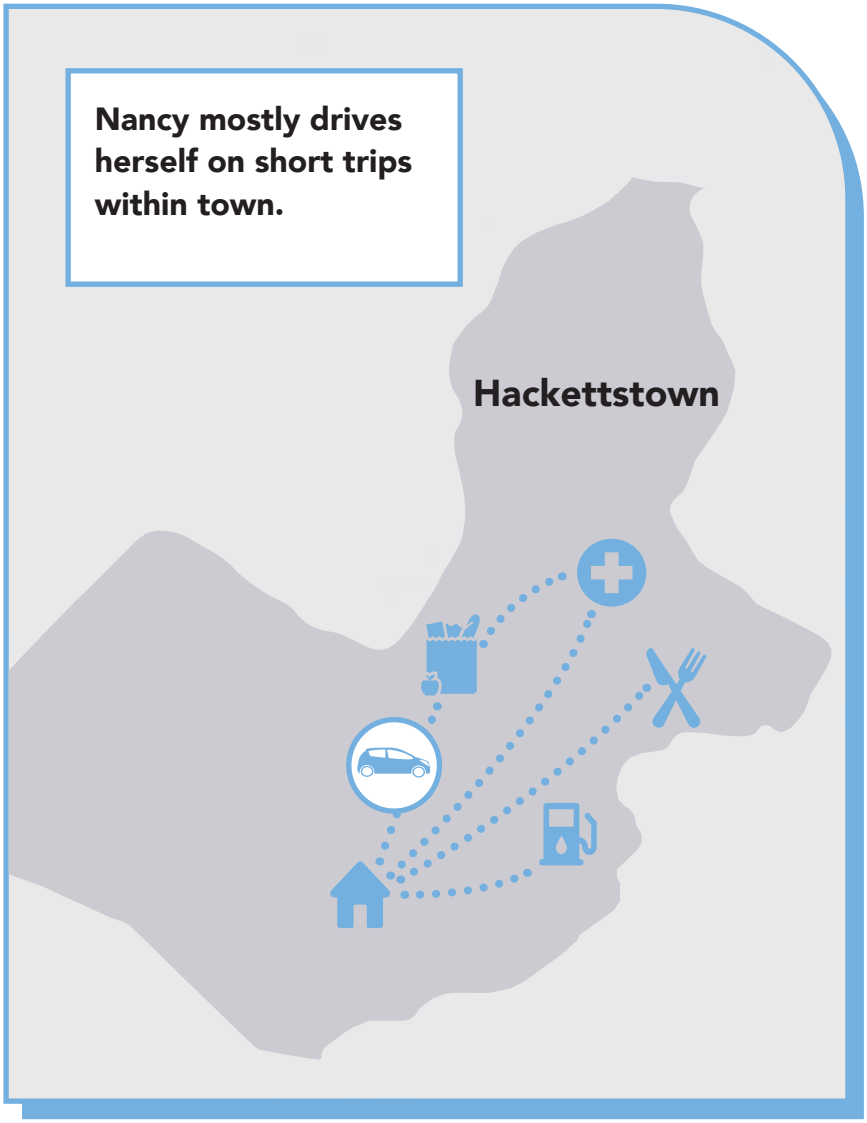
Nancy takes short trips to the grocery store, medical appointments, and social outings. She maintains her independence but has a lower level of mobility than she used to. She is considering giving up driving in the coming year. She does not have a smart phone, but her family has offered to order cars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

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."**

Map of Trips



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 micomobility 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.

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.

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.

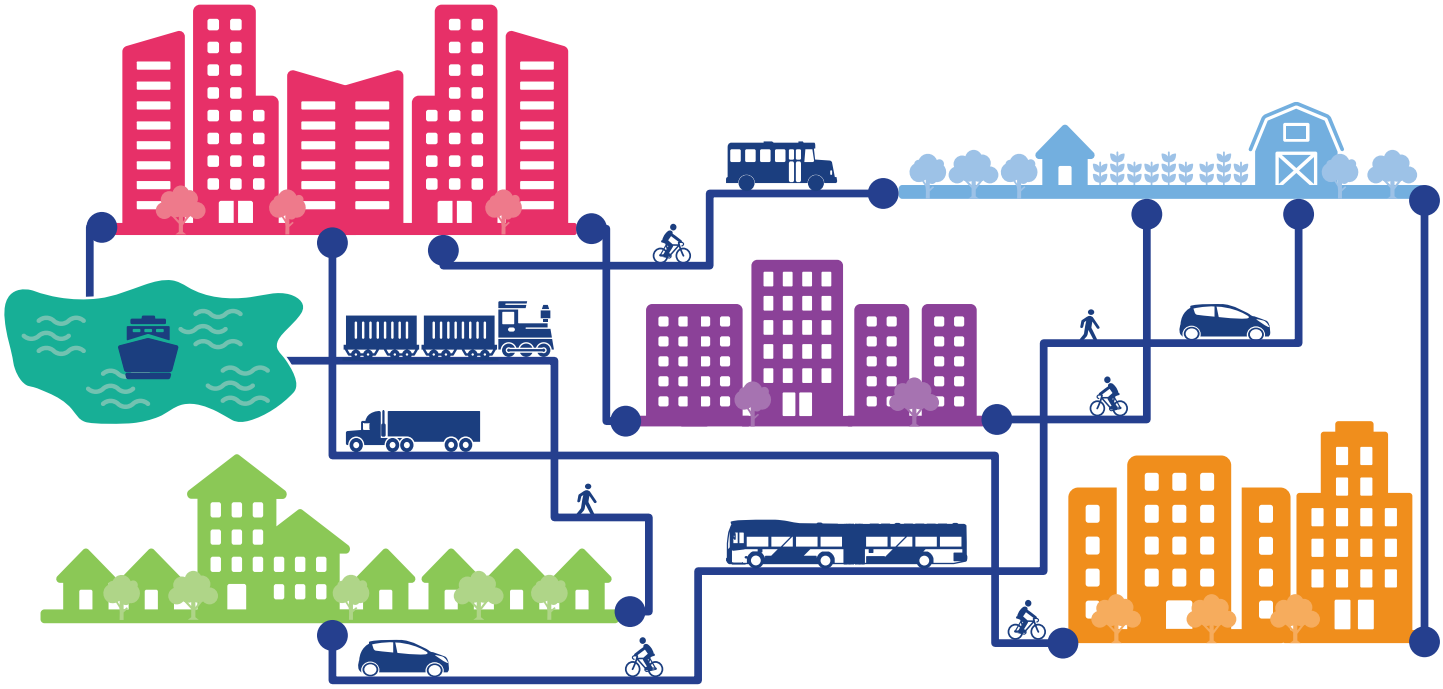
- **Accessibility measures** consider employment and commute opportunities.
  - Average commute trip time
  - Number of jobs within a 45-minute drive, current and projected for 2045
  - Number of jobs within a 45-minute transit trip, current and projected for 2045
- Other conditions characterize the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

