



Monmouth
PATHS
Access for All

APPENDIX C

LIMITING EFFECTS AND POSITIVE SOLUTIONS

Date: July 14th, 2024



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ACKNOWLEDGEMENTS



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Attachments

Attachment A: Land Use and Zoning Strategies

Executive Summary

An equitable transportation system is one that works for all users. It means that no matter a person's age, physical abilities, or socioeconomic status, they enjoy the same level of mobility as any other user. Where a person lives can also have a substantial impact on the type and severity of mobility barriers they experience. For example, those without access to a vehicle in a rural area of the County may have fewer mobility alternatives than those that live in the urban centers, which typically have more walking, biking, and transit options. Therefore, it is critical that the mitigation strategies developed in this study consider the unique challenges and opportunities of the different types of communities within the County.

This Limiting Effects and Positive Solutions Report documents the final three steps in the barrier identification and mitigation process in the context of prioritizing the barriers identified in Appendix B by transect¹ and developing strategies that could apply to each transect, multiple transects, or the County as a whole.

Defining the County's Transects

A transect is a land-use term that describes an area based on its relative development density or other characteristics of the natural or built environment. When most people think about land use, they think in terms of rural, suburban, and urban. While the County certainly has these distinct types of areas, there are also nuances within these classifications that could contain unique mobility challenges. Therefore, to identify the County's main transects, a review of current zoning was conducted (**Figure E-1**).

Utilizing the composite zoning map, zoning patterns across the County were evaluated to define the transects. The definition of the transects considered the following factors:

- Zoning and Density
- Transportation Network
- Natural and Built Environment

¹ A transect is a land-use term that describes a location based on its relative density of development, or other natural or built environment characteristics.

Based on the assessment of these factors within the County, five (5) transects were defined that would be advanced for further assessment in this study (**Figure E-2**). The transects are defined as follows:

- **Rural/Natural:** Large parcel sizes primarily consisting of agricultural uses, parks and open space, very low-density residential, and limited low-density commercial and industrial uses. The transportation network in these areas is characterized by disconnected land uses and limited to no transit, pedestrian, or bicycle facilities.
- **Village:** Small areas of low- to moderate-density residential that typically surround a small commercial area. The transportation network in a Village transect consists of a small but more connected and walkable street network than in the surrounding areas. However, there are few pedestrian and bicycle connections outside of the village area, and there is typically very limited to no transit serving the village.
- **Suburban:** Areas of the County that consist of low- to moderate-density residential, as well as low-density commercial, industrial, and office uses. This transect is also characterized by disconnected subdivisions, discontinuous street networks with cul-de-sacs, and limited connections between land use types. There are limited pedestrian and bicycle connections in this transect, and transit typically occurs along major arterials and has a low frequency of service.
- **Town Center:** Areas of moderate- to high-density development with a more traditional grid network that is typically oriented toward a central business core or a “Main Street” corridor. The majority of streets within this transect have sidewalks and the large number of local streets provide some low-stress bicycle routes. Within Monmouth County, Town Center transects have a mix of transit options ranging from commuter rail to bus service with varying frequencies.
- **Shore Town:** This transect has many features that are similar to that of the Town Center transect with regards to density and the traditional grid network. Within Monmouth County, communities in this transect may also be served by bus or rail. The primary difference between a Shore Town transect and a Town Center transect is the seasonality of activity in the communities, with population fluctuating between the peak summer season and the rest of the year. This transect also includes some Bay Shore towns. These communities along the Raritan Bay do not have the seasonality to the degree of the towns along the ocean but are still oriented to the waterfront.

It should be noted that the definition of the transects was not bound by municipal borders. Smaller municipalities like Freehold Borough, Allentown, Keyport, etc., tend to consist of one transect, while larger municipalities such as Marlboro, Manalapan, Middletown, and Howell Township are made up of multiple types of transects. If a particular area of interest falls near the border of two or more transects, then it may warrant a site-specific assessment that considers potential barriers, strategies, and tools that apply to each transect that it touches.

Figure E-1: Composite Zoning Map for Monmouth County

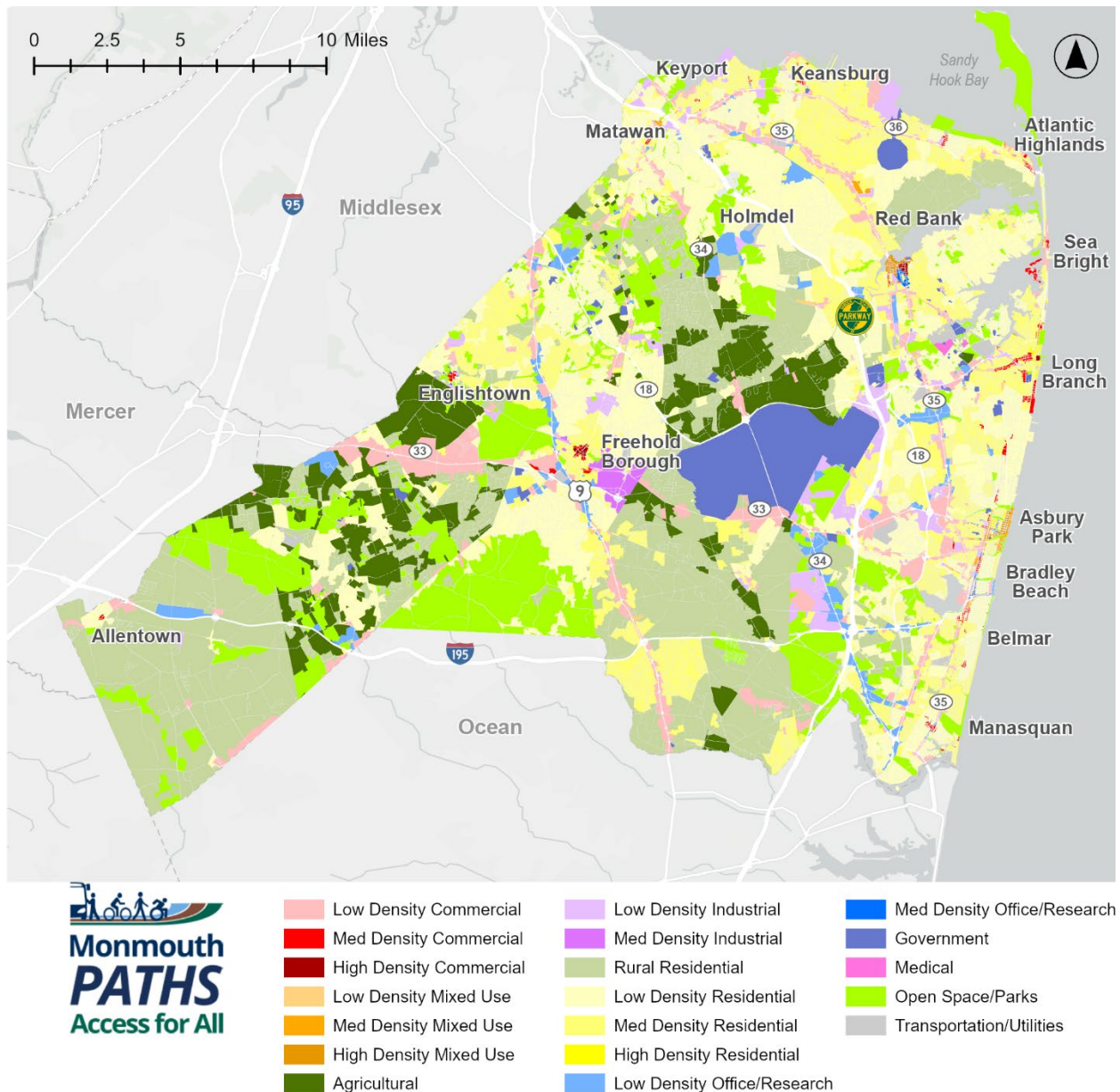
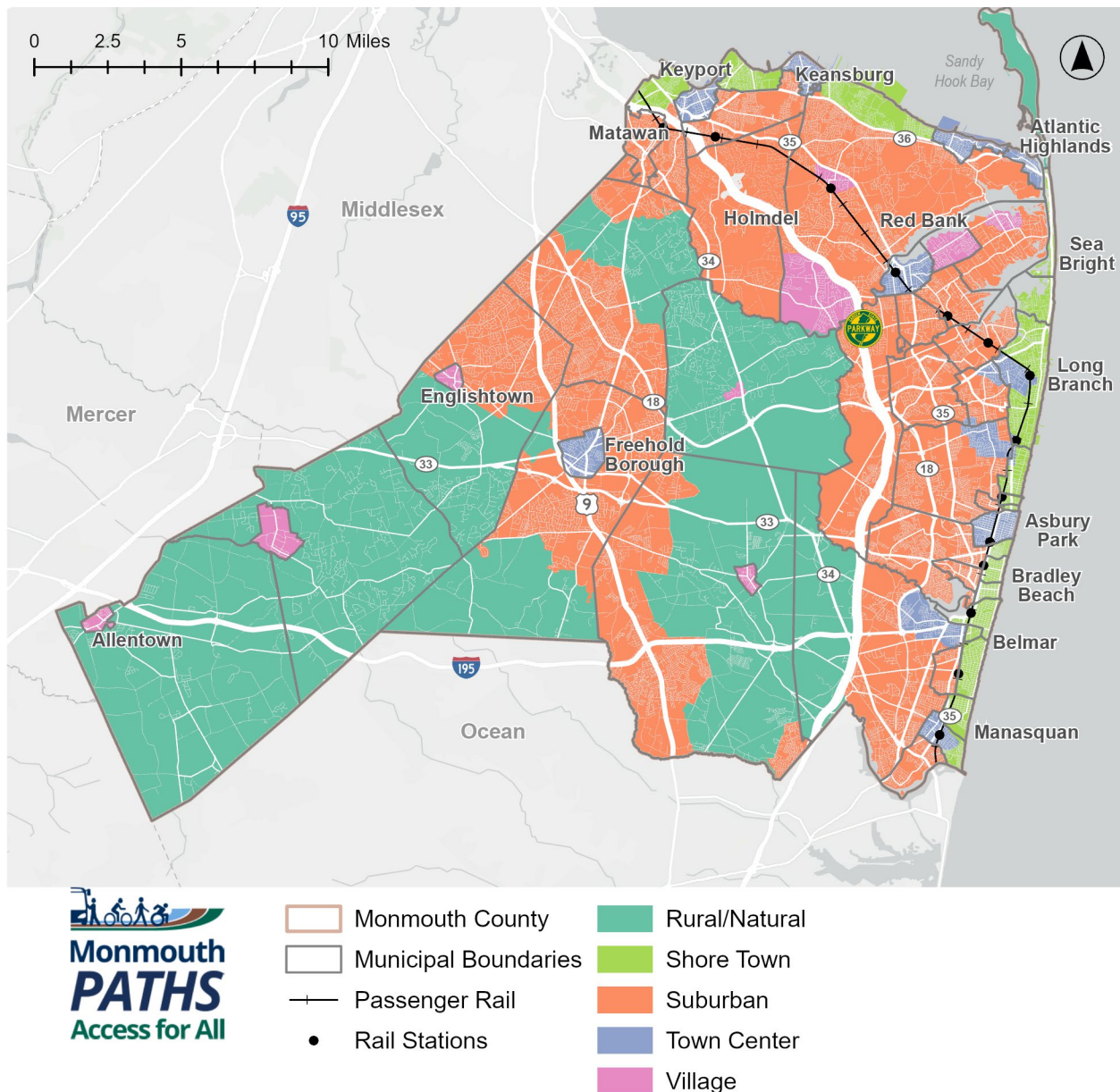


Figure E-2: Monmouth County Transects



Transect Analysis and Barrier Identification

Following the identification of the five (5) main transects within the County, a comparison analysis of the transects was conducted to highlight the types and degree of barriers that are both unique to a specific transect and common to two or more transects. A scoring methodology was utilized with the objective of providing an analysis-based method for combining numerical data with the public feedback comments. The scoring was used to quantify the level of need, prioritize the key issues, and rank each transect, and can be

referenced in the development of performance metrics for the recommendations. The final score for each transect was converted into a more qualitative metric of low, moderate, and high need (**Table E-1**).

Table E-1: Transect Need Rankings

Transect	Equity	Walking	Biking	Transit	Vehicle Use/ Safety
Rural/ Natural	Moderate	Moderate	Moderate	Moderate	Moderate
Village	Moderate	High	Moderate	High	Moderate
Suburban	High	Moderate	Moderate	Moderate	Low
Town Center	High	High	Moderate	Low	High
Shore Town	High	High	Moderate	Low	Moderate

Utilizing the data reviewed in Appendix A: Experienced Conditions and Appendix B: Data Review and Summary, the transect needs were then translated to specific critical barriers as identified in **Table E-2**. A “♦” symbol indicates a critical barrier that was identified for the transect through the data analysis, outreach, or combination thereof. A “○” symbol indicates that the barrier likely exists in the transect given land use and infrastructure similarities with other transects; however, the data and/or outreach did not specifically identify the barrier for that transect.

Table E-2: Critical Barriers by Transect

Barrier	<u>Rural/Natural</u>	<u>Village</u>	<u>Suburban</u>	<u>Town Center</u>	<u>Shore Town</u>
(A)CTIVE MODES					
A01: Limited low-stress bicycle facilities and poor connectivity to adjacent land uses.	◆	◆	◆	◆	◆
A02: Intersections that are challenging to cross for pedestrians and bicyclists.	◆	◆	◆	◆	◆
A03: Lack of sidewalks throughout the transect that connect neighborhoods, parks, schools, or other complimentary land uses.	◆		◆		
A04: Missing pedestrian and bicycle connections to major destinations outside of the transect.		◆			
A05: Gaps in the sidewalk network, including missing crosswalks.		◆	◆	◆	◆
A06: Sidewalks and/or bike lanes lack a buffer from moving vehicular traffic.	○	◆	○	○	○
A07: Recent roadway projects that have not included enhanced accommodations for pedestrians or bicyclists.	○	○	◆	○	◆
A08: Major state routes act as barriers to pedestrian activity due to difficult crossings and lack of pedestrian and bicycle infrastructure.			◆	○	
A09: Sidewalks, curb ramps, and/or crosswalks are in poor condition.		○	○	◆	◆
A10: Poor lighting that makes it difficult to see pedestrians and bicyclists.	○	○	○	◆	◆
A11: Missing ADA curb ramps or other accessible features.	○	○	○	◆	○
(L)AND USE					
L01: Low-density development with limited connections between land uses.	◆	◆	◆		
L02: Critical services including supermarkets, pharmacies, healthcare services, etc. are located outside of the transect.	◆	◆		◆	◆
L03: Limited access to employment opportunities.	◆	◆		◆	◆
L04: Lack of affordable, mixed-use, and walkable development.	○		◆		
L05: Zoning policies encourage trips by private vehicles.	◆	○	◆	◆	○

Barrier	<u>Rural/Natural</u>	<u>Village</u>	<u>Suburban</u>	<u>Town Center</u>	<u>Shore Town</u>
(S)AFETY					
S01: High vehicle speeds, unsafe passing behaviors, and/or limited lighting on roadways in this transect.	◆		◆	◆	◆
S02: Vehicles cutting through residential streets to avoid congestion on arterials.		◆	○	○	○
S03: Lack of driver compliance for yielding at crosswalks.	○	◆	○	◆	◆
S04: On-street parking that impacts sight distance and the ability to see turning vehicles, pedestrians, and bicyclists.		○		◆	○
(T)RANSIT					
T01: Limited access to transit, particularly to east-west service.	◆	◆	◆	◆	◆
T02: Difficulty accessing transit stops due to lack of infrastructure for first-mile/last-mile connections.	○	○	◆	○	◆
T03: Difficulty accessing transit due to missing or damaged rider amenities at stops, and/or lack of ADA accessibility.	○	○	◆	◆	◆
T04: Low frequency transit services with limited operating hours, particularly late-night and on weekends.	◆	◆	◆	◆	◆
T05: Unreliable transit operations and difficulty making connections.	○	○	○	◆	◆
(O)THER					
O01: Seasonal traffic congestion negatively impacts mobility and parking within the transect.	○	○	○	○	◆

◆ – indicates that there is supporting data and/or public feedback that identifies this barrier in this transect. ○ - indicates where this barrier is likely present but not specifically found in the data or public feedback.

Strategies to Mitigate the Barriers

Based on the barriers identified above, tools to mitigate these barriers were grouped into the following strategy statements:

- Strategy 1: Adopt design standards that support active modes like walking, biking, and scootering for all users.
- Strategy 2: Develop multi-modal programs that prioritize mobility for the County's transportation disadvantaged populations.
- Strategy 3: Improve County-wide active mode connections between neighborhoods, land uses, and municipalities.
- Strategy 4: Improve access to transit by addressing transit stop conditions and first and last mile challenges.
- Strategy 5: Improve transit service and increase connections to major activity centers west of the County.
- Strategy 6: Implement policies that encourage mixed-use, multi-modal-supportive development patterns that provide a variety of housing options.
- Strategy 7: Improve connections between the County's transportation disadvantaged populations and critical services necessary for wellness such as healthcare, education, recreation, grocery stores, and pharmacies.
- Strategy 8: Improve safety for all roadway users.
- Strategy 9: Enhance transportation-supported sustainability and resilience efforts.

Each strategy consists of a series of tools that could be implemented to satisfy the strategy. Each tool is associated with the transect(s) that it applies to, the parties responsible for implementation, implementation timeline, and magnitude of cost. The strategies and 64 associated tools are summarized in **Table 27**. Each tool has a number and letter reference. The number references which of the nine strategies that the tool falls under, and the letter references where the tool falls in the list of tools under each strategy. Given the large number of tools that have been identified, the study team has also provided recommendations for tools that should be considered a priority for implementation for each lead implementer (**Table E-3**).

Table E-3: Tools to Consider for Priority Implementation by Lead Implementer

Lead Implementer	Tools for Priority Implementation
Monmouth County	Tool 1B: Update sidewalk ordinances and regulations to ensure their construction, and their design to adhere to the latest standards and design guidelines as a minimum.
	Tool 1C: Include bicycle and pedestrian elements in all intersection projects regardless of demand.
	Tool 1D: Consider implementing policies that encourage the installation of mobility improvements and proven safety countermeasures when the roadway is scheduled for resurfacing or other improvements.
	Tool 3A: Develop a County-wide active transportation plan with a focus on cross-County connectivity.
	Tool 8A: Consider prioritizing proven safety countermeasures that support mobility for vulnerable road users.
	Tool 9A: Create a County-wide resilience and sustainability plan.
NJDOT	Tool 1B: Update sidewalk ordinances and regulations to ensure their construction, and their design to adhere to the latest standards and design guidelines as a minimum.
	Tool 1D: Consider implementing policies that encourage the installation of mobility improvements and proven safety countermeasures when the roadway is scheduled for resurfacing or other improvements.
	Tool 6G: Consider updating traffic impact study guidelines to require pedestrian and bicycle safety analyses as a measure of effectiveness that has equal weight to vehicle metrics.
	Tool 5G: Consider evaluating the installation of bus priority measures in congested areas.
	Tool 1J: Continue development of and education on electric bicycle and scooter regulations.
NJ TRANSIT	Tool 5A: Identify potential transit corridors for evaluation of demand and potential transit or microtransit solutions.
	Tool 5B: Investigate east west corridors for potential transit or microtransit improvements in coordination with the TMA and NJ TRANSIT.
	Tool 4H: Consider evaluating the improvement of rider amenities at train stations and enhanced accessibility.
	Tool 4B: Consider evaluating the accessibility of stops by pedestrians, including those with lower levels of mobility, and support integration with bicycle facilities.
	Tool 4C: Identify and further investigate potential intermodal transportation facilities and create mobility hubs.
Municipalities – Rural/Natural	Tool 6A: Update subdivision and zoning standards to encourage or require transit supportive development.
	Tool 6E: Adopt an official map.
	Tool 1B: Update municipal sidewalk ordinances to reflect latest guidance on sidewalk widths, buffers, and other implementation requirements to create a network of ADA-compliant sidewalks and walking paths.
	Tool 8D: Adopt municipal complete streets policies.
	Tool 1G: Enhance rural main streets and highways through the addition of bicycle and pedestrian infrastructure in the vicinity of commercial and cultural centers. Add bicycle facilities to connect between these centers.

Municipalities – Village	Tool 1B: Update municipal sidewalk ordinances to reflect latest guidance on sidewalk widths, buffers, and other implementation requirements to create a network of ADA-compliant sidewalks and walking paths.
	Tool 1C: Include bicycle and pedestrian elements in all intersection projects regardless of demand.
	Tool 7D: Permit missing middle and compact housing types in residential neighborhoods.
	Tool 8D: Adopt municipal complete streets policies.
	Tool 7B: Plan for growth in nodes and mobility-rich areas through unified land use and circulation planning.
Municipalities – Suburban	Tool 1B: Update sidewalk ordinances and regulations to ensure their construction, and their design to adhere to the latest standards and design guidelines as a minimum.
	Tool 1C: Require that bicycle and pedestrian elements are incorporated into all intersection projects regardless of the appearance of immediate demand.
	Tool 1E: Activate public spaces, such as schools, libraries, parks, and municipal buildings as mobility hubs.
	Tool 6B: Plan for walkable communities that can be enhanced through transit expansion.
	Tool 7B: Plan for growth in nodes and mobility-rich areas through unified land use and circulation planning.
Municipalities – Town Center	Tool 1C: Include bicycle and pedestrian elements in all intersection projects regardless of demand.
	Tool 7B: Plan for growth in nodes and mobility-rich areas through unified land use and circulation planning.
	Tool 1E: Activate public spaces, such as schools, libraries, parks, and municipal buildings as mobility hubs.
	Tool 7D: Permit missing middle and compact housing types in residential neighborhoods.
	Tool 8D: Adopt municipal complete streets policies.
Municipalities – Shore Town	Tool 8D: Adopt municipal complete streets policies.
	Tool 1E: Activate public spaces, such as schools, libraries, parks, and municipal buildings as mobility hubs.
	Tool 7A: Permit missing middle and compact housing types in residential neighborhoods.
	Tool 7B: Plan for growth in nodes and mobility-rich areas through unified land use and circulation planning.
	Tool 1H: Reduce seasonal visitor reliance on personal vehicles through expanded wayfinding, bike and scooter share, and transit and rideshare programs.

Introduction

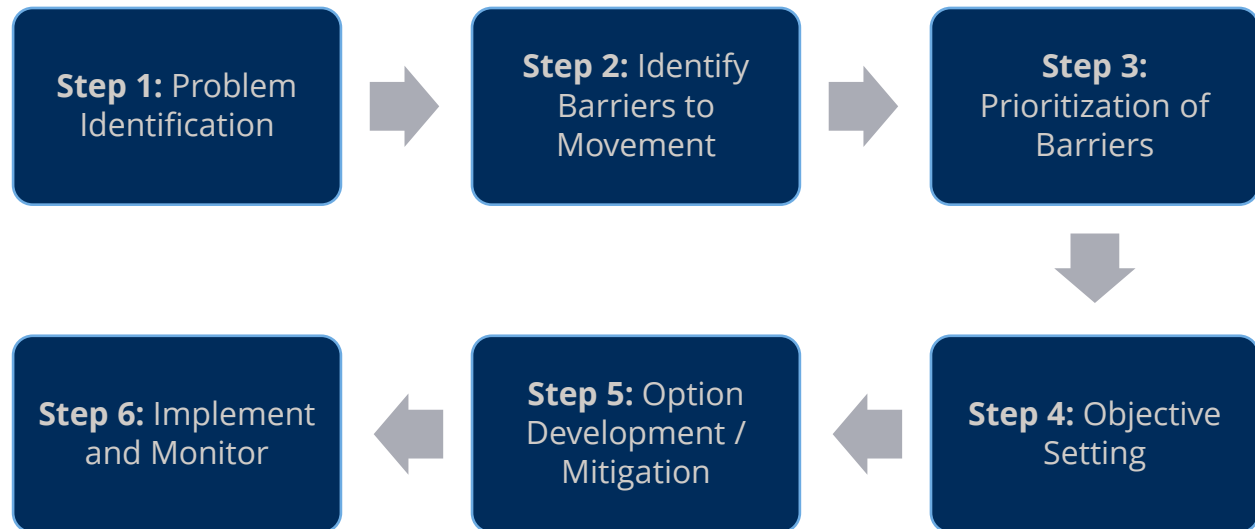
An equitable transportation system is one that works for all users. It means that no matter a person's age, physical abilities, or socioeconomic status, they enjoy the same level of mobility as any other user. Although all residents in Monmouth County experience barriers to their mobility, the degree to which these barriers affect their ability to access employment, education, healthcare, services, or recreation, can vary greatly depending on someone's socioeconomic status, physical and mental ability, as well as where they live and work. County residents that can afford to purchase and maintain a vehicle can more easily travel around the County, while those that cannot face substantial barriers to their own mobility. These barriers can include limited or no access to transit service, a lack of a sidewalk or bike lane, or a missing curb ramp, among others. Creating a more equitable transportation system means eliminating barriers to traveling without needing a personal vehicle.

Where a person lives can also have a substantial impact on the type and severity of mobility barriers they experience. For example, those without access to a vehicle in a rural area of the County have fewer mobility alternatives than those that live in the urban centers, which typically have more walking, biking, and transit options. Therefore, it is critical that the mitigation strategies developed in this study consider the unique challenges and opportunities of the different types of communities in the County.

This Limiting Effects and Positive Solutions Report documents the final three steps in the barrier identification and mitigation process in the context of prioritizing the barriers identified in Appendix B by transect² and developing strategies and tools that are specific to a transect, multiple transects, or the County as a whole. The five-step process to identifying and mitigating barriers to mobility that was first discussed in Appendix B is shown in **Figure 1**. Appendix B covered the first two steps in the five-step process by combining data analytics with community feedback to develop a barriers framework which identified and described barriers on a County-wide scale.

² A transect is a land-use term that describes a location based on its relative density of development, or other natural or built environment characteristics.

Figure 1: Monmouth Paths Access for All Methodology for Barrier Identification and Mitigation



However, to address unique needs and opportunities within different areas of the County, the final steps of the process must identify the strategies for specific areas of the County. The final three steps are as follows for each transect:

- **Step 3: Prioritization of Barriers:** Identify the barriers that have the most impacts on each transect and the ability for its community members to travel within the transect as well as to and from other transects.
- **Step 4: Objective Setting:** Create a set of objectives that state the outcome(s) that any future mitigation strategies should seek to assist in delivering. These objectives can be “SMART” – providing targets to inform monitoring and evaluation of any strategies to determine the level of success of its implementation.
- **Step 5: Mitigation Strategy Development:** Identify strategies that could be implemented that will address the barriers identified and thus achieve the objectives set.

It should be noted that Step 6 is the intended outcome after this study is complete. The County, its municipalities, other state agencies, and private developers, among other interested parties, should utilize the information outlined in this study to begin to implement the strategies and monitor their performance.

Defining the County's Transects

The County has diverse transects ranging from rural agricultural areas to seasonal communities to dense urban centers. Barriers to mobility exist across all areas of the County; however, they are experienced to different degrees based on the characteristics of each transect. Therefore, it is critical that barriers and their mitigation strategies be discussed within the context of the unique needs and opportunities that exist within each transect. This section of the report describes the methodology used to identify major transects within the County.

Composite Zoning

A transect is a land-use term that describes an area based on its relative development density or other characteristics of the natural or built environment. When most people think about land use, they think in terms of rural, suburban, and urban. While the County certainly has these distinct types of areas, there are also nuances within that classification that could contain unique mobility challenges. Therefore, to identify the County's main transects, a review of current zoning was conducted.

As zoning is the responsibility of each municipality, there is no comprehensive County-wide zoning map. Furthermore, the majority of zoning maps maintained by the County's municipalities are paper (PDF) format and not readily available in GIS. Therefore, in order to assess the County's transects it was necessary to create a composite zoning map for entire the County.

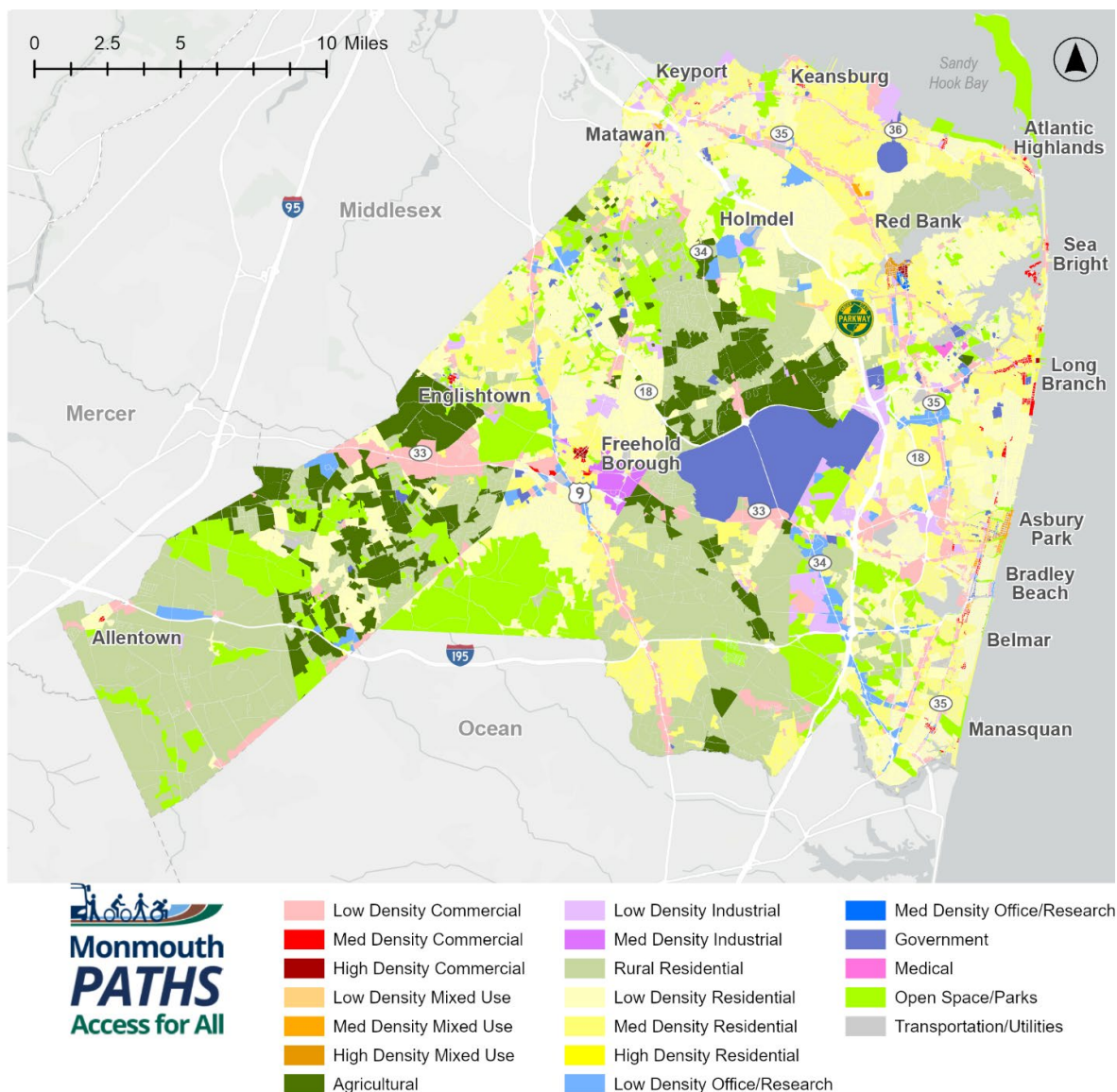
To develop a composite zoning map, the project team utilized a County-wide parcel map in GIS which contained some basic zoning information as a starting point. However, the zoning information in that parcel map was limited to just a zone abbreviation utilized by each municipality and since there was no standardized abbreviation across all municipalities, it was not possible to decipher the type of zone simply based on the abbreviation. Therefore, the project team reviewed the zoning map and code of each municipality to define abbreviations contained in the parcel file. Through this process it was discovered that there are common abbreviations utilized by each municipality. However, they often correspond to different types or densities of zones.

Therefore, using the municipal zoning maps and codes, the project team defined each abbreviation as a composite zoning type simply based on the use and the level of density.

For example, residential zones were categorized in the composite zoning map as rural, low-density, medium-density, and high-density. A similar structure was used for commercial, industrial, office, and mixed-use zones. Open space, parks, government buildings, utilities, schools, etc. were also group into composite zones.

It should also be noted that over 11,000 parcels did not have any zoning information in the parcel file. In order to correct these, the project team utilized a combination of parcel description information in the parcel file, aerial imagery, and an assessment of surrounding uses to estimate the zone of each of the parcels. The resulting composite zoning map is shown in **Figure 2**.

Figure 2: Composite Zoning Map for Monmouth County



Transect Selection

Utilizing the composite zoning map, zoning patterns across the County were evaluated to define the transects. The definition of the transects considered the following factors:

- **Zoning and Density:** The majority of the County is zoned for low-density residential, commercial, office, and industrial uses, with the exception of the County's urban centers such as Freehold Borough, Red Bank, Asbury Park, Long Branch, Belmar, and Manasquan, among others. Differentiations were made between areas of rural, low-density, and moderate-to-high density uses. Because much of the County's parcels are residential, the transects are generally defined across a residential density spectrum.
- **Transportation Network:** Linkages, or lack thereof, in the transportation network can help or hinder mobility. The County's older communities tend to have grid networks that offer a variety of street types, as well as a more interconnected sidewalk network, while the County's suburbs are characterized by disconnected local street segments which require traffic to funnel out onto a few high-capacity roadways which are often barriers to walking and biking.
- **Natural and Built Environment:** The differences between the natural and built environments can also be used to differentiate transects because of the types of activities that occur in these areas. For example, large portions of the western and central areas of the County contain agricultural and natural uses (parks, preserves, and other types of open space), which experience higher rates of recreational bicycling, while the more urbanized areas experience more bicycling for everyday activities. Similarly, shore communities experience seasonal shifts in population which result in changes to mobility demands, which are not reflected in other areas of the County.

Based on the assessment of these factors within the County, five (5) transects were defined that would be advanced for further assessment in this study (**Figure 3**). The transects are defined as follows:

- **Rural/Natural:** Large parcel sizes primarily consisting of agricultural uses, parks and open space, very low-density residential, and limited low-density commercial and industrial uses. The transportation network in these areas is characterized by disconnected land uses and limited or no access to transit, pedestrian, or bicycle facilities.

