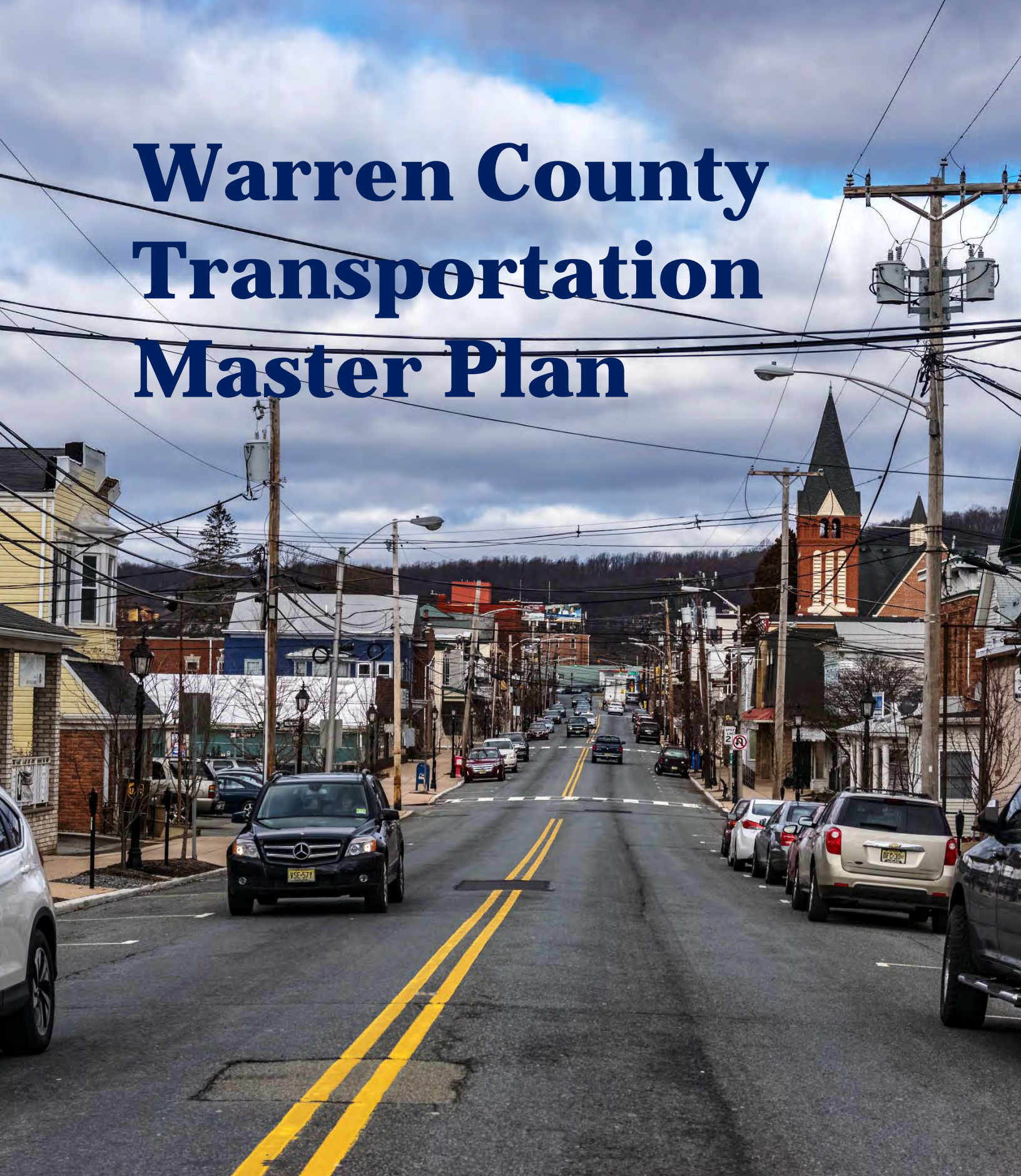


Warren County Transportation Master Plan



June 2021



Michael Baker
INTERNATIONAL



Disclaimer

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

Abstract

The Warren County Transportation Plan helps provide a vision for the County's future. The Plan was completed by reviewing previous studies and recommendations, analyzing existing conditions, and conducting a scenario planning process utilizing population, employment, and industrial land use development projects. The scenario planning process evaluated several future development patterns for the County, leading to the development of infrastructure and policy recommendations.

Table of Contents

Executive Summary.....	1
1. Introduction.....	2
Previous Studies.....	3
Demographic Trends.....	7
Equity Assessment.....	10
Other Issues.....	11
Planning Process.....	14
2. Goals and Visioning Process	17
Goals.....	18
Vision Statement.....	18
3. Existing Conditions	19
Roadway Network.....	20
Biking, Walking and Trails.....	43
Public Transportation.....	51
Airports.....	54
Freight/Goods Movement	55
Scenic Byways and Points of Interest	58
4. Scenario Planning	61
Scenario Planning Overview	61
Planning Tool Refinement	61
Scenario Alternatives.....	64
Baseline Scenarios.....	67
2045 Logistics Hub Scenario.....	70
2045 Centers-Based Scenario	73
2045 Warren County Blend Scenario	76
Build Scenarios.....	78
2045 Centers-Based Build Scenario	80
2045 Warren County Blend Build Scenario.....	82
Scenario Modeling Conclusion	84
5. Recommendations.....	87
Roadway and Bridges	88
Biking, Walking, and Trails.....	90

Public Transportation.....	101
Goods Movement.....	104
Gateways.....	107
Policy Recommendations.....	108
6. Appendices	111
Appendix A.....	
Implementation Matrix.....	
Appendix B.....	
Technical Memo 1: Goals and Vision.....	
Technical Memo 2.1: Previous Studies.....	
Technical Memo 2.2: Equity Assessment.....	
Technical Memo 2.3: WikiMap Assessment.....	
Technical Memo 2.4: Data Assessment.....	
Technical Memo 3: Modeling and Analysis.....	
Technical Memo 4: Recommendations.....	
Appendix C.....	
Public Outreach.....	

Acknowledgments

2021

Warren County Board of County Commissioners

James R. Kern III, Commissioner Director

Jason J. Sarnoski, Deputy Commissioner
Director

Lori Ciesla, Commissioner

Alex J. Lazorisak, County Administrator and
Clerk to the Board

Warren County Planning Board

Deborah A. Pasquarelli, Chair

Desiree L. Dunn, Vice Chair

Adam Baker, Secretary

Lori Ciesla, Commissioner

William Gleba, P.E. County Engineer

Gerald Norton

James R. Kern III, Commissioner

Randy S. Piazza

Jason J. Sarnoski, Commissioner

David A. Smith

Terry Urfer, Alternate 1

Robert Hopkins, Alternate 2

Matthew C. Moench, Esq. Attorney

Warren County Planning Department Staff

David Dech, P.P. Director

Valarie Discafani, P.P., A.I.C.P. Senior Planner

Brian Appezzato, Senior Planner

Warren County Engineering Department Staff

Linda Read, P.E. Assistant County
Engineer

Joao D'Souza, Principal Engineer
Traffic

Steering Advisory Committee

Warren County Planning
Department

Warren County Planning Board

Warren County Engineering Office

Warren County Department of
Human Services

North Jersey Transportation
Planning Authority

Lehigh Valley Planning
Commission

Trans Options

Warren County Dept. of Human
Services

Warren County Transportation
Advisory Council

New Jersey Department of
Transportation

Easton Coach

NJ TRANSIT

NJ Highlands Water Protection
and Planning Council

Trans-Bridge Lines

Warren County Municipalities

Allamuchy Township

Alpha Borough

Belvidere Town

Blairstown Township

Franklin Township

Frelinghuysen Township

Greenwich Township

Hackettstown

Hardwick Township

Harmony Township

Hope Township

Independence Township

Knowlton Township

Liberty Township

Lopatcong Township

Mansfield Township

Oxford Township

Phillipsburg Town

Pohatcong Township

Washington Borough

Washington Township

White Township

Executive Summary

The Warren County Transportation Plan forges a vision for the County's transportation network through 2045. The plan identifies areas of concern and provides recommendations and a phased implementation plan to address transportation needs, overcome challenges, and leverage opportunities across a broad range of projects, policies, and strategies. This study utilized a scenario planning process projecting the impact of alternative future development patterns on the County's roadway network. Several development options were evaluated, including targeting residential development into existing centers to maximize non-motorized transportation trips and mitigate future traffic congestion. The traffic impacts of such development could be mitigated by the targeted widening of portions of CR 519, CR 620 and CR 646 in addition to the expansion of shuttle services to connect Belvidere, Phillipsburg, Alpha, and Washington Borough with growing employment centers. Additional original and adapted transportation recommendations were made to help guide the County's future including addressing safety concerns at priority intersections, adopting a Complete Streets policy, and implementing a network of on-road and off-road bicycle facilities.