Chapter 3
Needs

What are our region's needs?

It depends on where you are and how far you need to go. After compiling and analyzing the transportation network measures, location-specific data, and community-based measures, the study team came up with a list of needs.

- Trans-Hudson transit capacity
- Transit crowding
- Transit reliability issues
- Bottlenecks and unreliable highways/ major roadways, including Interstate truck reliability issues and congested freight corridors
- Long transit travel times/reverse commute challenges /limited alternatives to driving in some areas
- Lack of connectivity between transportation service payment systems
- Pedestrian safety/infrastructure needs
- Bicycle safety/infrastructure needs
- Need for supportive transit infrastructure, such as bus shelters and benches
- First-mile/last-mile challenges accessing transit/opportunities for micromobility options
- Park and ride availability (capacity constraints, lack of park and rides in some areas)
- Freight rail capacity
- Truck access to warehouses and distribution centers



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 who 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

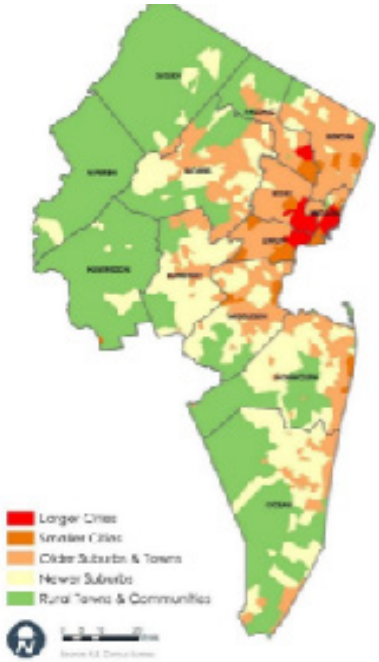
Transportation in the region is made up of a series of different kinds of trips: local trips within your community and longer trips to adjacent communities or even across the region. Some drivers are commuting and others are carrying freight. To consider these different perspectives, the study team developed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

Key Needs	To/from Urban Areas and NYC	Within Urban Areas	Within and between Suburban Areas	Within and between Rural Areas	Freight Mobility
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.

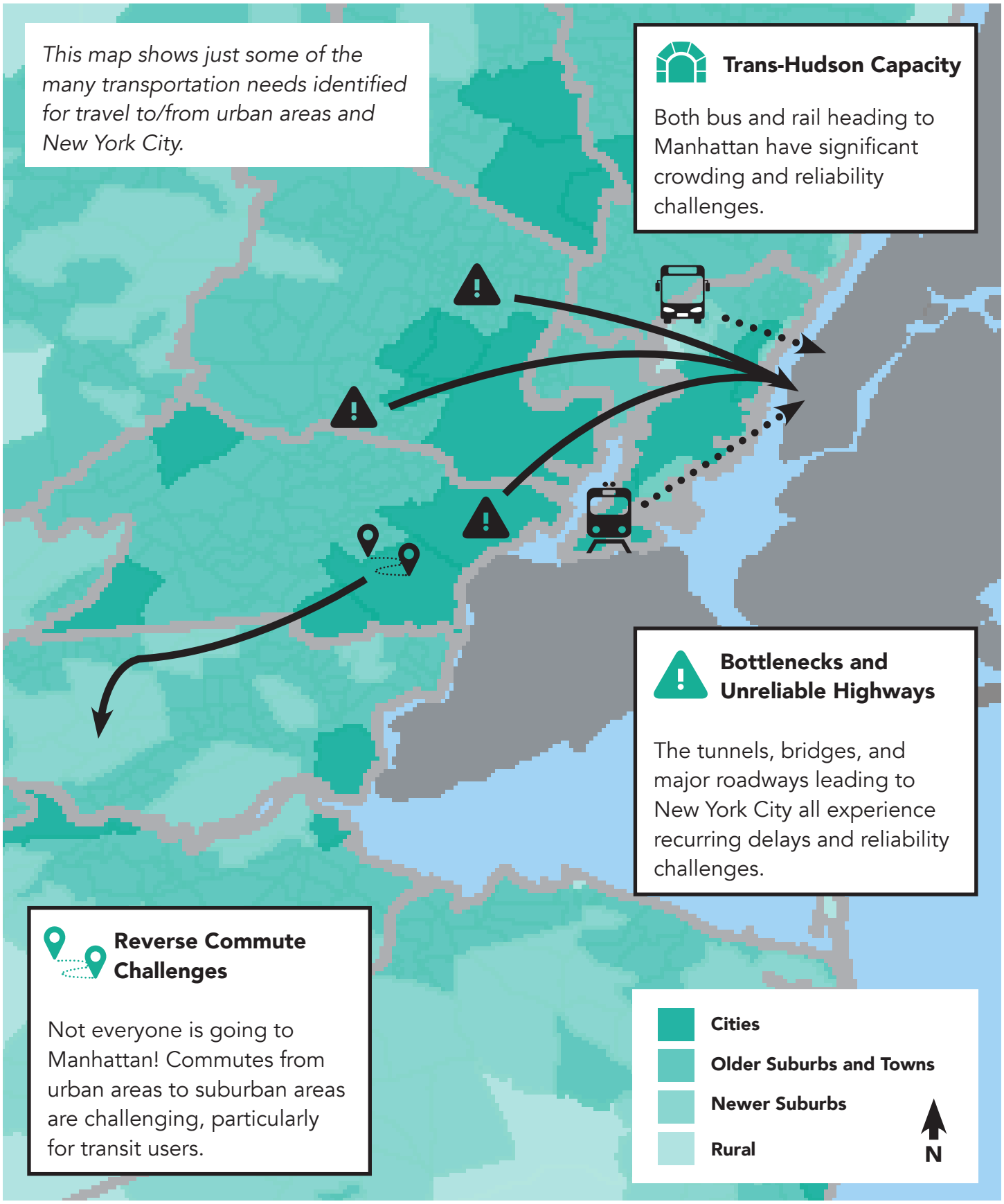
Transit Reliability: Bus reliability can be associated with traffic congestion and poor roadway reliability. NJ TRANSIT buses to New York City have some of the worst on-time performance of all bus routes. For instance, there are 32 bus routes into New York City that are on time only 60% of the time or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