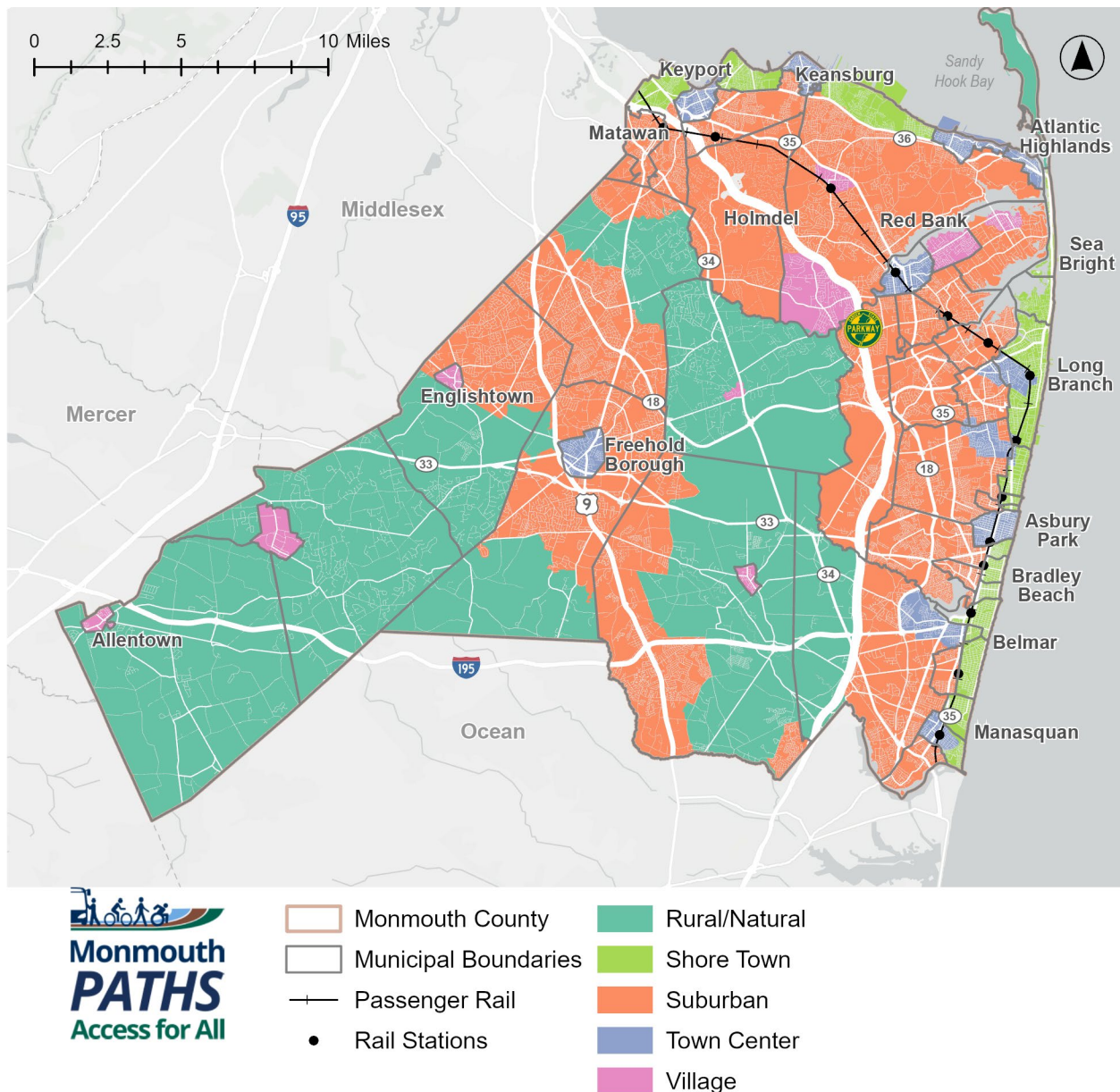
- **Village:** Small areas of low- to moderate-density residential that typically surround a small commercial area. The transportation network in a Village transect consists of a small but more connected and walkable street network than in the surrounding areas. However, there are few pedestrian and bicycle connections outside of the village area, and there is typically very limited to no transit serving the village.
- **Suburban:** Areas of the County that consist of low- to moderate-density residential, as well as low-density commercial, industrial, and office uses. This transect is also characterized by disconnected subdivisions, discontinuous street networks with cul-de-sacs, and limited connections between land use types. There are limited pedestrian and bicycle connections in this transect, and transit typically occurs along major arterials and has a low frequency of service.
- **Town Center:** Areas of moderate- to high-density development with a more traditional grid network that is typically oriented toward a central business core or a “Main Street” corridor. The majority of streets within this transect have sidewalks and the large number of local streets provide some low-stress bicycle routes. Within Monmouth County, Town Center transects have a mix of transit options ranging from commuter rail to bus service with varying frequencies.
- **Shore Town:** This transect has many features that are similar to that of the Town Center transect with regards to density and the traditional grid network. Within Monmouth County, communities in this transect may also be served by bus or rail. The primary difference between a Shore Town transect and a Town Center transect is the seasonality of activity in the communities, with population fluctuating between the peak summer season and the rest of the year. This transect also includes some Bay Shore towns. These communities along the Raritan Bay do not have the seasonality to the degree of the towns along the ocean but are still oriented to the waterfront.

It should be noted that the definition of the transects was not bound by municipal borders. Smaller municipalities like Freehold Borough, Allentown, Keyport, etc., tend to consist of one transect, while larger municipalities such as Marlboro, Manalapan, Middletown, and Howell Township are made up of multiple types of transects. If a particular area of interest falls near the border of two or more transects, then it may warrant a site-specific assessment that considers potential barriers, strategies, and tools that apply to each transect that it touches.

Figure 3 shows that the two largest transects in the County are Rural/Natural and Suburban. The Rural/Natural transect exists primarily in the center of the County as well as in the

southwestern portion of the County, while the Suburban transect primarily exists along the US Route 9 corridor as well as east of the Garden State Parkway. Small areas of the Village transect are spread throughout the County within the Rural/Natural and Suburban Transects, and the Town Center and Shore Town transects exist primarily east of the Garden State Parkway, with the exception of Freehold Borough.

Figure 3: Monmouth County Transects



Transect Analysis and Comparison

Following the identification of the five (5) main transects within the County, a comparison analysis of the transects was conducted to highlight the types and degree of barriers that are both unique to a specific barrier and common to two or more barriers. A scoring methodology, described below, was utilized with the objective of providing an analysis-based method for combining numerical data with the public feedback comments. The scoring was used to quantify the level of need, prioritize the key issues, and rank each transect, and can be referenced in the development of performance metrics for the recommendations.

Utilizing the data referenced in Appendix B: Data Summary and Review Report, as well as feedback from the outreach survey tool, several key demographic and mobility factors were extracted for each transect and compared in the sections below. Each of the factors described in the sections below was then scored based on the magnitude relative to each of the transects. For most of the factors, a percentile range was calculated and then a score was given based on that percentile. Percentiles are a good way of describing relative magnitude because they express where a particular value falls within a range of other values. For example, if a transect's percentage of minority population falls in the 90th percentile, it indicates that 90percent of all other transects have a lower percentage of the population that identifies as a minority. The thresholds used in this study are ones that are commonly used in the transportation profession when analyzing transportation data (**Table 1**).

In general, the higher the percentile, the greater the magnitude, and the higher the score. However, some factors related to a mobility infrastructure, such as miles of low stress bike routes, were scored in reverse because a transect with a higher percentile corresponds to more low stress bike routes than a transect with a lower percentile. In this case the transect with the lowest percentile was scored as having a higher need. **Table 1** breaks down the scoring, and any modifications to this scoring is described in the sections below.

Table 1: Percentile-Based Scoring Thresholds

Percentile	Score when Higher Magnitude Indicates More Need	Score when Lower Magnitude Indicates More Need
≥ 95 th	4	1
85 th – 94 th	3	2
50 th – 84 th	2	3
< 50 th	1	4

Equity Metrics by Transect

Table 2 shows a comparison of several key equity metrics across each transect. The data indicates that there is a relative even distribution of elderly (>65), young (<18), and disabled populations across all transects. However, other metrics such as percentage of households below the poverty level, as well as minority population are highest in the Town Center transect.

Table 2: Equity Metrics by Transect

Transect	Population	Number of Households (HH)	Percent of HH Below Poverty	Percent of Population 65 Years of Age or Older	Percent of Population Under 18 Years of Age	Percent of Population that is a Minority	Percent of Population with a Disability
Rural/ Natural	60,507	20,270	4.3%	17.5%	22.5%	18.7%	7.9%
Village	15,156	5,159	6.0%	16.8%	23.2%	15.1%	10.0%
Suburban	389,648	145,719	5.0%	19.4%	20.4%	22.2%	9.8%
Town Center	68,422	28,092	14.1%	14.9%	21.6%	42.0%	11.0%
Shore Town	109,882	46,329	10.9%	18.1%	18.8%	23.5%	12.2%

Each of the equity metrics was then scored based on the thresholds shown in **Table 1**, and then an average need score was developed for each transect (**Table 3**). It should be noted that since population and households are a similar metric, only number of households was scored. The results show that the Town Center transect has a higher need relative to the equity scores of the other transects, likely due to a much higher percentage of minority and low-income residents.

Table 3: Equity Need Score by Transect

Transect	Households (HH)	HH Below Poverty	Population 65 Years of Age or Older	Population Under 18 Years of Age	Population that is a Minority	Population with a Disability	Average Need Score
Rural/ Natural	1	1	2	3	1	1	1.5
Village	1	2	1	4	1	2	1.8
Suburban	4	1	4	1	2	1	2.2
Town Center	2	4	1	2	4	2	2.5
Shore Town	2	2	3	1	2	4	2.3

Walking Metrics By Transect

Table 4 shows a comparison of several key walking-related metrics across each transect. The data shows that, outside of the Town Center and Shore Town transects, there are very few of the eleven points of interest (POI's) such as grocery stores, doctor's offices, retail stores, parks, churches, schools, etc., that are accessible by walking. In addition, the data indicates a relatively high number of pedestrian crashes in Town Center and Shore Town transects, where the number of pedestrian crashes over a three-year period (2019 – 2022) per 1,000 residents is greater than 1.0.

Table 4: Walking Metrics by Transect

Transect	Average Number of POIs* Accessible by Walking	Total Number of Crashes Involving a Pedestrian	Number of Pedestrian Crashes per 1,000 Residents	Pedestrian Crashes as a Percentage of Total Crashes
Rural/ Natural	1.5	22	0.36	0.3%
Village	3.0	7	0.46	0.7%
Suburban	3.1	230	0.59	0.6%
Town Center	6.1	126	1.84	1.7%
Shore Town	6.4	113	1.02	1.6%

**This study assessed walking access to a total of eleven points of interest (POIs) which include places of employment, grocery stores, hospitals, doctor's offices, parks, schools, etc.*

Each of the walking metrics was then scored based on the thresholds shown in **Table 1**, and then an average need score was developed for each transect (**Table 5**). It should be noted that total number of crashes involving pedestrians was not scored in order to prevent double-counting because pedestrian crashes are also represented by the number of pedestrian crashes per 1,000 residents column.

The Town Center transect received the highest average score, due to the higher rate of pedestrian crashes. Although not scoring high relative to pedestrian crashes, it is important to note that Rural/Natural, Village, and Suburban transects lack walkable connections to key

POIs that people use on a regular basis. It is likely that there is a low number of pedestrian crashes because of the much lower pedestrian activity that occurs in these transects.

Table 5: Walking Need Score by Transect

Transect	POIs* Accessible by Walking	Pedestrian Crashes per 1,000 Residents	Pedestrian Crashes as a Share of Total Crashes	Average Need Score
Rural/ Natural	4	1	1	2.0
Village	3	1	2	2.0
Suburban	3	2	1	2.0
Town Center	1	4	4	3.0
Shore Town	1	3	4	2.7

Biking Metrics By Transect

Table 6 shows a comparison of several key biking-related metrics across each transect. The data indicates that the overall mileage of Bicycle Level of Traffic Stress 1 and 2 bicycle facilities (low-stress) ranges from 28 percent to 68 percent³ of the total mileage of roads within each transect. However, the percentage of low-stress bike routes is often overinflated by low-volume residential streets that do not make the critical connections that communities need to adjacent land uses. Town Center and Shore Town transects have the highest proportion of low-stress routes; however, they have much higher rates of crashes involving a bicyclist at 2.47 bike crashes per 1,000 residents, and 1.78 bike crashes per 1,000 residents, respectively.

Table 6: Biking Metrics by Transect

Transect	Miles of Level of Stress 1 and 2 Facilities	Miles of Level of Stress 1 and 2 Facilities as a Percentage of Total Roadway Mileage	Number of Accessible Jobs Using Level of Stress 1 and 2 Routes	Total Number of Crashes Involving a Bicyclist	Number of Bike Crashes per 1,000 Residents	Bike Crashes as a Percentage of Total Crashes
Rural/ Natural	216	28.3%	2,578	12	0.20	0.2%
Village	43	43.5%	1,316	9	0.59	0.9%
Suburban	1,194	55.2%	3,446	239	0.61	0.6%
Town Center	150	66.6%	9,715	169	2.47	2.3%
Shore Town	340	67.5%	4,275	196	1.78	2.8%

³ Level of Traffic Stress (LTS) mapping was obtained from the North Jersey Transportation Planning Authority (NJTPA). The LTS assigns the lowest level of stress to travel ways that do not allow cars, are residential streets, or have protected bicycle facilities, and the highest level of stress is assigned to high-speed streets and streets near high stress, unsignalized intersections. LTS 1 and 2 routes correspond to facilities that could be comfortable for most riders.

Each of the biking metrics was then scored based on the thresholds shown in **Table 1**, and then an average need score was developed for each transect (**Table 7**). Similar to the equity and walking analyses, the scoring of crashes and level of stress mileage focuses on metrics describing rate, rather than number. Therefore, the scoring will exclude mileage of level of stress 1 and 2 facilities, as well as total number of crashes involving a bicyclist. The Shore Town transect received the highest average score, due to the higher rate of crashes involving a bicyclist, and a lower percentage of low-stress routes.

Table 7: Biking Need Score by Transect

Transect	Level of Stress 1 and 2 Facilities as a Percentage of Total Roadway Mileage	Accessible Jobs Using Level of Stress 1 and 2 Routes	Bike Crashes per 1,000 Residents	Bike Crashes as a Share of Total Crashes	Average Need Score
Rural/ Natural	4	4	1	1	2.5
Village	1	3	1	2	1.8
Suburban	2	2	2	1	1.8
Town Center	1	1	4	3	2.3
Shore Town	4	1	3	4	3.0

Transit Metrics By Transect

Table 8 shows a comparison of several key transit-related metrics across each transect. The data indicates relatively poor transit access across the entire County. Even in the Town Center and Shore Town transects, less than 40 percent of households are within ½ mile of a transit stop, less than 15 percent of households have access to transit with more than one service per hour, and less than 20 percent have access to transit service after 7:00 PM. An assessment of deprivation and transit connectivity to employment and healthcare show that transects with low auto-ownership have good to moderate access to healthcare and employment.

It should be noted that a lack of transit service in a particular area does not mean that more transit service is warranted in that area. Further study of demand and transit capacity will be needed to narrow down locations and specific needs that may be addressed. The table below is showing generalized information.

Table 8: Transit Metrics by Transect

Transect	Percent of Households with Access to a Transit Stop (Within ½ Mile)	Percent of Households with Access to a Transit Stop with >1 Service per Hour	Percent of Households with Access to a Transit Stop with Service After 7 PM	Average Employment Tier (1-3)*	Average Healthcare Tier (1-3)*	Number of Accessible Jobs Per Census Block with up to One Seat Change**
Rural/ Natural	3.8%	0%	1.2%	1.8	1.3	6,569
Village	6.0%	2.5%	3.4%	1.5	1.5	21,815
Suburban	8.7%	1.7%	2.8%	1.4	1.6	25,135
Town Center	38.3%	13.7%	11.3%	1.1	1.4	57,288
Shore Town	25.7%	7.5%	17.5%	1.3	2.1	30,177

**Employment and health tiers are evaluation of the relative access to these facilities using transit. Tier 1 indicates good connectivity and/or low deprivation. Tier 2 indicates medium deprivation and/or connectivity. Tier 3 indicates high levels of deprivation and poor connectivity. **A seat change is when a*

transit rider is required to transfer to another bus route or transit service in order to reach their final destination.

Each of the transit metrics was then scored based on the thresholds shown in **Table 1**, and then an average need score was developed for each transect (**Table 9**). The relative transit need score shows that the Rural/Natural transect is in most need of transit improvements, with the Village and Suburban transects also scoring much higher than the Town Center and Suburban transect. This is due to the relative lack of transit in the Rural/Natural, Village and Suburban transects. However, despite having a higher need, the lower population of the Rural/Natural and Village transects will make it difficult to provide traditional transit service. Therefore, special consideration outside of traditional transit service will be needed with regards to transit strategies in these areas.

Table 9: Transit Need Score by Transect

Transect	Households with Access to a Transit Stop with >1 Service per Hour	Households with Access to a Transit Stop with Service After 7 PM	Average Employment Tier (1-3)*	Average Healthcare Tier (1-3)*	Accessible Jobs Per Census Block with up to One Seat Change**	Average Need Score
Rural/ Natural	4	4	1.8	1.3	4	3.0
Village	3	3	1.5	1.5	4	2.6
Suburban	4	4	1.4	1.6	3	2.8
Town Center	1	2	1.1	1.4	1	1.3
Shore Town	2	1	1.3	2.1	2	1.7

Vehicle Use and Safety Metrics By Transect

Table 10 shows a comparison of several key vehicle-related metrics across each transect. The data indicates that the Town Center and Shore Town metrics have higher percentages of zero-vehicle households, which is in line with the demographic data showing higher percentages of low-income households. When it comes to safety, the Rural/Natural and Town Center transects have the highest rates of vehicle crashes per 1,000 residents. In addition, the Town Center and Shore Town transects experience a higher proportion of these crashes occurring on lower-volume local streets. Finally, the data indicates relatively few charging stations across the County, with most concentrated in the Suburban transect.

Table 10: Vehicle Metrics by Transect

Transect	Percent of Zero-Vehicle Households	Total Number of Crashes Involving Vehicles	Number of Vehicle Crashes per 1,000 Residents	Percent of Vehicle Crashes Occurring on Roadways with <1,000 ADT*	Number of Public Alternative Fueling/Electric Vehicle Charging Stations
Rural/Natural	2.3%	6,614	109.3	9.1%	2
Village	3.7%	1,007	66.4	14.9%	2
Suburban	5.2%	37,098	95.2	12.8%	62
Town Center	14.2%	7,461	109.0	24.3%	13
Shore Town	8.3%	6,945	63.2	35.9%	8

**ADT = Average Daily Traffic. This metric is intended to indicate crashes on low-volume roadways which tend to be local streets.*

Each of the vehicle metrics was then scored based on the thresholds shown in **Table 1**, and then an average need score was developed for each transect (**Table 11**). Similar to the walking and biking metrics, the total number of crashes were not scored. The Town Center transect scored highest among the transects largely due to its relatively high percentage of zero vehicle households, high crash rate, and moderately high percentages of crashes

occurring on low-volume streets. It should also be noted that public electric vehicle charging station inventory throughout the County is relatively low. However, it is particularly low in every transect except the Suburban transect.

Table 11: Vehicle Need Score by Transect

Transect	Zero-Vehicle Households	Vehicle Crashes per 1,000 Residents	Vehicle Crashes Occurring on Roadways with <1,000 ADT*	Public Alternative Fueling/Electric Vehicle Charging Stations	Average Need Score
Rural/ Natural	1	4	1	4	2.5
Village	1	1	2	4	2.0
Suburban	2	2	1	1	1.5
Town Center	4	4	3	3	3.5
Shore Town	2	1	4	3	2.5

Public Feedback By Transect

Public feedback provided a critical qualitative component to the Monmouth Paths: Access for All Study. The feedback provided through the online survey tool was particularly valuable because it could be sorted by comment type and had a location component which allows for categorization by transect. Please refer to Appendix A: Existing Conditions Report for a more detailed discussion regarding the online survey tool and other public outreach activities.

Table 12 provides the number of comments by type for each transect. The largest number of comments (285) related to walking conditions, followed by comments on traffic conditions (136). Over 73 percent of all comments received pertained to the Suburban or Shore Town transects.

Table 12: Public Feedback by Comment Type and Transect

Transect	Traffic	Bicycling	Transit	Walking	Parking	Other	Total
Rural/ Natural	11	6	3	5	0	1	26
Village	9	11	8	30	0	1	59
Suburban	50	38	22	112	3	20	245
Town Center	15	19	11	27	2	3	77
Shore Town	51	15	9	111	6	3	195
Total	136	89	53	285	11	28	602

In order to factor the public feedback into the scoring analysis, each comment type was assigned a score that was calculated by dividing the number of comments provided by the transect population to develop a comment rate per 1,000 residents (**Table 13**). This rate was added to the average score for each transect for each mode discussed in the sections above. It should be noted that for the vehicle mode score, the rates under the traffic and parking comment categories were added together. Furthermore, due to the low number of “Other” comments and their content, they were excluded from the scoring analysis. The final score summary can be found in **Table 14**.

Table 13: Public Feedback Score by Comment Type and Transect (Number of Comments per 1,000 Residents)

Transect	Traffic	Bicycling	Transit	Walking	Parking
Rural/ Natural	0.1818	0.0992	0.0496	0.0826	0.0000
Village	1.7445	2.1322	1.5507	3.8150	0.0000
Suburban	0.3431	0.2608	0.1510	0.7686	0.0206
Town Center	0.5340	0.6763	0.3916	0.9611	0.0712
Shore Town	1.1008	0.3238	0.1943	2.3959	0.1295

Final Transect Scores

As noted earlier in this section, the comparison of transect statistics and the development of scores for each factor is a critical step to identify the types of barriers in each transect and the relative degree of impact. The scores were used by the team to understand the most critical needs are in each transect and how they compare to other transects, and the County as a whole. **Table 14** reflects the final average score for each factor by transect by summing the average score for each transect with the public feedback scores. Because there was not a specific category in the online survey tool for equity, the score was adjusted by a factor of two to increase the weight being applied to this factor.

In order to make the information in this section more user-friendly, factor scores were converted to qualitative rankings of high need (>4.0), moderate need (2.0 – 4.0), and low need (<2.0), and the total score was converted into a priority ranking. The resulting qualitative assessment is shown in **Table 15**.

The results of the analysis indicate that the Village transect has the highest total score, as well as many of the highest individual scores for each mode. This is due to the very high levels of participation by residents within village areas in the County, which significantly increased the scores for the Village transect. Pedestrian, bicycle, and transit infrastructure/services are among the biggest concerns for residents in the Village transect.

Excluding the impact of the public comments, the score for the Village transect would have been 12.5, putting it more in line with the Rural/Natural and Suburban transects.

Despite having a slightly lower total score than the Village transect, the Town Center and Shore Town transects have strong indications of need due to the larger low-income and minority populations, as well as a higher percentage of zero vehicle households. In addition, the individual mode scores also indicate a strong need for improvements to pedestrian and bicycle infrastructure, and enhancements to vehicle safety.

Table 14: Transect Scores

Transect	Equity	Walking	Biking	Transit	Vehicle Use/ Safety	Total Score
Rural/ Natural	3.0	2.1	2.6	3.1	2.7	13.4
Village	3.7	5.8	3.9	4.2	3.7	21.3
Suburban	4.3	2.8	2.0	3.0	1.9	13.9
Town Center	5.0	4.0	2.9	1.7	4.1	17.7
Shore Town	4.7	5.1	3.3	1.9	3.7	18.7

Table 15: Transect Need Rankings

Transect	Equity	Walking	Biking	Transit	Vehicle Use/ Safety
Rural/ Natural	Moderate	Moderate	Moderate	Moderate	Moderate
Village	Moderate	High	Moderate	High	Moderate
Suburban	High	Moderate	Moderate	Moderate	Low
Town Center	High	High	Moderate	Low	High
Shore Town	High	High	Moderate	Low	Moderate

Critical Barriers by Transect

The data and analysis discussed in Appendix A: Experienced Conditions, Appendix B: Data Review and Summary, and the transect analysis discussed in this document, identified the barriers experienced throughout the County. This section utilizes that information to outline critical barriers within each transect.

Rural/Natural Transect

The County's Rural/Natural transect is the largest in terms of land area. It lies within the panhandle of the County, as well as within a north-south axis that runs between the US Route 9 corridor and the Garden State Parkway. Although it is the largest transect by area, only 9 percent of the County's population lives in this transect. This transect also has the lowest percentage of low-income households, as well as residents that report having a disability. Land use within the transect is defined by large parcel sizes primarily consisting of agricultural uses, parks and open space, very low-density residential, and limited low-density commercial and industrial uses. The transportation network is characterized higher-speed two-lane roadways, disconnected land uses, and limited or no access to transit, pedestrian, or bicycle facilities.

Based on the transect analysis, the Rural/Natural transect exhibits a moderate need for all five metrics relative to the other transects (**Table 16**). However, it is critical that the County and municipalities falling within this transect to be proactive to address existing and future potential needs. This transect has a high potential for future growth given the amount of land available. In addition, this transect has high rates of recreational biking, which could be enhanced and capitalized to support mobility within the transect, particularly as it grows.

Table 16: Final Transect Score – Rural/Natural

Transect	Equity	Walking	Biking	Transit	Vehicle Use/ Safety
Rural/ Natural	Moderate	Moderate	Moderate	Moderate	Moderate

Table 17 identifies the critical mobility barriers within the Rural/Natural transect, that have been directly identified by the data, by the outreach component, or both (designated by the "X" in the table). This is likely not exhaustive of all barriers that exist in this transect. However,

these represent the “most critical” as they are specifically identified within the data and/or outreach components. Furthermore, for each identified barrier there is a list of tools that could be used to mitigate the barriers. The tools in this table are linked to their description in the “Strategies to Mitigate Barriers” section. Each tool has a number, which corresponds to one of nine strategies, and a letter which indicates where it falls within the list of tools for that strategy.

The critical barriers are not presented in any particular order; however, each barrier is given a reference number consisting of a letter that corresponds to the type of barrier (L – Land Use, A – Active Mode, S – Safety, P – Parking, T – Transit, O – Other) and a number. If a particular barrier is experienced across multiple transects, it will have the same reference number. Representative comments are also provided for each critical barrier from the survey mapping tool, if available.

Table 17: Critical Barriers for the Rural/Natural Transect

Critical Barrier	Data	Outreach	Mitigation
A01: Limited low-stress bicycle facilities and poor connectivity to adjacent land uses. Supporting Data: Low-stress bicycle facilities make up only 28 percent of roadways in this transect. This is the lowest percentage of low-stress routes out of any transect. Public Feedback: <i>“It’d be nice to have a signage and accommodation for bicycling between Holmdel, Thompson, and Dorbrook parks. The parks are fairly close together and the roads connecting them ought to allow for it.”</i> <i>“You see lots of bikers and the shoulders are not wide enough in areas to accommodate cars and bikes.”</i>	X	X	Tool 1D Tool 1G Tool 3A Tool 3B Tool 3C
A02: Intersections that are challenging to cross for pedestrians and bicyclists. Public Feedback: <i>“The intersection of NJ Route 34 and CR 537 was recently updated. There are zero walking or bike paths and wasn’t a consideration.”</i> <i>“UTT Trail has a deadly crosswalk that leads people into a very dangerous highway. The crosswalk is also adjacent to another major highway so it’s like crossing four lanes. It is also on a hill which makes the crosswalk invisible to drivers.”</i>		X	Tool 1C Tool 1D Tool 1J Tool 6F Tool 8A Tool 8D

Critical Barrier	Data	Outreach	Mitigation
A03: Lack of sidewalks throughout the transect that connect neighborhoods, parks, schools, or other complimentary land uses. Supporting Data: Less than two POIs are accessible by walking in this transect. Public Feedback: <i>"Currently sidewalks do not exist along Old York Road (CR28) which makes it unsafe and challenging for students that live under the 2-mile distance to the Upper Freehold School Districts to walk safely."</i> <i>"Unsafe to walk Phalanx Road – no sidewalks at all."</i>	X	X	Tool 1A Tool 1B Tool 1D
L01: Low-density development with limited connections between land uses. Supporting Data: Less than two POIs are accessible by walking in this transect. Refer to Composite Zoning Map (Figure 2) which demonstrates the low densities and separated land uses in this transect.	X		Tool 6A Tool 6C Tool 6D
L02: Critical services including supermarkets, pharmacies, healthcare services, etc. are located outside of the transect. Supporting Data: There are only two supermarkets located within the Rural/Natural transect. Most supermarkets are located along major corridors in the Suburban transect. Similarly, most pharmacies and other healthcare facilities are located within other transects. There are only approximately five pharmacies, and there are no hospitals or urgent care facilities in this transect.	X		Tool 1B Tool 1G Tool 7B Tool 7D
L03: Limited access to employment opportunities. Supporting Data: Approximately 10 percent of the County's employment lies within this transect. Low-density development has resulted in most employment in the transect only accessible by vehicle.	X		Tool 4E Tool 5A Tool 6A Tool 7B
L05: Zoning policies encourage trips by private vehicles. Supporting Data: Current zoning policies for most municipalities in this transect still have parking minimums that reflect older guidance. Refer to Appendix A: Experienced Conditions report for a discussion of municipal zoning policies related to parking.	X		Tool 6E Tool 6G

Critical Barrier	Data	Outreach	Mitigation
S01: High vehicle speeds, unsafe passing behaviors, and/or limited lighting on roadways in this transect. Supporting Data: This transect had the highest number of fatal crashes (27) between 2019 and 2022. Public Feedback: <i>"Intersection is extremely unsafe to make a left off of Elton Adelphia onto Rt 537."</i> <i>"This intersection (Perrineville Road and Baird Road) would benefit from a signal or 4-way stop. Cross traffic is often a problem."</i>	X	X	Tool 8A Tool 8B Tool 8C Tool 8E Tool 8F
T01: Limited access to transit, particularly east-west service. Supporting Data: Only 3.8 percent of households are within ½ mile of a transit stop, and there are no households that are within walking distance of a transit stop where service operates at one-hour frequencies or less. This has resulted in an average transit mode share of less than a tenth of one percent. However, it should be noted that a lack of transit service does not necessarily indicate a need for more transit service, particularly in the rural/natural transect where densities are unlikely to be supportive. Rather, providing transit service in this transect should be evaluated on a location-specific manner, particularly focused on clusters of higher density development. Public Feedback: <i>"It takes more than two hours to get between Asbury Park and Trenton via train, but it would take about an hour by bus on I-195. People said the bus line existed before; it definitely needs to return."</i>	X	X	Tool 4A Tool 4B Tool 4E Tool 5A
T04: Low frequency transit services with limited operating hours, particularly late-night and on weekends. Supporting Data: No households have access to transit that has a frequency of one hour or less, only 1.2 percent of households have access to transit after 7:00 PM.	X		Tool 5A

Village Transect

The County’s Village transect is the smallest in terms of land area and population (2 percent of the County’s population lives in the Village transect). Most of the villages lie within either the Rural/Natural or Suburban transects and are differentiated from the surrounding transect by several factors including smaller residential lot sizes that typically surround a small commercial area, a small but more connected and walkable street network than in the surrounding areas, and buildings that are closer together and to the street. However, despite the walkability of the Village transect itself, there are few pedestrian and bicycle connections outside of the village area, and there is typically very limited or no transit serving the transect.

Based on the transect analysis, the Village transect falls into moderate need for equity, biking, and vehicle metrics, and high need for walking, and transit relative to the other transects (**Table 18**). It is important to note that the higher ranking for walking, biking, and transit trips has to do with a substantial amount of outreach received by residents living in the Village transect, particularly those from Lincroft village. Strategy implementors should embrace public comments on the lived experience in order to enhance the natural walkability and bikeability of these communities, improve access to transit, and address safety concerns to the level advocated by local communities.

Table 18: Final Transect Score – Village

Transect	Equity	Walking	Biking	Transit	Vehicle Use/ Safety
Village	Moderate	High	Moderate	High	Moderate

Table 19 identifies the critical mobility barriers within the Village transect, that have been directly identified by the data, by the outreach component, or both (designated by the “X” in the table). This is likely not exhaustive of all barriers that exist in this transect. However, these represent the “most critical” as they are specifically identified within the data and/or outreach components. Furthermore, for each identified barrier there is a list of tools that could be used to mitigate the barriers. The tools in this table are linked to their description in the “Strategies to Mitigate Barriers” section. Each tool has a number, which corresponds to one of nine strategies, and a letter which indicates where it falls within the list of tools for that strategy.

The critical barriers are not presented in any particular order; however, each barrier is given a reference number consisting of a letter that corresponds to the type of barrier (L – Land Use, A – Active Mode, S – Safety, P – Parking, T – Transit, O – Other) and a number. If a particular barrier is experienced across multiple transects, it will have the same reference number. Representative comments are also provided for each critical barrier from the survey mapping tool, if available.