This transportation plan represents an official update to the County's 1982 Transportation Plan and 2018 Transportation Technical Study. A thorough review of existing conditions was conducted including inventorying and evaluating the County's roadways, traffic volumes, safety data, public transit services, airports, freight infrastructure and cycling/biking (the two terms are used interchangeably throughout this document) and walking conditions. Dozens of previous studies were reviewed and summarized. Public outreach and stakeholder engagement were conducted throughout the study through a website, virtual public meetings and focus groups, and the use of a Steering Advisory Committee that guided the process.

Spurred by analysis and results of the 2020 *Warren County Light Industrial Site Assessment*, a detailed analysis of traffic and volume data was utilized to develop and refine several scenarios projected to the year 2045, incorporating potential light industrial sites. The scenario planning process revealed the opportunity for alternative development patterns including focusing growth in more developed centers and the need for multimodal corridor and intersection measures to mitigate the impact of expected light industrial development on the roadway network.

After reviewing existing conditions, previous studies, and the traffic and land use modeling scenarios, recommendations were developed addressing needs concerning roadways and bridges, walking, biking and trails, public transportation, goods movement, and gateways. Additionally, several policy recommendations, including opportunities for further study and funding, are provided to help facilitate the implementation of infrastructure improvements. With these data sources and recommendations, Warren County is well positioned to consider future land use, transportation, and infrastructure decisions and pursue funding for implementation and further studies.

1. Introduction

This long-range transportation plan will forge a vision for the future of the County's transportation network through 2045. The plan identifies areas of concern and provides recommendations and a phased implementation plan to address transportation needs, overcome challenges, and leverage opportunities across a broad range of projects, policies, and strategies. In partnership with the North Jersey Transportation Planning Authority (NJTPA), this document investigates existing conditions, projected conditions through 2045, and engineering, enforcement, policy, and coordination recommendations featuring a cohesive implementation strategy. This document represents a substantial update from the County's previous transportation plan released in 1982, recognizing the changing trends and issues impacting people living and working in Warren County.



CR 624 (Belvidere Avenue), Oxford Township

Previous Studies

Since the 1982 Plan, several transportation and land use documents have been completed, reflecting the continuation and introduction of transportation issues affecting Warren County. A thorough review of relevant previous studies is provided in Technical Memo 2.1 in Appendix B with several key studies listed in the following pages.

A comprehensive list of previous studies reviewed is shown in Table 1 with the Summarized column indicating inclusion on

the following pages. Most were published since the 2018 Transportation Technical Study; earlier studies were reviewed as part of the 2018 documentation. The studies summarized on the following pages are those that focused on Warren County as a whole rather than individual communities or corridors. As part of the previous study review process, recommendations from each of these studies and its implementation status were compiled to be provided to the County for future use.

Table 1: Studies Reviewed

Title	Year	Lead Jurisdiction	Summarized
Warren County Transportation Plan	1982	County	X
Liberty Township Master Plan	2003	Municipality	
Warren County Smart Growth Plan-Transportation Technical Study	2004	County	X
Knowlton Township Master Plan Reexamination Report	2009	Municipality	
Washington Borough Downtown Redevelopment Plan	2009	Municipality	
Phillipsburg Walkable Community Workshop Report	2010	MPO	
Morris/Warren County Rail Corridor Study	2013	MPO	
Phillipsburg Master Plan Reexamination Report	2013	Municipality	
New Jersey Statewide Freight Plan	2017	NJDOT	
Plan 2045: Connecting North Jersey	2017	MPO	X
Hackettstown Master Plan Reexamination Report	2018	Municipality	
Mansfield Township Master Plan Reexamination Report	2018	Municipality	
Morris Canal Greenway Corridor Study	2018	MPO	
Warren County Transportation Technical Study Update	2018	County	X
Freight Rail Industrial Opportunities Corridors Program	2019	MPO	
Oxford Township Active Transportation Plan	2019	Municipality	
White Township Proposed Master Plan Amendment	2019	Municipality	
Warren County Light Industrial Site Assessment	2020	County	X
2040 Freight Industry Level Forecasts	2020	MPO	

Warren County Transportation Plan (1982)

The 1982 Warren County Transportation Plan provided an orderly and timely plan for coordinated development of different transportation modes and identified deficiencies in existing modes. Through the plan, the County Planning Board adopted the following 11 high-level goals and objectives (each with several sub-goals) for maintaining existing infrastructure and expanding network opportunities where feasible. Each of these goals has influenced the subsequently undertaken studies.

- Promote and maintain a highway system which provides for efficient movement of people and goods within and through the County
- Upgrade and maintain the traffic safety characteristics of the County Road System
- Encourage the use of Federal and State funding for all major roadway improvements
- Coordinate improvements to existing facilities
- Include environmental concerns in the transportation planning process
- Monitor growth and development patterns and adjust the transportation plan as required to accommodate unanticipated changes
- Continue to update and add to the Warren County Highway Inventory
- Maintain present level of service
- Improve commuter rail and bus service
- Expand the availability and type of transportation systems for all residents
- Increase public participation in the overall transportation planning process for the County by creating a County Transportation Committee

**Warren County Smart Growth Plan-
Transportation Technical Study (2004)**

The 2004 Warren County Transportation Technical Study provided a key step in the development of the Warren County Smart Growth Plan. This study developed a land use and transportation model to test the impacts of land use decisions on the roadway network and predict future traffic levels. Existing zoning was compared with a centers-based land use scenario in which development was focused in three regional centers, and 22 local centers. The model determined a 35 percent reduction in vehicle miles traveled in the centers-based approach compared to future no-build conditions. Recommendations to preserve the transportation network's capacity and efficiency include restoring or extending passenger rail service along three corridors in the County, assessing fees related to the burden of future development on the transportation system, and improving site design and access management.



1982 Transportation Plan

Plan 2045: Connecting North Jersey (2017)

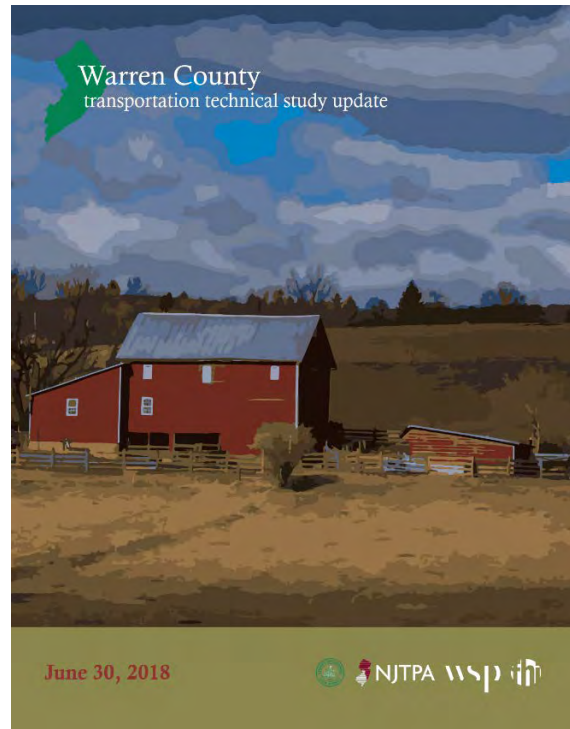
NJTPA's Long Range Transportation Plan *Plan 2045: Connecting North Jersey*, completed in 2017, aims to lay out a plan for transportation infrastructure improvements for the next 25+ years. Goals of the plan's initiatives include:

- Protect and improve natural ecosystems, the built environment and quality of life
- Provide affordable, accessible and dynamic transportation systems responsive to all current and future travelers
- Retain and increase economic activity and competitiveness
- Enhance system coordination, efficiency, overall safety and connectivity for people and goods across all modes of travel
- Maintain a safe, secure and reliable transportation system in a state of good repair
- Create great places through select transportation investments supporting the coordination of land use with transportation systems
- Improve overall system safety, reducing serious injuries and fatalities for all travelers on all modes

Demographic, transportation, and technology trends impacting the NJTPA region were identified. Specific trends most affecting Warren County include an aging population, long commute times, and limited bus and rail service. After reviewing these trends, the plan details a performance-based funding scenario and a set of nine Regional Capital Investment Strategy principles to guide project funding going forward. These principles include moving freight more efficiently, supporting walking and biking, managing crash incidents and applying transportation technology. Twenty-nine near and mid-term road, highway, and transit projects within Warren County are also included in the Project Index.