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.

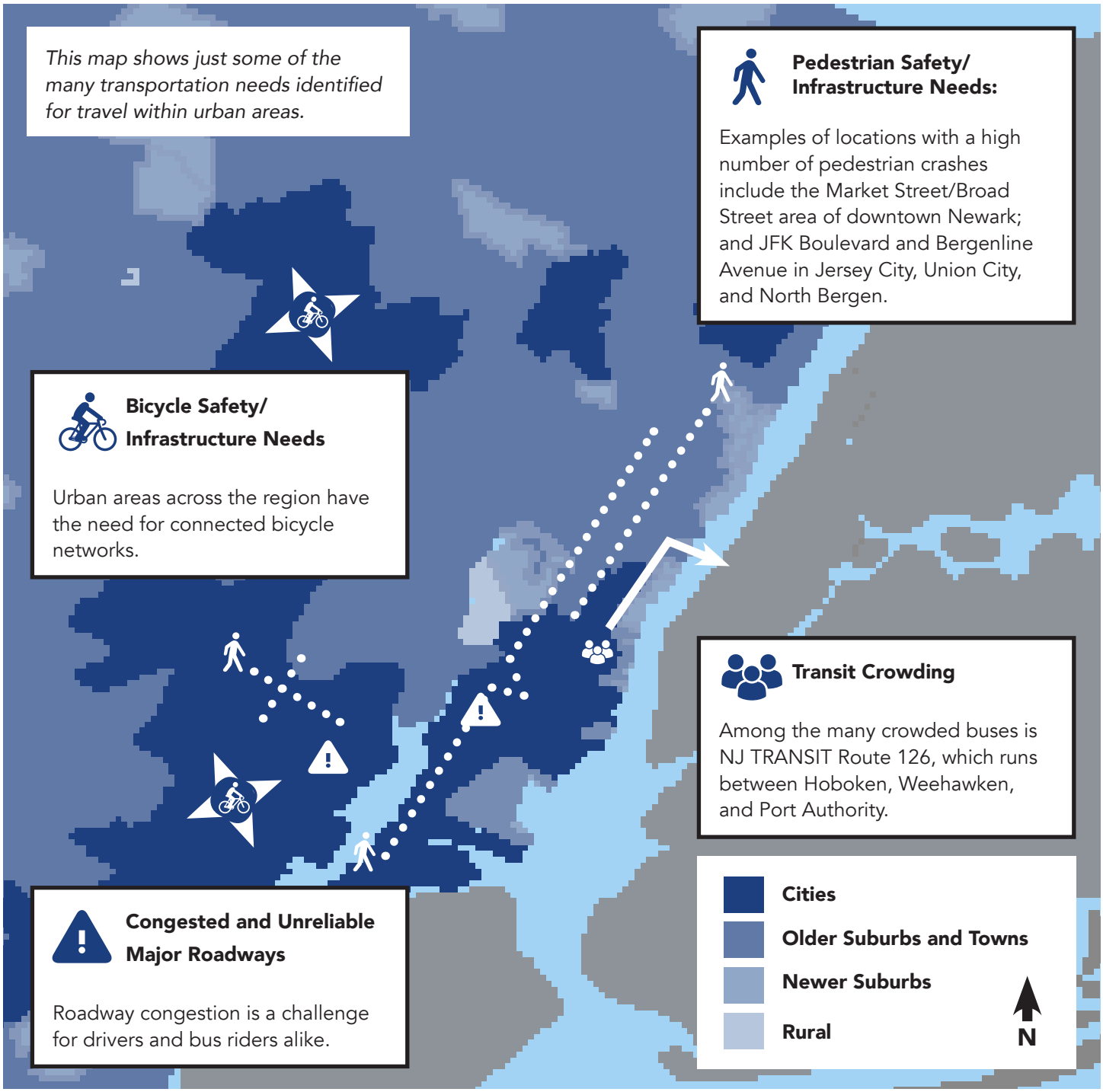
Transit Crowding: Bus services in urban areas face challenges in operations and performance due to heavy traffic congestion on roadways, which can lengthen travel times and lead to on-time performance issues.

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.