Table 19: Critical Barriers for the Village Transect

Critical Barrier	Data	Outreach	Mitigation
A01: Limited low-stress bicycle facilities and poor connectivity to adjacent land uses. Supporting Data: Only 43.5 percent of roadways are low stress for bicyclists. Public Feedback: <i>"There is no accommodation for bicycling between residential areas or between residential and commercial areas. Crossing CR 520 remains hazardous even with recent improvements."</i>	X	X	Tool 1D Tool 1E Tool 3A Tool 3B Tool 3C
A02: Intersections that are challenging to cross for pedestrians and bicyclists. Public Feedback: <i>"No cars are stopping at the crosswalks [on CR 520 and Lincroft]."</i> <i>"[The intersection of CR 520 and CR 50] feels so stressful trying to cross (while walking) this intersection with so many different avenues of traffic, walkways could be more emphasized, add plantings and other traffic calming measures."</i>		X	Tool 1C Tool 1D Tool 1J Tool 6F Tool 8A Tool 8B Tool 8C Tool 8D Tool 8G
A04: Missing pedestrian and bicycle connections to major destinations outside of the transect. Supporting Data: Although 43.5 percent of streets within this transect are low-stress, areas outside of Village transect have a low percentage of low-stress routes (28 percent). Public Feedback: <i>"Add bike lanes for improved connectivity to county park." (Referencing access to Thompson Park)</i> <i>"There is no accommodation for cyclists riding along 520 to the bus terminal, or businesses at Exit 109."</i> <i>"There should be sidewalks down this entire stretch of Kings Highway as people go to and from the train station, town hall, and Rt 35."</i>	X	X	Tool 1C Tool 1D Tool 1E Tool 2A Tool 2H Tool 3A Tool 3B Tool 3C

Critical Barrier	Data	Outreach	Mitigation
A05: Gaps in the sidewalk network, including missing crosswalks. Public Feedback: <i>"No sidewalk on a busy road [CR 571 in Roosevelt]."</i> <i>"Extend sidewalk on west side of CR 50 & add midblock crosswalk since there is only sidewalk on one side of the street for most of the stretch along CR 50 between West Front St and Newman Springs Road."</i> <i>"How can we make it feel safer to walk in this area between the Parkway and Swimming River Road? We want our kids to be able to safely walk and bike on the sidewalks."</i>		X	Tool 1A Tool 1B Tool 1C Tool 1F Tool 2A Tool 2E Tool 9B Tool 9C
A06: Sidewalks and/or bike lanes lack a buffer from moving vehicular traffic. Public Feedback: <i>"Add bike lanes and more shoulder/space between traffic and sidewalk [on CR 520]. It feels so dangerous walking down the sidewalks in this area cars are so fast, and the sidewalk is too close to the road."</i> <i>"Kings Hwy by Marlpit Hall area, the sidewalk is very narrow and speeding cars are right next to young students walking to Village elementary school. No fence. Accident waiting to happen!"</i> <i>"High vehicle speeds and no buffer between roadway and sidewalk [on CR 520]."</i>		X	Tool 1A Tool 1B Tool 1C Tool 1K Tool 3C Tool 8A Tool 8C Tool 8D
L01: Low-density development with limited connections between land uses. Supporting Data: On average, only three POIs are accessible by walking in this transect. Refer to Composite Zoning Map (Figure 2) which demonstrates the low densities and separated land uses in this transect. Public Feedback: <i>"Despite the Brookdale campus being very walkable with pedestrian paths between every building, there is zero pedestrian/bike infrastructure connecting it to shops [in Lincroft] less than a mile away."</i>	X	X	Tool 6C Tool 6D Tool 7A Tool 7C Tool 7D

Critical Barrier	Data	Outreach	Mitigation
L02: Critical services including supermarkets, pharmacies, healthcare services, etc. are located outside of the transect. Supporting Data: There are only two brand name supermarkets in the Village transect: in Lincroft and Farmingdale. There are four pharmacies, two in Allentown, one in Farmingdale, and one in Lincroft. However, there are no hospitals or urgent care facilities in this transect.	X		Tool 7A Tool 7B Tool 7C Tool 7D
L03: Limited employment options within the transect. Supporting Data: Only two percent of the County's employment lies within this transect. Most residents commute outside of the transect to get to work.	X		Tool 4E Tool 5A Tool 6A Tool 7B
S02: Vehicles cutting through residential streets to avoid congestion on arterials. Public Feedback: <i>"Traffic cutting through to W. Front Street at high speeds [using Jumping Brook Road]."</i> <i>"GPS traffic does not always alert drivers to make turn to stay on county road resulting in people going through intersection and onto residential streets."</i> <i>"Spruce Drive is used as a cut through to Stop and Shop/Kohls shopping center. Speed bumps would be useful to slow drivers down."</i>		X	Tool 8A Tool 8B Tool 8C Tool 8D
S03: Lack of driver compliance for yielding at crosswalks. Public Feedback: <i>"No cars are stopping at the crosswalks [on CR 520 and Lincroft]."</i> <i>"It is great that you painted the cross walks across Newman Springs Road. However, you should install those lighted signs as well [to help pedestrians cross]."</i>		X	Tool 8A Tool 8B Tool 8E Tool 8F Tool 8G Tool 8H

Critical Barrier	Data	Outreach	Mitigation
T01: Limited access to transit, particularly east-west service. Supporting Data: Only 6.0 percent of households are within ½ mile of a transit stop. This has resulted in a relatively low transit mode share of a less than 0.2 percent. However, it should be noted that a lack of transit service does not necessarily indicate a need for more transit service, particularly in areas where densities are unlikely to be supportive. Rather, providing transit service in this transect should be evaluated on a location-specific manner, focused on serving higher-density village centers. Public Feedback: <i>"If NJ TRANSIT is not serious about the Monmouth-Ocean-Middlesex line, then please have any reliable bus service east-west besides to Lakewood and Freehold."</i>	X	X	Tool 4E Tool 5A Tool 5B Tool 5C
T04: Low frequency transit services with limited operating hours, particularly late-night and on weekends. Supporting Data: Less than four (4) percent of households have access to a transit service with no more than one hour service or that provides service after 7:00 PM.	X		Tool 4D Tool 4E Tool 5A Tool 5D Tool 5E

Suburban Transect

The County's Suburban transect is the second largest in terms of land area and the largest in terms of population (61 percent of the County's population lives in the Suburban transect). The County has two primary areas where this transect exists: along the US Route 9 corridor, as well as along the Garden State Parkway. The Suburban transect is characterized by low-to moderate-density residential as well as low-density commercial, industrial, and office uses. This transect is also characterized by disconnected subdivisions, discontinuous street networks with cul-de-sacs, and limited connections between land use types. There are limited pedestrian and bicycle connections in this transect, and transit typically occurs along major arterials and has a low frequency of service.

Based on the transect analysis, the Suburban transect falls into high need for equity, moderate need for walking, biking, and transit, and low need for the vehicle metric relative to the other transects (**Table 20**). However, given the high population of this transect, the

unique mobility challenges faced by people living, working, and shopping in this area are of particular importance.

Table 20: Final Transect Score – Suburban

Transect	Equity	Walking	Biking	Transit	Vehicle Use/ Safety
Suburban	High	Moderate	Moderate	Moderate	Low

The Suburban transect has many unique challenges, particularly as it relates to the interconnectivity of different land uses. The built-out nature of the transect will likely make it difficult to correct barriers to mobility in established neighborhoods. However, strategies should be applied to new and infill development, and the County, NJDOT, and NJ TRANSIT should look to implement strategies as part of planned infrastructure projects.

Table 21 identifies the critical mobility barriers within the Suburban transect, that have been directly identified by the data, by the outreach component, or both (designated by the “X” in the table). This is likely not exhaustive of all barriers that exist in this transect. However, these represent the “most critical” as they are specifically identified within the data and/or outreach components. Furthermore, for each identified barrier there is a list of tools that could be used to mitigate the barriers. The tools in this table are linked to their description in the “Strategies to Mitigate Barriers” section. Each tool has a number, which corresponds to one of nine strategies, and a letter which indicates where it falls within the list of tools for that particular strategy.

The critical barriers are not presented in any particular order; however, each barrier is given a reference number consisting of a letter which corresponds to the type of barrier (L – Land Use, A – Active Mode, S – Safety, P – Parking, T – Transit, O – Other) and a number. If a particular barrier is experienced across multiple transects, it will have the same reference number. Representative comments are also provided for each critical barrier from the survey mapping tool, if available.

Table 21: Critical Barriers for the Suburban Transect

Critical Barrier	Data	Outreach	Mitigation
A01: Limited low-stress bicycle facilities and poor connectivity to adjacent land uses. Supporting Data: Only 55 percent of roadways are low stress for bicyclists. However, the majority of the low-stress facilities are local residential streets which do not provide connection to adjacent land uses. Public Feedback: <i>"Bicyclers travelling to and from Freehold to work at restaurants along Rt 79 before Rt 18 travel on thin shoulders along Rt 79 at early and late hours in the dark."</i> <i>"I see a lot of people (mostly teens or young adults) using electronic scooters all the time in the town [Howell] when the weather is nice, to get to bus stops and plazas. But there are no scooter lanes."</i> <i>"There is a bridge here that never was connected to the Henry Hudson Trail. It's an overpass for the Garden State Parkway."</i> <i>"There is no accommodation for cyclists riding to the high school on Municipal drive from nearby new condominiums."</i>	X	X	Tool 1D Tool 1E Tool 3A Tool 3B Tool 3C
A02: Intersections that are challenging to cross for pedestrians and bicyclists. Public Feedback: <i>"[The Asbury Circle intersection is] another terrible spot for bikes and people on foot. In general, throughout the county, people on foot and on bikes are not considered in road and intersection design."</i> <i>"Intersection [of NJ Route 79 and Newman Springs Road] has high foot traffic with Marlboro High School students getting snacks at Wawa and Dunkin. Lacks crosswalks and sidewalks."</i> <i>"There is no safe place to walk or bike ride between Old Mill and NJ Route 35 on Allaire Rd. No safe place to cross NJ Route 35."</i>		X	Tool 1C Tool 1D Tool 1J Tool 8A Tool 8B Tool 8C Tool 8D Tool 8G

Critical Barrier	Data	Outreach	Mitigation
A03: Lack of sidewalks throughout the transect that connect neighborhoods, parks, schools, or other complimentary land uses. Supporting Data: On average, only three POIs are accessible by walking in this transect. Public Feedback: <i>"No sidewalks on Rt 71, Monmouth Rd in this section. Road is narrow and busy. I can't walk or bike safely to Shop Rite or stores."</i> <i>"Walk up to the Freehold Raceway Mall from here [US Route 9 and NJ Route 33] is extremely dangerous."</i> <i>"Need sidewalk along CR 537. Many workers walk or bike to work and there's no safe way to easily travel along busy highway. We also walk to the bakery and sidewalks would make the area more accessible."</i>	X	X	Tool 1B Tool 1C Tool 1E Tool 1F Tool 2A Tool 2C Tool 2H Tool 2I
A05: Gaps in the sidewalk network, including missing crosswalks. Public Feedback: <i>"Eatontown, Route 35, both ways between Clinton and Wyckoff, is unsafe for walking/wheelchairs/bikes. Sidewalks turn into mounds of rocks and uneven grass fields."</i> <i>"The sidewalk along Tontont Ave is incomplete between Hope Rd and the high school. The incomplete sidewalk makes it unsafe to walk to the high school from residential areas nearby."</i> <i>"Branch Avenue east sidewalk needs to be completed all the way from Spring Street to the train station."</i>		X	Tool 1A Tool 1B Tool 1C Tool 1F Tool 2A Tool 2E Tool 9B Tool 9C
A07: Recent roadway projects that have not included enhanced accommodations for pedestrians or bicyclists. Public Feedback: <i>"Elton Adelphia Road was recently updated and there is no bike path on any of it."</i> <i>"In general, throughout the county, people on foot and on bikes are not considered in road and intersection design."</i>		X	Tool 1C Tool 1D

Critical Barrier	Data	Outreach	Mitigation
A08: Major state routes act as barriers to pedestrian activity due to difficult crossings and lack of pedestrian and bicycle infrastructure. Supporting Data: Pedestrian and bicycle crash locations align with major corridors like NJ Routes 35 and 36 and US Route 9. Public Feedback: <i>"Walking or biking across NJ Route 18 on the west park overpass is very dangerous because the on and off ramps do not have pedestrian friendly corridors. Same is true for Deal Rd."</i> <i>"Many stores and services west of NJ Route 35, many people living east of NJ Route 35. Getting across NJ Route 35 is dangerous, and on the other side there are no sidewalks."</i>	X	X	Tool 1C Tool 1D Tool 2C Tool 2E
L01: Low-density development with limited connections between land uses. Supporting Data: On average, only three POIs are accessible by walking in this transect. Refer to Composite Zoning Map (Figure 2) which demonstrates the low densities and separated land uses in this transect. Public Feedback: <i>"Howell, NJ needs better walking paths in the suburbs, to plazas, and to bus stops. It will allow for us to exercise or walk to nearby stores/plazas safely day and night."</i>	X	X	Tool 6C Tool 6D Tool 7A Tool 7C Tool 7D
L04: Lack of affordable, mixed-use, and walkable development. Supporting Data: Refer to Composite Zoning Map (Figure 2) which demonstrates the low densities and separated land uses in this transect. Public Feedback: <i>"This mall [Monmouth Mall] should be a walkable, affordable, mixed-use campus for all types of people with easy transit access."</i> <i>"No access to public transportation around Shafto Rd and West Park Ave. [This is a] densely populated condos & townhomes."</i> <i>"There is no sidewalk and no street lights on Asbury Ave linking this neighborhood [in Neptune] to the new shopping center being constructed. Yet there is a well-worn dirt path along this pitch-black stretch."</i>	X	X	Tool 6B Tool 6C Tool 6D Tool 6G Tool 6H Tool 7A Tool 7B Tool 7C Tool 7D

Critical Barrier	Data	Outreach	Mitigation
L05: Zoning policies encourage trips by private vehicles. Supporting Data: Current zoning policies for most municipalities in this transect still have parking minimums that reflect older guidance. Refer to Appendix A: Experienced Conditions report for a discussion of municipal zoning policies related to parking.	X		Tool 6E Tool 6F Tool 7B Tool 7C
S01: High vehicle speeds, sight distance constraints, and/or limited lighting on roadways in this transect. Supporting Data: This transect has a per capita vehicle collision rate of 95.2 crashes per 1,000 residents over the period between 2019 and 2022. This is the third highest crash rate of all the transects. Public Feedback: <i>"The [Allaire Rd] circle needs a more acute angle of curbing/barrier to slow traffic better at the northbound entrance of the circle. Northbound traffic is coming in fast off a downhill grade and many do not yield."</i> <i>"Traffic signal is needed [at the intersection of W Farms Rd and Fort Plains Rd]. Increased development has amplified dangers in an already dangerous intersection."</i> <i>"There are many commuters in this area [US Route 9 around E Freehold Rd] and the intersections are not lit enough. There have been many times I walk, or I hear neighbors comment that they almost were hit by a car because it is not lit."</i> <i>"Street lighting throughout Monmouth County in general is very poor especially in outlying areas which used to be much less populated. More street lights should be added to many streets in the county."</i>	X	X	Tool 8A Tool 8B Tool 8C Tool 8D Tool 8E Tool 8F

Critical Barrier	Data	Outreach	Mitigation
T01: Limited access to transit, particularly east-west service. Supporting Data: Only 8.7 percent of households are within ½ mile of a transit stop. This has resulted in a relatively low transit mode share of approximately 0.5 percent of all trips. However, it should be noted that a lack of transit service does not necessarily indicate a need for more transit service, particularly in areas where densities are unlikely to be supportive. The focus of transit improvements in the Suburban transect should be on higher density nodes that existing along major corridors. Public Feedback: <i>"Need train service to mid and western parts of county. Busses going east and west are nonexistent without multiple and inconvenient changes. To go north of Old Bridge without going to Port Authority Bus Terminal is impossible."</i> <i>"Bell Works is not serviced by public transit. This limits access to good paying jobs, its community centers, and its businesses. It should be linked by bus from Red Bank station or Brookdale."</i> <i>"Not one bus stop near this shopping plaza [Seaview Square Mall], nor the social services office. This area is not pedestrian-friendly at all".</i> <i>"No transit service to/from Holmdel Park."</i>	X	X	Tool 5A Tool 5B Tool 5C Tool 5D Tool 5G
T02: Difficulty accessing transit stops due to lack of infrastructure for first-mile/last-mile connections. Public Feedback: <i>"No sidewalk or bus station shelter on this side of the road [northbound side of US Route 9 at Salem Hill Rd]."</i> <i>"Getting off at this bus stop at night is scary [US Route 9 and New Friendship Rd]. The bus driver would literally wait for me to cross the street (with his lights on) so no one would miss me. Needs a crosswalk on the plaza side."</i> <i>"There are two NJ TRANSIT 'bus stops' located on the dirt shoulder of this stretch of road [CR 16 in Neptune], with no sidewalk, no shelter, and no lighting."</i> <i>"No bus shelter/strangely placed bus stop [US Route 9 at Stanley Blvd]. It's literally on an island, at the corner of very busy intersection with no crosswalks and barely a sidewalk."</i>		X	Tool 4A Tool 4E Tool 4G Tool 4H

Critical Barrier	Data	Outreach	Mitigation
T03: Difficulty accessing transit due to missing or damaged rider amenities at stops, and/or lack of ADA accessibility. Public Feedback: <i>"Bus stop shelter glass broken for at least a year."</i> <i>"Middletown train station does not offer public rest rooms on weekends."</i>		X	Tool 4A Tool 4B Tool 4C Tool 4G
T04: Low frequency transit services with limited operating hours, particularly late-night and on weekends. Supporting Data: Only 1.7 percent of households have access to transit that has a frequency of one hour or less, only 2.8 percent of households have access to transit after 7:00 PM. Public Feedback: <i>"More public transportation is needed. From the Bayshore to Highway 35. Maybe a bus that just goes to the shopping centers for people who do not have cars."</i> <i>"Please have a direct bus between Red Bank and South Amboy. It makes no sense that there's a single bus line serving the Bayshore and it's an absolutely awful service route."</i> <i>"[Buses run] every hour and hardly on the weekends. Also, the bus stop has no seating or covering. With the rising cost of living at least the bus could run every 30 minutes every day."</i> <i>"There is no way to get from where I live in Oceanport to Freehold where I work other than by private auto. NJ TRANSIT train does not stop in off season (racetrack)."</i>	X	X	Tool 4D Tool 4E Tool 5A Tool 5D Tool 5E

Town Center Transect

The County's Town Center transect is the second smallest in terms of land area and houses approximately 10 percent of the County's population. The Town Center transect primarily consists of the County's older urban centers such as Keyport, Freehold, Red Bank, Asbury Park, and areas of Long Branch, among others. Areas of moderate- to high-density development with a more traditional grid network that is typically oriented toward a central business core or a "Main Street" corridor. The majority of streets within this transect have sidewalks and the large number of local streets provide some low-stress bicycle routes. Within Monmouth County, Town Center transects have a mix of transit options ranging from commuter rail to bus service with varying frequencies.

Based on the transect analysis, the Town Center transect falls into high need for equity, walking, and vehicle metrics, moderate need for biking, and low need for transit relative to the other transects (**Table 22**). Given the higher percentages of low-income (14 percent) and minority (42 percent) populations, the Town Center transect has unique challenges that are largely oriented around improving existing infrastructure and enhancing the interconnections between modes.

Table 22: Final Transect Score – Town Center

Transect	Equity	Walking	Biking	Transit	Vehicle Use/ Safety
Town Center	High	High	Moderate	Low	High

Table 23 identifies the critical mobility barriers within the Town Center transect, that have been directly identified by the data, by the outreach component, or both (designated by the "X" in the table). This is likely not exhaustive of all barriers that exist in this transect. However, these represent the "most critical" as they are specifically identified within the data and/or outreach components. Furthermore, for each identified barrier there is a list of tools that could be used to mitigate the barriers. The tools in this table are linked to their description in the "Strategies to Mitigate Barriers" section. Each tool has a number, which corresponds to one of nine strategies, and a letter which indicates where it falls within the list of tools for that particular strategy.

The critical barriers are not presented in any particular order; however, each barrier is given a reference number consisting of a letter that corresponds to the type of barrier (L – Land Use, A – Active Mode, S – Safety, P – Parking, T – Transit, O – Other) and a number. If a particular barrier is experienced across multiple transects, it will have the same reference number. Representative comments are also provided for each critical barrier from the survey mapping tool, if available.

Table 23: Critical Barriers for the Town Center Transect

Critical Barrier	Data	Outreach	Mitigation
A01: Limited low-stress bicycle facilities and poor connectivity to adjacent land uses. Supporting Data: Although 67 percent of roadways are low stress for bicyclists, these tend to be local residential streets that are low-stress simply because of the low volume and not because of the bicycle facilities provided. Furthermore, major routes that interconnect communities and other land uses are moderate to high stress. Public Feedback: <i>"Bicycle lanes are needed throughout the town [Red Bank]."</i> <i>"Lack of bicycle infrastructure. Roadway between Pine Street and Memorial Drive [in Asbury Park] is wide enough for bicycle lanes."</i> <i>"There used to be 2 blocks of protected bike lane here. Next to [Grant Park in Asbury Park]. It was removed and there is still no replacement safe space for cyclists or pedestrians."</i> <i>"In general need better bike paths, bike sharing service, bike lanes [in Asbury Park]."</i>	X	X	Tool 1D Tool 1E Tool 1I Tool 2D Tool 2H Tool 3A Tool 3B Tool 3C

Critical Barrier	Data	Outreach	Mitigation
A02: Intersections that are challenging to cross for pedestrians and bicyclists. Supporting Data: This transect experiences the highest rates of pedestrian and bicycle crashes based on population, when compared to the other transects, at 1.84 crashes per 1,000 residents, and 2.47 crashes per 1,000 residents, respectively. This is based on the total number of pedestrian and bicycle crashes experienced between 2019 and 2022. Public Feedback: <i>"This intersection [N] Route 35 and N Bridge Avenue in Red Bank] feels very unsafe to navigate as a cyclist, especially coming south over the bridge. And Riverside between Rector and Front is an overbuilt speedway for cars with zero protection."</i> <i>"This crosswalk [Broad Street and Pinckney Rd in Red Bank] is frequented by seniors getting groceries, is very unsafe. Please install flashing lights and a refuge island. Even better, put in a traffic light."</i> <i>"A light or well-marked crosswalk would facilitate kids being able to cross Belmar Blvd [in Wall] and prevent traffic backups during busy periods."</i> <i>"All pedestrian signals along Main St [in Asbury Park] are Pedestrian Activated but should be Pedestrian Recall due to the high number of crossing pedestrians and lack of public understanding of Ped Activated signals."</i> <i>"Light at 5th & Main [in Asbury Park] tripped only by cars. Bike riders must get off bike to hit the button. This is hard to impossible if you have a kid in a bike seat or various other situations."</i>	X	X	Tool 1C Tool 1D Tool 1J Tool 8A Tool 8B Tool 8C Tool 8D Tool 8G

Critical Barrier	Data	Outreach	Mitigation
A05: Gaps in the sidewalk network, including missing crosswalks. Public Feedback: <i>"Add sidewalk please on either side [of CR 522 in Freehold]."</i> <i>"Missing chunk of sidewalk on Manalapan Avenue going towards Jersey Freeze [in Freehold]. Ends abruptly."</i> <i>No sidewalks on Frances Place [between Main St and Carr Avenue in Keansburg]. Children walk to school, people walk to church."</i> <i>"No sidewalks, unsafe to walk with a stroller, beautiful town [Atlantic Highlands] should be more accessible to walkers (mothers with babies) etc."</i> <i>"Belmar Boulevard has almost no sidewalks, bike lanes, or crosswalks despite cutting through a major residential neighborhood. This makes it very dangerous for pedestrians and bikers alike."</i>		X	Tool 1A Tool 1B Tool 1C Tool 1F Tool 2A Tool 2E Tool 9B Tool 9C
A09: Sidewalks, curb ramps, and/or crosswalks are in poor condition. Public Feedback: <i>"This [Maple Pl in Keyport] is a primary route to the school with no sidewalk on one side. The side with a sidewalk is actually an uneven mounded asphalt nightmare."</i> <i>"The dip in the curb [at the intersection of Main St and Pershing Pl in Keyport] that is supposed to be ADA compliant actually creates a dangerous pooling of runoff. My daughter fell and was hurt on her way to school."</i> <i>"This section of sidewalk [Broad Street in Keyport] is very dangerous, especially when it rains and in winter. Water pools (often also from sump pump release) and creates mud and ice that make this area impassible."</i> <i>"Sidewalk is in disrepair. This route use used by seniors to get to the CVS."</i>		X	Tool 1B Tool 1C Tool 1F Tool 2I
A10: Poor lighting that makes it difficult to see pedestrians and bicyclists. Public Feedback: <i>"No street light at the intersection of Main Street & Henry Hudson Trail [in Keansburg]. Very dark at night, cannot see when people are using the trail & crossing over Main St. Should have some indication of [the] trail."</i>		X	Tool 8F

Critical Barrier	Data	Outreach	Mitigation
A11: Missing ADA curb ramps or other accessible features. Public Feedback: <i>"Make the curbs handicap accessible or even with a walker accessible. The curbs are about maybe 7 to 8 inches to get off and on the sidewalk here [Carr Avenue in Keansburg]."</i> <i>"Avenue A [Atlantic Highlands] beach access point needs accessibility mats so that people with mobility issues can access the beach."</i>		X	Tool 1B Tool 1C Tool 1F
L02: Critical services including supermarkets, pharmacies, healthcare services, etc. are located outside of the transect. Supporting Data: Many of the Town Center communities, with the exception of Red Bank and Long Branch, lack key services, such as supermarkets, pharmacies, and healthcare services within the transect. For most of the Town Center transects, these services lie just outside the Town Center transect, typically in adjacent suburban areas.	X		Tool 7C Tool 7D
L03: Limited access to employment opportunities. Supporting Data: Only 14 percent of the County's employment lies within this transect. Most employment lies in the Suburban transect.	X		Tool 4F Tool 5A Tool 7B Tool 7D
L05: Zoning policies encourage trips by private vehicles. Supporting Data: Current zoning policies for most municipalities in the Town Center transect still have parking minimums that reflect older guidance. Refer to Appendix A: Experienced Conditions report for a discussion of municipal zoning policies related to parking. Public Feedback: <i>"New residential development in Asbury Park requires parking (it shouldn't), but never enough provision for bike storage and alternative mobility options to cars."</i> <i>"Abolish parking minimums."</i>	X	X	Tool 2D Tool 2F Tool 2G Tool 4F Tool 6E Tool 6F Tool 6G Tool 6H Tool 7B Tool 7C

Critical Barrier	Data	Outreach	Mitigation
S01: High vehicle speeds, sight distance constraints, and/or limited lighting on roadways in this transect. Supporting Data: This transect ties with the Shore Town transect in having the highest crash rate at 109 crashes per 1,000 residents based on an aggregation of crash data between 2019 and 2022. Public Feedback: <i>"Cars speed on this street [1st Street in Keyport]. All way stops would help calm traffic."</i> <i>"Ocean Boulevard [in Atlantic Highlands] requires wider shoulders or sidewalks as well as signage alerting drivers to the presence of walkers and bikers to increase safety."</i> <i>"Speeding on a residential street [Bath Ave in Long Branch]."</i>	X	X	Tool 8A Tool 8B Tool 8C Tool 8D Tool 8E Tool 8F
S03: Lack of driver compliance for yielding at crosswalks. Supporting Data: This transect experiences the highest rate of pedestrian based on population, when compared to the other transects, at 1.84 crashes per 1,000 residents (based on the sum of crashes between 2019 and 2022). Furthermore, over 60 percent of pedestrian crashes in this transect occur at unsignalized intersections. Public Feedback: <i>"The crosswalks are not maintained or enforced in the downtown [Freehold] area. More needs to be done with signs, lighting, and pavement markings to reinforce pedestrian priority at crosswalks and traffic calming."</i> <i>"This crosswalk [at Waverly St and 1st St in Keyport] needs more designation. Flashing lights/button activated, new lines painted. Rumble strip. Drivers rarely stop for pedestrians. Unsafe route to school for kids in this neighborhood."</i> <i>"Need to add blinking lights to make the yield sign at the intersection of Ocean Boulevard and East Highland. Motorists routinely miss the yield, which is a crash hazard."</i>	X	X	Tool 1D Tool 8A Tool 8D Tool 8F Tool 8H

Critical Barrier	Data	Outreach	Mitigation
S04: On-street parking that impacts sight distance and the ability to see turning vehicles, pedestrians, and bicyclists. Public Feedback: <i>"Street parking should be eliminated on both sides of the street [Broad St in Keyport], in close vicinity to municipal parking lot apron. Visibility is impacted and minimal room for cars to pass street parked cars."</i> <i>"1st Street [Keyport] is very narrow, the fact that cars are allowed to park on street makes the situation even worse."</i>		X	Tool 8A Tool 8D
T01: Limited access to transit, particularly east-west service. Supporting Data: 38.7 percent of households are within ½ mile of a transit stop, the highest out of any transect. Although this is the highest of any transect, this overall value is still low when considering the higher proportions of low income and zero vehicle households in this transect. Public Feedback: <i>"No easy access to the Trenton train [from Freehold]!"</i> <i>"It would be relatively easy to rebuild the train line between Matawan and Farmingdale, which would be a great connection to the Monmouth-Ocean-Middlesex line (whenever NJT decides to build it)."</i>	X	X	Tool 5A Tool 5B Tool 5C Tool 5D Tool 5G
T03: Difficulty accessing transit due missing or damaged rider amenities at stops, and/or lack of ADA accessibility. Public Feedback: <i>"Drug and homeless infested bus stop with no bathrooms [at Asbury Park]."</i> <i>"Seastreak does not have an indoor or adequately weather-proof waiting area at their Atlantic Highlands dock."</i> <i>"Covered, secure bike parking is needed near the ferry at the Atlantic Highlands harbor to encourage passengers to regularly arrive by bike/ebike."</i> <i>"It would be really nice if they could add a bus shelter especially when it's raining or cold and nasty weather the Route 817 bus to Campbell's Junction and to Perth Amboy stops here and people have to stand."</i>		X	Tool 4A Tool 4B Tool 4C Tool 4G

Critical Barrier	Data	Outreach	Mitigation
T04: Low frequency transit services with limited operating hours, particularly late-night and on weekends. Supporting Data: Only 14 percent of households are within walking distance of a transit stop with service of at least once per hour or less, and only 11 percent have access to a transit stop with service after 7:00 PM.	X		Tool 4D Tool 4E Tool 5A Tool 5D
T05: Unreliable transit operations and difficulty making connections. Public Feedback: <i>"[The] bus to Asbury Park is always late. [I] miss transfers and the train constantly."</i> <i>"Local buses in Freehold should have their routes simplified to save runtime and run more frequently."</i> <i>"Have to change trains in Long Branch to get to Asbury Park. Not every train from NY has a connection to Asbury Park."</i> <i>"The bus does not always show up or they turn off tracker on the map in Keansburg and then skip our town. They go from Middletown to Union Beach. The bus may be early, extremely late, or not at all."</i> <i>"Buses turning left onto Shrewsbury Ave has to wait for all the cars to clear or be granted mercy from two courteous drivers at the same time. Bus priority would fix this as it's not a frequent line."</i>		X	Tool 5E Tool 5G

Shore Town Transect

The County's Shore Town transect is the third smallest in terms of land area but has the second highest number of residents (17 percent of the County's population). The Shore Town transect has many features that are similar to that of the Town Center transect with regards to density, a traditional grid network oriented around a commercial district, and access to bus and/or rail transit. The primary difference between a Shore Town transect and a Town Center transect is the seasonality of activity in the communities, with population fluctuating between the peak summer season and the rest of the year. This transect also includes some Bay Shore towns. These communities along the Raritan Bay do not have the seasonality to the degree of the towns along the ocean but are still oriented to the waterfront.

Based on the transect analysis, the Shore Town transect falls into high need for equity and walking, moderate need for biking and vehicle, and low need for transit relative to the other transects (**Table 24**). The Shore Town transect experiences many of the same challenges as the Town Center transect given the comparable number of low-income residents (11 percent). However, these communities are impacted by seasonal traffic that can create congestion and safety issues.

Table 24: Final Transect Score – Shore Town

Transect	Equity	Walking	Biking	Transit	Vehicle Use/ Safety
Shore Town	High	High	Moderate	Low	Moderate

Table 25 identifies the critical mobility barriers within the Shore Town transect that have been directly identified by the data, by the outreach component, or both (designated by the “X” in the table). This is likely not exhaustive of all barriers that exist in this transect. However, these represent the “most critical” as they are specifically identified within the data and/or outreach components. Furthermore, for each identified barrier there is a list of tools that could be used to mitigate the barriers. The tools in this table are linked to their description in the “Strategies to Mitigate Barriers” section. Each tool has a number, which corresponds to one of nine strategies, and a letter which indicates where it falls within the list of tools for that particular strategy.

The critical barriers are not presented in any particular order; however, each barrier is given a reference number consisting of a letter which corresponds to the type of barrier (L – Land Use, A – Active Mode, S – Safety, P – Parking, T – Transit, O – Other) and a number. If a particular barrier is experienced across multiple transects, it will have the same reference number. Representative comments are also provided for each critical barrier from the survey mapping tool, if available.