Warren County Transportation Technical Study Update (2018)

The 2018 Warren County Transportation Technical Study represents the first phase of updating the 2004 transportation plan element of Warren County's Master Plan. This phase involved gathering data, defining methodologies, evaluating existing conditions, and establishing goals and priorities. A review of transportation and demographic trends found a significant increase in the non-white, Hispanic, and foreign-born communities, and a need for more robust, accessible, and affordable mobility options. The study concludes with the recommendation of three alternative future scenarios for testing using NJTPA's travel demand model and comparing it to baseline conditions using a 2045 build year in a subsequent study phase. The future alternative scenarios form the basis of the scenario analysis in the Warren County Transportation Plan.

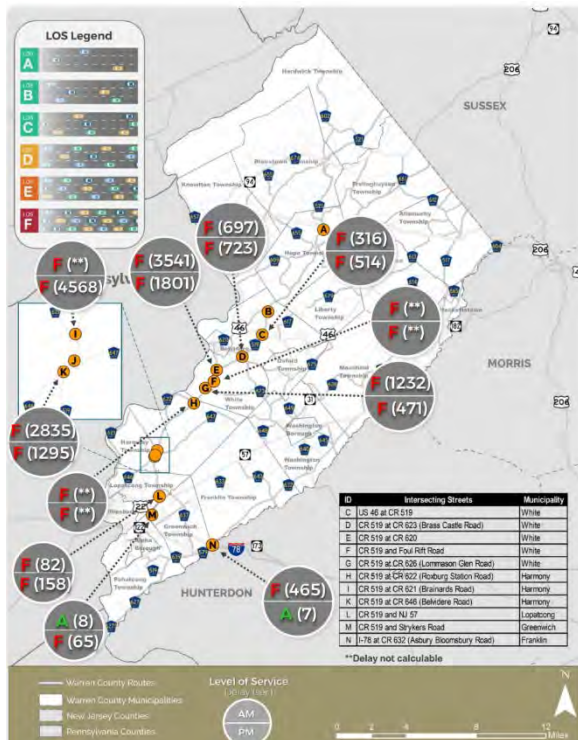


2018 Transportation Technical Study Update

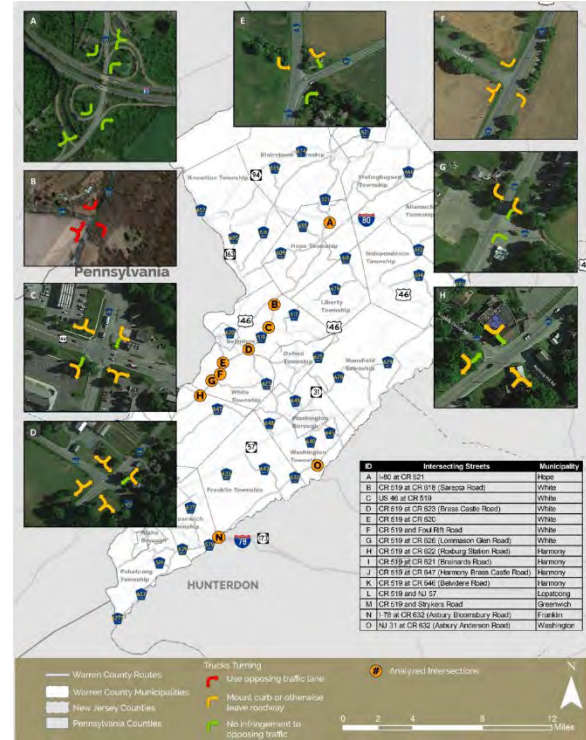
Warren County Light Industrial Site Assessment (2020)

The recently completed *Warren County Light Industrial Site Assessment* was completed in 2020 to understand the potential long-term impact of warehousing and distribution development in the County. Based on the location of existing clusters of parcels zoned for industrial uses, 15 sites were selected for analysis. The 2045 No-Build and Build condition traffic volumes were extrapolated from existing volumes to determine the impact of industrial development on the roadway network and at select intersections. Under build conditions, nearly every intersection analyzed was projected to operate with a Level of Service F. Potential measures

necessary to mitigate the impacted intersections were identified, including restriping of lanes at intersections to facilitate turns, installing traffic signals, and pushing back stop bars. To maintain an acceptable level of service under the analyzed build-out condition, the study found that CR 519 would also need to be widened to two lanes in each direction. Several transportation demand management approaches were also identified to mitigate traffic impacts, including staggering worker shifts at industrial sites and increasing the use of freight rail for goods movement where possible to reduce roadway freight volumes.



Build 2045 Intersection Level of Service from 2020 Light Industrial Site Assessment



Turning Radii Assessment from 2020 Light Industrial Site Assessment

Demographic Trends

From reviewing existing conditions and data, several trends are prominent in Warren County. These trends have been identified in previous regional, county and municipal plans and help recognize the changing nature of the County's transportation needs, land use, and people. The following introduces each of these trends, which have been considered throughout the study and were influential in formulating recommendations.

Warren County continues to be a mainly rural county with several low-to-mid density towns and boroughs located throughout. Most residents rely on single-occupant motor vehicles for mobility with minimal County shuttle service available and only one NJ TRANSIT train station (Hackettstown). Despite the high automobile use, a portion of residents throughout the County rely on public transit due to affordability issues, mobility constraints or personal preference. The densely populated communities (greater than 1,000 residents per square mile) of Phillipsburg, Washington Borough, Hackettstown, Belvidere, Alpha and Lopatcong are home to 40 percent of the County's population.



NJ 57 (East Washington Avenue), Washington Borough

As presented in the 2018 Transportation Technical Study, the demographic projections developed for the 2004 Warren County Strategic Growth Plan anticipated a continuation of the county's historic population growth rate of approximately 1 percent per year and forecast that Warren County would maintain this robust population growth rate through at least 2030. Based on official U.S. Census data, from 1830 to 2000 the Warren County population grew at an average rate of 1.01 percent per year.

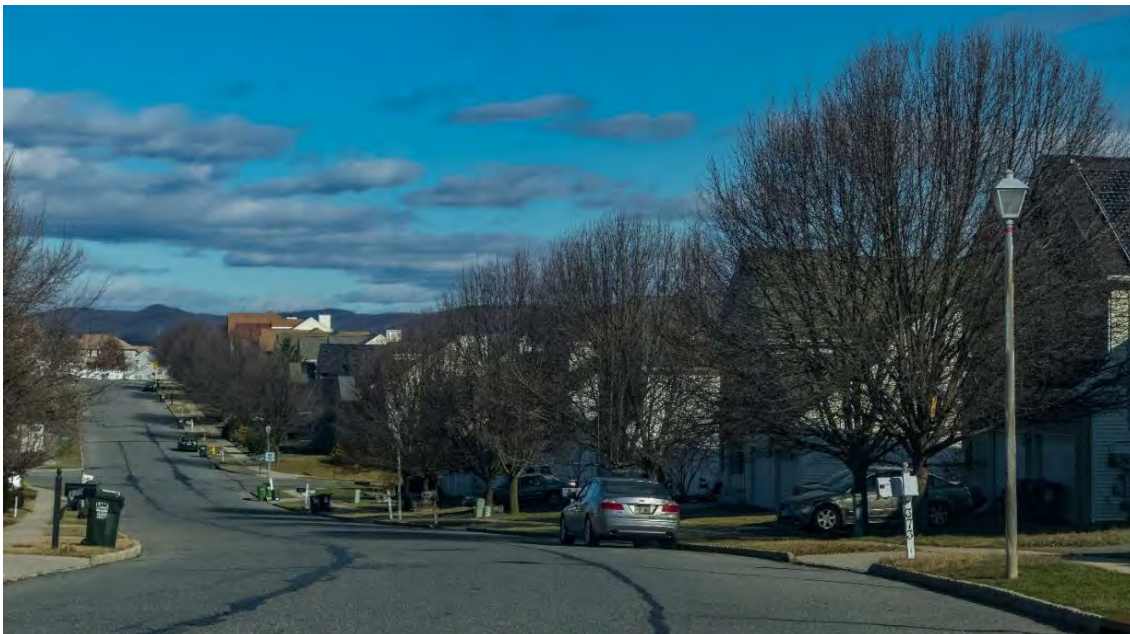
The resulting land use and traffic forecasts based on this historic annual average growth rate included significant levels of new development, population, and employment growth over the Plan's 25-year time frame, and the travel demand models developed using these forecasts projected a severe worsening in traffic congestion and mobility. This finding led to the recommendation of a comprehensive centers-based program of smart growth land use strategies and transportation demand measures to mitigate the projected worsening of traffic congestion, based on the anticipated continuation of the 1.01 percent per year historic population growth rate.