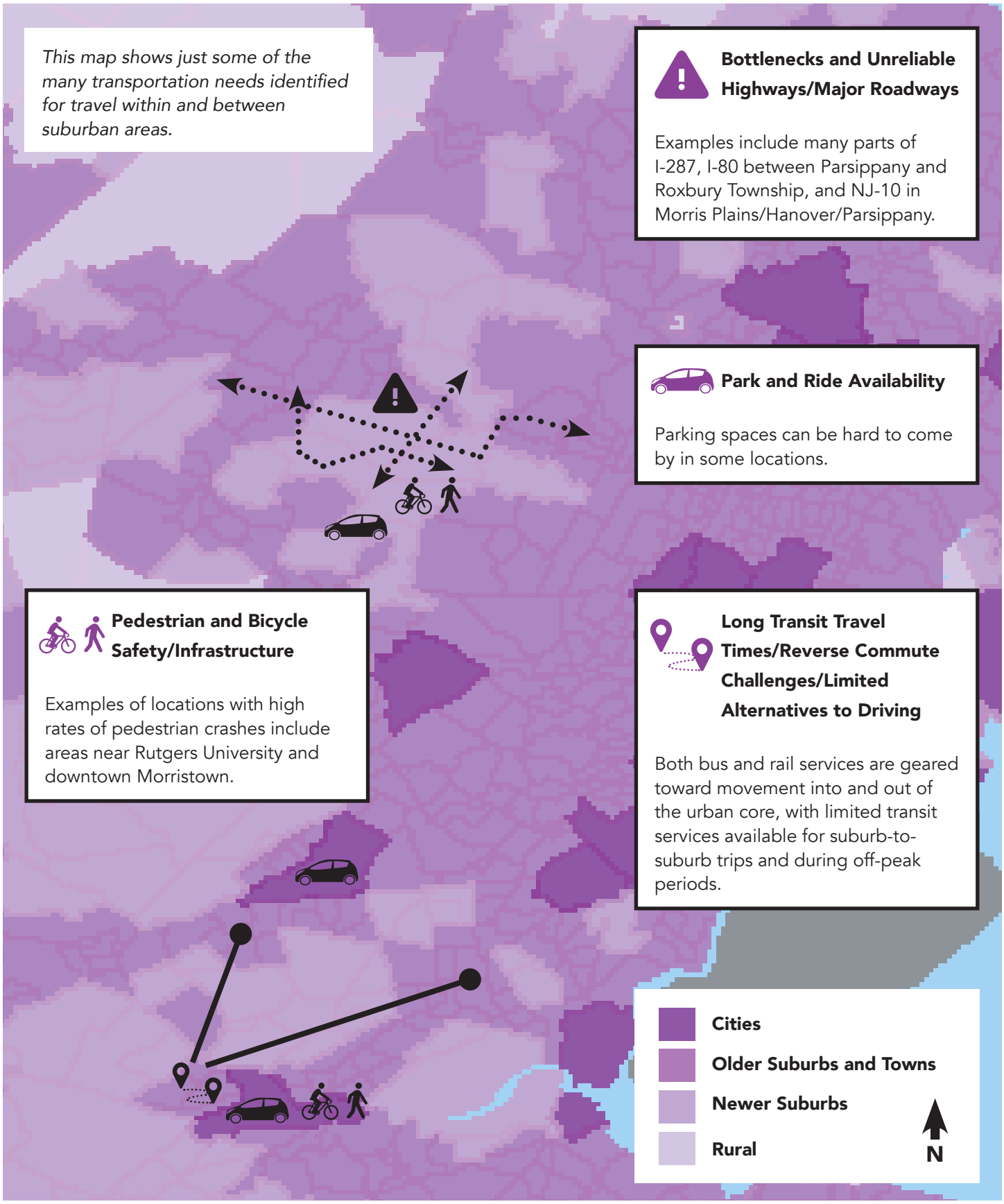
Park and Ride Availability: Many NJ TRANSIT park-and-ride facilities have very high demand and often are at or over capacity.

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



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.

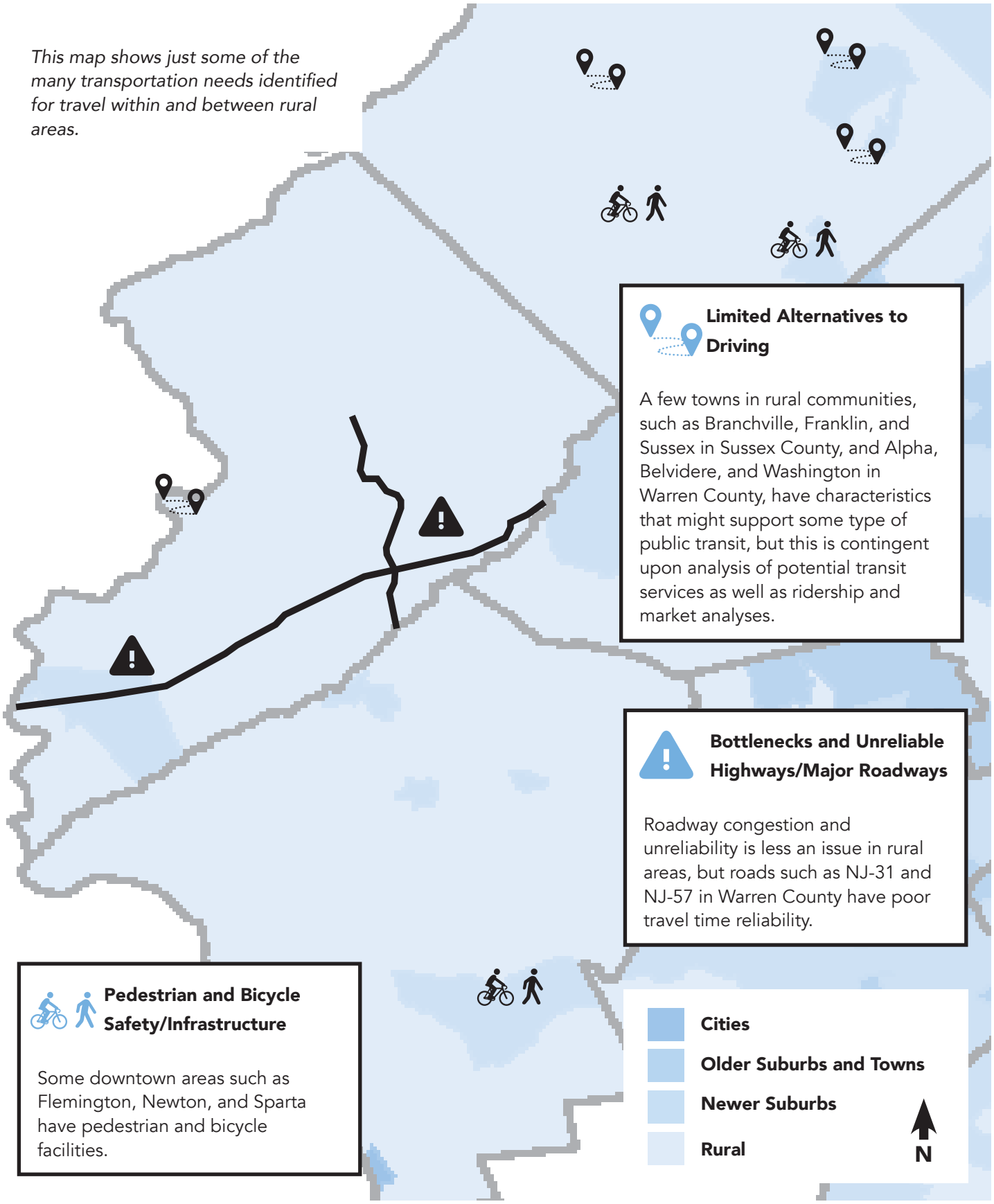
Park and Ride Availability: Few park and ride facilities are available in rural areas but may be viable in some areas and allow for increased commuter bus lines and ridesharing opportunities.