Table 25: Critical Barriers for the Shore Town Transect

Critical Barrier	Data	Outreach	Mitigation
A01: Limited low-stress bicycle facilities and poor connectivity to adjacent land uses. Supporting Data: Although 68 percent of roadways are low stress for bicyclists, the majority of the low stress routes are on lower-volume residential streets. Roadways that interconnect communities or trip generators and attractors tend to be moderate to high stress. Public Feedback: <i>"Ocean Avenue in Belmar does not have a bike lane or any road stripping that protects and provides bikers with a buffer from traffic. This is especially dangerous in the summer months."</i> <i>"Ideal location for biking but bikes not allowed on boardwalk and Ocean Ave [in Bradley Beach] very busy with cars backing out of parking spaces, very unsafe for bike riders."</i> <i>"Need better bicycle riding transitions between municipalities. There is no continuity of recreational and mobility amenities that are used by thousands every day along the oceanfront."</i> <i>"The top of the seawall [in Sea Bright] could be modified as a continuous recreation path for everyone to enjoy. After all, it was built with taxpayers money."</i>	X	X	Tool 1D Tool 1E Tool 1I Tool 1H Tool 2D Tool 2H Tool 3A Tool 3B Tool 3C Tool 9A

A02: Intersections that are challenging to cross for pedestrians and bicyclists. Public Feedback: <i>"This narrow curve on Ocean Ave [between Corlies Ave and Allen Ave in Allenhurst] is dangerous for bike riders."</i> <i>"This intersection [Poole Ave and Henry Hudson Trail in Union Beach] is on curve so it's hard to see cars coming. People also often speed so it's very unsafe."</i> <i>"Memorial Drive [in Bradley Beach/Neptune] is a terrible road to try to cross on foot."</i>		X	Tool 1C Tool 1D Tool 1J Tool 8A Tool 8B Tool 8C Tool 8D Tool 8G
A05: Gaps in the sidewalk network, including missing crosswalks. Public Feedback: <i>"This is a playground. There should be a cross walk here [on Front St in Union Beach]"</i> <i>"Missing chunk of sidewalk on Manalapan Avenue going towards Jersey Freeze [in Freehold]. Ends abruptly."</i> <i>No sidewalks on Frances Place [between Main St and Carr Avenue in Keansburg]. Children walk to school, people walk to church."</i> <i>"No sidewalks, unsafe to walk with a stroller, beautiful town [Atlantic Highlands] should be more accessible to walkers (mothers with babies) etc."</i> <i>"Belmar Boulevard has almost no sidewalks, bike lanes, or crosswalks despite cutting through a major residential neighborhood. This makes it very dangerous for pedestrians and bikers alike."</i>		X	Tool 1A Tool 1B Tool 1C Tool 1F Tool 2A Tool 2E Tool 9B Tool 9C
A07: Recent roadway projects that have not included enhanced accommodations for pedestrians or bicyclists. Public Feedback: <i>"Monmouth County repaved Memorial Drive [in Bradley Beach] last year but left the configuration of the road as a dangerous 4-lane roadway. No road diet, no turn pockets, lots of speeding and lane jockeying."</i>		X	Tool 1C Tool 1D

A09: Sidewalks, curb ramps, and/or crosswalks are in poor condition. Public Feedback: <i>"Shore concourse [in Cliffwood Beach] does not have sidewalks and I fell in a pothole."</i> <i>"Old (1940s?) sidewalks in Union Beach are a hazard to walkers (children walking to & from memorial school & adults) and to those using wheel chairs. The sidewalks are pebbled, not flat & cracked."</i>		X	Tool 1B Tool 1C Tool 1F Tool 2I
A10: Poor lighting that makes it difficult to see pedestrians and bicyclists. Public Feedback: <i>"Bike Trails (Henry Hudson Trail) needs to have better lighting especially at the intersections. Crossings are very dark and it is matter of time before someone gets hit."</i>		X	Tool 8F
L02: Critical services including supermarkets, pharmacies, healthcare services, etc. are located outside of the transect. Supporting Data: Open Street Map data, the only community in the Shore Town transect that has a grocery store is Long Branch. The majority of grocery store lie within the Suburban transect. Furthermore, there are no urgent care facilities in this transect and the only hospital within the transect lies within Long Branch. Other critical services like pharmacies existing along the Atlantic coastal communities but are limited within bay shore transects.	X		Tool 7C Tool 7D
L03: Limited employment options within the transect. Supporting Data: Despite having the second highest population of the transects, only 8.5 percent of jobs lie within this transect. Many residents commute outside the transect, particularly to the Suburban transect, to access employment.	X		Tool 4F Tool 5A Tool 7B Tool 7D
001: Seasonal traffic congestion negatively impacts mobility and parking within the transect. Public Feedback: <i>"Very challenging to find parking in summer now that Avon is parallel spots and no longer head on pull ins."</i> <i>"Ocean Avenue in Belmar does not have a bike lane or any road stripping that protects and provides bikers with a buffer from traffic. This is especially dangerous in the summer months."</i>		X	Tool 1H Tool 5F

S01: High vehicle speeds, sight distance constraints, and limited lighting on roadways in this transect. Supporting Data: This transect ties with the Town Center transect in having the highest crash rate at 109 crashes per 1,000 residents based on an aggregation of crash data between 2019 and 2022. Public Feedback: <i>"There is no reason for this road [Ocean Ave in Bradley Beach] to be this wide with horrible sight distances to crosswalks and be 35 mph outside the summer. People live and walk here all year round who care about crossing safely."</i> <i>"There was a safety study on Main St in Bradley Beach completed recently, and the Borough neglected to make any important recommended changes."</i> <i>"This street along Sylvan Lake is too wide. Traffic goes too fast, and the extra space could easily be used for better recreation opportunities along the lake."</i> <i>"Please stop using the 85th percentile to justify high traffic speeds on streets in places where people actually live. Start by asking first what the most vulnerable people in that place need each day."</i>	X	X	Tool 8A Tool 8B Tool 8C Tool 8D Tool 8E Tool 8F
S03: Lack of driver compliance for yielding at crosswalks. Supporting Data: This transect experiences the second highest rate of pedestrian crashes based on population, when compared to the other transects, at 1.02 crashes per 1,000 residents (based on the sum of crashes between 2019 and 2022). Furthermore, over 55 percent of pedestrian crashes in this transect occur at unsignalized intersections. Public Feedback: <i>"Dangerous to cross. Very few people stop for pedestrians [at intersection of Union Ave and Henry Hudson Trail in Union Beach]."</i>		X	Tool 1D Tool 8A Tool 8D Tool 8E Tool 8H

T01: Limited access to transit, particularly east-west service. Supporting Data: 25.7 percent of households are within ½ mile of a transit stop. Public Feedback: <i>"No bus line going north-south on NJ Route 36 from the end of the 838 bus line."</i> <i>"No bus service north-south on Ocean Ave from the 831 & 837 bus lines. Many houses and shops completely inaccessible via transit."</i>	X	X	Tool 5A Tool 5B Tool 5C Tool 5D Tool 5G
T02: Difficulty accessing transit stops due to lack of infrastructure for first-mile/last-mile connections. Public Feedback: <i>"Crossing Memorial Drive from the west to access the train station [in Bradley Beach] is a 4-lane death wish. Cars coming north into Neptune City from Rt 35 are still speeding when they get to this area."</i>		X	Tool 4A Tool 4E Tool 4G Tool 4H
T03: Difficulty accessing transit due missing or damaged rider amenities at stops, and/or lack of ADA accessibility. Public Feedback: <i>"Nice area around the [Allenhurst] train station, but low-level boarding makes wheelchairs and bikes inaccessible from this station."</i> <i>"People doing stuff at Del Ponte's love to park in the bus stop and get no punishment for doing so."</i>		X	Tool 4A Tool 4B Tool 4C Tool 4G
T04: Low frequency transit services with limited operating hours, particularly late-night and on weekends. Supporting Data: Only 7.5 percent of households have access to a transit stop with service that operates at least one-hour frequencies, and 17.5 percent have access to a transit stop with service after 7:00 pm.	X		Tool 4D Tool 4E Tool 5A Tool 5D
T05: Unreliable transit operations and difficulty making connections. Public Feedback: <i>"Have to change trains in Long Branch to get to Asbury Park. Not every train from NY has a connection to Asbury Park."</i>		X	Tool 5E Tool 5G

Summary

Table 26 below summarizes the barriers by transect. A “◆” symbol indicates a critical barrier that was identified for the transect through the data analysis, outreach, or combination thereof. A “○” symbol indicates that the barrier likely exists in the transect given land use and infrastructure similarities with other transects; however, the data and/or outreach did not specifically identify the barrier for that transect.

Table 26: Critical Barriers by Transect

Barrier	<u>Rural/Natural</u>	<u>Village</u>	<u>Suburban</u>	<u>Town Center</u>	<u>Shore Town</u>
(A)CTIVE MODES					
A01: Limited low-stress bicycle facilities and poor connectivity to adjacent land uses.	◆	◆	◆	◆	◆
A02: Intersections that are challenging to cross for pedestrians and bicyclists.	◆	◆	◆	◆	◆
A03: Lack of sidewalks throughout the transect that connect neighborhoods, parks, schools, or other complimentary land uses.	◆		◆		
A04: Missing pedestrian and bicycle connections to major destinations outside of the transect.		◆			
A05: Gaps in the sidewalk network, including missing crosswalks.		◆	◆	◆	◆
A06: Sidewalks and/or bike lanes lack a buffer from moving vehicular traffic.	○	◆	○	○	○
A07: Recent roadway projects that have not included enhanced accommodations for pedestrians or bicyclists.	○	○	◆	○	◆
A08: Major state routes act as barriers to pedestrian activity due to difficult crossings and lack of pedestrian and bicycle infrastructure.			◆	○	
A09: Sidewalks, curb ramps, and/or crosswalks are in poor condition.		○	○	◆	◆
A10: Poor lighting that makes it difficult to see pedestrians and bicyclists.	○	○	○	◆	◆
A11: Missing ADA curb ramps or other accessible features.	○	○	○	◆	○

Barrier	<u>Rural/Natural</u>	<u>Village</u>	<u>Suburban</u>	<u>Town Center</u>	<u>Shore Town</u>
(L)AND USE					
L01: Low-density development with limited connections between land uses.	◆	◆	◆		
L02: Critical services including supermarkets, pharmacies, healthcare services, etc. are located outside of the transect.	◆	◆		◆	◆
L03: Limited access to employment opportunities.	◆	◆		◆	◆
L04: Lack of affordable, mixed-use, and walkable development.	○		◆		
L05: Zoning policies encourage trips by private vehicles.	◆	○	◆	◆	○
(S)AFETY					
S01: High vehicle speeds, unsafe passing behaviors, and/or limited lighting on roadways in this transect.	◆		◆	◆	◆
S02: Vehicles cutting through residential streets to avoid congestion on arterials.		◆	○	○	○
S03: Lack of driver compliance for yielding at crosswalks.	○	◆	○	◆	◆
S04: On-street parking that impacts sight distance and the ability to see turning vehicles, pedestrians, and bicyclists.		○		◆	○
(T)RANSIT					
T01: Limited access to transit, particularly to east-west service.	◆	◆	◆	◆	◆
T02: Difficulty accessing transit stops due to lack of infrastructure for first-mile/last-mile connections.	○	○	◆	○	◆
T03: Difficulty accessing transit due to missing or damaged rider amenities at stops, and/or lack of ADA accessibility.	○	○	◆	◆	◆
T04: Low frequency transit services with limited operating hours, particularly late-night and on weekends.	◆	◆	◆	◆	◆
T05: Unreliable transit operations and difficulty making connections.	○	○	○	◆	◆
(O)THER					
O01: Seasonal traffic congestion negatively impacts mobility and parking within the transect.	○	○	○	○	◆

◆ – indicates that there is supporting data and/or public feedback that identifies this barrier in this transect. ○ - indicates where this barrier is likely present but not specifically found in the data or public feedback.

Strategies to Mitigate Barriers

This section outlines potential strategies and tools to mitigate the barriers identified in the section above. Strategies are grouped into the following strategy statements based on the identified barriers:

- Strategy 1: Adopt design standards that support active modes like walking, biking, and scootering for all users.
- Strategy 2: Develop multi-modal programs that prioritize mobility for the County's transportation disadvantaged populations.
- Strategy 3: Improve County-wide active mode connections between neighborhoods, land uses, and municipalities.
- Strategy 4: Improve access to transit by addressing transit stop conditions and first and last mile challenges.
- Strategy 5: Improve transit service and increase transit connections to major activity centers to the west of the County.
- Strategy 6: Implement policies that encourage mixed-use, multi-modal-supportive development patterns that provide a variety of housing options.
- Strategy 7: Improve connections between the County's transportation disadvantaged populations and critical services necessary for wellness such as healthcare, education, recreation, grocery stores, and pharmacies.
- Strategy 8: Improve safety for all roadway users.
- Strategy 9: Enhance transportation-supported sustainability and resilience efforts.

Each strategy consists of a series of tools that could be implemented to address the strategy. Each tool is associated with the transect(s) that it applies to, the parties responsible for implementation, implementation timeline, and cost. Implementation timeline is expressed as short-term (within 5 years), medium-term (5 – 10 years), and long-term (more than 10 years). Cost is expressed as a general estimate as follows:

- \$ - low cost: studies, reallocation of existing resources, or improvements that do not require substantial modifications to infrastructure.

- \$\$ - medium cost: moderate improvements to infrastructure or services that may include modest investments such as require purchasing new transit vehicles with additional operating costs, curb changes at intersections as part of traffic calming projects, or construction of a multi-use trail, etc.
- \$\$\$ - high cost: significant improvements to infrastructure or services that require substantial changes to existing resources (i.e. vehicles, staff, etc.).

In addition, each tool includes a brief description as well as recommended activities to undertake if an implementer were to address the identified issue. An example potential application location is also provided, where feasible, for tools that include infrastructure, service, or policy recommendations. It should also be noted that **Attachment A** provides a companion document that provides more detail and guidance, as well as examples, for land use and zoning recommendations, due to their complex nature.

Strategy 1: Adopt design standards that support active modes like walking, biking, and scooting for all users.

Tool 1A: Adopt mobility standards and policies.

Transects: All

Implementation Timeline: Short-Term (<5 years)

Implementers: Monmouth County Municipalities, NJ TRANSIT, NJDOT, Municipalities

Supporting Implementers:

Cost Range: \$ (policy only)

Description: More than 375 public comments submitted through the survey mapping tool (see Appendix A) related to a need to enhance pedestrian and bicycle infrastructure across the County. Transportation infrastructure and building design standards are managed by a complex set of documents and jurisdictions. For example, Monmouth County uses American Association of State Highway and Transportation Officials (AASHTO) standards for the design of transportation facilities, the ADA requires specific accessibility features on public buildings, and building codes specify how buildings are constructed, and zoning codes determine how developments and their uses relate to the space around them. As the County and its municipalities work toward enhancing active mode infrastructure, they should consider the needs of all users, including elderly individuals and those with disabilities when analyzing and revising the standards and guidelines that they develop and use to ensure transportation infrastructure, from roads to transit shelters, accommodates all users. This tool emphasizes creating inclusive spaces that meet the broadest range of needs, promoting equality and eliminating barriers to mobility and access.

Potential Example Application: Implementers of bikeshare programs could take one step further and provide a variety of designs that accommodate differently abled users. See Figure 4 for an example.

Jurisdictions that have not yet done so should adopt strong Complete Streets policies. Guidance and technical assistance is available from the NJ Bicycle and Pedestrian Resource Center at: <https://njbikeped.org/about-complete-streets-in-nj/>.

Recommended Activities:

- All jurisdictions should regularly review their standards, regulations, guidelines, and guidance based on the latest guidance from sources such as AASHTO and National Association of City Transportation Officials (NACTO) to ensure that they encourage active transportation and personal mobility for differently abled users.
- All jurisdictions should adopt strong Complete Streets policies.

Figure 4: A bikeshare program can incorporate accessible bikes like the one shown below to be used by those with mobility challenges. (Image Source: Shared-Use Mobility Center)



Tool 1B: Update sidewalk ordinances and regulations to ensure their construction, and their design adhere to the latest standards and design guidelines as a minimum.

Transects: All

Implementation Timeline: Short-Term (<5 years)

Implementers: Municipalities, Monmouth County, NJDOT

Cost Range: \$ (policy only)

Description: The highest number of survey responses (288) obtained through the online survey mapping tool (Appendix A) related to pedestrian conditions in the County, and approximately 65 percent of the comments were about missing sidewalks and/or crosswalks. Furthermore, based on the assessment of the data presented in Appendix B, the provision and quality of infrastructure are significant issues with clusters of pedestrian needs identified in municipalities such as Asbury Park, Atlantic Highlands, Eatontown, Freehold, Howell, , Keansburg, Keyport, and Oceanport, as well as along major corridors including US Route and NJ Routes 9, 33, 79, 35, 36, and 71.

Providing sidewalks is cost effective, as well as the simplest way to enhance pedestrian connectivity in a community. However, to encourage pedestrian activity, sidewalks must be designed in a manner that provides enough width and separation from moving traffic. A review of municipal zoning codes indicated that most Monmouth County municipalities have sidewalk requirements that allow sidewalks to be excluded from a development when it is not immediately clear that there is pedestrian demand.

Potential Example Application: Many municipalities that require sidewalks but provide exemptions at the discretion of the reviewing board, such as if it is determined that the facility would not be used (see Appendix A). The Township of Manalapan has addressed this by amending their Improvement Standards ordinance (§ 95-9.2) requiring developers to pay into a Sidewalk and Curbing Capital Contribution Fund in cases where the reviewing agency grants an exception to the installation of sidewalks. All jurisdictions should review their sidewalk ordinances or other related regulations and consider the recommended activities presented below.

Recommended Activities:

- Require the construction of sidewalks along street frontages for new development or when an existing development is applying for modifications regardless of demand.
- Require new or enhanced sidewalk construction as part of all roadway infrastructure projects. Ensure that new sidewalks meet current ADA guidelines.
- Update sidewalk width requirements to maintain the pedestrian through zones⁴ as defined by the latest edition of the current adopted design manual; i.e. AASHTO, NJDOT, and NACTO as appropriate. These design guidelines are preferred, with additional space provided when possible. Ideally, if context allows provide a minimum of:
 - 6-feet in residential areas.
 - 8-feet in downtown/commercial areas in the rural, Village, and Suburban transects.
 - 12-feet in downtown/commercial areas in the Town Center and Shore Town transects.
- Update sidewalk design guidance to, and whenever possible include a buffer zone to separate pedestrians from the curb and moving traffic (**Figure 5**), to the adopted standard, with additional space provided when possible. Ideally, if context allows provide a minimum of:
 - 5-foot wide buffer on lower speed roadways (≤ 35 mph). Consider the context of the environment to determine if a vegetated buffer, or mixed landscaped and hardscaped buffer is appropriate.
 - 10-foot wide buffer on higher speed roadways (≥ 40 mph).
 - Consideration should be given to using buffer spaces for green stormwater management, street trees, lighting, transit stops, and bikeshare/e-scooter stations, etc.
 - A raised bicycle pathway could also act as a buffer between the sidewalk and curb.

⁴ A pedestrian through zone is the area of the sidewalk where pedestrians are walking which must be free of obstructions such as street furniture, trees, poles, signs, etc. Engineering judgement may be needed when working in historic or established commercial/downtown areas.

- Where sidewalks exist along the curb and where adding buffer space is not possible, reallocate a portion of the roadway to act as a buffer space by converting it to on-street parking or a bike lane.
- Create a sidewalk construction fund for developers to contribute to in lieu of building sidewalks when mobility would not be immediately improved by their construction, as determined by the reviewing board or agency.

Figure 5: Wide sidewalks with a generous buffer provides a more pleasant walking experience. Buffer areas like the one shown in this photo can be used for other community-enhancing amenities such as street trees, landscaping, and green storm water management (Image Source: NACTO).



Tool 1C: Include bicycle and pedestrian elements in all intersection projects regardless of demand.

Transects: All

Implementation Timeline: Short-Term (<5 years)

Implementers: Municipalities, Monmouth County, NJDOT

Cost Range: \$ - \$\$

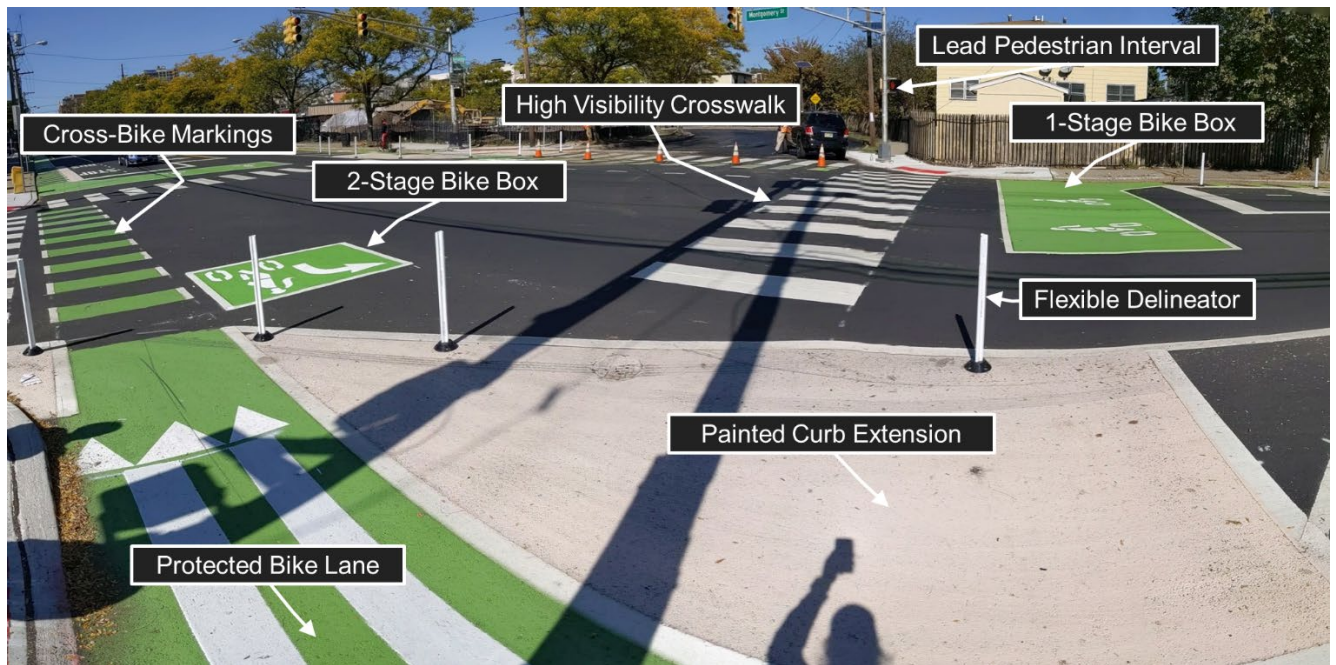
Description: Similar to Tools 1A and 1B, the impetus for this Tool is based on the substantial feedback received via the online survey mapping tool, where over 375 comments spoke to pedestrian and bicycle infrastructure needs. Crash data indicates that over 80 percent of crashes involving pedestrians and bicyclists occur at intersections. Therefore, all projects affecting intersections should identify pedestrian and bicycle accommodations that reduce crossing distances, increase pedestrian and bicycle visibility and priority, and enhance accessibility.

Potential Example Application: At publication, the County and the municipalities of Asbury Park, Bradley Beach, Highlands, Holmdel, and Red Bank have been awarded Safe Streets for All grants and will be developing Comprehensive Safety Action Plans. This effort will identify high bicycle and pedestrian crash locations with the latest available data. Based on the 2019-2022 crash data, the following corridors were identified as having intersections with pedestrian and bicycle crash clusters:

- The US Route 9 corridor, particularly within the area of Union Hill Road, and around the NJ Route 33 interchange.
- The NJ Route 35 corridor, particularly at the Commons/Shrewsbury Plaza intersection, the Deal Road intersection, and between NJ Route 66 and NJ Route 33.
- The NJ Route 71 corridor, particularly at the intersection with Sea Girt Avenue, and along the corridor between Asbury Park and Belmar.
- Memorial Drive in Asbury Park
- Broadway in Long Branch
- NJ Route 36 in Sea Bright
- Main Street in Keansburg
- Main Street in Freehold Borough

- **Recommended Activities:** When addressing intersection operations, determine the feasibility of pedestrian enhancements such as (**Figure 6**):
 - Removing channelized right turns.
 - Reducing turning radii to require slower turning speeds.
 - Painted or permanent curb extensions to shorten crossing distances. If painted curb extensions are installed, provide flexible delineators to discourage vehicle incursions into the pedestrian area.
 - Directional curb ramps designed to the most current accessibility requirements.
 - Median refuge islands (10-feet in width desired, six-feet minimum), particularly where pedestrians must cross four or more travel lanes.
 - High-visibility continental style crosswalks.
 - Lead pedestrian intervals at traffic signals, which starts the “Walk” time before vehicles receive the green.
 - Audible pedestrian signals to assist those with visual impairments.
 - Enhancing signing and pedestrian-actuated rectangular rapid flashing beacons at unsignalized crossings.
 - Buffers around intersections that prevent vehicles from parking too closely to corners and obscuring sight distances.
 - Add pedestrian-only phase to traffic signals at difficult to cross intersections and roads.
 - Implement public outreach and education campaigns, such as The North Jersey Transportation Planning Authority’s “Be Street Smart NJ” campaign; information and materials are available at beststreetsmart.nj.org.
- Evaluate the feasibility of the following bicycle treatments when conducting an intersection project:
 - Bike lanes with cross bike markings through all intersection conflict zones.
 - Two stage bike boxes for turning bikes.
 - Protected intersections.

Figure 6: Examples of desirable pedestrian and bicycle priority treatments at a signalized intersection in Jersey City. (Image Source: Stantec)



Tool 1D: Implement policies that encourage the installation of mobility improvements and proven safety countermeasures when the roadway is scheduled for resurfacing or other improvements.

Transects: All

Implementation Timeline: Short-Term (<5 years)

Implementers: Municipalities, Monmouth County, NJDOT

Cost Range: \$ (policy only)

Description: Conceptualizing rights-of-way as belonging equally to all users, rather than primarily to motorized vehicles, requires mainstream deployment of infrastructure that serves active users. When reviewing the large number of pedestrian and bicycle related public comments submitted for this study in combination with crash data, bicycle and pedestrian volumes, and Bicycle Level of Stress ratings (Appendix B), it is apparent that Monmouth County needs more pedestrian- and bicycle-oriented infrastructure, particularly to connect communities and land uses (for example, commercial to residential). Pedestrian and bicycle infrastructure is both more cost-effective and equitable to address the needs of all roadway users at once, rather than prioritizing the needs of drivers. The opportunity for additional cost and construction time savings exists when a road is being resurfaced or otherwise improved, such as in the case of a real estate development that requires a road widening or other improvement.

While there is an economic advantage to doing maintenance and improvement projects simultaneously, costs will increase. Rather than reduce the scope of an agency's resurfacing program, explore combining funding sources in order to take advantage of the economic and time benefits of doing the improvements alongside maintenance.

- **Recommended Activities:** Update policies to encourage projects to automatically include upgrades to pedestrian infrastructure.
- investigate the potential for road diets on multi-lane roadways to calm traffic, reduce crossing distances, and provide room for bicycle and transit infrastructure.
- Consider benefits to pedestrians and cyclists, not just drivers, when prioritizing maintenance and improvement projects.
- Where plans have identified bike routes, construct bike lanes or multi use paths.

- Use community input gathered in the participatory mapping process to identify inadequacies impacting active transit users.
- Plan resurfacing and maintenance so that the installation of mobility improvements and proven safety countermeasures are able to occur simultaneously.

Success Story: Massachusetts Department of Transportation (MassDOT) has updated its design guidelines to require sidewalks, bike lanes, and transit amenities on State Roadway projects. New 'Controlling Criteria' Will Require Sidewalks, Bike Lanes In State Road Projects – Streetsblog Massachusetts

Tool 1E: Activate public spaces, such as schools, libraries, parks, and municipal buildings as mobility hubs.

Transects: Village, Suburban, Town Center, Shore Town

Implementation Timeline: Medium-Term (5-10 years)

Implementers: Municipalities, Monmouth County

Cost Range: \$ - \$\$

Description: To support improvements to pedestrian and bicycle infrastructure, capitalize on the community-focused nature of public spaces to provide space for mobility hubs to help address equitable access to bicycles and scooters. Mobility hubs provide centralized access to a variety of modes with a focus on providing a range of choices that are affordable, sustainable, and environmentally friendly. Within Monmouth County these mobility hubs should provide access to bikes and scooters (including provision of accessible devices), areas to access rideshare and taxi services, and transit (if available). A network of mobility hubs, coupled with the provision of pedestrian and bicycle/scooter infrastructure will go a long way to enhancing access to active modes in the County and supporting their integration with other modes.

Potential Example Application: The Monmouth County libraries, parks, and other public facilities could be activated as mobility hubs that could be expanded in the future. Initial implementation should be considered in areas with higher concentrations of low-income and zero-vehicle households in the Town Center and Shore Town transects.

There is an existing Monmouth County project to install electric vehicle chargers on County property, starting with the libraries in Manalapan and Shrewsbury.

Recommended Activities:

- Develop County-wide and/or municipal active mode master plans that prioritize connecting community assets and public spaces.
- Work with vendors and local governments to provide bikeshare or scooter-share services across the County. Prioritize single systems to make it easier to use across the County.
- Capitalize on public libraries' strong community ties and public trust. Enable public and school libraries to include bicycles as part of their "Library of Things" programming, in which patrons can "check out" a bicycle. If bikeshare is available in the area, enable libraries to include bikeshare access fobs as part of their "Library of

Things” programming, in which patrons for whom bikeshare program costs may be a financial barrier can nevertheless participate.

- Install electric vehicle chargers on publicly accessible County property, including but not limited to libraries, parks, and offices.

Success Story: At Madison, Wisconsin’s nine public libraries, residents can check out electric bicycles. [Bike Libraries Are Boosting Access To Bikes Across The U.S. \(nextcity.org\)](https://nextcity.org)

Tool 1F: Provide street furniture, rest areas, and benches.

Transects: Village, Suburban, Town Center, Shore Town

Implementation Timeline: Medium-Term (5-10 years)

Implementers: Municipalities, Monmouth County, NJDOT

Cost Range: \$ - \$\$

Description: Encourage walking, biking, and transit use by providing places for people, especially seniors, people with disabilities, and people traveling with children, to stop and rest. These measures can help make longer walking distances more manageable, provide community space, and can be considered elements of street scaping. Consideration should be given to incorporate shade-creating devices in some areas to manage the negative impacts of climate change-induced heat on active modes.

Potential Example Application: Street trees and furniture enhance the pedestrian realm and encourage walking by providing shade, opportunities to rest, and an engaging environment. Where sidewalks exist, many lack these features. Organizations with jurisdiction over these areas should implement a streetscaping program that helps to make pedestrian access between the residential and retail areas more accessible and comfortable for elderly, young, and disabled residents, particularly during hot summer months. A specific area that was identified in this study although others are expected to exist in all transects, is CR520, Newman Springs Road on the boundary of Red Bank and Shrewsbury. Pedestrians from the surrounding lower-income areas of the west side use this sidewalk to access local retail establishments as well as the grocery store.

Recommended Activities:

- Incorporate street furniture, rest areas, and benches into all sidewalk projects, where space permits.
- Use public art as well as volunteer installation and maintenance to create a sense of community ownership and reduce costs.
- Include provisions for multi-functional street furniture, wayfinding and signage, and parklets/outdoor seating.
- In areas with limited shade, install trees or other shade-creating devices along the sidewalk and over seating areas (**Figure 7**).

Figure 7: Art pieces can be designed to provide shading of seating areas along sidewalks. (Image Source: Maricopa Association of Governments)



Tool 1G: Enhance rural roads through the addition of bicycle and pedestrian infrastructure in the vicinity of commercial and cultural centers. Add bicycle facilities to connect these centers.

Transects: Rural/Natural

Implementation Timeline: Long-Term (>10 years)

Lead Implementer: Municipalities

Supporting Implementers: Monmouth County, NJDOT

Cost Range: \$\$ - \$\$\$

Description: Rural communities are often left out of the discussion of pedestrian and bicycle infrastructure due to their low densities and dispersed nature of development. However, sidewalks, crosswalks, and bike lanes are critical elements that can be used, in combination with traffic calming measures, to reduce vehicle speeds through commercial and cultural centers. Furthermore, public comment and stakeholder outreach has indicated that recreational biking is a significant activity in the County's Rural/Natural transect and thus providing bicycle facilities along rural roadways could help improve safety for bicyclists but also encourage residents of these areas to utilize biking to get around for certain trips. This applies particularly to roads that lead to commercial, civic, and cultural centers, as well as parks, paths, and other attractions.

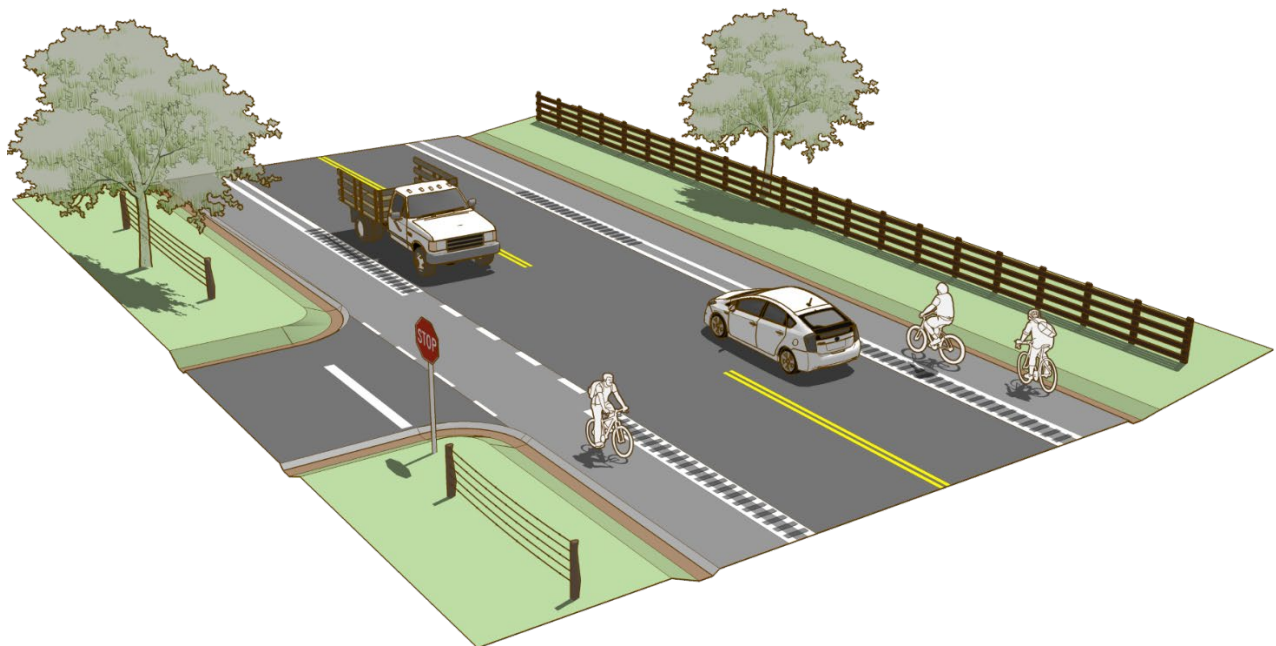
Potential Example Application: Recreational cyclists are often seen enjoying rides through the rural landscapes of Monmouth County, however the pavement width in these areas is often constrained with narrow shoulders, some of which are less than one foot wide. Road owners could upgrade popular cycling corridors with Bicycle Level of Stress levels of three and four to enhance bicycle visibility and separation from moving traffic. A current example is Monmouth County's project to improve County Route 527 (Siloam Road). The County has proposed several mobility enhancing features including construction of a roundabout, widening of shoulders, and improvement in sight distances. The project is currently in the Preliminary Engineering phase.

Recommended Activities:

- Install sidewalks and crosswalks as outlined in Tools 1A and 1B within rural villages, commercial areas, and cultural centers as part of roadway projects, such as resurfacing.