What happened instead was a significant and unanticipated slowing of population growth in the mid-2000s followed by a small decline in total county population, which has persisted through to the current 2020 U.S. Census estimates.

Therefore, in contrast to 2005 Strategic Growth Plan projections, the post-2005 U.S. Census and approved NJTPA projections present a remarkably different and much more restrained assessment of current and future growth in Warren County.

According to these more recent data and projections, Warren County population actually grew at a much slower rate – from 102,437 in 2000 to 108,692 in 2010 (about 6.1 percent overall, or about 0.59 percent per year) – and the current 2020 U.S. Census estimate is 107,099, a small decrease of 1.5 percent compared to 2010), or about -0.15 percent per year for the decade.

So, compared to the 1.01 percent per year historic population growth rate, the 2000-2020 period experienced an annual growth rate of just 0.22 percent per year. Table 2 provides decennial population counts for each municipality.



Suburban Street in Warren County

Table 2 – Warren County Population

Municipality	1990	2000	2010	2020
Allamuchy	3,484	3,877	4,323	4,523
Alpha	2,530	2,482	2,369	2,249
Belvidere	2,669	2,771	2,681	2,621
Blairstown	5,331	5,747	5,967	5,818
Franklin	2,404	2,768	3,176	3,104
Frelinghuysen	1,779	2,083	2,230	2,356
Greenwich	1,899	4,365	5,712	5,567
Hackettstown	8,120	8,984	9,724	9,585
Hardwick	1,235	1,464	1,696	1,575
Harmony	2,653	2,729	2,667	2,559
Hope	1,719	1,891	1,952	1,870
Independence	3,940	5,603	5,662	5,545
Knowlton	2,543	2,977	3,055	2,977
Liberty	2,493	2,765	2,942	2,868
Lopatcong	5,052	5,765	8,014	8,255
Mansfield	7,154	8,072	7,725	7,516
Oxford	1,790	2,307	2,514	2,522
Phillipsburg	15,757	15,166	14,950	14,570
Pohatcong	3,591	3,416	3,339	3,254
Washington Borough	6,474	6,712	6,461	6,489
Washington Township	5,367	6,248	6,651	6,500
White	3,603	4,245	4,882	4,776
TOTAL	91,607	102,437	108,692	107,099

At the same time, the county, surrounding region, and nation have experienced an increased demand for freight due to greater availability and affordability of goods, as well as increases in online shopping in recent years that was accelerated by social distancing measures during the COVID-19 pandemic, a topic elaborated upon later in this document. The presence of Interstates 78 and 80 represent key regional linkages for freight within the county, increasing demand for distribution, warehousing and other freight-generating sites, as identified in the 2020 Light Industrial Site Assessment.

Since completion of the Transportation Technical Study, an unanticipated series of light industry development projects have been proposed in Warren County (including

conventional warehousing and e-commerce uses of various sizes and types), with several currently advancing through review with municipal land use boards. These contrasting trends of a much lower population growth rate and a much higher than anticipated growth in employment frame the development and assessment of the scenario planning process for the Warren County Transportation Plan (WCTP). If approved, these new light industry projects could have a significant impact on Warren County's future and how it should prepare through specific planning and policy initiatives, and transportation improvements. Thoughtful consideration should be given to where this growth should be located, and if here is adequate infrastructure in place to support it.

Equity Assessment

Several socioeconomic and demographic indicators were reviewed at the census tract level within Warren County as part of an equity assessment to ensure all people are treated fairly and are meaningfully involved in the transportation planning process, and the development and implementation of a project regardless of race, color, origin, or income. Concern that a minority and/or low-income population might disproportionately bear potential adverse environmental or health impacts from a project led to the issuance of Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. EO 12898 makes environmental justice a core mission of projects funded by Federal agencies. This Executive Order builds on and expands Title VI, (42 U.S.C. § 2000d et seq.), that was enacted as part of the landmark Civil Rights Act of 1964. It prohibits discrimination on the basis of race, color, and national origin in programs and activities receiving federal financial assistance.

For the WCTP, the equity assessment focused on the following indicators:

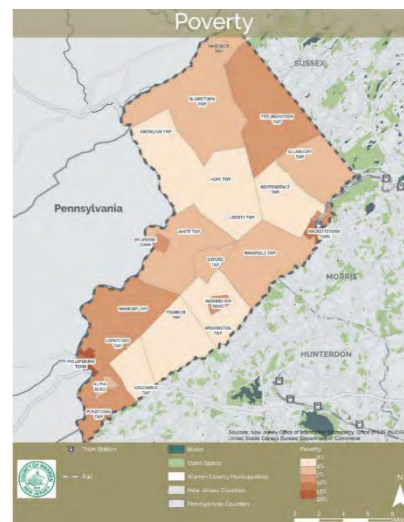
1. Poverty
2. Racial Minorities
3. Limited English Proficiency
4. National Origin
5. Auto Accessibility
6. Disabilities
7. Age

Several of these variables were also reviewed for Warren County's 2018 Transportation Technical Study. Where applicable, comparisons to the data were made. Data for the 2018 study was gathered from the Environmental Protection Agency's Environmental Justice (EJ) Screening tool, whereas more recent data was gathered directly from the U.S. Census. The identification of vulnerable populations has assisted with the public outreach process in assuring all communities are heard.

Warren County has a significantly lower portion of the population living in poverty, being a racial minority, having limited English proficiency, having been born outside of the United States, and lacking automobile access

than state and national figures, and a similar rate of residents with disabilities, according to Census data. Despite these lower comparative rates of vulnerable populations, significant proportions of vulnerable populations were mainly found in Hackettstown and Phillipsburg.

A more detailed analysis of each of the equity indicators is provided in Technical Memo 2.2 in Appendix B.



Map of poverty by Census Tract from Technical Memo 2.2

Other Issues

COVID-19

The development of this Transportation Master Plan update was undertaken during the COVID-19 pandemic. During the final months of the document's writing, several vaccines were available and a large portion of New Jersey residents were eligible to receive them. Despite rapid progress in vaccine development, the operation of the transportation network remains and may remain altered compared to pre-COVID levels. In addition to impacting how public outreach was conducted during the document's development, the pandemic will likely have lasting changes to transportation patterns and land use. There is an endless array of possible changes but some of the most feasible changes impacting issues pertinent to this Transportation Master Plan include:

- decreased demand for daily in-person commuting
- changes to the way public transit is funded and/or operated
- increased interest in living in rural areas (such as Warren County)
- increased importance on public spaces and walking and biking to access such spaces
- increased demand for next day shipping of goods to residences and a consequential decreased demand for brick and mortar stores

Telecommuting increased during the pandemic and is expected to continue, following an already existing trend for office workers. This would impact traffic flows and volumes while decreasing congestion. This may be offset by the expected growth in warehousing and logistics in the County, as those jobs generally require employees in person at each site.

I-80 Curve and Rockfall Mitigation Project

The site with the most comments received from the project's interactive mapping site concerned the curve of Interstate 80 in Knowlton and Hardwick Township near the exit for Dunnfield Creek, the Appalachian Trail, and Kittatinny Point Visitor Center. The comments generally concerned the high traffic volumes and speeds, particularly of trucks, navigating around the "s-curve" as well as opposition to proposals to blast the rock and install fencing and a retaining wall up to 60 feet high against the adjacent rockface. In addition to how the project would compromise the scenic beauty of this national landmark, the traffic congestion on the highway and caused by detouring traffic through the villages of Columbia, NJ, Portland, Pa, and Delaware Water Gap, Pa that could result during construction and the extremely high costs are the prime concerns.