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 some type of public transit, but this is contingent upon analysis of potential transit services as well as ridership and market analyses.

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.

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.

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.

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."**

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.

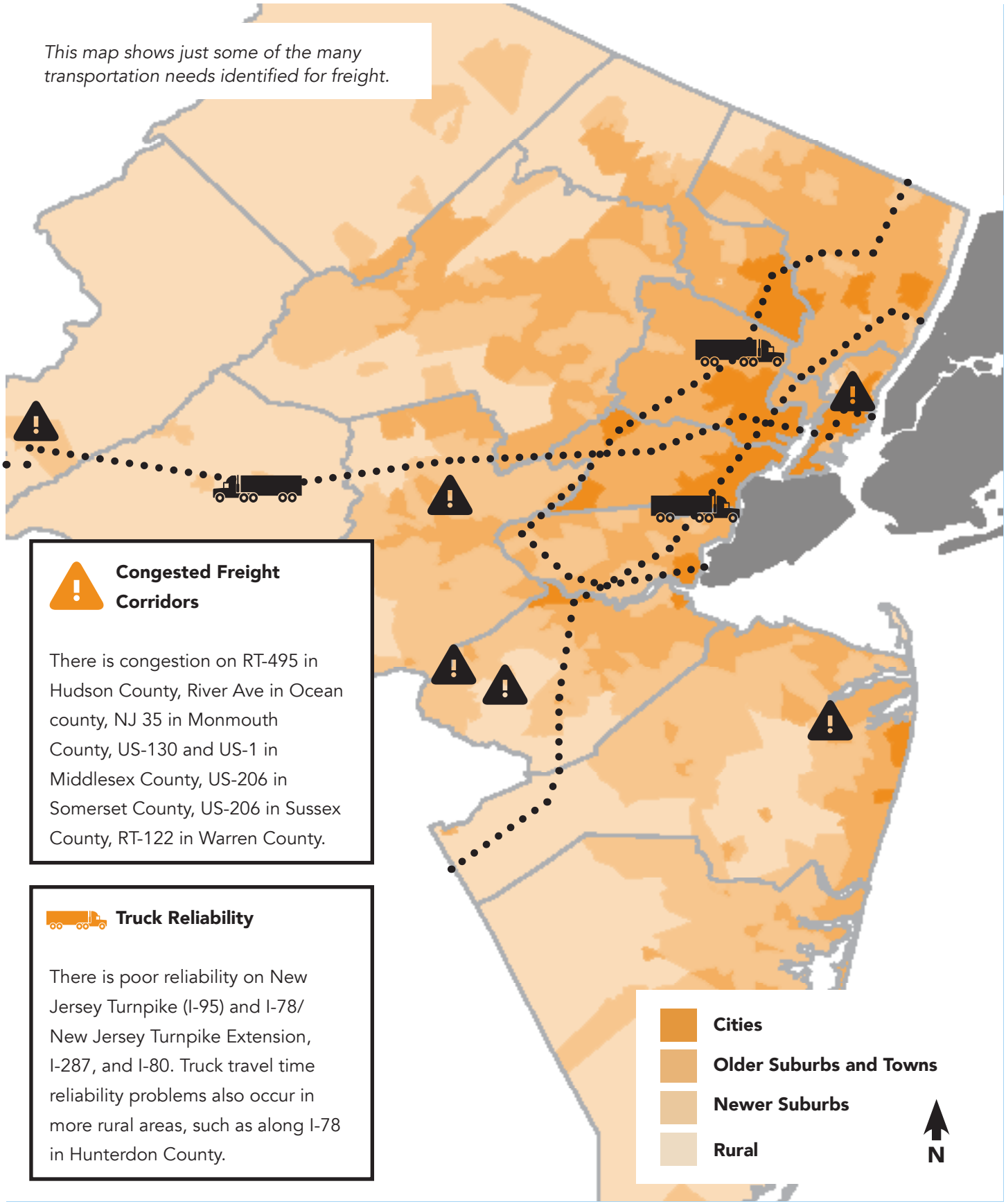
Congested Freight Corridors: Freight corridors experiencing congestion include Critical Urban Freight.

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.