- Update development regulations to include sidewalks, crosswalks, multi-use pathways, and/or bike lanes along all site frontages and provide non-motorized connectivity within the site.
- When conducting a roadway resurfacing project, enhance the shoulder areas to the adopted mobility standard, and if possible beyond the minimum required, as follows (**Figure 8**):
 - Provide paved and stable surfaced shoulder areas as wide as context allows to provide maximum mobility benefits. Refer to the FHWA's Small Town and Rural Multimodal Networks Guide⁵ for examples, ideally providing improvements up to or beyond its guidance.
 - Stripe a small buffer area on the shoulder edge, maintaining at least 6-feet for bicycles. Rumble strips may be effective near potential conflict areas.
 - Install bicycle route signs and pavement markings to emphasize that bicycles will be in the shoulder area for passing vehicles.
- Consider the potential for enhanced shoulder areas to also be used by pedestrians.

Figure 8: A paved shoulder area with a buffer can enhance the safety and accessibility of a roadway shoulder when used as a bike lane. (Image Source: FHWA Small Town and Rural Multimodal Networks)



⁵ See guidance provided in FHWA's Small Town and Rural Multimodal Networks guide: https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/small_towns/fhwahep17024_lg.pdf

Tool 1H: Reduce seasonal visitor reliance on personal vehicles through expanded wayfinding, bike and scooter share, and transit and rideshare programs.

Transects: Town Center, Shore Town

Implementation Timeline: Medium-Term (5-10 years)

Lead Implementer: Municipalities

Supporting Implementers: Monmouth County

Cost Range: \$ - \$\$

Description: When seasonal visitors arrive at the County's Shore communities they typically do so in a car. Findings from the County's 2021 Monmouth Within Reach study indicated that the majority of visitors who access the Jersey Shore, whether for a day trip or an extended period of time, drive to the County's shore towns. For example, approximately 7 million people visited Asbury Park in 2019 (see Monmouth Within Reach), and during peak weekends travel time between the Parkway and Asbury Park could increase from 22 minutes to over 45 minutes. Changing the arrival mode to the Shore is very difficult given that people tend to travel with luggage and supplies for their vacation. However, once they arrive, measures can be taken to encourage them to make short trips to shop, dine, and recreate via other modes like biking or scootering. Removing only a small percentage of vehicles from the roadway network by encouraging more walking, biking, scootering, and transit use can have a measurable impact on local traffic operations and safety.

Potential Example Application: Superpedestrian, the former operator of Asbury Park's LINK scooter rental program, indicated that during the summer months the number of scooter rentals in Asbury Park rivaled that of many major US cities. Asbury Park could coordinate with adjacent municipalities to extend interoperable services. At the time of publication Asbury Park has replaced Superpedestrian's service with scooters from Veo.

- **Recommended Activities:** Implement the recommendations contained in the County's tourism and event travel demand study: Monmouth Within Reach.
- Work with bike and/or scooter rental companies to expand shared services to all Shore towns in the County.
- Keep the barriers to access, such as complex account creation processes, low for visitors.
- Enhance bicycle infrastructure, such as parking protected bike lanes and cycle tracks that are more comfortable to use for a broader range of experience and ability levels.

- Engage in an information campaign to inform visitors of their mobility options once they arrive.
- Add signage that guides visitors and residents to town centers, assets, tourism points of interest, and details walking and biking distance, which can help with navigation and establish walking or cycling as a normative means of travel (**Figure 9**).

Figure 9: Wayfinding signs that provide estimated travel times orient visitors to a town's layout and encourages them to bike short distances. (Image Source: Bike Provincetown)



Tool 1I: Address knowledge gaps related to biking and scooting.

Transects: All

Implementation Timeline: Short-Term (<5 years)

Lead Implementer: EZ-Ride, NJ Bike and Walk Coalition, School Districts, Not for Profits

Supporting Implementers: NJDOT, NJ TRANSIT, Monmouth County, Municipalities

Cost Range: \$

Description: As bike lanes and multi-use pathways are installed, and as bikeshare and scooter rental programs expand, cyclists continue to extend trips on transit, and as e-bikes continue to gain in popularity there will be an influx of new riders that may not know how to access, operate, or use the infrastructure in a safe manner. Education of riders and drivers will become critical to reducing violations and promoting safety.

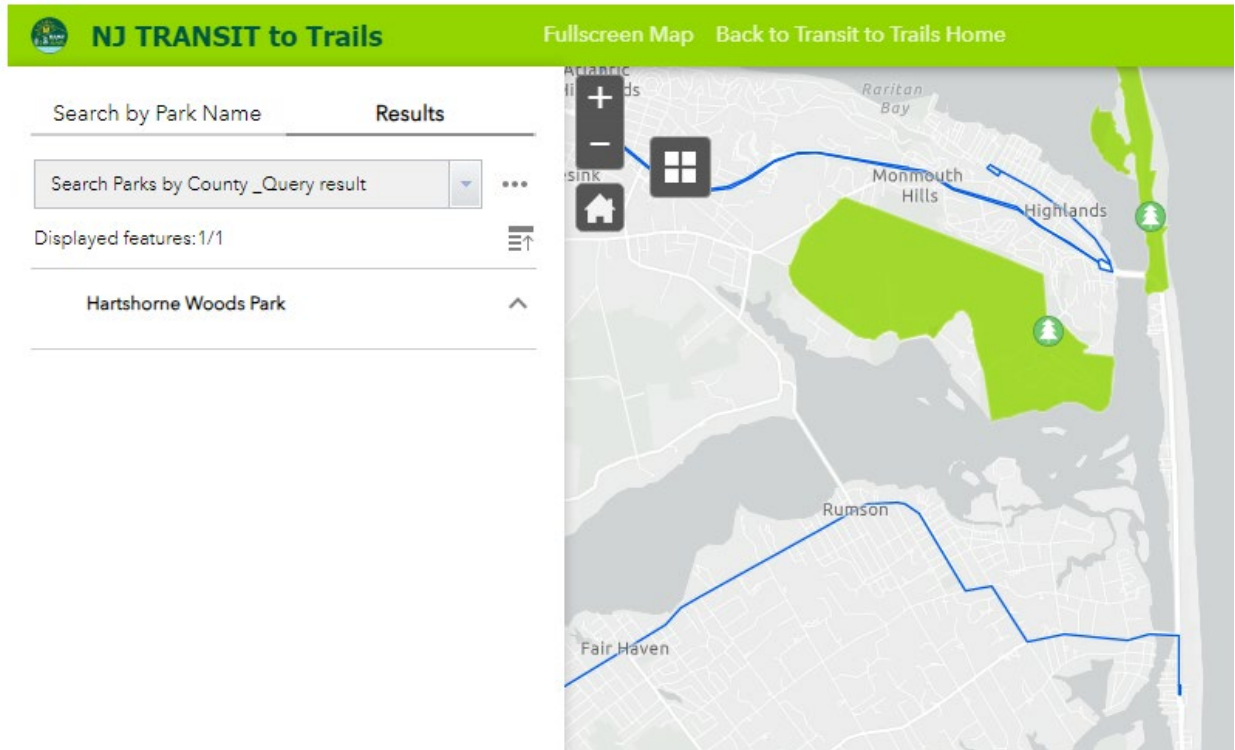
Potential Example Application: EZ Ride could extend its successful Safe Routes to School education initiatives to other vulnerable populations. to engage in a pedestrian, bicycle, and scooter safety campaign through schools and libraries. Information should be designed in a manner that make it accessible to the County's vulnerable populations and should encourage participation by people of all ages.

Recommended Activities:

- Provide bilingual and culturally relevant bike education and access programs to adults, youth, and children prior to bike lane implementation.
- Address challenges like planning routes, navigating streets with cars, and quick fixes for common bike problems.
- Work with libraries, schools, cycling shops and groups, and community organizations to host events.
- Partner with the New Jersey Bike and Walk Coalition and similar organizations.
- Provide clear guidance on regulations related to traveling on a bike/ebike/scooter to prevent violations.

Figure 10: NJ TRANSIT maintains a resource dedicated to assisting people access parks and trails using their services, and guides riders on how to travel with their bicycles (<https://www.njtransit.com/trails>)

Click on the map below to explore where Transit to Trails can take you!



Tool 1J: Continue development of and education on electric bicycle and scooter regulations.

Transects: All

Implementation Timeline: Medium-Term (5-10 years)

Lead Implementers: NJ Division of Highway Traffic Safety, NJDOT, Municipalities

Supporting Implementers: Monmouth County,

Cost Range: \$ (policy only)

Description: Electric bicycles and scooters have expanded the overall potential of these modes as viable for a variety of trip types, distances, and physical abilities. The higher-speed nature of these devices creates potential safety concerns when mixed with pedestrians, standard bikes and scooters, and vehicle traffic. New Jersey regulates low powered electric scooters and e-bikes as bicycles, with higher powered motorized bicycles treated with more concern, according to the New Jersey Bicycle and Pedestrian Resource Center. However, public comments and observations by the study team show that e-bike regulations are unclear to the general public, riders and other travelers alike. Several public comments noted the increased use of e-bikes and their importance to lower-income communities but also noted that they can create safety concerns when ridden on sidewalks and pathways. Additionally, members of the public relayed they ride e-bikes on sidewalks, and have seen others riding on sidewalks.

Potential Example Application: Regulations and education should continue to be developed for electric bikes and scooters by the Division of Highway Traffic Safety and adopted by municipalities. Currently low speed scooters and e-bikes are regulated like bicycles, and higher powered motorized bicycles have stricter regulations. The installation of informative signage would assist travelers in abiding by adopted rules and regulations.

These regulations should discuss use of these devices on public right-of-way and on trails within parks. However, regulations should not disproportionately impact the County's transportation disadvantaged populations, which use these modes more often to access employment.

Recommended Activities:

- Research and evaluate how other municipalities, counties, and states are handling regulation of electric bikes and scooters.

- When developing regulations, consider how these regulations may negatively impact the County's transportation disadvantaged populations, which use these modes more often to access employment.
- When developing mixed-use pathways/trails, provide separation between pedestrians and bicyclists (**Figure 11**).
- Post rule and regulations so travelers are aware of them to enhance compliance.

Figure 111: The Delaware River Trail has a cycle track that is separated from the pedestrian area.
(Image Source: Delaware River Waterfront)



Figure 122: The New Jersey Bicycle and Pedestrian Resource Center's flyer on e-bike regulation.
(<https://njbikeped.org/micromobility/>)



New Jersey's E-Bike & E-Scooter Law

VEHICLE TYPES	PROPULSION METHOD	POWER SOURCE	MAX ASSISTED SPEED (MPH)	LICENSE & REGISTRATION	HELMET	PARK ON THE SIDEWALK?	TAKE ON TRANSIT?
LOW-SPEED ELECTRIC SCOOTER 	Kickstart and throttle	Electric	19mph	No	Under 17 years old	If not blocking access	Yes*
LOW-SPEED ELECTRIC BICYCLE 	Pedal and optional throttle	Electric (<750W)	20mph	No	Under 17 years old	If not blocking access	Yes*
MOTORIZED BICYCLE 	Pedal and optional throttle	Gas or Electric (<50cc/<1.5BHP)	28mph	Required	Required	No	No

<http://njbikeped.org/new-law-legalized-e-bikes-and-e-scooters-in-new-jersey/>

* Restrictions may vary by agency. PATH and NJT restrict non-collapsible vehicles during peak travel times. Bus racks have limited availability and may not fit all bikes.

E-mobility devices make it easier to:

- Save on gas, parking, and rideshare costs.
- Access destinations without needing to walk or drive.
- Reduce carbon emissions.
- Make "first-mile" and "last-mile" connections for bus and train trips.
- Climb hills and keep up with traffic without getting sweaty.
- Help people with limitations due to age, physical fitness levels, or disabilities.

Low-speed e-bikes and e-scooters are regulated like bicycles. Drivers of low-speed e-bikes and e-scooters:

- Must ride in the same direction as traffic and obey all traffic lights, signs, and signals.
- Are advised to wear helmets to minimize potential head injury. Helmets are required in NJ for youth under age 17.
- Must park devices without blocking pedestrian and/or wheelchair access.
- Should not ride on sidewalks. Off-road trails generally do not allow motorized bicycles, but may allow e-bikes and e-scooters. Regulations vary by municipality and county. Check all local ordinances and policies. Ride slowly in areas with pedestrians.



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**NEW JERSEY
Safe Routes**



For more information, visit the NJ Bicycle and Pedestrian Resource Center at njbikeped.org or the NJ Safe Routes Resource Center at saferoutesnj.org. 01.13.22

Strategy 2: Develop multi-modal programs that prioritize mobility for the County's vulnerable populations.

Tool 2A: Develop a Transportation Equity Priority Areas framework for identifying where pedestrian and bicycle improvements would impact transportation disadvantaged populations.

Transects: All

Implementation Timeline: Short Term (<5 years)

Implementers: NJDOT, Monmouth County, Municipalities

Cost Range: \$ (policy only)

Description: Transportation disadvantaged populations, including low-income, minority, disabled, young, and elderly populations have traditionally been heavily reliant on walking, cycling, transit, and other modes that don't require car ownership or operation like taxi services, and more recently rideshare services like Uber and Lyft. However, as indicated in the data (see Appendices A and B), many of the County's transportation disadvantaged populations rely most have historically been left out of transportation investment decisions. It is important for municipalities and the County to identify and prioritize transportation disadvantaged communities for pedestrian, bicycle, and transit investments.

Potential Example Application: The Monmouth PATHS Access for All Study is an important step to enhancing mobility equity in the County. However, with such a broad study area it was not possible to study specific and localized mobility and equity conditions. The County could work with municipalities to establish a framework that can be applied to more localized conditions, and apply the findings in this study. Based on the transect analysis presented in this report, this effort should begin in Town Center transects where there are the highest concentrations of low income, minority, and zero-vehicle households.

Recommended Activities:

- Develop a Transportation Equity Framework tool that can be used by the County and its municipalities to identify priority investment areas.

Success Story: As part of its Racial Equity Framework for Transportation, the City of Minneapolis developed a Transportation Equity Priority tool for prioritizing where improvements to transportation could have this greatest equity impact. The chart shown here provides a scoring system that the City developed to help identify priority areas for transportation equity. For more information refer to the study here: [Minneapolis Racial Equity Framework for Transportation](#)

Transportation Equity Priority (TEP) Score	Points
Base Equity Score	100
Residents of color	60
Lowest-income population	20
Lower-income population	10
Lack of concentrated affluence	10
Equity+ Score	50
Vehicle availability	15
Commute time	15
Land temperature	10
Population density	10

Tool 2B: Address financial barriers to cycling and scooting.

Transects: All

Implementation Timeline: Short Term (<5 years)

Not For Profit Organization

Supporting Implementers: Anyone

Cost Range: \$ - \$\$

Description: The cost of bicycles, scooters, maintenance, and safety equipment like helmets can limit access. Implementing methods to reduce their cost and adoption can encourage active transportation and improve safety outcomes.

Potential Example Application: The transportation management association for Hudson County, Hudson TMA, runs a bike rehab program that repurposes donated and abandoned bikes for use by adults who cannot afford a bicycle for their trip to work. This program is replicable by a wide variety of entities. More information is available at <https://hudsontma.org/bike-rehab-program/>, or by contacting them at info@hudsontma.org.

Recommended Activities:

- Implement a bike rehab/donation program for adults who would like to ride a bicycle to work but cannot afford one.
- Partner with local nonprofits to coordinate and/or expand bike giveaway/donation/repair programs.
- Fund programs at local schools or libraries to teach youth and adults to fix bicycles.
- Consider partnering with Asbury Park's *Second Life Bikes*, which runs a youth-facing Earn-A-Bike program in which youth learn bike mechanics skills while repairing donated bikes.

Tool 2C: Mitigate the impact of arterials on neighborhood connectivity, especially in historically disadvantaged and overburdened communities.

Transects: Suburban, Town Center, Shore Town

Implementation Timeline: Medium-Term (5-10 years)

Implementers: NJDOT, Monmouth County, municipalities

Cost Range: \$\$ - \$\$\$

Description: When non-interstate arterial highways, such as NJ Routes 33, 35, and 36, pass through disadvantaged and overburdened communities they create barriers to walking, biking, and transit access. Pedestrian and bicycle crash data (see Appendix B) show linear patterns along major corridors within the County. The crash data, when coupled with public comments, highlights the challenges that exist when trying to travel along or across these major corridors without a car. Road diet programs, speed reductions, and crosswalks to improve connectivity should all be evaluated for implementation to reduce the increased rate of pedestrian deaths often found in disadvantaged and overburdened communities.

The New Jersey Department of Environmental Protection maintains an Environmental Justice resource that contains information on New Jersey's Overburdened Communities, located at dep.nj.gov/ej.

Potential Example Application: The US Route 9 and NJ Route 35 corridors have the highest number of combined pedestrian and bike collisions of any major state corridor in the County. NJDOT could evaluate crashes in/around the following areas along each corridor that pass near or through vulnerable communities with pedestrian and bike crash clusters:

- US Route 9 within Freehold Township, particularly within the area of the NJ Route 33 interchange; and,
- NJ Route 35 in Neptune.

As of this publication, five municipalities as well as Monmouth County have been awarded grant funding for the development of Safe Streets for All Comprehensive Action Plans. These plans will analyze crash locations and prioritize safety investment in their jurisdictions. The County plans to reach out to Monmouth municipalities to provide them with data and provide an example for how to use it to prioritize projects in their jurisdiction.

Recommended Activities:

- Develop safety plans that prioritize locations for safety investment.
- Implement road diet programs, speed reductions, and crosswalks with roadway projects, including resurfacing.

Tool 2D: Build relationships and increase positive interaction with government through engagement addressing infrastructure and service issues.

Transects: All

Implementation Timeline: Medium Term (5 – 10 years)

Lead Implementer: Municipalities

Supporting Implementers: NJDOT, NJ TRANSIT, Monmouth County

Cost Range: \$ - \$\$

Description: Addressing comparatively simple issues – cracked sidewalks, missing crosswalks, damaged streetlights, potholes – may help bolster or rebuild communities' relationship with their local government and government agencies. These efforts can improve engagement with transportation disadvantaged communities in broader mobility planning and design efforts, while simultaneously improving mobility conditions.

Potential Example Application: A sidewalk network in poor condition, or an incomplete sidewalk network is a barrier to mobility. The public outreach effort for this study received over 50 comments regarding missing and damaged sidewalks in Keyport, and the study team has observed that it is not the only municipality with sidewalk network issues. Municipalities should conduct bike and walk audits within to identify priority locations for improvements to active transportation infrastructure with a focus on “quick win” projects.

Recommended Activities:

- Empower community members and grassroots organizations to shape their own mobility landscapes. Equity can be improved by working directly and regularly with groups that are transportation disadvantaged, for example those led by or serve immigrants, people of color, people who are differently abled, and older adults.,
- Create an inclusive culture of cycling or scootering through intentional engagement and placemaking by:
 - Encouraging local bike education organizations and bikeshare programs participate in open street events that center community gatherings and street activation.
 - Include bicycling alongside other community concerns, such as workforce development, youth employment, affordable housing, and community service.

- Help support or establish community bike shops, grassroots DIY spaces where residents can engage with cycling on their own terms, build relationships, obtain leadership opportunities, and have a “third space” where they can connect and socialize with other people.
- Support rides - or design routes - rooted in local culture, through which riders learn about community histories/activism/locally important spots. Make local history a relevant part of bicycle promotion, planning, and policy efforts.
- Recognize in policy discussions and decision making that cyclists and pedestrians are a diverse group of people who often walk or ride for different reasons, and that many who rely on these active modes do so as their transportation of last resort.
- Define and track progress toward equity goals by:
 - Conducting regular audits that evaluate the performance of active transportation infrastructure.
 - Engage the community in demonstration projects that help to educate the community while testing potential pedestrian or bicycle enhancements. The NJTPA hosts the Complete Streets Demonstration Library, which links municipalities and counties with technical assistance and materials to create projects ranging from parklets to temporary bike lanes. More information is available at: <https://www.njtpa.org/demonstrationlibrary.aspx>
 - Reporting on metrics such as quantity of new protected bike lanes installed in priority communities; percent cycling/walking mode share in disadvantaged communities; percent of risky intersections with added crosswalks; participation in local bike lending/distribution/sharing programs; percent of new *Complete Streets* miles implemented in low-income communities; walk/cycle audit scores.

Success Stories:

In Los Angeles, CicLAvia is a non-profit that catalyzes vibrant public spaces, active transportation, and good health through car-free street events. CicLAvia's efforts have proven benefits documented by UCLA and the RAND Corporation. <https://www.ciclavia.org/>

The Somerville Bike Kitchen in Somerville, Massachusetts is a volunteer-run bicycle repair cooperative that teaches bicyclists how to repair their own bike and helps to promote safe cycling for transportation and recreation. <https://somervillebikekitchen.org/>

Tool 2E: Seek funding for the installation, operations, and maintenance of mobility technology in the County's transportation disadvantaged communities.

Transects: Town Center, Shore Town

Implementation Timeline: Medium-Term (5 – 10 years)

Lead Implementer: Municipalities

Supporting Implementers: Monmouth County, NJ TRANSIT, NJDOT

Cost Range: \$ - \$\$

Description: As mobility technology advances and changes, it is important for it to be available to all travelers in order to maximize its benefit. Communities with higher proportion of low-income, minority, disabled, elderly, and youth populations are often the last to receive or adopt transportation technology, such as real-time transit information, off-board fare collection, bike and scooter parking/charging, electric vehicle charging, etc... Additionally, attention must be paid to system operations and maintenance after its acquisition

Potential Example Application: Asbury Park, one of the municipalities with the highest proportion of low-income households in the County, is a leader in the hosting and implementation of technology enabled mobility solutions. At time of publication the city is host to 8 dual-port electric vehicle chargers and a scooter share program, and serves as a model for other communities. A significant part of its success is the hiring of a dedicated mobility manager who is involved in these and other improvements in personal mobility.

- **Recommended Activities:** Seek out or provide technical assistance for the planning of technology enabled mobility improvements.
- Employ municipal mobility managers focused on these and other issues related to personal mobility.
- Develop and implement a common fare platform between NJ TRANSIT, private bus lines, Monmouth Senior Citizen Transportation (SCAT),

Tool 2F: Support the development of car share programs.

Transects: Town Center, Shore Town

Implementation Timeline: Medium-Term (5 – 10 years)

Implementers: Municipalities, Monmouth County

Cost Range: \$ - \$\$

Description: Carshare programs provide access to rental vehicles for short periods of time, often charging by the hour and/or by mileage. Vehicles located throughout an area and can be reserved and accessed through a smart phone app. Carsharing programs are great ways to provide access to a vehicle for those that do not have a personal vehicle or for those that wish to avoid purchasing a second vehicle.

Potential Example Application: To be successful, carsharing requires higher densities so that the vehicles are utilized more consistently throughout the day. Therefore, feasibility assessments of carsharing should be focused in higher density areas of the County's Town Center and Shore Town transects, such as Freehold Borough, Red Bank, Asbury Park, and Long Branch.

Recommended Activities:

- Conduct a feasibility study to explore opportunities for a County-wide, or multi-municipal carshare program, targeting populations who do not have access to personal vehicles or who wish to avoid purchasing a second vehicle.

Resource: *Zip Car (<https://www.zipcar.com/carsharing>) and Enterprise (<https://www.enterprisecarshare.com/us/en/home.html>) are two carsharing service providers currently operating in cities like New York, Philadelphia, Boston, and Washington DC.*

Tool 2G: Establish community bike bus programs.

Transects: Village, Suburban, Town Center, Shore Town

Implementation Timeline: Short-Term (<5 years)

Lead Implementer: Municipalities

Supporting Implementers: N/A

Cost Range: \$

Description: Bike bus programs are volunteer-led biking groups that ride together on a set route and following a set timetable. They have been primarily applied for trips to and from school to provide a safer method for children to ride their bikes to and from school. Adult ride leaders set a route and “pick-up” children on their way to school and do the return trip in the afternoon. Asbury Park and Fair Haven have had bike bus programs.

Potential Example Application: The Town Center and Village transects often include a walkable and bikeable street network. The majority of streets within these transects are often designated as low stress and the higher densities would potentially support a bike bus program. Keansburg is a good example of a municipality that may benefit introducing a bike bus program for students travelling to school. . One specific example that was mentioned in the public comments was access to Caruso Elementary School in Keansburg.

Recommended Activities:

- Work with local school districts and parent-teacher associations (PTAs) to establish bike bus programs to and from local elementary schools.

Success Story: *The Portland, Oregon Bike Bus program started as a volunteer-led program to one school, has now expanded across the city. Adult-ride leaders set a route, “picking up” children on their way to school and receive a stipend from the school district equivalent to what is earned by school bus drivers. <https://www.wired.com/story/how-to-start-a-bike-bus/>*

Tool 2H: Establish community maintenance and stewardship programs.

Transects: Village, Suburban, Town Center, Shore Town

Implementation Timeline: Short-Term (<5 years)

Implementers: Municipalities, NJ TRANSIT, Not For Profits

Cost Range: \$

Description: This tool refers to a systematic volunteer supported approach to the upkeep and improvement of transportation infrastructure that supports various modes of travel, such as walking, biking, public transit, and vehicular traffic, supporting the long-term usability, safety, and effectiveness of the transportation network, thereby enhancing overall mobility and accessibility. Engaging local communities in the stewardship of transportation infrastructure through programs that encourage reporting of issues, volunteer clean-up or beautification projects, and participation in planning for maintenance and needs. Collaborating with various stakeholders to prioritize maintenance efforts that are based on community needs can leverage additional resources and expertise.

One recent example of this is the Red Bank Green Team and EZ Ride partnered to create temporary bike lanes to accompany a town-wide musical event known as “Porch Fest”.

NJ TRANSIT has an “Adopt-a-Station” program, where they will work with volunteer groups to clean and landscape their facilities. More information is available at njtransit.com/adopt.

Potential Example Application: There are 14 registered garden clubs in Monmouth County. These garden clubs often contribute to the maintenance of planters within the municipalities’ business districts. Consideration could be given to working with these or similar organizations on the installation and maintenance of tactical urbanism projects such as traffic calming measures, which can use planters to separate vehicle traffic from pedestrians and bicyclists. Maintaining landscaping used to calm traffic is an important step to maintain its effectiveness as well as maintain a sense of place and pride within a community.

Recommended Activities:

- Establish a framework for maintenance and stewardship that includes regular inspection and upkeep of pedestrian, bicycle, and transit infrastructure, adaptive maintenance practices, and community/stakeholder collaborations.
- Work with local neighborhood groups, community organizations, and other advocacy groups to solicit volunteers.

Strategy 3: Improve County-wide active mode connections between neighborhoods, land uses, and municipalities.

Tool 3A: Develop a County-wide active transportation plan with a focus on cross-County connectivity.

Transects: All

Implementation Timeline: Short-Term (<5 years)

Lead Implementer: Monmouth County

Supporting Implementers: Municipalities

Cost Range: \$-\$\$

Description: Developing a County-wide active transportation plan is an important planning tool to develop a more integrated network of low-stress active mode facilities. The plan should identify opportunities to connect municipalities, employment centers, retail centers, healthcare, education, and recreation, among other critical services. The plan should only consider implementing low-stress bicycle facilities, such as protected bike lanes, multi-use pathways, and paved trails.

Potential Example Application: Monmouth County should apply for grant funding, to create an active transportation plan for the County that addresses major desire lines across the County, with a key focus on connecting transportation disadvantaged populations with opportunities. The plan should also include references to design guidelines for on- and off-street facilities. The plan should be considered for adoption into the County Master Plan.

Recommended Activities:

- Identify corridors along major desire lines across the County that could be used to enhance bicycle connections.
- Complete gaps in existing trail networks.
- Evaluate methods to utilize existing trails at County parks to make critical connections between communities.
- Utilize a combination of protected on-road facilities with off-street facilities, like multi-use pathways.
- Integrate transit as a component of the plan to make it easier for people walking, biking, or scootering to combine trips to travel farther.
- Utilize the design guidance provided in Tool 3C.

Tool 3B: Continue making connections in the network of off-street greenway/trail systems.

Transects: All

Implementation Timeline: Long-Term (>10 years)

Implementers: Monmouth County, Municipalities

NJ TRANSIT, NJDOT, NJTA

Cost Range: \$\$\$

Description: Leverage existing trails, excess roadway rights-of-way, and park and open space to build a connected network greenways and trails that connect people to key recreational, educational, employment, and transportation destinations such as schools, libraries, parks, shopping, civic and job centers, and transit stations. Continue to close gaps and connect existing off-street trails and paths, such as the Henry Hudson Trail (HHT), Edgar Felix Memorial Bikeway, the Capital to Coast Trail, and the Union Transportation Trail (UTT), while planning for new paths and trails.

Potential Example Application:

One of the most challenging gaps to close on the Henry Hudson Trail is in the Aberdeen-Matawan area, due to the need to cross the North Jersey Coast Line and the Garden State Parkway. The Monmouth County Park System has been coordinating with NJ TRANSIT to connect the Henry Hudson Trail to and through the Aberdeen-Matawan Rail Station, and have engaged a consultant to develop plans and obtain NJDEP permits to reconstruct the Lake Matawan Bridge and connect trail to the station from the south. The County owns the rail bridge over the Garden State Parkway and is engaging in engineering studies to assess the bridge for suitability for extending the HHT over the Garden State Parkway.

Recommended Activities:

- Prioritize filling gaps in the existing trail network, as well as extending and interconnecting the trails.
- Identify feeder “spurs” that connect the trail to key trip generators and attractors.
- Evaluate methods to utilize existing trails at County parks to make critical connections between communities.
- Prioritize off-street facilities for these trails. If on-street facilities are required to fill gaps, they should be protected from moving traffic using parking, barriers, curbing, or other delineation.

- Allow developers to contribute to trail construction in lieu of vehicle-based improvements.
- Utilize railroad and utility rights-of-way when possible to make connections.

Tool 3C: Create a network of on-street, low-stress bike lanes and shared-use pathways.

Transects: All

Implementation Timeline: Medium-Term (5-10 years)

Lead Implementer: Municipalities, NJDOT, Monmouth County

Supporting Implementers:

Cost Range: \$\$ - \$\$\$

Description: Only 50 percent of roadways in the County are considered low-stress for bicyclists, most of which are local residential roadways. There are limited low-stress options for bicyclists to travel to other municipalities or between land uses. Leveraging excess roadway capacity and existing wide sidewalks to build a connected network of low-stress bike lanes and shared-use paths will improve connections to key recreational, educational, and commuting destinations such as schools, libraries, parks, shopping, civic and job centers. Opportunities to expedite this effort by using tactical materials (such as flexible delineators, paint, QuickCurb or similar, jersey barriers/parking stops, etc.) to delineate new roadway configurations should be prioritized.

Potential Example Application: High volume multi-lane arterials exist throughout the County. Over 20 public comments were received about the two-mile long segment of one of these arterials, CR 520 (Newman Springs Road) through Lincroft Village highlighting the need to increase safety and improve accommodations for pedestrians and bicyclists. The County should continue evaluation of this corridor and other high-volume multi lane arterials and ensure that safety, accessibility, and level of service of bikes and pedestrians are considered alongside vehicular operations.

Monmouth County is in the process of improving a significant portion of a high volume multi-lane arterial that runs through Bradley Beach, Avon-by-the-Sea, and Neptune Township and City, County Route 40A (Memorial Drive, as well as CR25 (Cedar Avenue) in West Long Branch.

- **Recommended Activities:** Evaluate the potential for road diets on bicycle corridors identified in the active transportation plan (Tool 3A).
- Prioritize “quick wins” by utilizing striping to quickly deploy bike lanes in areas of most need.

- Commit to including pedestrian and bicycle safety and operation as a primary goal when evaluating roadway operations.
- Utilize existing resources to establish minimum design criteria for bike facility design. Consider the following examples from the 2019 *Let's Ride JC (Jersey City) Bikeway Design Guide*:
 - Directional bike lanes are preferred on-street facilities and should be a minimum of five feet in width (six feet desirable) with protection from the travel lanes through parking protection, buffering, or barriers (**Figure 13**).
 - Where space is more limited, consideration could be given to a two-way cycle track where both directions of bicycle travel are adjacent to each other on one side of the street. The cycle track should be protected by parking, a buffer with delineators, or a barrier. Minimum width for a two-way cycle track is eight feet; however, ten feet is desirable.
 - Provide protection at intersections and other conflict points using cross bike markings and bike boxes (see **Figure 6**).

Resource: Jersey City, New Jersey created a bikeway design guide that is focused on ways to reallocate existing roadway space for bikes. The design guide covers best practices in bike facility design and is a good resource for communities to begin planning their own bikeways. [Jersey City Bikeway Design Guide \(City of Jersey City\)](#)

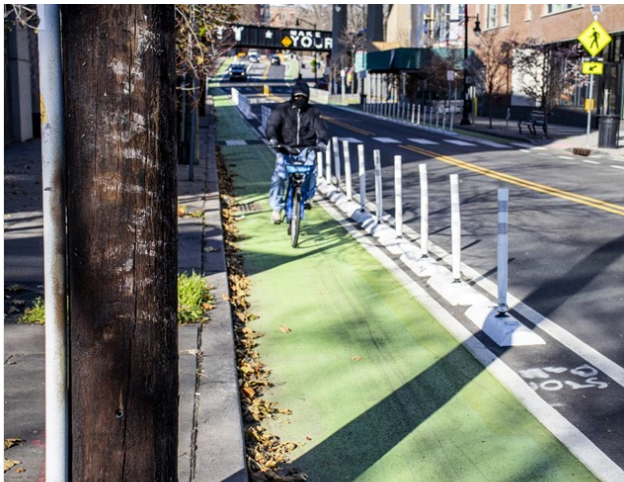
Figure 13: Examples of Bike Facility Types with Different Levels of Protection. (Image Source: Stantec)



Parking-Protected Directional Bike Lane



Cycle Track protected by Jersey Barrier



Directional Bike Lane with Flexible Delineator and QuickCurb

Strategy 4: Improve access to transit by addressing transit stop conditions and first and last-mile challenges.

Tool 4A: Prioritize comfort at bus stops where possible.

Transects: All

Implementation Timeline: Medium-Term (5 – 10 years)

Lead Implementer: Municipalities, NJ TRANSIT

Supporting Implementers: Monmouth County

Cost Range: \$ - \$\$

Description: Bus service within most areas of Monmouth County is low-frequency, and feedback from the public indicate that the system is often unreliable and experiences delayed arrivals (refer to Appendix B). Therefore, transit users can face long wait times at bus stops, even when they plan their arrival at the stop to coincide with the schedule. In addition, delays on one bus route may lead to a user missing their immediate connection to another route. Comfort amenities at bus stops, such as shelters to protect from sun, rain, and wind, can enhance the user experience, and make it more clear to potential riders where transit stops are located.