A problem statement concerning the location was submitted to the New Jersey Department of Transportation (NJDOT) in December 2020, specifically citing issues with the "s-curve" and on- and off-ramps that are inadequate for the amount of traffic. A 2011 NJDOT study, the *I-80 Rockfall Mitigation Concept Development Report*, identified deficiencies in the roadway's curve radius, shoulder width and stopping sight distance resulting in increased risks of rear-end, fixed object and sideswipe crashes, increased possibilities for disabled vehicles to hinder traffic flow and obstructing the passage of emergency responders. Additionally, the seven on- and off-ramps from I-80 in this area do not meet current standards for acceleration and deceleration lanes. Resolutions from the following municipalities in New Jersey and Pennsylvania have been passed in support of resolving these issues:

Warren County Transportation Plan

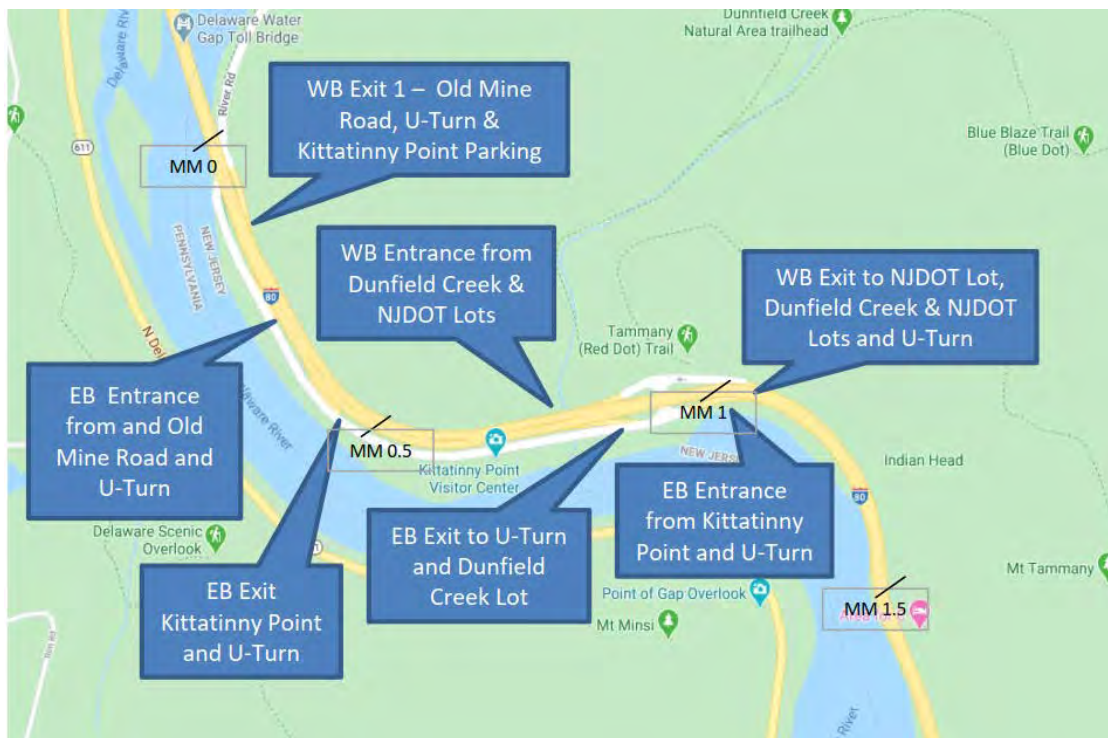
- Hardwick Township (NJ)
- Knowlton Township (NJ)
- Delaware Water Gap Borough (PA)
- Lower Mount Bethel Township (PA)
- Pen Argyl Borough (PA)
- Plainfield Township (PA)

- Portland Borough (PA)
- Upper Mount Bethel Township (PA)

Additionally, the Warren County Board of County Commissioners passed a resolution encouraging study and resolution of the issue.



Graphic from NJDOT Problem Statement Identifying Design Deficiencies



Graphic from NJDOT Problem Statement Identifying Substandard Ramps

Autonomous Vehicles

Autonomous vehicles (AVs) have become a popular discussion topic in the urban planning, transportation, and technology worlds. The potential impacts of widespread AV use and government and private sector responses are nearly limitless. While there have been great strides in AVs over the past decade, going forward, AVs are expected to first rollout on high-speed, limited-access roadways such as interstate highways. Roadways with less consistent cross-sections, hilly terrain and more prevalent visual intrusions (such as nearby buildings, bus stops, etc.) are not expected to accommodate frequent AV usage for several decades. Additionally, areas with less precipitation – particularly lack of snow – are more likely to be early adopters of AVs due to the difficulty AV technology has in reacting to inclement weather. Taking all this into consideration, AVs are unlikely to have a significant impact on traffic circulation or land development in Warren County over the next 10 years. The first use of AVs in Warren County is likely to occur on one of the two interstates crossing the County. Nevertheless, it is helpful to be aware of how AVs may function in the future.

All modern automobiles operate with some level of autonomy such as cruise control, steering assistance, and in some cars, the ability to self-park. Similar to the rollout of these features over recent decades, the features of AVs are likely to occur gradually. These are described using five levels of automation, with Level 1 providing driver assistance through cruise control and Level 5 requiring zero human intervention.

Vehicles with steering assistance fall into Level 2, while Level 3 is when the vehicle can perform most driving tasks without human involvement.

Potential impacts of widespread AV usage include a sharp reduction in traffic fatalities, greater demand for drop-off/pick-up areas, and less demand for public transportation. Traffic fatalities would decrease due to the numerous safety automated safety precautions included in AVs. Public transportation demand could decrease due to the relative ease and affordability of AV's and ability to multi-task while traveling. The need for residential parking garages and on-street parking may also be reduced, depending on the ownership mix that accompanies AVs (which is yet to be determined but could range from mostly privately owned to predominately shared ride services). A system primarily composed of shared ride services could result in the ability for AV's to be more efficiently used, traveling to pick-up other passengers rather than stay parked in a lot/garage for extended periods of time. The ease of commuting by AV may also encourage longer commutes.

While AVs are not expected to have a dramatic impact on Warren County for several decades, it is helpful to recognize and be cognizant of the broader trends in technology, which will eventually impact the County, as part of supporting this plan's goal to "monitor and incorporate technological trends and innovations in transportation projects and strategies."

Planning Process

Public engagement is essential for assuring all voices are heard and that recommendations meet the needs of stakeholders. Public engagement for the Warren County Transportation Plan took a variety of forms to allow for maximum involvement throughout the process for a variety of stakeholder groups. Additionally, throughout the process, it was important to maintain engagement with traditionally underserved communities, including minority, low-income, and limited English proficiency populations. Publicity materials were translated into Spanish to promote accessibility and comply with the Americans with Disabilities Act and federal Limited English Proficiency guidelines.

The Warren County Transportation Plan team also maintained a contact list including, but not limited to, government agencies and organizations, local elected officials, neighborhood groups, interested individuals, civic organizations, private transportation providers, environmental justice organizations, and community service groups. The contact list was employed to notify interested stakeholders about opportunities to get involved in the WCTP.

Due to the uncertainty surrounding the COVID-19 pandemic and social distancing policies, public outreach was mainly conducted online.

The study's overall public involvement process aimed to respond to three goals:

- **Engage people in every way possible.** Warren County residents are most likely to support a plan they helped shape from the start. Stakeholders in Warren County had various opportunities to provide their input and work with the WCTP team to develop a plan with relevant and attainable goals per the study's scope.
- **Seeing is believing.** The public outreach approach offered many opportunities for input from, and dialogue with, the community. The Plan team actively listened to comments, suggestions, and feedback to ensure all stakeholders had a voice.
- **Reach as much of the community as possible.** By interacting with countywide interest groups, the team was able to reach as many stakeholders as possible and incorporate their comments and suggestions into the final plan recommendations.

Methods and Tools

The Plan team implemented a comprehensive public engagement program in the development of the WCTP. Complete materials, including presentations, meeting notes, website text, and outreach results are provided in Appendix C. Outreach techniques and methods used include:

Website

The team launched an interactive website (WCTransportationPlan.com) as a conduit for dissemination and gathering information during the Plan's development. The website provided the following information:

- Home page with a video overview of the planning process
- Listening session information with access to event information
- Interactive exercises page with active links to the WikiMap and pre-recorded interactive video presentation
- Library page with access to related outreach materials and resources from previous studies
- Contact information for WCTP staff, which allowed visitors to submit inquiries about the plan via email comment form and telephone

Steering Advisory Committee (SAC)

The SAC provided invaluable guidance for the overall direction and development of the Plan. Warren County identified SAC members including a mix of local, state, and regional stakeholders as well as community and advocacy groups. Three virtual SAC meetings were held in June and December of 2020, and April 2021. The SAC provided input through the plan development by identifying key areas of concern and commenting on Plan recommendations.