Congested Freight Corridors

There is congestion on RT-495 in Hudson County, River Ave in Ocean county, NJ 35 in Monmouth County, US-130 and US-1 in Middlesex County, US-206 in Somerset County, US-206 in Sussex County, RT-122 in Warren County.

Truck Reliability

There is poor reliability on New Jersey Turnpike (I-95) and I-78/ New Jersey Turnpike Extension, I-287, and I-80. Truck travel time reliability problems also occur in more rural areas, such as along I-78 in Hunterdon County.

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.

Upon further examination, particular strategies may or may not prove suitable and in any case would depend on resource availability. 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 appropriate, 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 Strategies	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 Needs												
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	

Alternatives to driving can to some extent mitigate roadway congestion overall.

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.

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

Carmen

> **"A bike lane here and there isn't enough. We need a connected network!"**

Key Strategies	Transit Crowding	Transit Travel Times	Pedestrian Safety	Bicycle Safety	First-mile/last-mile	Park and Ride	Affordability
	Key Needs						
Bicycle Facilities/ Improvements		X	X		X	X	X
Sidewalks/Pedestrian Improvements		X		X	X	X	X
Complete Streets/ Safety Measures			X	X	X	X	X
Micromobility Options	X			X	X	X	X

Micromobility as substitute for shorter transit trips.

All these strategies can support first- and last-mile connections

Discounted membership for bike share, scooter and other micromobility services

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.

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

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!"**

Key Strategies	Transit Crowding	Bottlenecks	Transit Travel Times	Pedestrian Safety	Bicycle Safety	First-mile/last-mile	Park and Ride	Affordability	Truck Reliability
	Key Needs								
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, but depend on operating subsidies to offset reduced farebox revenues.

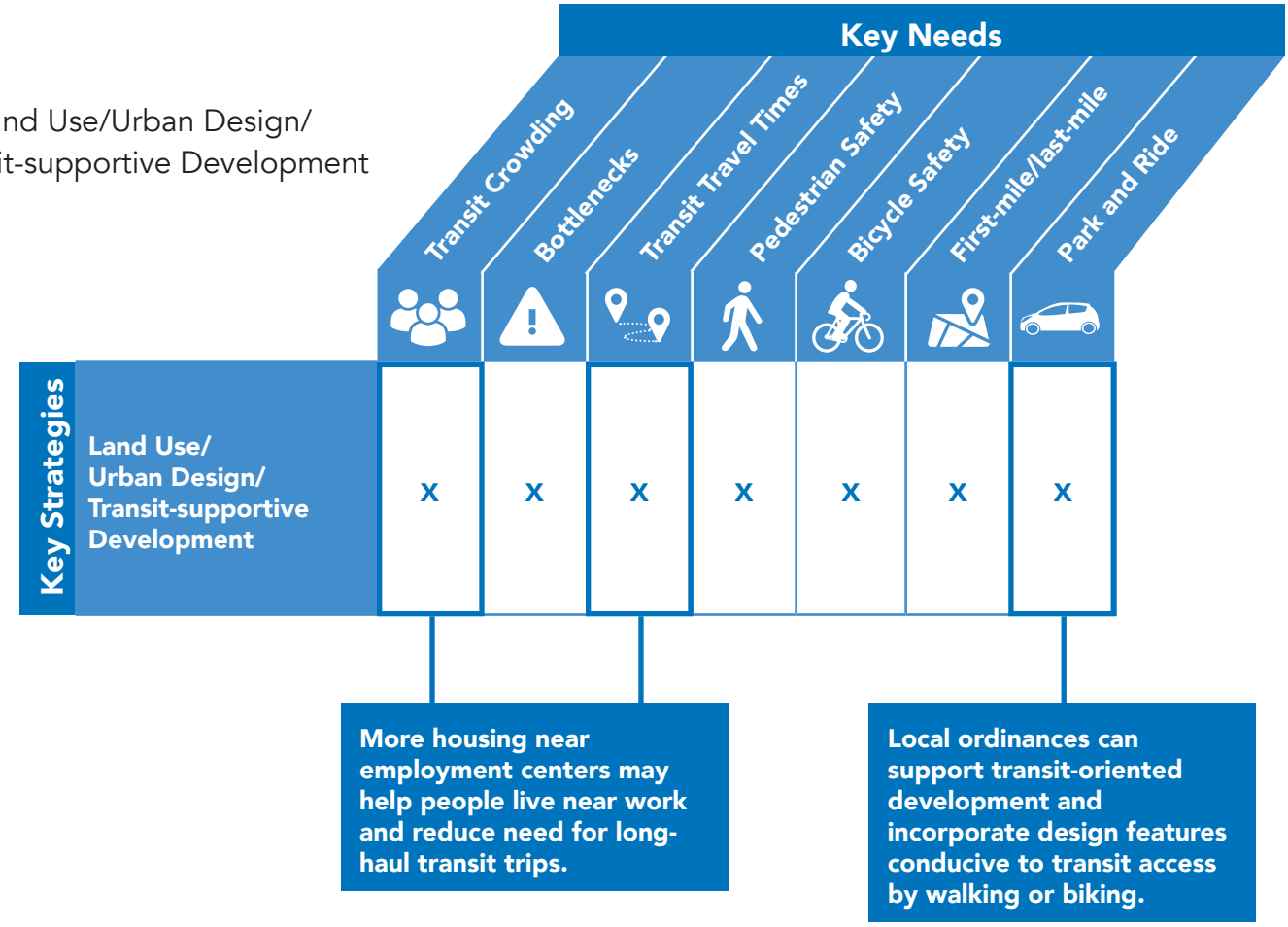
Land Use

Land use and transportation are very interconnected. Transit, biking, and walking tend to work best in denser communities with a mix of uses. Such communities foster more active transportation modes and may support more frequent transit service with improved travel times. 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