Potential Example Application: Freehold Center, the primary transit hub in Freehold Borough, is in relatively poor condition. There are no benches or shelters for waiting passengers, and most wait by sitting on a concrete divider between the transit stop and the old municipal building (**Figure 14**). Given its importance in the community and the large number of riders that board from this location, Freehold should continue to implement the recommendations in the 2018 Freehold Vision Plan, with special consideration for prioritizing the recommendations in its Transit Gateway Area Vision.

Figure 14: Passengers Siting on Concrete Driveway Divider at Freehold Center While Waiting for the Bus



Recommended Activities:

- Identify high-ridership bus stops and install bus shelters. It should be noted that NJ TRANSIT typically installs bus stops, and municipalities are responsible for maintenance. NJ TRANSIT's maintains an online resource regarding bus stop responsibilities: <https://www.njtransit.com/frequently-asked-questions-about-bus-stops-and-shelters>.

- In lower-density suburban and rural areas with more limited ridership, utilize shelters at key activity nodes, such as apartment complexes, shopping centers, or healthcare facilities, etc. For example, Clayton, NJ, a rural borough in Gloucester County, has a single bus stop with a shelter. This location is the most popular stop in the borough.
- Coordinate with community businesses that may be able to offer seating underneath existing awnings or trees where bus shelters may not be possible.
- Provide amenities in shelters, such as charging ports for electronic devices, heaters in cold weather, animal-resistant trash receptacles, real-time transit arrival information boards, up-to-date schedules, MyBus ID on signs, and seating (**Figure 15**).
- Improve maintenance times for damaged shelters and ensure frequent removal of trash.

Figure 15: NJ TRANSIT's new solar-powered shelters have lighting and charging ports for electronic devices. (Image Source: NJ TRANSIT)



Tool 4B: Evaluate the accessibility of transit stops by pedestrians, including those with lower levels of mobility, and support integration with bicycle facilities.

Transects: All

Implementation Timeline: Medium-Term (5 – 10 years)

Lead Implementer: Municipalities

Supporting Implementers: NJ TRANSIT **Cost Range:** \$ - \$\$

Description: The ability to make safe and efficient first and last mile connections to transit can be a critical factor in a person's decision whether or not to use transit. For transit users that do not have other options, the presence of pedestrian and bicycle facilities can significantly impact the usability, accessibility, and safety of accessing transit. Fifty-eight of the 617 public comments (approximately 9 percent) were regarding transit, with about 20 percent of transit comments identifying the need for improved services and comments regarding the need for better connections and amenities at transit stops.

Potential Example Application: The US Route 9 corridor has the most frequent bus service with the most operational hours of any route in the County. However, accessing bus stops along the corridor can be a challenge because of a lack of amenities at the bus stop as well as limited pedestrian connections to and from the bus stop. One example stop is the Freehold Mall park-and-ride that, despite having shelters, has several accessibility needs:

- No sidewalks to connect to adjacent residential neighborhoods. A sidewalk should be extended from the bus stop to the north to connect with an existing sidewalk on Helen Avenue.
- No designated walking pathway through the shopping center parking lot that would provide safe passage for pedestrians accessing the retail. The parking lot could be restriped to provide a 10-foot-wide pedestrian walking area from the bus stop to the center of the shopping center building.
- Parking is restricted to Freehold Township residents only, thus excluding riders that may want to access the higher-frequency service at this stop from nearby municipalities like Freehold Borough. Furthermore, the only payment option is by permit which can be challenging for low-income and minority residents. Freehold Township should evaluate post-COVID parking demand and determine if there is the

ability to accept residents from other nearby municipalities and explore the potential for daily parking fee options.

Freehold Township should consider working with NJ TRANSIT, NJDOT, and nearby property owners to evaluate the feasibility of these recommendations to enhance access at this stop. This methodology could then be reproduced at other stop locations.

Recommended Activities:

- Identify existing bus stops that are not accessible by walking and/or biking and utilize ridership and equity measures to prioritize enhancements to pedestrian and bicycle access.
- Implement enhanced connections to transit stops (including crosswalks) in all roadway and intersection projects, including resurfacing, especially where neighborhoods are located across high-volume roads such as US Route 9, NJ Routes 35 and 36, etc.
- Enhance pedestrian and bicycle connections to transit with the following measures:
 - Connect the transit stop by sidewalk to adjacent land uses and existing sidewalks in the area.
 - Ensure that there is a marked crosswalk that connects to the opposite direction bus stop within 500 feet of the bus stop. If there is not, install a crosswalk where feasible and safe to do so, and/or relocate the bus stop to a more suitable crossing location.
 - Connect bus stops to nearby crosswalks via sidewalks.
 - Identify opportunities to incorporate other active modes into the transit stop design, including bicycle and scooter parking, as well as charging ports for electric assisted bikes and scooters (**Figure 16**).

Figure 16: A bus-bike shelter combination in Trondheim, Norway provides protection for bikes as well as transit riders (Image Source: Wikimedia Commons)



Tool 4C: Identify and investigate potential intermodal transportation facilities and create mobility hubs.

Transects: Village, Suburban, Town Center, Shore Town

Implementation Timeline: Medium-Term (5 – 10 years)

Lead Implementer: NJ TRANSIT, Station Owning Municipalities

Supporting Implementers: Monmouth County, Municipalities

Cost Range: \$\$ - \$\$\$

Description: Maximizing mobility options promotes equity by allowing people to make more informed choices of how and when they travel. However, a key component of building choice is having facilities and infrastructure that supports all modes of travel. Strategically located mobility hubs at transit stations would allow customers to seamlessly switch between modes as best serves their needs. Mobility hubs provide centralized access to a variety of modes with a focus on providing a range of choices that are affordable, sustainable, and environmentally friendly. Within Monmouth County these mobility hubs could interconnect bus, rail, ferry, personal vehicles, taxi/rideshare, bike/scooter parking and charging, shared micro-mobility, and walking. Mobility hubs can also include other development and retail services. A network of mobility hubs, as identified in Tool 1E, coupled with the provision of pedestrian and bicycle/scooter infrastructure will significantly enhance access to active modes in the County and support their integration with transit.

Potential Example Application: Commuter rail stations are high quality locations for the initial implementation of mobility hubs because they often have space within the station area or adjacent parking lots that can be reallocated for a mobility hub. Therefore, NJ TRANSIT could develop a mobility hub program for rail stations along the North Jersey Coast Line. Asbury Park, Red Bank, and Long Branch could all be considered as initial implementation locations because of their higher densities, existing provision of pedestrian and bicycle facilities, and higher proportions of transportation disadvantaged communities.

Recommended Activities:

- Allocate space at commuter rail stations, higher-use bus stops, and park-and-rides for mobility hubs.
- Coordinate mobility hub installation with the construction of connecting sidewalks and bicycle facilities.
- Evaluate the following elements in a transit-stop mobility hub (**Figure 17**):
 - Scooter and e-scooter rental/share
 - Bike and e-bike rental/share

- Rideshare pick-up/drop-off area
- Electric vehicle rental and charging
- Restrooms
- Delivery lockers
- Public gathering space/plaza
- Area for pop-up businesses like food trucks

Figure 17: A rendering of a mobility hub concept in Pasco County, Florida. (Image Source: Stantec)



Tool 4D: Continue to improve passenger information technology.

Transects: All

Implementation Timeline: Medium-Term (5 – 10 years)

Lead Implementer: NJ TRANSIT

Supporting Implementers: Monmouth County SCAT, Other providers

Cost Range: \$ - \$\$

Description: A common concern expressed by members of the Experiences Committee was that the County's most transportation disadvantaged populations often do not know what their mobility options are and how to find more information about the options. This tool promotes increasing mobility and transit ridership and accessibility by providing customers with unified fare payment options across local and regional modes (bus, rail, Monmouth SCAT, PATH, NYC Subway) and real-time information about their transportation options within the County, such as trip planning, routes and alerts, real-time travel information and delays. This effort could be expedited by contracting with private sector mobility information companies who can provide, maintain, and update these services as part of their ongoing operations.

Potential Example Application: Monmouth ACTS is planning to create an accessible resource of mobility options that is regularly updated and focused on outreach to the County's most disadvantaged populations, and the County has recently hired a Transportation Coordinator to assist with this and other mobility related tasks.

Recommended Activities:

- Develop and implement a unified payment system for all public transportation services used by County residents, including micro-mobility services.
- Develop a transportation information app that provides information on transit, pedestrian, bicycle/scooter, rideshare, and other initiatives for elderly and disabled populations run by NJ TRANSIT, Monmouth County, or E-Z Ride.
- Rural areas may have limited mobility services and ridership, so NJ TRANSIT should regularly update arrival and schedule information at the stop and include maintaining the MyBus stop ID on signage.

Tool 4E: Implement feeder services to commuter bus or rail hubs.

Transects: Rural/Natural, Village, Suburban

Implementation Timeline: Long-Term (> 10 years)

Lead Implementer: Monmouth County, Municipalities, NJ TRANSIT, EZ-Ride

Supporting Implementers: Private Employers

Cost Range: \$\$\$

Description: Rural areas and villages often lack the population density necessary for regional rail or bus connections. Data indicate that less than 6 percent of households in the Rural/Natural or Village transects are within walking distance of a transit stop. While densities would likely not support full transit service in these transects, some higher density clusters in these transects could benefit from lower-cost transportation options to access employment centers.

Potential Example Application: Located on the southwestern panhandle of the County, Allentown Borough (Village transect) is closer in proximity to employment areas that are outside of the County, such as the nearby Matrix Business Park, rather than those in Monmouth County. Stakeholders could evaluate the potential for a feeder service to connect to nearby employment opportunities, implemented by EZ-Ride, and potentially financially supported by private employers.

Recommended Activities:

- Evaluate the feasibility of specific feeder services based on community input.
- Seek funding opportunities that would allow for feeder services to the closest bus and rail hubs and/or business park using small shuttles or multi-passenger vans.
- Leverage support from community advocates.
- Integrate with services that provide transportation for elderly or disabled residents.
- Coordinate with rideshare companies (Uber, Lyft) to provide these services.

Tool 4F: Expand transit coverage to underserved areas using microtransit.

Transects: Town Center, Shore Town

Implementation Timeline: Medium-Term (5 – 10 years)

Lead Implementers: Monmouth County, Town Center and Shore Town Municipalities, NJ TRANSIT, EZ-Ride

Supporting Implementers: Private Employers

Cost Range: \$\$ - \$\$\$

Description: An analysis of transit service in Monmouth County (see Appendix B) revealed that limited frequency and operating hours of most bus routes within the County is a substantial barrier for the County's lower income residents who more commonly work service industry jobs which often have shift schedules that are outside of when most bus routes operate. Microtransit is shared transportation that lives in the space between traditional fixed route transit and ridesharing like Uber and Lyft (**Figure 18**). It has been most successful outside of Monmouth County in higher density areas like portions of the County's Town Center and Shore Town transects. Microtransit is technology-driven with routes and schedules that can shift based on rider demand. Rides are booked using an app or by phone, and the service typically uses smaller vehicles than traditional transit service that range in size from vans to shuttles. Overall operating costs are reduced due to the smaller vehicle sizes and the demand-responsive nature of the service. Microtransit is often used to fill gaps in the existing transit services for shorter trips, or to provide critical first and last mile connections to fixed route transit.

During the third public meeting that was conducted in Freehold, members of the public explained how local cab companies were already providing a microtransit-like service, particularly for Freehold's Latinx community. Workers rely on these cabs, particularly after transit services stop to get to and from work. These cabs also accept cash and typically have Spanish speaking drivers which is helpful for those that do not have access to other ridesharing services like Uber or Lyft.

Potential Example Application: The County or municipalities in the Town Center and Shore Town Transects could work with a microtransit provider, such as Via, to identify feasible areas that would be capable of supporting microtransit. Freehold Borough, Asbury Park, Long Branch, and Red Bank may be appropriate areas for initial implementation.

Recommended Activities:

- Utilize microtransit to enhance mobility of transportation disadvantaged populations, in particular elderly and disabled travelers. Provide booking options for those that do not have access to a credit card.
- Ensure that microtransit fills in gaps of fixed-route transit rather than be in competition with other transit.
- Discount fares that feed into high frequency transit.

Figure 18: A microtransit vehicle operating in Jersey City, New Jersey. (Source: Via Jersey City)



Tool 4G: Continue to improve station parking and pick-up/drop-off.

Transects: Suburban, Town Center, Shore Town

Implementation Timeline: Medium-Term (5 – 10 years)

Lead Implementer: NJ TRANSIT and Station Lot Owning Municipalities

Supporting Implementers: Monmouth County

Cost Range: \$\$ - \$\$\$

Description: Park-and-ride facilities at bus stops, rail stations, and ferry terminals can help extend the reach of transit. Creating facilities and policies that support easy pick-up/drop-off (PUDO) and places to park where appropriate can increase transit ridership. However, parking and PUDO must be consistently re-evaluated as demands and services change.

Potential Example Application: There is substantial pick-up and drop-off activity at the Red Bank rail station, but there are few short-term (15 min) parking spaces for vehicles waiting to pick up passengers. NJ TRANSIT could evaluate PUDO activity and determine the need for and potential of modifying the station to better support PUDO.

Recommended Activities:

- Before building a park-and-ride lot, analyze the catchment zone and demand at the location to ensure a lot is necessary or to right-size the lot.
- Anticipate potential peak-hour traffic impacts at certain locations.
- Designate short-term parking for PUDO.
- Consistently re-evaluate park-and-ride lot usage. Some locations may require pricing to manage demand for spaces.
- Transit stops in the Rural/Natural, Village, and Suburban transects often share spaces with major community destinations such as grocery stores, houses of worship, and big box retail. Sharing parking may help create park-and-ride locations without having the expense of a standalone location.

Tool 4H: Continue to improve rider amenities at train stations and enhance accessibility.

Transects: Suburban, Town Center, Shore Town

Implementation Timeline: Medium-Term (5 – 10 years)

Lead Implementer: NJ TRANSIT, Station Owning Municipalities

Supporting Implementers: Monmouth County, Municipalities

Cost Range: \$\$ - \$\$\$

Description: Public feedback obtained for the Monmouth PATHS: Access for All study revealed the need for enhanced rider amenities such as restrooms and safe and secure waiting areas. Furthermore, upgrading low-level platforms to high-level platforms can make it easier for people using wheelchairs or walkers, or pushing strollers, shopping carts, or bicycles, to access the train.

Potential Example Application: NJ TRANSIT should consider working with municipalities to identify methods to enhance safety and security in and around the train station area to address community concerns. This could include improved lighting and surveillance, more public safety presence, and general station maintenance to remove trash, graffiti, etc.

- **Recommended Activities:** Provide and maintain restrooms to improve the customer experience.
- Enhance passenger safety at stations through improved lighting and surveillance.
- Increase police presence at stations with known safety issues.
- Improve “quality of life” maintenance such as trash clean up and removal, removal of graffiti, maintenance of waiting areas, etc.
- Upgrade all stations to be ADA accessible. Low-level platforms currently exist at the Manasquan, Spring Lake, Belmar, Bradley Beach, Allenhurst, Monmouth Park (seasonal), and Little Silver stations.

Tool 4I: Provide climate-controlled waiting areas at ferry stops.

Transects: Shore Town

Implementation Timeline: Short-Term (<5 years)

Lead Implementer: Ferry Service Providers and Terminal Owners

Supporting Implementers: N/A

Cost Range: \$ - \$\$

Description: Public feedback obtained for the Monmouth PATHS: Access for All study noted some of the existing ferry terminals in the County are not sufficiently heated during the winter months.

Potential Example Application: Ferry service providers should provide improved shelter areas, or climate-controlled waiting areas for passengers where they do not already exist.

Recommended Activities:

- Provide improved shelter areas or climate controlled waiting areas.
- Improve heating, especially outdoor heating in queueing areas, and offer priority seating in warmest locations for seniors and people with disabilities.

Strategy 5: Improve transit service and increase connections to major activity centers west of the County.

Tool 5A: Re-evaluate existing transit corridors for realignment and the addition of microtransit.

Transects: All

Implementation Timeline: Short-Term (<5 years)

Lead Implementer: NJ TRANSIT

Supporting Implementers: Monmouth County

Cost Range: \$ (study only)

Description: Monmouth County residents expressed multiple barriers to using the existing transit system, including:

- Limited service span, especially on weekends
- Long wait times
- Frequent delays, often resulting in missed transfers
- Lack of east-west connections
- Poor pedestrian or bicycle access to stops/stations, especially for individuals with lower level of mobility
- Lack of comfortable shelters at bus stops and ferry terminal

Service-related strategies tend to be related to County-wide challenges. To address bus service, the County could partner with NJ TRANSIT on a County-wide re-evaluation of existing bus service and transit need. NJ TRANSIT is currently conducting bus network redesigns in Hudson County, Newark and its surrounding areas, and the Burlington, Camden, and Gloucester County areas. A similar effort in Monmouth County may help coordinate services, improve intra-county connections, and enhance existing services.

Potential Example Application: The County should team with NJ TRANSIT to conduct a bus network redesign study to modify bus routes and schedules to better meet the needs of County residents.

Recommended Activities:

- Heavily weigh and evaluate service options that are intended to serve the needs of the County's vulnerable populations and their needs when accessing employment, healthcare, education, recreation, and other services.
- Perform annual/periodic review of transit services in the County, especially bus service, with County, NJ TRANSIT and NJDOT.
- Evaluate the feasibility of adding intra-county bus service between "centers" as well as along key East-West roads.

Tool 5B: Investigate east west corridors for potential transit or microtransit improvements.

Transects: Village, Suburban, Town Center, Shore Town

Implementation Timeline: Medium-Term (<5 years)

Lead Implementer: NJ TRANSIT

Supporting Implementers: Monmouth County, Municipalities, NJDOT

Cost Range: \$\$ - \$\$\$

Description: Much of the bus and rail network has a north-south orientation, making many intra-county trips lengthy. Furthermore, only one east-west route provides service after 7:00 PM and this service is partially paid for by Monmouth County to keep it running into the evening. Participants in the outreach effort requested additional service along the following east-west corridors: NJ Route 33, Route 18, and I-195. Further opportunities for connections from Bayshore to Freehold could also be explored.

Although US Route 9 is a north-south corridor with frequent service, residents acknowledged its significance for transit access in the County. Residents requested new or enhanced east-west services feeding into US Route 9 to better access New York City. NJ TRANSIT is conducting the US Route 9 Transit-Oriented Development Study to explore how land use changes at major US Route 9 bus stops could support ridership and improve access.

Potential Example Application: As part of a Monmouth County bus network redesign study, NJ TRANSIT and Monmouth County could re-evaluate east-west desired service and determine if there are opportunities to enhance connections between the County's transportation disadvantaged communities and employment, education, healthcare, and other services.

Recommended Activities:

- Monmouth County could work with NJ TRANSIT to identify potential east-west services along NJ Routes 33 and 18, and I-195.
- Evaluate an increase in frequency of service on existing east-west routes and expand operating hours to meet demands of low-wage employees that are typically employed in the service industry.
- Consider how land use affects the ability to improve transit service and encourage municipalities to allow higher densities of development along bus routes.

- Implement the recommendations of the Monmouth County Bus Rapid Transit Opportunities study.

Tool 5C: Investigate the need for more convenient transit service to employment centers west of the County such as New Brunswick, Princeton, and Trenton.

Transects: Village, Suburban, Town Center, Shore Town

Implementation Timeline: Long-Term (5 – 10 years)

Lead Implementer: NJ TRANSIT

Supporting Implementers: Monmouth County, Municipalities, NJDOT

Cost Range: \$\$ - \$\$\$

Description: Inter-county transit services in Monmouth County are oriented north-south, connecting the County with employment centers such as Newark and New York City. Participants in the outreach effort noted a need to improve connection to other employment centers to the west of the County, such as New Brunswick, Princeton, and Trenton. Although work trip data does not directly indicate the need for transit service to areas to the west, participants noted that there are no direct connections to those cities, and current transit connections require riders to travel north to then return south to those locations. The lack of such east-west service does not indicate a lack of desire to reach these employment centers.

Potential Example Application: New Brunswick has been identified in the location-based data used for this study as having a minor concentration of both work and education trips for low-income Monmouth County residents. As part of a bus network redesign study, NJ TRANSIT and/or Monmouth County could undertake a more detailed examination of potential transit demand between specific areas in the County and employment and educational centers in New Brunswick.

Recommended Activities:

- Monmouth County should work with NJ TRANSIT to identify the potential for more convenient transit connections to employment centers to the west of the County, such as New Brunswick, Princeton, and Trenton.
- Consider an initial route that connects to one of these locations through Asbury Park and Freehold.

Tool 5D: Enhance local transit service.

Transects: Village, Suburban, Town Center, Shore Town

Implementation Timeline: Medium-Term (5 – 10 years)

Lead Implementer: NJ TRANSIT, Municipalities

Supporting Implementers: Monmouth County

Cost Range: \$\$ - \$\$\$

Description: Study participants noted that long-haul commuter routes are not the only County-wide need. Some communities may benefit from enhanced local service as well, including:

- Long Branch
- Red Bank/Little Silver
- Asbury Park
- Atlantic Highlands/Highlands
- Cliffwood Beach/Keyport/Union Beach
- Colts Neck
- Eatontown
- Englishtown
- Farmingdale
- Holmdel
- Keansburg/Port Monmouth
- Middletown/North Monmouth/Hazlet
- Western Monmouth County to Mercer County (i.e., Allentown/Robbinsville/Hamilton Township)

Potential Example Application: As part of a potential bus network redesign study, Monmouth County could work with NJ TRANSIT to evaluate the potential for operating a higher-frequency rail shuttle route along the North Jersey Coast Line between Long Branch and Bay Head. This could provide enhanced connectivity to areas along the rail line and potentially allow for reallocation of bus resources to other areas of the County that are in need of improved transit.

Recommended Activities:

- Evaluate how on-demand and/or microtransit services could be utilized to fill local gaps in fixed-route transit services.
- As per the 2021 *Monmouth Within Reach* Study, evaluate the feasibility to operate a higher-frequency shuttle-style rail service on the North Jersey Coast Line between Long Branch and Bay Head. This service could utilize fewer cars making more frequent trips.

Tool 5E: Study the need for and feasibility of reducing transit transfers.

Transects: Village, Suburban, Town Center, Shore Town

Implementation Timeline: Short-Term (<5 years)

Lead Implementer: NJ TRANSIT

Supporting Implementers: Monmouth County

Cost Range: \$

Description: Participants in the study outreach indicated that bus operations are unreliable and lead to difficult or missed transfers. Given the overall low frequency of bus service in the County, a missed transfer between bus routes could require a transit user to wait upwards of one hour to access another bus. Transfers become more critical at the end of the day when bus service on one route may end, leaving riders to seek other options.

Potential Example Application: NJ TRANSIT could conduct outreach to riders of local routes to identify where the most challenging transfers exist. The results of the outreach may lead to the identification of the need for a bus network redesign study.

Recommended Activities:

- Conduct public outreach, and work with community advocates to determine where challenging transfers exist.
- Align schedules to minimize wait times at transfer points.
- Improve bus tracking and/or communication between bus drivers so that buses may be held at transfer points if one route is running late.

Tool 5F: Provide seasonal transit service to shore communities.

Transects: Shore Town

Implementation Timeline: Medium-Term (5 – 10 years)

Lead Implementer:

Supporting Implementers: NJ TRANSIT, Municipalities, Monmouth County

Cost Range: \$\$ - \$\$\$

Description: The 2021 *Monmouth Within Reach* Study, highlighted the congestion and parking challenges in shore communities due to the influx of visitors and workers during summer months. Offering convenient, frequent transit service may help address these challenges and provide better access to non-drivers, as well as providing the ability for visitors to travel around the shore communities without needing to drive.

Potential Example Application: Monmouth County could work with Shore Town transect municipalities to identify the potential need for shuttles that can support local transportation for residents, workers, and visitors. Consider precedents set in other communities. For example, the Atlantic City Jitney Association provides a Friday and Saturday shuttle between Avalon and Stone Harbor to provide visitors with options to travel between the activity centers in both shore towns during the peak days for visitation.

- **Recommended Activities:** Work with NJ TRANSIT to evaluate potential increases in transit services during peak summer months.
- Explore the potential for and implement seasonal microtransit.

Example Application in New Jersey: AC Jitney Association provides a Friday and Saturday shuttle between Avalon and Stone Harbor to provide visitors with options to travel between the activity centers in both shore towns during the peak days for visitation.

Tool 5G: Install bus priority measures in congested areas.

Transects: Suburban, Town Center, Shore Town

Implementation Timeline: Long-Term (>10 years)

Lead Implementers: NJDOT, NJ TRANSIT

Supporting Implementers: Monmouth County, Municipalities

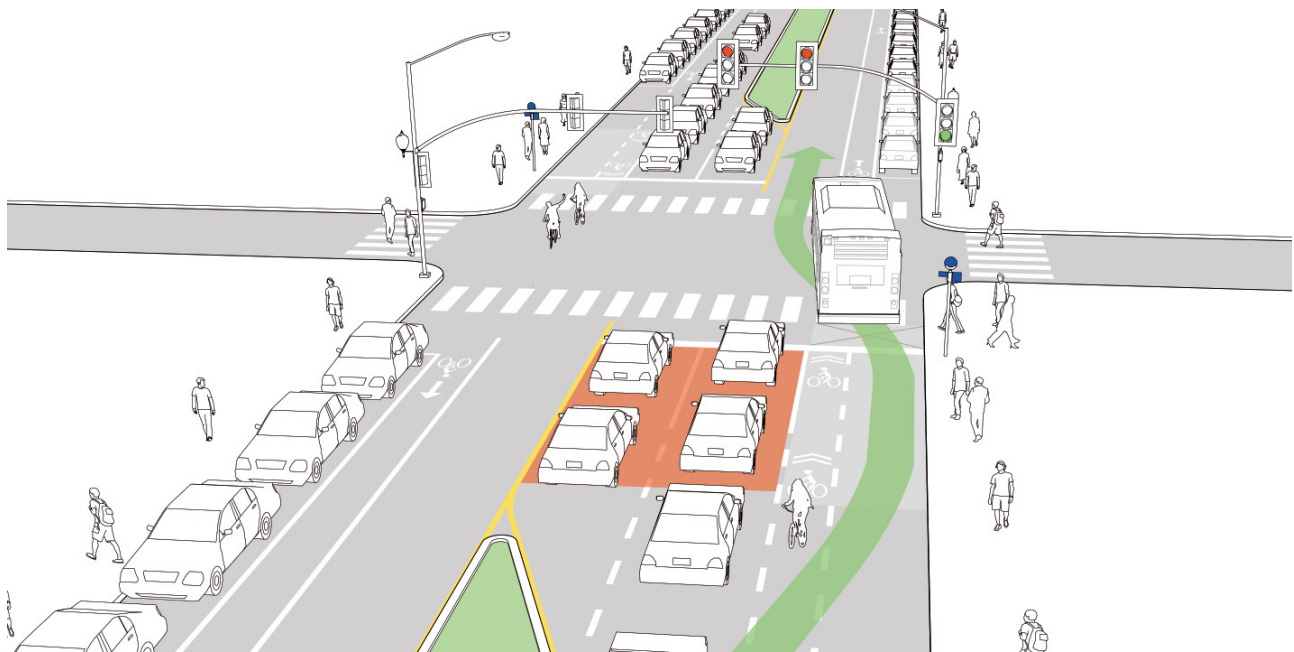
Cost Range: \$\$ - \$\$\$

Description: In the highest use transit corridors, such as US Route 9, bus priority measures may help increase the speed of buses. This could help make the bus more competitive with driving, thereby attracting additional ridership.

Potential Example Application: NJDOT and NJ TRANSIT should continue their ongoing coordination regarding planned transit priority treatments such as signal priority and queue jumps on the US Route 9 corridor.

- **Recommended Activities:** Continue to work with NJ TRANSIT to identify key areas where buses are delayed due to congestion.
- Utilize the potential of transit signal priority, dedicated bus lanes, or queue jump lanes (Figure 19).
- Consider potential time savings of passengers, not just impact on congestion.

Figure 19: Bus queue jumps with transit signal priority can help buses jump ahead of congestion at signalized intersections. (Image Source: NACTO)



Strategy 6: Implement policies that encourage mixed-use, multi-modal-supportive development patterns that provide a variety of housing options.

The tools presented in Strategy 6 are primarily related to land use and zoning which can be more complicated in nature. Summary guidance is provided in this document and a more detailed explanation of the concepts behind the tools presented here are contained in **Attachment A**.

Tool 6A: Update subdivision and zoning standards to encourage or require transit-supportive development.

Transects: Rural/Natural and Suburban

Implementation Timeline: Medium-Term (5 – 10 years)

Lead Implementer: Municipalities

Supporting Implementers: N/A

Cost Range: \$ (policy only)

Description: New development can add barriers to mobility by replicating historic development patterns that support automobile dependence. Rural and suburban municipalities can have larger subdivision projects due to the availability of large parcels and farmland. To address these problems municipalities should update subdivision and zoning standards to encourage or require transit-supportive development. For example, cluster development can be designed to form nodes of higher-density development that provides economic growth opportunities and housing in a mixed-use, walkable environment, that can be more easily served by transit.

Potential Example Application: Cox's Corner in Upper Freehold is a growing node due to its proximity to an interchange with I-195. The Township could modify zoning to permit higher-density residential and/or mixed-use development in a more walkable "village" style network. If bus service is provided along the I-195 corridor, transit-supportive development could serve as a node for that service.

Recommended Activities:

- Encourage transit-supportive development throughout a municipality where doing so would reduce the distance between housing and key destinations.

- Allow for higher-density transit-oriented development within ¼ mile of bus stops with high-frequency (<30-minute headway) service or within ¼ mile of a commuter rail station.
- Require that developments to have a high degree of internal connectivity.

Tool 6B: Plan for walkable communities that can be enhanced through transit expansion.

Transects: Suburban

Implementation Timeline: Medium-Term (5 – 10 years)

Lead Implementer: Municipalities

Supporting Implementers: NJ TRANSIT

Cost Range: \$ (policy only)

Description: Suburban communities may be home to large shopping centers, big-box commercial areas, major industrial, or institutional tracts that are aging out of their useful life. These areas present opportunities to develop more accessible communities that combine housing, jobs, retail, and amenities in walkable environments.

Potential Example Application: Shopping malls traditionally served as regional hubs for retail and were located at strategic locations that had good access to the regional transportation network. Monmouth Mall, for example, is in close proximity of several highways and major arterials including the Garden State Parkway, NJ Routes 18, 36, and 35. In addition, it is served by two NJ TRANSIT bus routes. As shopping malls continue to struggle, they open the opportunity to harness the transportation connections to provide a wider variety of uses, such as housing (including affordable options), retail, office, and healthcare. A current proposal for Monmouth Mall includes the redevelopment of the site to include 1,000 apartments, new commercial uses, and a central outdoor public space. Eatontown and the developer should work together with NJ TRANSIT to identify ways to incorporate transit into the site design.

Recommended Activities:

- Work with property owners to establish development plans.
- Encourage street networks and housing typologies that would support transit expansion, even if no plans are currently in place.
- Identify opportunities for the development of mixed-use communities.
- Identify opportunities for the use of shared access driveways to reduce curb-cuts to prevent conflicts with sidewalk and bicycle lane users.
- Adopt zoning and subdivision standards that align with LEED-ND and similar programs that promote smart growth.

Example Application in New Jersey: The former 200-acre Johnson & Johnson property in North Brunswick is planned to include living units, retail stores, commercial office space, restaurants, and a hotel. The developer and the Township are still working with NJ TRANSIT to build a new train stop in the area. However, such major transit infrastructure investments are not always required. Substantially less time and resources are necessary to expand bus service, and close coordination with NJ TRANSIT is a must.

Tool 6C: Require developers to design sites to accommodate pedestrians, bicyclists, and transit riders.

Transects: All

Implementation Timeline: Short-Term (<5 years)

Lead Implementer: Municipalities

Supporting Implementers: Monmouth County

Cost Range: \$ (policy only)

Description: Several comments received through the public outreach revealed a disconnect between the way sites are designed and how people want to access them. In general, developments in the County have traditionally been auto-oriented with limited sidewalk connections, no accommodations for bikes, and poor transit connectivity where transit is provided nearby. This is particularly true of office, retail (shopping centers), and industrial parks. These land uses tend to consist of low-density development that is spread over a large area and is separated from major pedestrian, bicycle, and transit infrastructure by large parking lots. This type of site design makes it challenging to use modes other than driving, and also makes it difficult to serve these areas with higher-quality transit service or pedestrian/bicycle infrastructure.

Potential Example Application: Municipalities in Monmouth County could develop and use mobility-supportive development checklists (see Recommended Activities below) that outlines elements of site design that enhance accessibility for pedestrians, bicyclists, and transit users. This checklist would be particularly valuable in the County's Suburban, Town Center, and Shore Town transects to help avoid common pitfalls of new development. For examples, the West Grove Square shopping center in Neptune lies in an area of traditional "main street" style retail, but is more auto focused in its design with parking laying between the storefronts and the retail. There are no separated pedestrian connections between the surrounding sidewalk network and the storefronts or the nearby bus stop. A checklist that promotes building frontages along the street with parking in the back, or requirements for separated and dedicated sidewalks to connect the storefront to the major streets, could help to make future retail development like this shopping center an extension of existing "main street" style retail.

- **Recommended Activities:** Develop a mobility-supportive development checklist that outlines ways to enhance access to new development by walking, riding a bike, or using transit. The checklist should consider factors including, but not limited to the following:
 - How the layout and circulation plan for the site aligns with other nearby development.
 - The potential for double-frontage or other similar building styles that place buildings closer to the street with parking in the rear to enhance accessibility of the development.
 - Interconnections between adjacent land uses for vehicles and/or pedestrians. This should include interconnecting roadways between sites where possible to reduce circulation between sites on the adjacent roadway network. Where retail sites abut residential development, look for opportunities to provide a sidewalk connection between the land uses.
 - Dedicated pedestrian pathways to building entry points from the surrounding street network. Striped crosswalks through a parking lot should be considered compliant. Separated pedestrian walkways are preferred (see **Figure 20**).
 - Designated routes for bicyclists to use when on-site. Striping or signing may be appropriate along major circulation roadways within the site to indicate the potential presence of bicyclists.
 - Bicycle parking. Covered bike parking with pump and tool stations should be considered on retail, office, and industrial sites. For office development, developers should be encouraged to provide shower and locker facilities for people that walk or bike to work.
 - Bus service near the site, are there dedicated pedestrian walkways to connect to the bus stop, with a shelter or other amenities. Municipalities should ensure that there is also a safe pedestrian route to the bus stop in the opposite direction.
 - Pedestrian-scale lighting along walkways that help enhance the visibility and safety of pedestrians walking from the street to a building entrance.