Virtual Focus Groups

Three focus groups were conducted during June and July 2020. The focus groups were conducted via a virtual platform allowing participants to use video. Each focus group

was concentrated on a specific topic: freight, public transit, and cyclists/pedestrians. Warren County staff selected participants who represented a diverse group of stakeholders including operators, residents, people with disabilities, non-profit organizations, and County and municipal staff and representatives.

Municipal Meeting

A meeting was held in August 2020 to introduce municipal officials to the transportation plan process and obtain initial feedback about areas of concern, and where improvements are needed, for roads, public transportation, and cyclists and pedestrians. The municipal group identified 10 intersections and corridors with safety and congestion concerns.

WikiMap

An interactive mapping tool, using a website called WikiMap, was used to gather feedback on transportation areas of concern within Warren County from June 22 through August 31, 2020. Participants were able to add place-based comments onto the map as well as reply to other users' comments. Participants could zoom in and out of the map to place points or lines to identify specific transportation concerns and opportunities within Warren County. This interactive exercise was designed to engage diverse groups of people throughout the County. More than 360 comments were collected from the WikiMap. More detailed WikiMap data and results can be found in Technical Memo 2.3 in Appendix B.

Pre-recorded Virtual Public Workshops

The team held a pre-recorded interactive virtual workshop from February 17 to March 19, 2021. An on-demand video presentation was developed to allow stakeholders to participate at their own pace at any time of day. This interactive meeting consisted of a 20-minute narrated presentation. The presentation paused at several points and launched interactive activities prompting participants to

share comments and provide input on what was viewed and encouraged them to visit the project's website. More than 60 people participated in the interactive exercises.

Listening Session

Following the virtual workshop, a one-hour listening session was held on March 9, 2021 to allow the public to interact with the Plan team. The team provided a short presentation based on the pre-recorded presentation on the study's website. The purpose of this presentation served as a refresher for participants who had seen the pre-recorded presentation. After the presentation concluded, the team answered questions and listened to comments provided by attendees. Stakeholders could attend via phone or computer.

Outreach to Community-Based Partner Organizations

The Plan team collaborated with community-based partner organizations in the County. Warren County identified organizations dedicated to community interaction and cooperation such as non-government

organizations, community organizations, and economic development corporations. These groups were engaged by phone and email to let them know that the transportation plan was underway and encourage them to explain to members the importance of getting involved in the planning process. Community leaders can serve as trusted advocates to ensure members have a voice in the process. Follow-up outreach to these organizations informed them of upcoming listening sessions and provided publicity for those events.

Publicity Materials

The following tools were used to raise awareness about the Plan with the public:

- Advertisements in local newspaper
- Press releases
- Social media through established Warren County channels
- Email e-blast announcements in coordination with other transportation-focused agencies
- A three-minute introductory video explaining the study's planning process

2. Goals and Visioning Process

The Warren County Transportation Plan identifies recommendations and a phased implementation plan to address transportation needs in an equitable manner, overcoming challenges and barriers to advancement, and leveraging opportunities across a broad range of projects, policies, and strategies.

Transportation-related decision making for Warren County is guided by a series of goals and a vision statement.

The goals and vision were developed through a collaborative process that included the SAC, Warren County Planning and Engineering Departments, the NJTPA, and both public engagement and stakeholder outreach efforts. Guidance from this collaborative engagement process noted that the goals and vision should be:

- Unique to transportation
- Reflect both current and historic priorities and needs
- Emphasize preservation of Warren County’s rural and scenic qualities
- Incorporate emerging issues, technologies, and challenges
- Use a multimodal approach to mobility and accessibility, and
- Prioritize equity, safety, resilience, and access to opportunity

Development and formulation of the goals and vision also drew upon several local and countywide plans and studies including:

- Warren County Master Plan (1982)
- Strategic Growth Plan (2005)
- Several iterations of the Transportation Technical Study (2004, 2007, and 2018)
- Review of the 22 municipal master plans and circulation elements



U.S. 46 (Main Street), Hackettstown

Goals

Guidance from the engagement process and previous studies resulted in the development of the following goals:

1. Provide transportation infrastructure that is consistent with Warren County's rural character
2. Focus growth and infrastructure in existing centers
3. Minimize and mitigate environmental and stormwater impacts of transportation infrastructure
4. Maintain and improve the existing transportation system
5. Provide multimodal transportation choices that improve safety, mobility, and equity
6. Improve the resiliency of Warren County's transportation infrastructure
7. Improve access to education and employment opportunities
8. Promote cooperation and participation to advance mutual interests
9. Encourage state enabling legislation to provide municipalities and counties more authority over the impacts of traffic on their roadways from new development
10. Monitor and incorporate technological trends and innovations in transportation projects and strategies

Vision Statement

Feedback through the engagement process, review of previous studies and development of the plan's goal resulted in the following vision statement:

Warren County is noted for its scenic rural landscapes, prized farmlands, natural and historic assets, and desirable quality of life. The Warren County Transportations Plan is a collaborative and cooperative effort to preserve and enhance these qualities and provide multimodal transportation choices that improve safety and mobility, and create a more equitable, sustainable, and resilient future.

Based on this process, and in addition to development of the goals and vision, it is recommended that each of the municipal master plans and circulation elements should be refreshed in a similar manner to reflect both current and historic priorities; prepare for emerging trends, needs, and priorities; and develop local transportation networks that are comprehensive, multimodal, safe, and equitable.

More detailed information about the Goals and Vision Statement is provided in Technical Memo 1 in the Appendix B.



Oxford Central School, Oxford Township

3. Existing Conditions

A variety of data sources were gathered, reviewed, and analyzed for inclusion in the Warren County Transportation Plan. These sources provide an understanding of the overall transportation and demographic conditions of the county as well as important distinctions between communities. Together, with the results of the public outreach process, these data sources help identify key focus areas to develop recommendations. More detailed data methodology and results for each of the following existing conditions sections is provided in Technical Memo 2.4 in Appendix B.

Please note that certain sections of Technical Memo 2.4 as they appear Appendix B are inconsistent with this Chapter and are incorrect. The incorrect sections are : Speed Limits, Roadway Jurisdiction, and Height and Weight Restrictions The corrected sections are shown in this Chapter.



U.S. 46, Hackettstown

Roadway Network

Functional Classification

The Federal Highway Administration (FHWA) categorizes all roadways by functional classification. Functional classification is the systematic organization of highways and roadways into classes or groups based upon their intended service function with roadways such as interstate highways serving a different function than local residential streets. Efficient and safe operation of the roadway network requires a complete hierarchy of roads be present to serve all circulation needs in a diversity of land use contexts.

A variety of roadway levels are represented in Warren County. Interstates 78 and 80 allow high-speed, high-volume thru movement to reach higher density metropolitan destinations. Principal arterials such as NJ 57 and NJ 31 provide access between distant towns within the County including Phillipsburg, Washington Borough, and Hackettstown, and

beyond while connecting local retail and commercial centers. Minor arterials such as CR 519, and U.S. 46 east of NJ 31 also provide access to regional centers such as Hackettstown and Phillipsburg, connecting to principal arterials and interstates. Major and minor collectors constituting most of the County roadway system provide additional access between the higher functional classification roadways and smaller residential neighborhoods. Table 3 provides a list of county and state routes based on their functional classification. In addition to these routes, many roadways under local jurisdictions fall into these classifications. Several county routes fall under multiple functional classifications, based on the nature and use of the roadway segment. The functional classification for all roadways within the County is mapped in Figure 1.



U.S. 46 (Main Street), Hackettstown

Warren County Transportation Plan

Functional Class	Description
Interstate	Interstates were designed and constructed with mobility and long-distance travel in mind. The Interstate System provides a superior network of limited access, divided highways offering high levels of mobility while linking the major urban areas of the United States.
Other Freeway/Expressway	Other Freeways/Expressways look similar to Interstates. Travel lanes are usually separated by some type of physical barrier, and their access and egress points are limited to on and off-ramps or a very limited number of at-grade intersections. These roadways are designed and constructed to maximize their mobility function, and abutting land uses are not directly served by them.
Other Principal Arterial	Other Principal Arterials serve major centers of metropolitan areas, providing a high degree of mobility and can also provide mobility through rural areas. Abutting land uses can be served directly.
Minor Arterial	Minor Arterials provide service for trips of moderate length, serve geographic areas that are smaller than their higher Arterial counterparts and offer connectivity to the higher Arterial system. In rural arterials Minor Arterials are typically designed to provide relatively high overall travel speeds, with minimum interference to through movement.
Major Collector	Collectors serve a critical role in the roadway network by gathering traffic from Local Roads and funneling them to the Arterial network. In rural areas, Collectors generally serve primarily intra-country travel and constitute those routes on which predominant travel distances are shorter than on Arterial routes. Consequently, more moderate speeds can be posted.
Minor Collector	
Local Roads	Local roads account for the largest percentage of all roadways in terms of mileage. They are not intended for use in long distance travel, except at the origin or destination of the trip, due to their provision of direct access to abutting land. They are often designed to discourage through traffic.