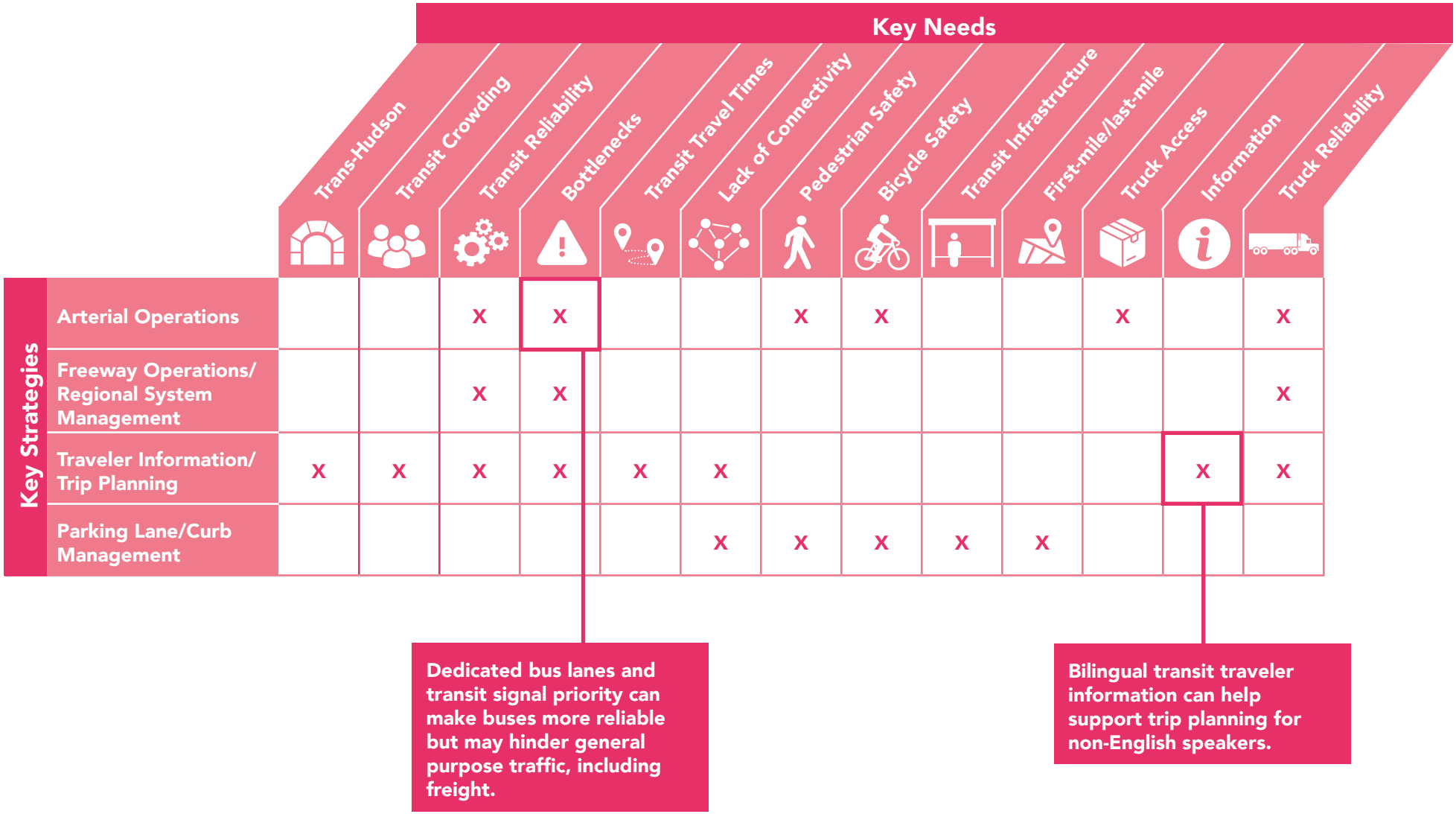
Improving roadway conditions (as discussed on previous pages) can alleviate delays and improve reliability for trucks as well as passenger vehicles. A host of other strategies (fully explored in other venues such as the New Jersey Statewide Freight Plan) facilitate the movement of goods throughout the 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



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 (such as high occupancy lanes or pricing). 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 Strategies	Trans-Hudson	Transit Reliability	Bottlenecks	Transit Travel Times	Lack of Connectivity	Pedestrian Safety	Bicycle Safety	Truck Access
	Key Issues							
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					
New Road Capacity			X					X

Lane reconfigurations, interchange modifications, and safety countermeasures can work to reduce crashes that cause delays.

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.

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

Julia

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

Key Strategies	Bottlenecks	Freight Rail Capacity	Truck Access	Truck Reliability
First Mile, Last Mile Truck Access			X	X
Rail Freight	X	X		X
Freight Operations/ Off-Hours Delivery	X			X

Improving track and bridge conditions and providing grade crossings/safety improvements can help increase capacity and improve reliability.