Example Application: Figure 20 shows an example of how traditional suburban development can be improved to enhance accessibility for all users. Items of note are the dedicated pedestrian walkway through the center of the site that connects directly to a

bus stop on the main roadway (1), the additional pedestrian sidewalks that are provided on either end of the site (2), a pedestrian connection to the retail site to the west (3), a vehicular connection to the retail site to the east (4), landscaping and street trees along the sidewalks to provide a more pleasant walking experience (5), and dedicated bike parking next to the building at the end of the main driveway from the major roadway (6). All of these measures help to enhance accessibility of the site even in a challenging location.

Figure 20: An Example of a Suburban Retail Site with Multi-Modal Design (Image Source: Google Earth)



Tool 6D: Update site plan and subdivision controls.

Transects: All

Implementation Timeline: Short-Term (<5 years)

Lead Implementer: Municipalities

Supporting Implementers: Fort Monmouth Economic Revitalization Authority (FMERA)

Cost Range: \$ (policy only)

Description: Site plan and subdivision controls allow a municipality to shape the transportation network by requiring new streets to shape blocks of certain dimensions, setting minimum and maximum parameters from intersection to intersection, and establishing general rules for block size and configuration. The creation of new streets frequently accompanies subdivision applications. In New Jersey, the Residential Site Improvement Standards (RSIS) govern the requirements for new streets in all residential projects. However, there is no State-wide standard for how streets should be designed with respect to mixed-use or commercial developments.

Potential Example Application: The Fort Monmouth Redevelopment Plan was first prepared in 2008 and outlined a potential land use and transportation plan. However, the plan is outdated and does not reflect current plans for areas of the Fort that are yet to redevelop. Eatontown and Oceanport could work with the Fort Monmouth Economic Revitalization Planning Authority to set specific guidance for the transportation network that would be needed to support the planned development.

- **Recommended Activities:** Update site plan and subdivision controls to:
 - Require sidewalks in all possible conditions not otherwise governed by RSIS and set standards for their minimum size. Refer to Tool 1A for further guidance on sidewalk requirements.
 - Require and set standards for pedestrian-scale lighting.
 - Include requirements for street trees, including appropriate spacing.
 - Specify driveway requirements, including limiting the size and frequency of curb cuts.
 - Identify what types of development should trigger the provision of bicycle infrastructure.

Tool 6E: Adopt an Official Map.

Transects: All

Implementation Timeline: Medium-Term (5 – 10 years)

Implementers: Municipalities, Monmouth County

Cost Range: \$ (policy only)

Description: The official map identifies the location and width of streets, whether such streets are improved, unimproved, or are in actual physical existence, among other elements. The official map gives a municipality the authority to deny permits to build on the reserved areas. The map provides a very clear picture to property owners, developers, and the of the municipality's intentions regarding physical form and design.

Potential Example Application: As part of master planning efforts, municipalities should consider creating or updating an official map that secures rights-of-way for future transportation needs, particularly as it applies to subdivisions. An official map should include separate pedestrian and bicycle pathway rights-of-way as needed to enhance connections between land uses or to/from existing pedestrian or bicycle infrastructure. Similarly, the County should consider updating its Road Plan, which shows the desired right of way and cross sections of the County road network. These plans should be adopted into the appropriate master plan.

- **Recommended Activities:** Adopt into the appropriate master plan an official map that establishes the following (refer to Attachment A for further guidance):
 - Location and width
 - Typical cross sections
 - The type (improved, rights-of-way, unimproved, future, etc...)
 - Location of planned roads
 - Form and function
 - Trail locations and potential connections

Tool 6F: Allow for shared parking.

Transects: All

Implementation Timeline: Short-Term (<5 years)

Lead Implementer: Municipalities

Supporting Implementers: N/A

Cost Range: \$ (policy only)

Description: In many areas, parking is designed with a one-size-fits-all approach, primarily catering to private car ownership. This model often leads to inefficient use of space, with parking lots and structures remaining underused during off-peak hours and overly congested during peak times. The lack of flexibility in traditional parking systems creates a barrier to integrating different modes of transportation, such as public transit, cycling, and carsharing, thus discouraging their use.

Shared parking standards introduce a dynamic and flexible approach to parking management. These standards are based on the principle of sharing parking spaces among multiple users and uses, depending on the time of day, day of the week, and specific needs of the area. For example, a parking lot could serve an office building during weekdays and a recreational facility during weekends.

Potential Example Application: As noted in Appendix A, Long Branch does not currently have shared parking guidance as part of its parking ordinance. Shared parking is allowed to be shared between uses, but the total number of parking spaces provided must be able to support the aggregate demand of the uses. While the ordinance does technically permit shared parking, it does not specify a methodology for computing shared parking potential. Long Branch could adopt a shared parking policy, such as the one adopted by Red Bank.

Recommended Activities:

- Create provisions that allow for agreements between property owners to provide parking within 500 feet of new commercial development.
- Examine opportunities where municipal parking lots could also support commercial properties. Where opportunities exist, consider fee-in-lieu of parking provisions.
- Where mixed-used development occurs, allow applicants to petition for a reduction in parking requirements where they can demonstrate that shared parking strategies would decrease physical demand.

- Where mixed-use communities are possible, utilize district parking and other strategies to reduce the overall demand for and supply of parking.
- In the Shore Town transect, examine opportunities where seasonal parking lots could provide parking during off-peak times/seasons to reduce the overall amount of land dedicated to parking.

Example Application in New Jersey: Red Bank has extensive guidance provided regarding shared parking, including a methodology for calculating shared parking needs. Furthermore, the ordinance provides requirements for electric vehicle charging in any parking areas with more than 20 parking spaces. These policies work to reduce the area needed for parking and promote cleaner forms of transportation.

Tool 6G: Update traffic impact study guidelines to require pedestrian and bicycle safety analyses as a measure of effectiveness that has equal weight to vehicle metrics.

Transects: All

Implementation Timeline: Short-Term (<5 years)

Lead Implementer: NJDOT, Municipalities, Monmouth County

Supporting Implementers:

Cost Range: \$ (policy only)

Description: Traffic impact study requirements utilized by NJDOT, the County, and most municipalities largely focus on vehicle operations and require mitigation measures that prioritize vehicles, often at the expense of other modes. Traffic impact study guidelines should focus on the performance and safety of all modes and require or incentivize developers to contribute to active mode and transit infrastructure, where feasible and a rational nexus exists, to offset impacts and improve safety outcomes.

Potential Example Application: Implementers could revise traffic impact study requirements that require or incentivize developers to offset impacts and improve safety by providing pedestrian, bicycle, and transit (where available) enhancements on and off-site, where a rational nexus exists.

Recommended Activities:

- Consider the roadway conditions in and around the development site, in the context of its surroundings as related to mobility and safety for all travelers.
- Provide standards and guidelines within the required mitigation guidance that requires or incentivizes developers to provide other multimodal improvements such as bicycle lanes, multi-use pathways, enhances transit amenities, etc. that encourage access by modes other than driving.

Tool 6H: Adopt multimodal parking requirements.

Transects: All

Implementation Timeline: Medium-Term (5 – 10 years)

Lead Implementer: Municipalities

Supporting Implementers: N/A

Cost Range: \$ (policy only)

Description: Requiring parking spots for bicycles, scooters, and car-sharing vehicles in strategic locations encourages their use and facilitates easy transfers between modes. This not only makes transportation more accessible but also reduces reliance on private vehicles, leading to improvements in mobility for all users.

Potential Example Application: The majority of municipalities in Monmouth County do not have specific requirements for parking areas for bikes and scooters. All municipalities should provide guidance for bike and scooter parking with provisions for secured, covered parking, battery charging and/or pump and tool stations.

- **Recommended Activities:** Create provisions that require bicycle parking for all new commercial and multi-family development.
- Establish electric vehicle parking requirements for commercial, office, industrial, and multi-family development.
- Utilize secured and protected parking that goes beyond traditional bike racks.
- Create provisions that support carsharing and micro-mobility users in Suburban, Town Center, and Shore Town transects.

Tool 6I: Create buffering and landscaping requirements for parking areas that abut public rights of way.

Transects: Village, Suburban, Town Center, Shore Town

Implementation Timeline: Short-Term (<5 years)

Lead Implementer: Municipalities

Supporting Implementers: Monmouth County, NJDOT

Cost Range: \$ (policy only)

Description: Uses in Village and Suburban transects are likely to be serviced by surface parking lots and it may be unavoidable for that parking to be located near pedestrian areas. Town Centers are likely to have the most robust pedestrian infrastructure and it will be important to protect those areas from the negative impacts from surface and structure parking. Requiring enhanced landscaping standards can ensure people have an attractive and comfortable walking environment.

Potential Example Application: Municipalities should re-evaluate landscape requirements for surface parking lots to enhance the walking environment, such as street trees, buffering between parking and walkways, street furniture, and pedestrian-scale lighting.

Recommended Activities:

- Create buffering and landscaping requirements for parking areas that abut public rights of way.
- Utilize buffer spaces to provide areas for bicycle and scooter parking, charging or sharing.

Strategy 7: Improve connections between the County's transportation disadvantaged populations and critical services such as healthcare, education, recreation, grocery stores, and pharmacies.

The tools presented in Strategy 7 are primarily related to land use and zoning which can be more complicated in nature. Summary guidance is provided in this document and a more detailed explanation of the concepts behind the tools presented here are contained in Attachment A.

Tool 7A: Permit missing middle and compact housing types in residential neighborhoods.

Transects: Village, Suburban, Town Center

Implementation Timeline: Medium-Term (5 – 10 years)

Lead Implementer: Municipalities

Supporting Implementers: N/A

Cost Range: \$ (policy only)

Description: Village and Town Center transects may have residential areas adjacent to commercial areas and job centers where new residential development would support walking, biking, and taking transit. In this transect, these are likely to be neighborhoods adjacent to Main streets and historic commercial districts that would support a higher density of missing middle housing. This type of housing bridges that gap between single family and mid-rise residential by providing more affordable options such as townhomes, condos, duplexes, triplexes, cottages, etc. (**Figure 21**).

Potential Example Application: Many municipalities utilize the Redevelopment Area adoption process to revitalize blighted or underutilized areas. During this process a redevelopment plan is developed. When developing the plan, municipalities should assess housing stock and provide recommendations within the plan for missing middle housing types, such as cottages, duplexes, triplexes, and other intermediate housing types.

Recommended Activities:

- Explore with community members the historical patterns of development that might have included small multi-family development.

- Identify an appropriate range and scale of new residential development. For neighborhoods in this transect, it is likely to include accessory dwelling unit (ADU), twins, and multi-family development with up to four units that are designed to be similar in scale to single-family detached housing. Permit such development.
- Adopt hybrid form-based codes to ensure new projects are consistent with the character of the surrounding community.

Figure 21: Missing Middle Housing (Image Source: Opticos)



Tool 7B: Plan for growth in nodes and mobility-rich areas through unified land use and circulation planning.

Transects: All

Implementation Timeline: Medium-Term (5 – 10 years)

Lead Implementer: Municipalities

Supporting Implementers: Monmouth County, NJ TRANSIT

Cost Range: \$ (policy only)

Description: Throughout the County, one of the biggest obstacles to mobility is frequently the distance between origin and destination and the lack of alternatives to driving. To address this, municipalities should consider merging transportation planning and land use policies to encourage development focused on nodes of mobility. This tool has common recommended activities that correspond to more than one transect, as well transect-specific items.

Potential Example Application: NJ TRANSIT is currently evaluating ways to coordinate with property owners about the potential for transit-oriented development along the US Route 9 corridor. Municipalities along this corridor such as Howell, Freehold, Manalapan, and Marlboro could revise their zoning ordinances to allow higher-density mixed-use development around the corridor's bus stops. Incentives should be created that support this type of development on already developed, but underutilized, sites, such as shopping centers.

Recommended Activities: *All Transects:*

- Plan for growth around bus stops and the intersection of major transportation infrastructure.
- Identify locations where new opportunities for higher-density development can be permitted while respecting the existing community character. Focus on areas near bus stops or with strong connections to commercial areas and job centers.
- Improve mobility by creating incentives for developers to build on already developed land in areas already served by transit or with existing sidewalks, bike paths, and other transportation options. Create disincentives, such as requiring developers to pay for utility extension lines, to greenfield development.
- Revise zoning ordinances to reduce building setback requirements and encourage development closer to the street, parking in the rear, and encouraging double frontage buildings.

- Encourage development in these areas to include grocery stores, pharmacies, healthcare facilities, and other services within walking distance of allocations of affordable housing.

Rural/Natural and Village Transects:

- Explore strategies such as Transfer of Development Rights (TDR) and cluster zoning to support additional density near nodes without impacting overall community densities in Rural/Natural and Village transects.

Suburban Transect:

- In Suburban transects, redevelop mobility-rich locations like major shopping malls or rail stations into higher-density residential or mixed-use development.

Town Center Transect:

- Town Centers are most likely to have mobility-rich areas. These may include fixed-rail transit facilities as well as high-frequency bus stops.
- Within 1/4 mile of these assets, plan for multi-family and mixed-use development at densities that are appropriate for the facilities.
- Within ½ mile of these assets, plan for missing middle housing that is compatible with surrounding development patterns.
- Identify mobility improvements, including wider sidewalks and bicycle facilities that would support increased access to transit surrounding neighborhoods.

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Shore Town Transect:

- Shore Towns are frequently oriented towards their primary physical asset: the beach. As such, communities should plan for growth near these areas while recognizing the limitations of growing in areas that are likely within the floodplain.

Example in New Jersey: Several New Jersey communities have undertaken a unified approach including Westfield, Morristown, and Montclair. In addition, more than 35 communities have been designated “Transit Villages,” which means they have met the criteria and demonstrated a commitment to promoting new development near transit assets. Currently, Asbury Park, Belmar, Matawan, and Long Branch are the only transit villages in Monmouth County, though Red Bank and Freehold have both taken steps toward certification.

Tool 7C: Plan for housing for transportation disadvantaged communities near transit and mobility-rich areas.

Transects: Village, Suburban, Town Center, Shore Town

Implementation Timeline: Medium-Term (5 – 10 years)

Lead Implementer: Municipalities

Supporting Implementers: N/A

Cost Range: \$ (policy only)

Description: Transportation disadvantaged communities throughout the County face obstacles accessing jobs and essential services. To address this, municipalities should adopt policies that promote the provision of affordable housing near major transit nodes, commercial centers, and/or employment centers.

Potential Example Application: As mentioned in Tool 7A, NJ TRANSIT is currently evaluating potential for transit-oriented development along the US Route 9 corridor. Municipalities should evaluate affordable housing needs in their communities and offer incentives for developers to provide more affordable housing than is typically required.

Recommended Activities:

- Identify the municipality's existing transportation disadvantaged communities and determine the extent to which their housing conditions present a barrier to mobility.
- Identify locations near bus stops, commercial centers, and job destinations that would be appropriate for new housing.
- Identify the type of housing that would be appropriate for the specific subset of transportation disadvantaged communities that are under-served within the community.
- Include recommendations on where such housing should be located.

Tool 7D: Allow for mixed-use districts.

Transects: Village, Suburban, Town Center

Implementation Timeline: Medium-Term (5 – 10 years)

Lead Implementer: Municipalities

Supporting Implementers: N/A

Cost Range: \$ (policy only)

Description: The largest land-use barrier to mobility is the distance between where people live and where they need to go. As such, traditional Euclidean zoning strategies that separate land uses have extended, and can continue to extend, the distances between housing, jobs, and services, including retail services. Communities looking to overcome barriers to mobility should allow for a variety of land uses proximate to housing, including within the same zone. Where there are concerns about the impact of such uses on the surrounding residential area, municipalities can utilize conditional use permissions.

Potential Example Application: Manasquan's Main Street is abutted by surface parking lots on its south side. In addition, there is a large parking area surrounding the CVS (former ACME) on Main Street. Manasquan could evaluate the potential to redevelop some of these surface parking lots to provide higher-density residential with affordable components within close proximity to the Main Street corridor.

Recommended Activities:

- Identify areas where additional residential growth would be compatible with existing development patterns. These are likely to be small main streets and historic commercial centers.
- Explore new residential development types that would be appropriate in the area (see Permit Missing Middle and Compact Housing Types). Near commercial corridors, these are likely to be small multi-family projects. Include an examination of age-restricted and accessible housing options.
- Update the ordinance to permit housing with specific site development standards (lot coverage, building height, parking, etc.) that relate to housing development.
- Adopt hybrid form-based codes to ensure new projects are consistent with the character of the surrounding community.

Tool 7E: Enhance access to alternative transportation options for elderly, disabled, and residents with mental health needs.

Transects: All

Implementation Timeline: Short-Term (<5 years)

Lead Implementer: Monmouth County, NJ TRANSIT

Supporting Implementers: Municipalities

Cost Range: \$ (policy only)

Description: The Experiences Committee identified challenges to providing access to alternative means of transportation for County residents that are elderly, disabled, or live with mental illness. The challenges are two-fold. First, there is a lack of knowledge of the options that currently exist or how to access them, particularly in low-income and minority communities. There is no central repository of information and websites that currently exist often point to other websites which can be difficult to navigate or understand. Second, a lack of resources, such as available drivers with commercial drivers licenses (CDLs), make it difficult to provide access to the services that meets the demand. CDL drivers are in high demand, and it is difficult for agencies to compete with trucking companies when it comes to wages.

Potential Example Application: Shore House is New Jersey's only accredited Clubhouse which is a community-based service that supports and empowers people living with mental illness. It does not provide a treatment program, but rather a place where members can learn new skills, develop new relationships, and explore new opportunities. Shore House staff noted that individuals seeking Access Link rides to appointments for mental health treatment are routinely denied eligibility because mental illness is not a direct qualification metric. In order to be qualified for rides through Access Link, an individual must then submit an appeal, which takes about a month to process. These individuals are generally approved, but the process can be daunting and burdensome, particularly for people living with mental illness.

Shore House assists its members in making appointments, scheduling rides, and filing appeals. But this issue may be problematic for non-members. Access Link eligibility requirements could be adjusted to make it easier for those living with mental illness to navigate the application process and avoid the more daunting appeal process.

Recommended Activities:

- Restructure Access Link eligibility requirements to make it easier for those living with mental illness to navigate the application process and avoid the more daunting appeal process.
- Fund training and licensure of CDL drivers that would work for the County's SCAT program.
- Coordinate with transportation network companies, such as Uber and Lyft, to provide more accessible vehicles, such as vans.
- Develop a website that contains all information regarding mobility options for elderly, disabled, and those living with mental illness. This website should contain all information necessary to understand and access the options in a user-friendly format and should not require that users link to other websites.
- Use microtransit to offset demand for services in the County's denser Town Center and Shore Town transects.

Strategy 8: Improve safety for all roadway users.

Tool 8A: Prioritize proven safety countermeasures that support mobility for vulnerable road users.

Transects: All

Implementation Timeline: Short-Term (<5 years)

Lead Implementer: Monmouth County, Municipalities, NJDOT

Supporting Implementers:

Cost Range: \$\$ - \$\$\$

Description: Crash data from 2019-2022 reveals clustering of pedestrian and bicycle crashes along major corridors, such as US Route 9, NJ Routes 35 and 36, as well as within Town Center and Shore Town transect communities. Many proven safety counter measures also fall into the category of "traffic calming", a term used to describe a suite of options that can be deployed to slow traffic, increase visibility of pedestrians and bicyclists, and reduce the number and severity of crashes. Proven safety countermeasures that calm traffic should be prioritized in areas frequented by vulnerable pedestrian populations, such as old adults and children, and others who may be mobility impaired yet reliant on active transportation, to reduce vehicle speeds and enhance safety and comfort for pedestrians and bicyclists.

Potential Example Application: A linear cluster of pedestrian and bicycle crashes exists along Memorial Drive in Asbury Park and Neptune. This corridor lies within one of the County's highest concentrations of vulnerable populations, and several public comments highlighted high vehicle speeds, a wide cross-section south of NJ Route 33, and a lack of pedestrian accommodations as issues along this corridor. The County is continuing the existing road diet condition on Memorial Drive through Bradley Beach, Avon-by-the-Sea, and Neptune Township and City.

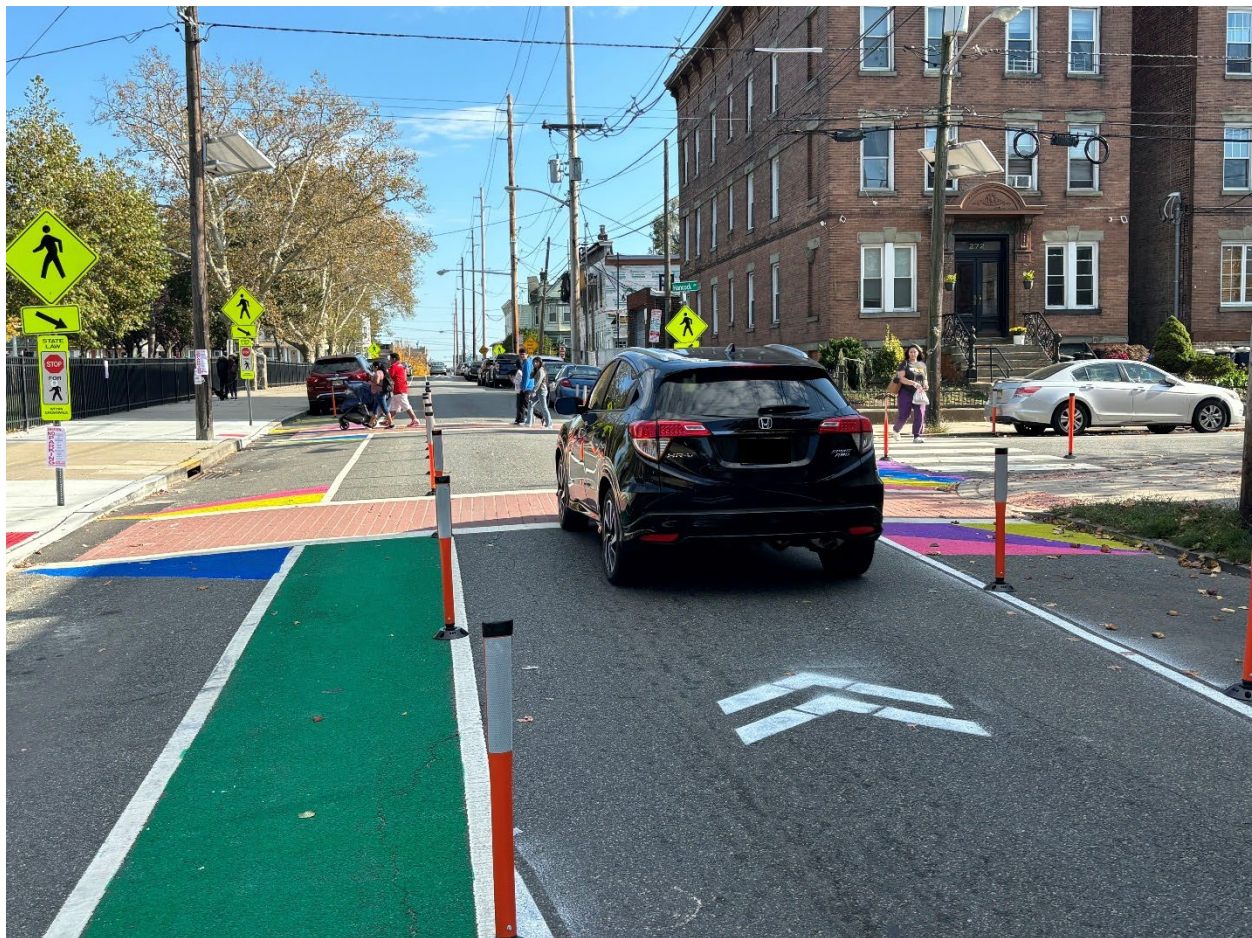
Recommended Activities:

- Utilize existing resources, such as the FHWA Traffic Calming e-Primer (see resource below) to develop a Monmouth-County focused toolkit of strategies that can be deployed in communities in the County.
- Utilize crash and equity data to identify the areas in most need. Data collected for this study revealed crash clustering in Asbury Park, Ocean Grove, Belmar, Freehold, Keyport, Red Bank, and Keansburg, which are all areas with higher concentrations of the County's most vulnerable populations.

- Implement measures such as road diets, curb extensions, chockers, chicanes, speed humps, raised crosswalks and intersections, pedestrian island and refuges, neighborhood traffic circles and diverters, road and turn lane closures.
- Perform demonstration projects in prioritized communities that engage the public to test and evaluate what traffic calming measures they would like to see in their community (**Figure 22**).

Resource: FHWA's *Traffic Calming e-Primer* is a great starting resource to learn about what traffic calming is and the suite of traffic calming measures that are available and studied. <https://highways.dot.gov/safety/speed-management/traffic-calming-eprimer>

Figure 22: An example demonstration project in Jersey City that included painted bike lanes, curb extensions, flexible delineators, and a chicane. (Image Source: Stantec)



Tool 8B: Identify “Safe Routes to Schools” that can be enhanced with active mode infrastructure.

Transects: All

Implementation Timeline: Short-Term (<5 years)

Lead Implementer: Municipalities

Supporting Implementers: Monmouth County

Cost Range: \$\$ - \$\$\$

Description: Children can be counted on to travel to school, to not drive cars, and to want greater independence of motion. Building bike paths and safe walking routes to schools, libraries, playgrounds, and other community assets can serve youth and older adults.

Potential Example Application: Stone Bridge Middle School lies just outside of the Allentown municipal boundary. Many residential areas in and around Allentown are under the two-mile threshold for bussing, but there are no pedestrian or bicycle facilities along CR 524. The school district should seek obtain funding to provide a sidewalk or multi-use pathway along CR 524 between Breza Road and Whippany Drive to provide options for students to walk or bike to the middle school.

Recommended Activities:

- Work with municipalities and school districts to identify school areas in most need of improved pedestrian and bicycle infrastructure.
- Utilize the guidance provided in Tools 1A and 1B, as well as other “Safe Routes to School” resources to plan and design the infrastructure.

Key Resource: New Jersey Safe Routes to School Program: <https://www.saferoutesnj.org/>

Tool 8C: Complete Comprehensive Safety Action Plans and implement the recommendations.

Transects: All

Implementation Timeline: Medium-Term (5-10 years)

Lead Implementer: Monmouth County

Supporting Implementers: Municipalities

Cost Range: \$ (policy only)

Description: Monmouth County received a Safe Streets for All grant for fiscal year 2022 to administer the development of Comprehensive Safety Action Plans for Bradley Beach, Highlands, and Holmdel, as well as develop its own. Subsequently Asbury Park and Red Bank were awarded grants. The action plans will be developed to identify and prioritize low-cost, high-impact strategies, and will explore innovative technologies and strategies promoting safety and equity to reduce or eliminate fatal and high-injury crashes.

Potential Example Application: The County Safe Streets for All Comprehensive Safety Action Plan will, among other tasks, perform a crash analysis and develop a prioritized list of projects under County jurisdiction. The study will provide crash information for all of Monmouth's municipalities, as well as the state, so they can create prioritized project lists for their jurisdictions.

Recommended Activity:

- Develop the Safe Streets for All Comprehensive Action Plans for the County, Asbury Park, Bradley Beach, Highlands, Holmdel, and Red Bank. Provide data for the remaining 48 municipalities to prioritize safety investments.

Key Resource: *Jersey City developed a Vision Zero Action Plan in 2019 and conducts annual monitoring. [Vision Zero - City of Jersey City \(jerseycitynj.gov\)](https://www.jerseycitynj.gov/vision-zero)*

Tool 8D: Adopt municipal complete streets policies.

Transects: All

Implementation Timeline: Short-Term (<5 years)

Lead Implementer: Municipalities

Supporting Implementers: Monmouth County

Cost Range: \$ (policy only)

Description: Municipalities should adopt complete streets policies that require roadways to be designed and operated to enable safe, attractive, and comfortable access for all users. Complete streets policies emphasize the creation of a more integrated and equitable transportation network by incorporating features such as sidewalks, bike lanes, pedestrian crossings, bus lanes, and traffic calming measures into the roadway design. This strategy can be deployed at all Transect levels, but this Tool is most applicable in Suburban, Village, Town Center, and Shore Town contexts. In these contexts, it could mean redesigning existing streetscapes to include safe, dedicated spaces for non-motorized transportation, improving intersections to enhance pedestrian safety, and ensuring that public transit facilities are easily accessible.

Potential Example Application: Few municipalities in Monmouth County have adopted complete streets policies. Middletown is an example of a municipality without a formally adopted policy. Continued growth and redevelopment in the Township coupled with its diverse community types, ranging from villages to suburban areas to more dense communities along the bay shore, makes it an excellent candidate for a near-term adoption of a complete streets policy. Middletown could adopt a formal resolution requiring complete streets that references resources such as the New Jersey Complete Streets Design Guide. Complete streets policies are most critically needed in areas like Lincroft Village, Kings Highway, North Middletown, Port Monmouth, and Leonardo where there are higher proportions of people walking and biking.

Recommended Activities:

- Advocate for municipalities to formally adopt complete streets policies.
- Reference other tools in this toolkit related to complete street features like sidewalk widths, bike lanes, improved pedestrian crossings, etc.
- Incorporate public art, green stormwater infrastructure, lighting, and landscaping into the pedestrian realm

Examples and References in New Jersey:

- ***Washington Street Redesign (Hoboken, NJ):*** Hoboken's main commercial corridor, Washington Street, underwent a significant redesign that incorporated Complete Streets principles. This included the installation of upgraded ADA-compliant curb ramps, rain gardens for stormwater management, new bike lanes, improved pedestrian crosswalks, and traffic signal upgrades with countdown timers and audible signals for visually impaired pedestrians.

<https://www.hobokennj.gov/resources/washington-street>

- ***Speedwell Avenue Revitalization (Morristown, NJ):*** This project focused on transforming the corridor to enhance pedestrian safety and connectivity. It featured widened sidewalks, new crosswalks, bike lanes, traffic calming measures, and streetscape improvements like lighting, street furniture, and landscaping.

<https://www.townofmorristown.org/index.asp?SEC=8614A6E0-3454-4CBC-91CD-EB44F30779C9&DE=C6B4D830-DAA2-4F37-B780-D55A69951FAF>

Tool 8E: Update speed limit policies per the most current edition of the Manual on Uniform Traffic Control Devices (MUTCD).

Transects: All

Implementation Timeline: Short-Term (<5 years)

Lead Implementer: Municipalities

Supporting Implementers: Monmouth County, NJDOT

Cost Range: \$ (policy only)

Description: Several comments were received regarding concerns over speed limits and how they have been established/maintained. The new MUTCD allows for a context-based engineering study to determine posted speed limits for roadways.

Example Application: The County is updating speed limits using the new context-based engineering study recommended by the MUTCD.

Recommended Activities:

- Review the latest guidance on setting speed limits based on the current of the MUTCD.
- Develop and implement a speed limit update policy and coordinate with municipalities.
- Consider the following factors:
 - Roadway environment (such as roadside development, number and frequency of driveways and access points, and land use) and functional classification.
 - Public transit volume and location or frequency of stops.
 - Presence and type of on-street parking.
 - Pedestrian and bicycle facilities and activity.
 - Roadway characteristics (such as lane widths, shoulder condition, grade, alignment, median type, and sight distance).
 - Geographic context (such as an urban district, rural town center, non-urbanized rural area, or suburban area), and multi-modal trip generation.
 - Reported crash experience for at least a 12-month period.
 - Speed distribution of free-flowing vehicles including the pace, 50th-percentile speed (median), and 85th percentile speed (the speed at or below which 85% of drivers travel on a specific road segment).

- A review of past speed studies to identify any trends in operating speeds.

Resource: Section 2B.21 of the MUTCD provides guidance for conducting engineering studies for speed limit setting. https://mutcd.fhwa.dot.gov/kno_11th_Edition.htm

Tool 8F: Improve lighting along sidewalks, bicycle facilities, and trails.

Transects: All

Implementation Timeline: Medium-Term (5-10 years)

Lead Implementer: Municipalities

Supporting Implementers: Monmouth County, NJDOT

Cost Range: \$\$

Description: Lighting, or the lack thereof, along sidewalks, bicycle facilities, and trails is a critical issue identified through outreach across the County. Poor lighting increases pedestrian and bicycle-related crash risks, can encourage illicit activities, and can generally discourage walking or biking. Providing pedestrian/bicycle-scale lighting should be a priority, particularly in areas with higher proportions of low-income and zero-vehicle households.

Potential Example Application: Accessing transit can become more difficult during early morning and evening hours if there is a lack of adequate lighting along sidewalks that connect residents to bus stops. An example of this issue is on East Freehold Road in Freehold Township. Public comments received noted that many residents in the nearby neighborhoods walk to the bus stops on US Route 9 and that poor lighting has led to close calls between pedestrians and vehicles. Freehold Township could conduct a lighting study to identify needs and improve lighting for vehicles and pedestrians.

Recommended Activities:

- Utilize crash data and public feedback to identify areas to prioritize investment in lighting.
- Require pedestrian and bicycle-scale lighting assessments for all intersection and roadway projects, including resurfacing.
- Where new roadway lighting is being installed, install complimentary pedestrian-scale lighting (**Figure 23**).
- Require developers to install pedestrian-scale lighting on sidewalks and pathways within a development.

Figure 23: Pedestrian-scale lighting faces the sidewalk in this example in Scottsdale, Arizona (Image Source: Maricopa Association of Governments)



Tool 8G: Implement additional safety measures at trail crossings.

Transects: All

Implementation Timeline: Short-Term (<5 years)

Implementers: Monmouth County, NJDOT, Municipalities

Cost Range: \$\$ - \$\$\$

Description: The data obtained for this study identified safety concerns around existing trail crossings in the County. Enhancing trail crossing safety will reduce pedestrian and bicycle crashes at crossing locations, encourage use of the trails for those with limited biking experience, and address potential increase in exposure that would result from increased trail use (**Figure 24**).

Monmouth County Parks System currently has federal grant funding for improvement to all road crossings along the Henry Hudson Trail in the Bayshore area. The Division of Engineering and Traffic Safety has federal grant funding for improvements to the Union Transportation Trail (UTT) crossings at CR 524 and CR 539 in Upper Freehold.