Source: Adapted from Planning Process information from the Federal Highway Administration

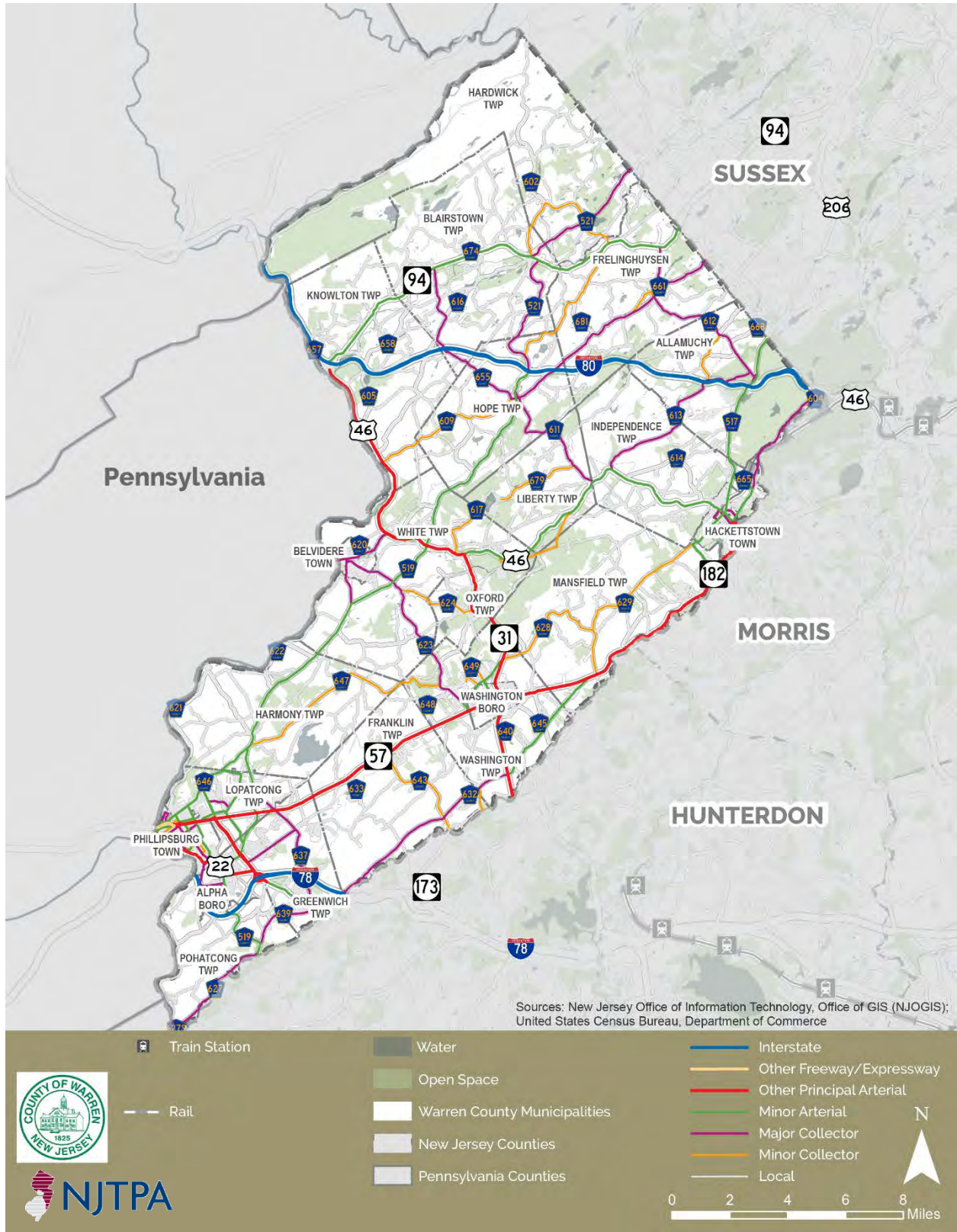


CR 519 approaching the village of Hope

Table 3: Functional Classification Designations

Interstates			
Interstate 78		Interstate 80	
Other Freeways/Expressways			
U.S. 22 (west of North Hillcrest Boulevard westbound, west of Morris Street eastbound)			
Other Principal Arterials			
U.S. 22 (east of Warren Street in Phillipsburg to I-78)	U.S. 46 (west of NJ 31)	NJ 31	NJ 57
NJ 122	NJ 182		
Minor Arterial			
U.S. 173 (east of I-78)	U.S. 46 (east of NJ 31)	NJ 94	CR 517
CR 519 (south of CR 521)	CR 521 (south of I-80)	CR 604 (south of CR 665)	CR 623 (small portion north of NJ 57)
CR 628 (west of NJ 31)	CR 632 (east of NJ 31)	CR 646	CR 665
Major Collector			
CR 519 (north of 521)	CR 521 (north of I-80)	CR 601	CR 604 (north of CR 665)
CR 609 (small portion)	CR 611	CR 612 (most)	CR 613
CR 620	CR 621 (only in Phillipsburg)	CR 623 (most)	CR 627
CR 632 (west of NJ 31)	CR 637	CR 638	CR 639
CR 641	CR 642	CR 655	CR 661
CR 667			
Minor Collector			
CR 602	CR 608	CR 609 (most)	CR 612 (small portion in Johnsonburg)
CR 615	CR 617	CR 624	CR 625 (portion)
CR 628 (east of NJ 31)	CR 629	CR 643	CR 647
CR 649	CR 659	CR 679	
Local Roads			
All other roads			

Figure 1: Functional Classifications



Speed Limits

An efficient and effective roadway network provides a variety of road types with varying speed limits to ensure the safe movement of vehicles through and within the County.

Similar to functional classification, a variety of speed limits regulate roadways in Warren County. Interstates and roadways with minimal curves cater to higher speed traffic (> 50 mph) while much of the county roadways allow travel speeds of 35-50 mph, traveling through rural areas with curvy and hilly terrain.

Local roadways providing direct access to residential uses tend to have lower speed limits (<35 mph).

Table 4 and Table 5 list the range of speed limits on state and county-maintained roadways in Warren County, respectively. Figure 2 maps speed limits along county and state routes. Where applicable in the tables, a range of speed limits is provided where the speed limit along a route varies.

Table 4: Speed Limits

Interstate Routes	U.S. Routes	State Routes
I-78: 65 mph	U.S. 22: 25-50 mph	NJ 31: 35-50 mph
I-80: 50-65 mph	U.S. 46: 35-50 mph	NJ 57: 25-50 mph
		NJ 94: 35-50 mph
		NJ 122: 25-50 mph
		NJ 163: 25 mph
		NJ 173: 40-50 mph
		NJ 182: 40 mph