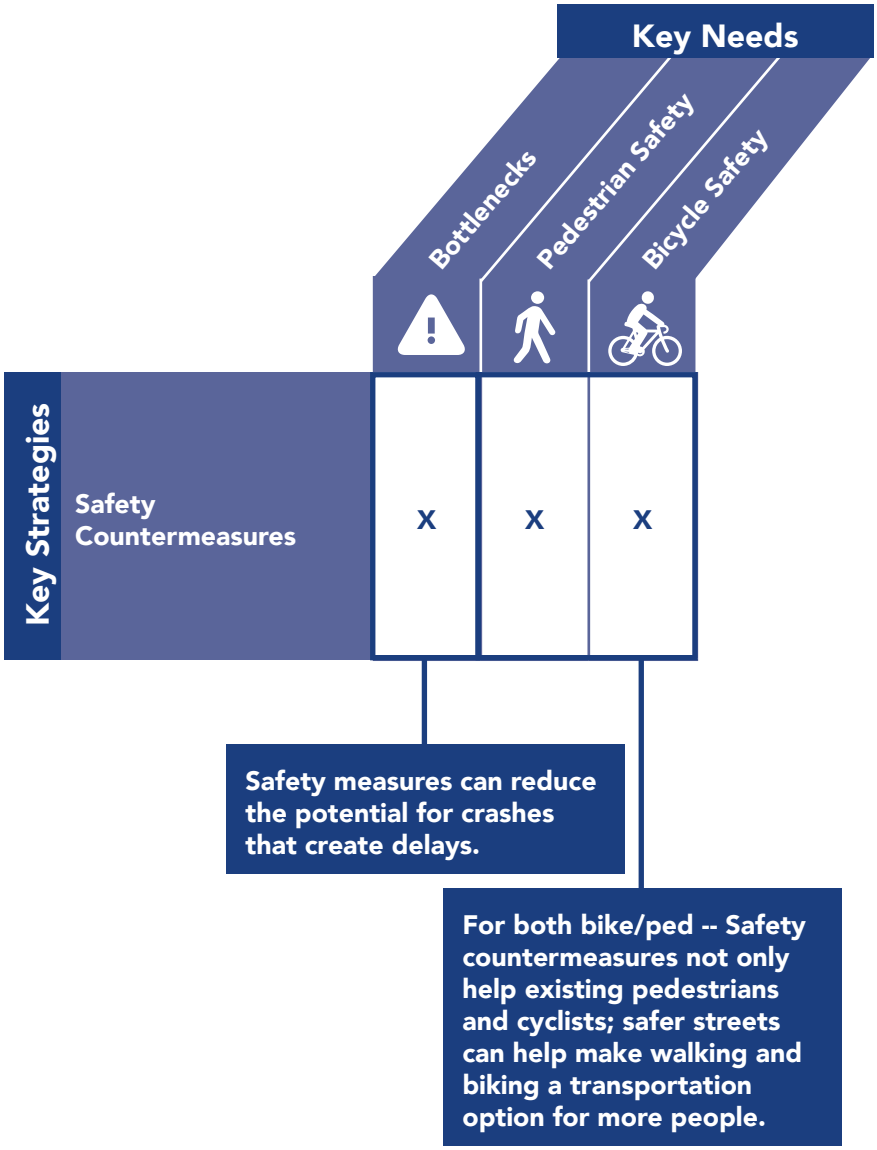
Direct Safety

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.

- Safety Countermeasures

Carmen

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



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

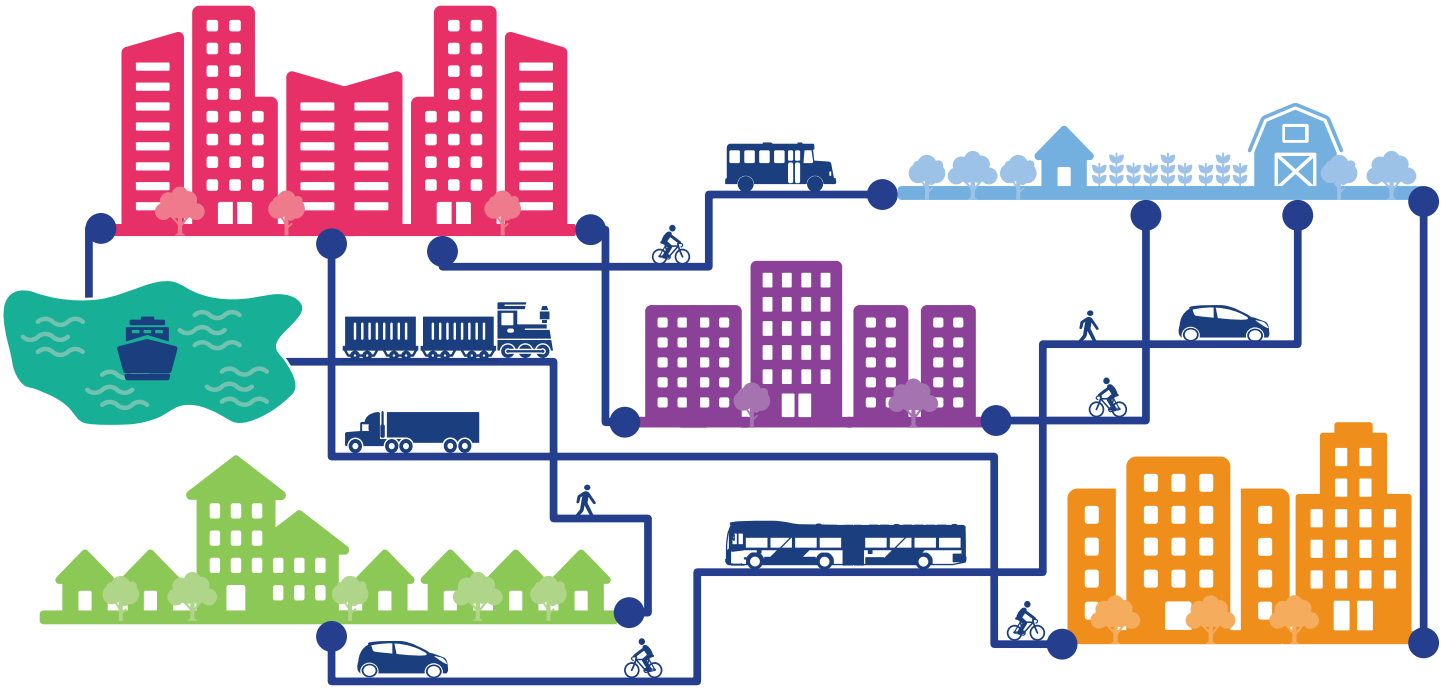
The NJTPA and its partners regularly collect data and track how well the transportation system performs. This is particularly of interest in light of CMP strategies that are implemented. Continuing to understand the effectiveness of projects and programs is key to helping planners and decision makers 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