Example Application:

- The Monmouth County Parks System has recently begun an extension of the Henry Hudson Trail through Freehold Borough, and in order to maintain connectivity of the trail and reduce the potential for active transportation and vehicle conflicts, has opted to utilize the existing elevation of the former railroad bridge over Center Street to construct a bridge to carry the trail south. The Parks System is improving crossings on its trails and considering other locations to implement bridge crossings.

Recommended Activities:

- Improve lighting at the crossing locations. Provide vehicle and pedestrian/bicycle-scale lighting. Where light pollution is a concern, utilize lighting that is activated by trail users through detection, or lighting with screening to direct light down to the trail only.
- Install high visibility pavement markings.
- Utilize video-detection systems that activate rapid flashing beacons and advanced warning signs.

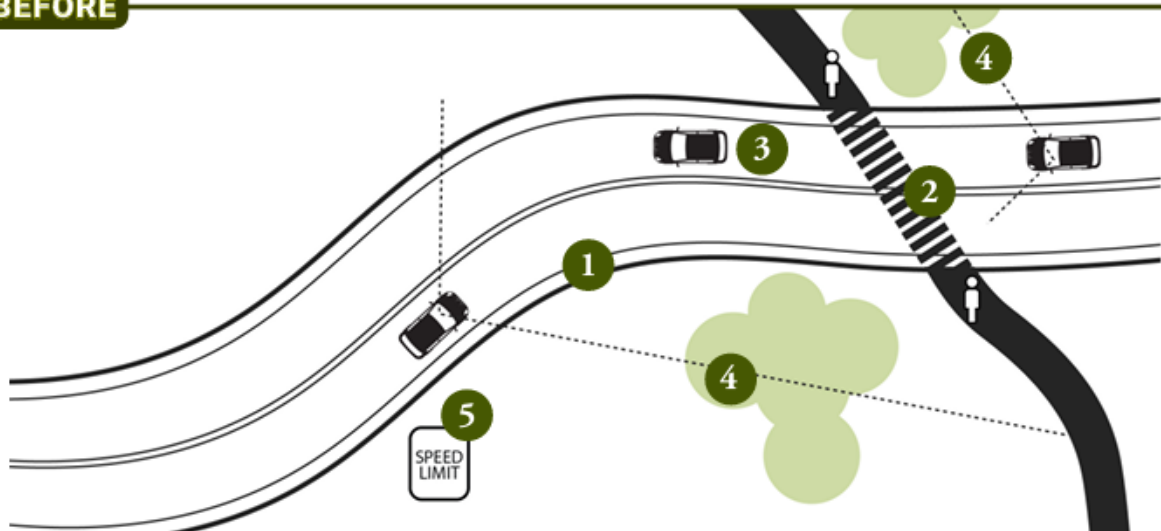
- At high-volume crossings utilize signalization or grade-separated crossing to enhance pedestrian and bicyclist safety.
- Where trails cross wide roadways install curb extensions and/or median refuge islands to shorten crossing distances.
- Install raised crosswalks at crossings on local roadways.(**Figure 25**).
- Research and evaluate advancing technologies for crosswalk safety.

Important Resource: FHWA's "Improving Visibility at Trail Crossings" provides guidance to enhance trail crossings that can be applied to a variety of crossing types. [Improving Visibility at Trail Crossings \(FHWA\)](#)

Figure 24: The graphic below shows how a trail crossing could be improved to increase pedestrian visibility and reduce exposure. (Image Source: FHWA)

Higher traffic speeds ⑤ affect driver stopping sight distance when approaching mid-block trail crossings, and higher traffic volumes reduce the number of gaps that trail users have to cross the road in one stage ③. Curved roadways and skewed trail approaches ① limit visibility and sight distance of trail crossings, and vegetation or buildings near the crossing restrict driver and trail user view of the crossing ④. Wider or multilane roadways create longer crossing distances ②. These conditions are improved by removing visual obstructions such as tall vegetation and installing advance warning signs ahead of the trail crossing. Countermeasures such as refuge islands provide for a multistage crossing and may help reduce approaching speeds, and RRFBs improve driver visibility of the trail crossing.

BEFORE



AFTER

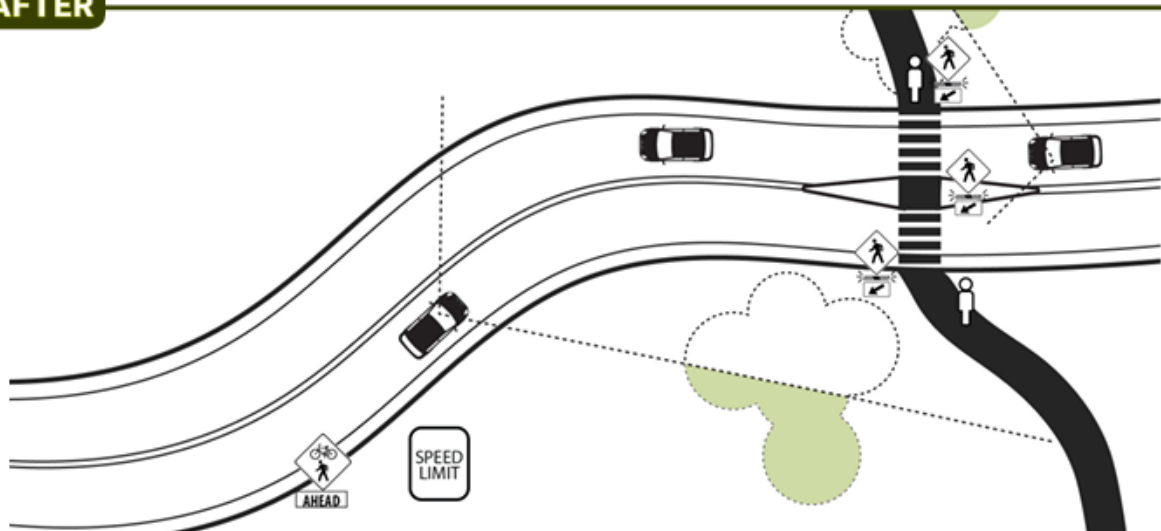


Figure 25: An example of a raised trail crossing in Appleton, Wisconsin (Image Source: City of Appleton)

Tool 8H: Provide adequate facilities and guidance to mitigate the potential for violations and enforcement, and increase active traveler comfort and confidence.

Transects: All

Implementation Timeline: Short-Term (<5 years)

Lead Implementer: Municipalities

Supporting Implementers: Division of Highway Traffic Safety

Cost Range: \$ (policy only)

Description: Active transportation users operating outside of the regulations will often make other travelers uncomfortable or create an unsafe situation. Violations may also result in police encounters, which can have a chilling effect on activities like cycling, as they discourage people from risking their own violations. An environment where needs are high, appropriate facilities are not available, and regulations are not well known is ripe for misunderstandings, violations, and police encounters. The risk of police encounters may dissuade undocumented cyclists, cyclists of color, teen/young adult, and other transportation disadvantaged cyclists from riding. Additionally, studies in several cities (outside of Monmouth County) show excess engagement of police with cyclists of color⁶.

During the third public outreach meeting in Freehold, several Latino bike riders that were interviewed that indicated that they have been stopped by police on several occasions for riding their e-bikes to work on the sidewalk. However, they felt that they had no other option because of a lack of bicycle facilities. This type of interaction indicates that there is a need for outreach and education regarding laws and regulations around bicycling in minority and low-income communities, as well as the need to provide safe alternative options to riding on the sidewalk.

⁶ A NACTO report summarizes [several research papers that identify excess engagement of police with minority cyclists](https://nacto.org/wp-content/uploads/2022/08/Bikeway-Design-Enforcement-Paper.pdf) (<https://nacto.org/wp-content/uploads/2022/08/Bikeway-Design-Enforcement-Paper.pdf>).

Recommended Activities:

- Municipal police departments should seek guidance on appropriate uses of ticketing and warning systems to govern active mode use, in order to create a safe environment without discouraging cycling and other active modes.
- Provide more bicycle infrastructure to make it easier to comply with local ordinances. Some evidence suggests that ample bike infrastructure may decrease violations.
- Engage in multi-lingual and multi-cultural outreach and education through a variety of media in addition to enforcement to create a safe environment,
- Support efforts to provide mobility education in schools, like that provided by EZ-Ride and the Safe Routes to School Program.

Strategy 9: Enhance transportation-supported sustainability and resilience efforts.

Tool 9A: Create a County-wide sustainability and resilience plan.

Transects: All

Implementation Timeline: Short-Term (<5 years)

Lead Implementer: Monmouth County

Supporting Implementers: Municipalities

Cost Range: \$ (plan only)

Description: A comprehensive sustainability and resilience plan for Monmouth County would help guide transportation investments and development in ways that are equitable, environmentally, and economically sustainable and resilient. The plan would include evaluation of risks (such as major storms, flooding, housing unaffordability, and economic opportunities) and identify local and regional actions that the County could take to create a more sustainable, resilient, and vibrant future.

Recommended Activity:

- Monmouth County should create a county-wide sustainability and resilience plan. When developing the plan, ensure that impacts to environmentally vulnerable and transportation disadvantaged communities are considered.

Tool 9B: Improve stormwater management beyond minimum requirements.

Transects: All

Implementation Timeline: Medium-Term (5 – 10 years)

Lead Implementer: Monmouth County, Municipalities, NJDOT

Cost Range: \$ - \$\$\$

Description: As intense storm events are increasing in frequency, there is an ongoing need to improve stormwater management techniques using best management practices to reduce risks to mobility infrastructure.

Potential Application: All jurisdictions should actively seek ways to incorporate green stormwater management techniques on infrastructure and development projects in environmentally vulnerable communities to reduce risk to transportation facilities beyond minimum requirements.

Recommended Activities:

- Encourage stormwater evaluations on all roadway and real estate development projects, and lower the threshold for projects that require review, to identify opportunities for enhanced stormwater management beyond minimum requirements (N.J.A.C. 7:8 at publication), such as:
 - Bioswales
 - Rain gardens (**Figure 26**)
 - Permeable surfaces and parking lots
 - Stormwater planters and bump-outs
 - Sub-surface drainage wells
 - Blue roof policies

Resources and Examples In New Jersey:

- ***Camden SMART Initiative: The Camden SMART (Stormwater Management and Resource Training) Initiative is a comprehensive effort to address the city's flooding and stormwater issues. It includes the installation of numerous rain gardens and bioswales throughout Camden to absorb and filter stormwater, reducing runoff and pollution entering the city's combined sewer system.***
<http://www.camdensmart.com/>

- **Hoboken Green Infrastructure Strategic Plan:** Hoboken has implemented several green infrastructure projects, including the installation of permeable pavement in parking lots and public spaces. These efforts are part of the city's broader strategy to mitigate flood risk and manage stormwater more sustainably. <https://cms.jerseywaterworks.org/wp-content/uploads/2016/01/Final-Report-Hoboken-Green-Infrastructure-Strategic-Plan.pdf>
- **Jersey City Green Infrastructure Demonstration Projects:** Jersey City has several demonstration projects showcasing green infrastructure solutions like stormwater planters and curb extensions (bump-outs) that capture and filter runoff before it enters the sewer system, particularly in areas with limited green space. <https://www.sustainablejc.org/projects/green-infrastructure-rain-gardens>
- **Ocean City Stormwater Management:** Ocean City has undertaken significant efforts to manage its stormwater, including the installation of sub-surface drainage wells (injection wells) designed to help manage the volume of stormwater, especially useful in coastal areas prone to flooding. <https://www.ocnj.us/StormWaterOceanCityNJ>

Figure 26: An example of a rain garden in Camden, New Jersey. (Image Source: Rutgers)



Tool 9C: Increase tree coverage.

Transects: Village, Suburban, Town Center, Shore Town

Implementation Timeline: Medium-Term (5 – 10 years)

Lead Implementer: Municipalities

Supporting Implementers: Monmouth County, NJDOT

Cost Range: \$ - \$\$

Description: Reduce excessive heating and cool ambient temperatures for people biking, walking and taking transit by increasing overall tree coverage, especially near sidewalks, bike paths, and roadways.

Potential Application: The area between NJ Route 36 and Broadway in Long Branch has the one of the greatest concentrations of vulnerable populations within the County. When evaluating streets within this area, most blocks have fewer than three street trees. Long Branch could explore funding sources for planting more street trees in this community to reduce the effects of urban heating on pedestrians and bicyclists.

Recommended Activities:

- Develop a tree planting program that supports the planting and maintenance of street trees using features such as:
 - Suspended pavement systems
 - Tree pits
 - Sub-surface tree trenches

Resources and Examples In New Jersey:

- **Jersey City's MillionTrees Initiative:** *Jersey City launched the MillionTrees initiative, aiming to plant one million new trees across the city by a target year. This initiative focuses on increasing tree coverage in urban areas to provide shade, improve air quality, and reduce the urban heat island effect, benefiting pedestrians, cyclists and residents alike. The initiative is a result of a tree canopy assessment: <https://gicinc.org/wp-content/uploads/Jersey-City-Tree-Canopy-Report.pdf>*
- **Newark's Tree Planting Efforts:** *Newark has undertaken significant tree planting efforts as part of its broader sustainability and green infrastructure goals. The city focuses on planting trees along streets, in parks, and around public spaces to create cooler, more pleasant environments for walking and cycling and to enhance the overall urban ecosystem.*

<https://www.tapinto.net/towns/newark/sections/green/articles/this-tree-planting-initiative-is-promoting-sustainability-togetherness-in-newark>

- *Princeton's Urban Forestry Program: Princeton has a robust urban forestry program that includes planting and maintaining trees along streets, in parks, and in other public spaces. This program aims to expand the town's tree canopy, providing shade and cooling effects that enhance the comfort of outdoor spaces for pedestrians and cyclists.*<https://www.princetonnj.gov/DocumentCenter/View/6245/Community-Forestry-Management-Plan-PDF>

Tool 9D: Increase infrastructure storm resilience.

Transects: All, especially Shore Towns and large water body adjacent municipalities

Implementation Timeline: Long-Term (>10 years)

Lead Implementer: Municipalities, Monmouth County, NJDOT, NJ TRANSIT

Supporting Implementers:

Cost Range: \$ - \$\$\$

Description: The New Jersey Department of Environmental Protection (NJDEP) expects 2.1 feet of sea level rise by the year 2050, and the National Oceanic and Atmospheric Administration (NOAA) is predicting an increase in the incidence and strength of storms; both as a result of climate change. These changes should be considered as a threat to existing infrastructure, and new facilities should be planned to account for them.

Potential Example Application: Entities with jurisdiction over transportation infrastructure should conduct vulnerability assessments to determine where climate change driven effects may have significant impacts on the operation of their facilities.

- **Recommended Activities:** Protect operations from high tides and storm surge events through measures such as:
 - Improve drainage infrastructure that can accommodate larger storms. This is particularly critical for bike lanes given that they are often on the edge of the road but inboard of the curb and will flood first when drainage is not sufficient.
 - Utilize porous pavements.
 - Elevate infrastructure in flood-prone areas.

Resource: [Reducing Climate Change Impacts on Walking and Cycling \(C40knowledgehub.org\)](https://www.c40knowledgehub.org/), [NJDEP Sea Level Rise Resources \(https://dep.nj.gov/slr/\)](https://dep.nj.gov/slr/), [NOAA Global Warming and Hurricanes Resources \(https://www.gfdl.noaa.gov/global-warming-and-hurricanes/\)](https://www.gfdl.noaa.gov/global-warming-and-hurricanes/).

Summary of Strategies

This document contains the analysis that was conducted to identify the County's primary transects, identify critical barriers to mobility by transect, and develop a list of nine strategies with 64 tools that can be implemented to overcome the barriers and meet the intent of each strategy. It should be noted that the tools presented in this document should be considered as guides to identify methods to address mobility barriers. However, other sources of related information should be consulted, and engineering studies, planning efforts, and outreach may be needed before implementing physical infrastructure improvements. **Table 27**, below summarizes the strategies and the transects for which they are most suited. Many of the tools are applicable County-wide or to more than one transect.

Table 27: Summary of Strategies and Tools to Mitigate Barriers

Strategy and Tools		Implementation			Transect				
		Lead Implementer	Timeline*	Cost**	Rural/ Natural	Suburban	Village	Town Center	Shore Town
Strategy 1	Adopt design standards that support active modes like walking, biking, and scootering, for all users.								
Tool 1A	Adopt mobility standards and policies	Monmouth County Municipalities, NJ TRANSIT, NJDOT, Municipalities	Short Term	\$	x	x	x	x	x
Tool 1B	Update sidewalk ordinances and regulations to ensure their construction, and their design to adhere to the latest standards and design guidelines as a minimum.	Municipalities, Monmouth County, NJDOT	Short Term	\$	x	x	x	x	x
Tool 1C	Include bicycle and pedestrian elements in all intersection projects regardless of demand.	Municipalities, Monmouth County, NJDOT	Short Term	\$ - \$\$	x	x	x	x	x
Tool 1D	Consider implementing policies that encourage the installation of mobility improvements and proven safety countermeasures when the roadway is scheduled for resurfacing or other improvements.	Municipalities, Monmouth County, NJDOT	Short Term	\$	x	x	x	x	x
Tool 1E	Activate public spaces, such as schools, libraries, parks, and municipal buildings as mobility hubs.	Municipalities, Monmouth County	Medium Term	\$ - \$\$		x	x	x	x
Tool 1F	Provide street furniture, rest areas, and benches.	Municipalities, Monmouth County, NJDOT	Medium Term	\$ - \$\$		x	x	x	x
Tool 1G	Enhance rural roads through the addition of bicycle and pedestrian infrastructure in the vicinity of commercial and cultural centers. Add bicycle facilities to connect these centers.	Municipalities	Long Term	\$\$ - \$\$\$	x				

Strategy and Tools		Implementation			Transect				
		Lead Implementer	Timeline*	Cost**	Rural/ Natural	Suburban	Village	Town Center	Shore Town
Tool 1H	Reduce seasonal visitor reliance on personal vehicles through expanded wayfinding, bike and scooter share, and transit and rideshare programs.	Municipalities	Medium Term	\$ - \$\$				x	x
Tool 1I	Address knowledge gaps related biking and scooting.	EZ-Ride, NJ Bike and Walk Coalition, School Districts, Not for Profits	Short Term	\$	x	x	x	x	x
Tool 1J	Continue development of and education on electric bicycle and scooter regulations.	Division of Highway Traffic Safety, NJDOT, Municipalities	Medium Term	\$	x	x	x	x	x
Strategy 2	Develop multi-modal programs that prioritize mobility for the County's transportation disadvantaged populations.								
Tool 2A	Develop a Transportation Equity Priority Areas framework for identifying where pedestrian and bicycle improvements would impact transportation disadvantaged populations.	Municipalities, Monmouth County, NJDOT	Short Term	\$	x	x	x	x	x
Tool 2B	Address financial barriers to cycling and scooting.	Not For Profit Organizations	Short Term	\$ - \$\$	x	x	x	x	x
Tool 2C	Consider mitigating the impact of arterials on neighborhood connectivity, especially in historically disadvantaged and overburdened communities.	Municipalities, Monmouth County, NJDOT	Medium Term	\$\$ - \$\$\$		x		x	x
Tool 2D	Build relationships and increase positive interaction with government through engagement through addressing infrastructure and service issues.	Municipalities	Long Term	\$ - \$\$				x	x
Tool 2E	Seek funding for the installation, operations, and maintenance of mobility technology in the County's	Municipalities	Medium Term	\$ - \$\$	x	x	x	x	x

Strategy and Tools		Implementation			Transect				
		Lead Implementer	Timeline*	Cost**	Rural/ Natural	Suburban	Village	Town Center	Shore Town
	transportation disadvantaged communities.								
Tool 2F	Support the development car share programs.	Municipalities	Medium Term	\$ - \$\$				x	x
Tool 2G	Establish community bike bus programs.	Monmouth County	Medium Term	\$ - \$\$				x	x
Tool 2H	Establish community maintenance and stewardship programs.	Municipalities, NJ TRANSIT, Not For Profits	Short Term	\$		x	x	x	x
Strategy 3	Improve County-wide active mode connections between neighborhoods, land uses, and municipalities.								
Tool 3A	Develop a County-wide active transportation plan with a focus on cross-County connectivity.	Monmouth County	Short Term	\$	x	x	x	x	x
Tool 3B	Continue making connections in the network of off-street greenway/trail systems.	Monmouth County, Municipalities	Long Term	\$\$\$	x	x	x	x	x
Tool 3C	Consider creating a network of on-street low-stress bike lanes and shared-use pathways.	Municipalities, Monmouth County, NJDOT	Medium Term	\$\$ - \$\$\$	x	x	x	x	x
Strategy 4	Access to transit can be improved by addressing transit stop conditions and first and last mile challenges.								
Tool 4A	Prioritize comfort at bus stops where possible.	Municipalities, NJ TRANSIT	Medium Term	\$ - \$\$	x	x	x	x	x
Tool 4B	Ensure that stops are accessible by pedestrians, including those with lower levels of mobility, and support integration with bicycle facilities.	Municipalities	Medium Term	\$ - \$\$	x	x	x	x	x
Tool 4C	Identify and further investigate potential intermodal transportation facilities and create mobility hubs.	NJ TRANSIT, Station Owning Municipalities	Medium Term	\$\$ - \$\$\$		x	x	x	x
Tool 4D	Continue to improve passenger information technology.	NJ TRANSIT	Medium Term	\$ - \$\$	x	x	x	x	x

Strategy and Tools		Implementation			Transect				
		Lead Implementer	Timeline*	Cost**	Rural/ Natural	Suburban	Village	Town Center	Shore Town
Tool 4E	Consider potential for feeder services to commuter bus or rail hubs.	Monmouth County, Municipalities, NJ TRANSIT, EZ-Ride	Long Term	\$\$\$	x	x	x		
Tool 4F	Consider expanding transit coverage to underserved areas using microtransit.	Monmouth County, Town Center and Shore Town Municipalities, NJ TRANSIT, EZ-Ride	Medium Term	\$\$ - \$\$\$				x	x
Tool 4G	Continue to improve station parking and pick-up/drop-off.	NJ TRANSIT and Station Lot Owning Municipalities	Medium Term	\$\$ - \$\$\$		x		x	x
Tool 4H	Continue to improve rider amenities at train stations and enhance accessibility.	NJ TRANSIT, Station Owning Municipalities	Medium Term	\$\$ - \$\$\$		x		x	x
Tool 4I	Provide climate-controlled waiting areas at ferry stops.	Ferry Service Providers and Terminal Owners	Short Term	\$ - \$\$					x
Strategy 5	Investigate potential improvements to transit service and explore increasing transit connections to major activity centers to the west of the County.								
Tool 5A	Identify potential transit corridors for evaluation of demand and potential transit or microtransit solutions.	NJ TRANSIT	Short Term	\$	x	x	x	x	x
Tool 5B	Investigate east west corridors for potential transit or microtransit improvements in coordination with the TMA and NJ TRANSIT.	NJ TRANSIT	Medium Term	\$\$ - \$\$\$		x	x	x	x
Tool 5C	Investigate the need for more convenient transit service to employment centers west of the County such as New Brunswick, Princeton, and Trenton.	NJ TRANSIT	Long Term	\$\$ - \$\$\$		x	x	x	x
Tool 5D	Consider enhancements to local transit service.	NJ TRANSIT, Municipalities	Medium Term	\$\$ - \$\$\$		x	x	x	x

Strategy and Tools		Implementation			Transect				
		Lead Implementer	Timeline*	Cost**	Rural/ Natural	Suburban	Village	Town Center	Shore Town
Tool 5E	Study the need for and feasibility of reducing transit transfers.	NJ TRANSIT	Short Term	\$		x	x	x	x
Tool 5F	Consider providing seasonal transit service to shore communities.	NJ TRANSIT, Municipalities, Monmouth County	Medium Term	\$\$ - \$\$\$					x
Tool 5G	Consider evaluating the installation of bus priority measures in congested areas.	NJDOT	Long Term	\$\$ - \$\$\$		x		x	x
Strategy 6	Implement policies that encourage mixed-use, multi-modal-supportive development patterns that provide a variety of housing options.								
Tool 6A	Update subdivision and zoning standards to encourage or require transit supportive development.	Municipalities	Medium Term	\$	x				
Tool 6B	Plan for walkable communities that can be enhanced through transit expansion.	Municipalities	Medium Term	\$		x			
Tool 6C	Require developers to design sites to accommodate pedestrians, bicyclists, and transit riders.	Municipalities	Short Term	\$	x	x	x	x	x
Tool 6D	Update site plan and subdivision controls.	Municipalities	Short Term	\$	x	x	x	x	x
Tool 6E	Adopt an Official Map	Municipalities	Medium Term	\$	x	x	x	x	x
Tool 6F	Allow for shared parking.	Municipalities	Short Term	\$	x	x	x	x	x
Tool 6G	Consider updating traffic impact study guidelines to require pedestrian and bicycle safety analyses as a measure of effectiveness that has equal weight to vehicle metrics.	NJDOT, Municipalities, Monmouth County	Short Term	\$	x	x	x	x	x
Tool 6H	Adopt multimodal parking requirements.	Municipalities	Medium Term	\$	x	x	x	x	x

Strategy and Tools		Implementation			Transect				
		Lead Implementer	Timeline*	Cost**	Rural/ Natural	Suburban	Village	Town Center	Shore Town
Tool 6I	Create buffering and landscaping requirements for parking areas that abut public rights of way.	Municipalities	Short Term	\$	x	x	x	x	x
Strategy 7	Improve connections between the County's transportation disadvantaged populations and critical services necessary for wellness such as healthcare, education, recreation, grocery stores, and pharmacies.								
Tool 7A	Permit missing middle and compact housing types in residential neighborhoods.	Municipalities	Medium Term	\$		x	x	x	
Tool 7B	Plan for growth in nodes and mobility-rich areas through unified land use and circulation planning.	Municipalities	Medium Term	\$	x	x	x	x	x
Tool 7C	Plan for housing for transportation disadvantaged communities near transit and mobility-rich areas.	Municipalities	Medium Term	\$		x	x	x	x
Tool 7D	Allow for mixed-use districts.	Municipalities	Medium Term	\$		x	x	x	
Tool 7E	Consider enhancing access to alternative transportation options for elderly, disabled, and residents with mental health needs.	Monmouth County, NJ TRANSIT	Short Term	\$-\$\$	x	x	x	x	x
Strategy 8	Improve safety for all roadway users.								
Tool 8A	Consider prioritizing proven safety countermeasures that support mobility for vulnerable road users.	Monmouth County, Municipalities, NJDOT	Short Term	\$\$ - \$\$\$	x	x	x	x	x
Tool 8B	Identify "Safe Routes to Schools" that can be enhanced with active mode infrastructure.	Municipalities	Short Term	\$ - \$\$	x	x	x	x	x
Tool 8C	Complete Comprehensive Safety Action Plans and implement the recommendations.	Monmouth County	Medium Term	\$	x	x	x	x	x
Tool 8D	Adopt municipal complete streets policies.	Municipalities	Short Term	\$	x	x	x	x	x

Strategy and Tools		Implementation			Transect				
		Lead Implementer	Timeline*	Cost**	Rural/ Natural	Suburban	Village	Town Center	Shore Town
Tool 8E	Update speed limit policies per the most current edition of the Manual on Uniform Traffic Control Devices (MUTCD).	Municipalities	Short Term	\$	x	x	x	x	x
Tool 8F	Consider improving lighting along sidewalks, bicycle facilities, and trails.	Municipalities	Medium Term	\$\$	x	x	x	x	x
Tool 8G	Consider additional safety measures at trail crossings.	Monmouth County	Short Term	\$\$ - \$\$\$	x	x	x	x	X
Tool 8H	Provide adequate facilities and guidance to mitigate the potential for violations and enforcement, and increase active traveler comfort and confidence.	Municipalities	Short Term	\$	x	x	x	x	x
Strategy 9	Enhance transportation-supported sustainability and resilience efforts.								
Tool 9A	Create a County-wide sustainability and resilience plan.	Monmouth County	Short Term	\$	x	x	x	x	x
Tool 9B	Improve stormwater management beyond minimum requirements.	Monmouth County, Municipalities, NJDOT	Medium Term	\$ - \$\$\$	x	x	x	x	x
Tool 9C	Increase tree coverage.	Municipalities	Medium Term	\$ - \$\$		x	x	x	x
Tool 9D	Increase infrastructure storm resilience.	Municipalities, Monmouth County, NJDOT, NJ TRANSIT	Long Term	\$ - \$\$\$					x

*Short Term: within 5 years, Medium Term: 5-10 years, Long Term: more than 10 years

** \$ - low cost: studies, reallocation of existing resources, or improvements that do not require substantial modifications to infrastructure.

\$\$ - medium cost: moderate improvements to infrastructure or services that require purchase of new vehicles with additional operating costs.

\$\$\$ - high cost: significant improvements to infrastructure or services that require substantial changes to existing resources (i.e. vehicles, staff, etc.).

Recommendations

This study has identified 64 tools that can be used to address barriers to mobility within the County. Each of the tools has specific agencies that may be responsible for leading their implementation, as well as their cost. However, the large number of tools, while providing flexibility for implementation, can also impede implementation because implementers may not know where to start. The project team has assessed the critical barriers and have highlighted up to five tools that each implementer should consider implementing first (**Table 28**). Municipality-led initiatives are also broken down by transect. However, there should be no limit as to how many tools can be implemented, and implementers should have the flexibility to pick and choose which tools they want to implement based on changes in needs and priorities.

Table 28: Tools to Consider for Priority Implementation by Lead Implementer

Lead Implementer	Tools for Priority Implementation
Monmouth County	Tool 1D: Implement policies that require County-funded roadway re-paving or development projects to include upgrades to pedestrian infrastructure, and to install bike lanes if the roadway in question is identified as a bike corridor in a municipal or County plan.
	Tool 2E: Build relationships and increase faith in governance through robust engagement and addressing low-hanging infrastructure and service issues.
	Tool 3A: Update the County-wide bicycle master plan with a focus on cross-County connectivity. Prioritize filling gaps in existing trail networks.
	Tool 8A: Prioritize traffic calming measures in high crash areas.
	Tool 9A: Create a County-wide sustainability plan.
NJDOT	Tool 1D: Consider evaluating the implementation of policies that require State-funded roadway re-paving or development projects to include upgrades to pedestrian infrastructure, and to install bike lanes if the roadway in question is identified as a bike corridor in a municipal or County plan.
	Tool 6F: Consider whether updated traffic impact study guidelines should be used to require pedestrian and bicycle level of service analyses as a measure of effectiveness that has equal weight to vehicle metrics.
	Tool 5G: Consider evaluating the installation of bus priority measures in congested areas.
	Tool 1K: Consider developing electric bicycle and scooter regulations.
NJ TRANSIT	Tool 5A: Consider conducting a County-wide re-evaluation of NJ TRANSIT bus services.
	Tool 5B: Consider evaluating the improvement of east-west connections within the County.
	Tool 4H: Consider evaluating the improvement of rider amenities at train stations and enhanced accessibility.
	Tool 4B: Ensure that stops are Consider evaluating the accessibility of stops by pedestrians, including those with lower levels of mobility, and support integration with bicycle facilities.
	Tool 4C: Consider identifying intermodal transportation facilities and create mobility hubs.

Lead Implementer	Tools for Priority Implementation
Municipalities – Rural/Natural	Tool 6A: Update subdivision and zoning standards to support cluster development.
	Tool 6D: Adopt an official map.
	Tool 1B: Update municipal sidewalk ordinances to reflect latest guidance on sidewalk widths, buffers, and other implementation requirements to create a network of ADA-compliant sidewalks and walking paths.
	Tool 8D: Adopt municipal complete streets policies.
	Tool 1G: Enhance rural main streets and highways through the addition of bicycle and pedestrian infrastructure in the vicinity of commercial and cultural centers. Add bicycle facilities to connect between these centers.
Municipalities – Village	Tool 1B: Update municipal sidewalk ordinances to reflect latest guidance on sidewalk widths, buffers, and other implementation requirements to create a network of ADA-compliant sidewalks and walking paths.
	Tool 1C: Require that bicycle and pedestrian elements are incorporated into all intersection projects regardless of the appearance of immediate demand.
	Tool 7D: Permit missing middle and compact housing types in residential neighborhoods.
	Tool 8D: Adopt municipal complete streets policies.
	Tool 7A: Plan for growth in nodes and mobility-rich areas through unified land use and circulation planning.
Municipalities – Suburban	Tool 1B: Update municipal sidewalk ordinances to reflect latest guidance on sidewalk widths, buffers, and other implementation requirements to create a network of ADA-compliant sidewalks and walking paths.
	Tool 1C: Require that bicycle and pedestrian elements are incorporated into all intersection projects regardless of the appearance of immediate demand.
	Tool 1E: Activate public spaces, such as schools, libraries, parks, and municipal buildings as mobility hubs.
	Tool 6B: Plan for walkable communities that can be enhanced through transit expansion.
	Tool 7B: Plan for housing for vulnerable communities near transit and mobility-rich areas.
Municipalities – Town Center	Tool 1C: Require that bicycle and pedestrian elements are incorporated into all intersection projects regardless of the appearance of immediate demand.
	Tool 7B: Plan for housing for vulnerable communities near transit and mobility-rich areas.
	Tool 1E: Activate public spaces, such as schools, libraries, parks, and municipal buildings as mobility hubs.
	Tool 7D: Permit missing middle and compact housing types in residential neighborhoods.
	Tool 8D: Adopt municipal complete streets policies.
Municipalities – Shore Town	Tool 8D: Adopt municipal complete streets policies.
	Tool 1E: Activate public spaces, such as schools, libraries, parks, and municipal buildings as mobility hubs.
	Tool 7A: Plan for growth in nodes and mobility-rich areas through unified land use and circulation planning.
	Tool 7B: Plan for housing for vulnerable communities near transit and mobility-rich areas.
	Tool 1I: Reduce seasonal visitor reliance on vehicles through expanded wayfinding and bikeshare or scooter share programs.

Once the County, NJ TRANSIT, NJDOT, and/or a municipality chooses a tool that they want to implement, the next step is often funding. In order to assist with funding, a clickable funding matrix is provided in Appendix E. Under each strategy are one or more funding options that

are currently available that could be potentially utilized to address funding for tools that are under that strategy. Information is provided for each funding source including requirements, funding cycles, and applicable projects.

Attachment A:
Land Use
and Zoning Strategies