NJ 57, Mansfield Township

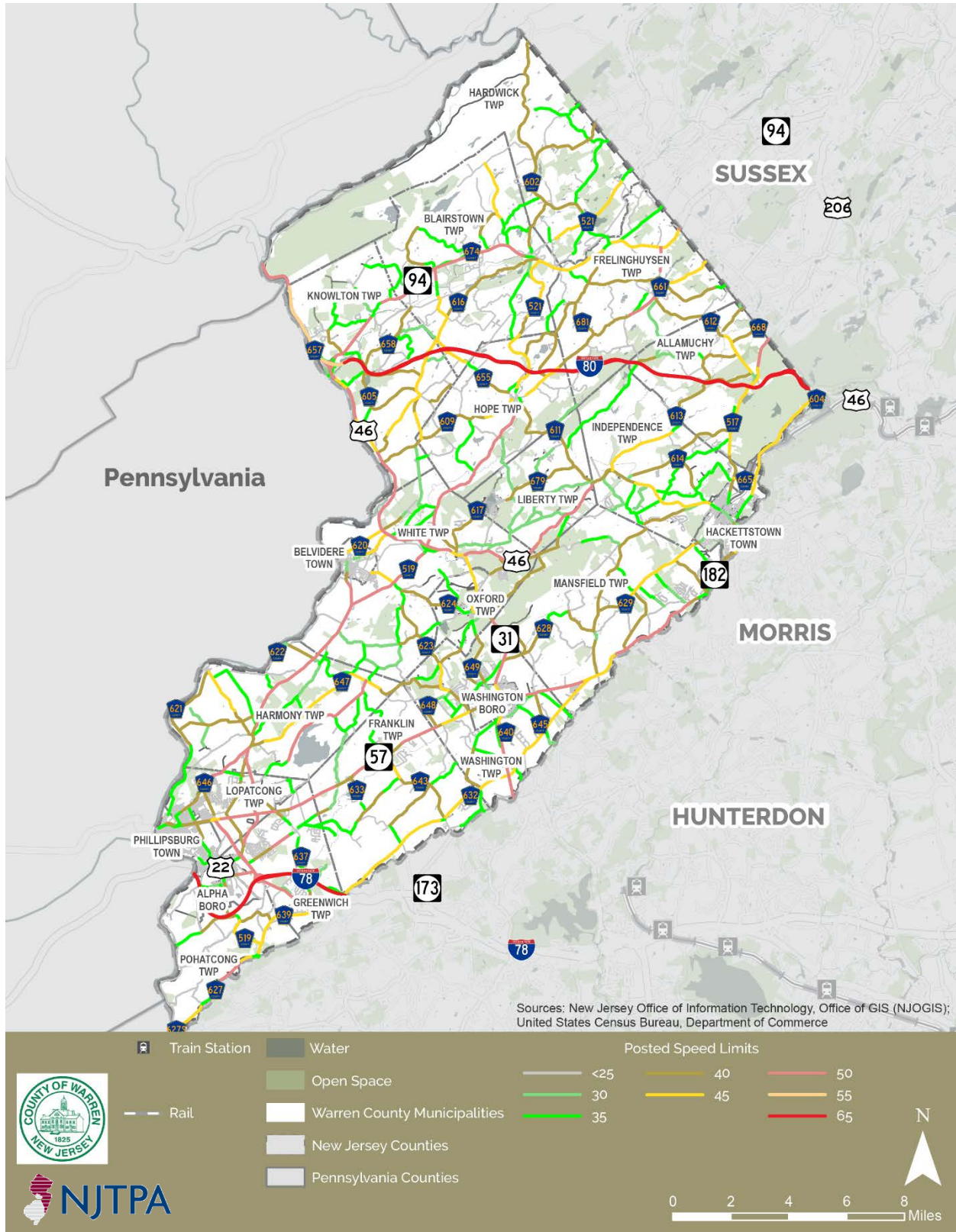
Table 5: Speed Limits on County Routes

CR 517: 25-50 mph	CR 616: 40-45 mph	CR 631: 25 mph	CR 646: 35-50 mph	CR 667: 30 mph
CR 519: 25-50 mph	CR 617: 40 mph	CR 632: 35-45 mph	CR 647: 40-45 mph	CR 668: 40 mph
CR 521: 25-45 mph	CR 618: 35 mph	CR 633: 40-45 mph	CR 648: 30-40 mph	CR 669: 40 mph
CR 602: 35-40 mph	CR 619: 35 mph	CR 634: 50 mph	CR 649: 30-40 mph	CR 671: 35 mph
CR 604: 25-45 mph	CR 620: 25-50 mph	CR 635: 35-40 mph	CR 650: 40 mph	CR 672: 35 mph
CR 605: 25-40 mph	CR 621: 25-45 mph	CR 636: 40 mph	CR 651: 40 mph	CR 673: 35 mph
CR 607: 30 mph	CR 622: 25-40 mph	CR 637: 25-40 mph	CR 652: 40 mph	CR 674: 35 mph
CR 608: 40 mph	CR 623: 35-45 mph	CR 638: 25-50 mph	CR 653: 35 mph	CR 675: 35 mph
CR 609: 25-45 mph	CR 624: 30-40 mph	CR 639: 45 mph	CR 654: 25 mph	CR 676: 25 mph
CR 610: 35 mph	CR 625: 30-40 mph	CR 640: 35 mph	CR 655: 35-50 mph	CR 678: 25-35 mph
CR 611: 25-40 mph	CR 626: 30-40 mph	CR 641: 35 mph	CR 657: 40 mph	CR 679: 40 mph
CR 612: 30-45 mph	CR 627: 30-50 mph	CR 642: 30-35 mph	CR 658: 40-50 mph	CR 680: 50 mph
CR 613: 35-45 mph	CR 628: 35-40 mph	CR 643: 25-45 mph	CR 659: 35-40 mph	CR 681: 40 mph
CR 614: 30-40 mph	CR 629: 30-45 mph	CR 644: 30 mph	CR 661: 50 mph	CR 682: 50 mph
CR 615: 40 mph	CR 630: 25-35 mph	CR 645: 30-35 mph	CR 665: 45 mph	CR 683: 35 mph



Janes Chapel Road, Mansfield Township

Figure 2: Speed Limits

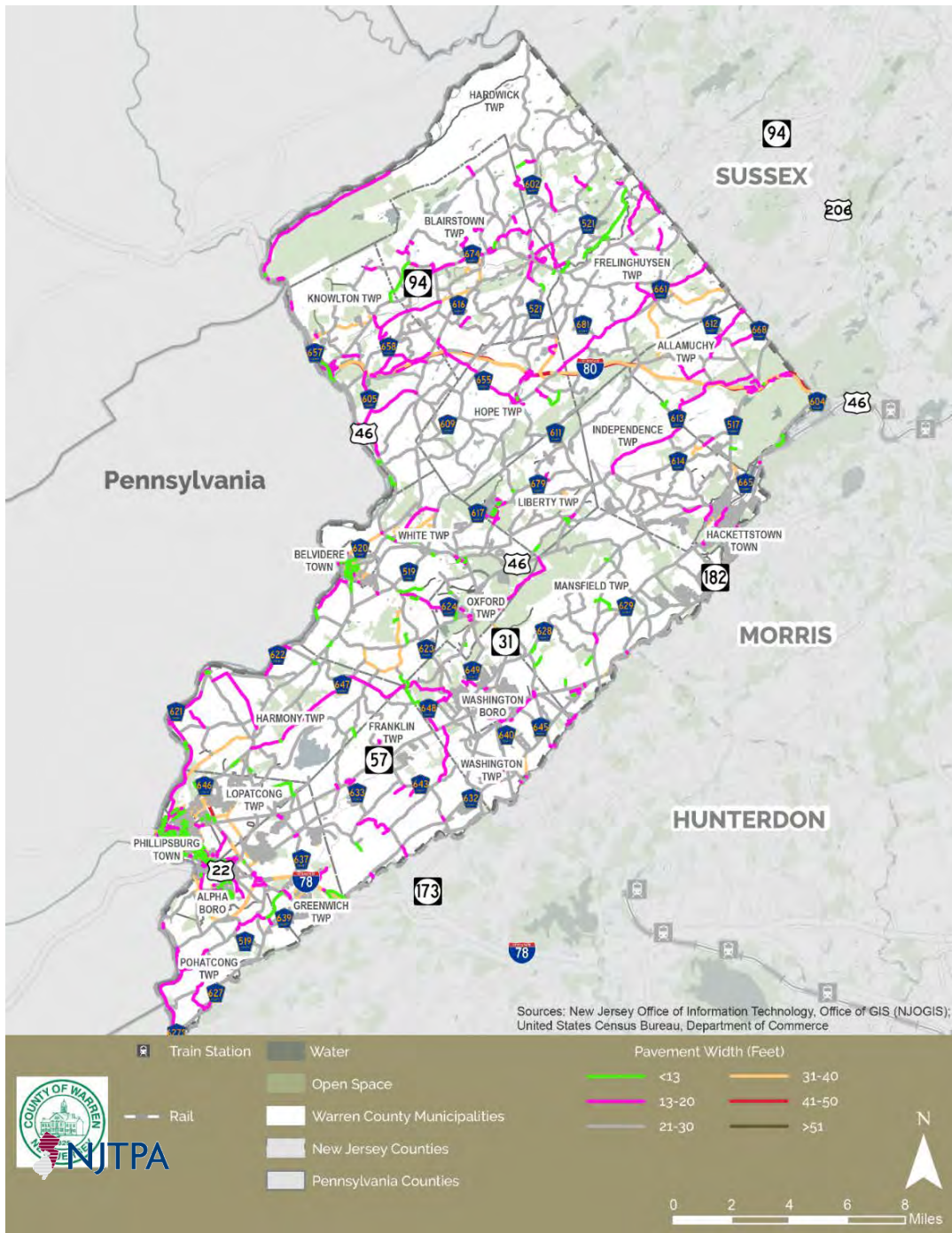


Pavement Width

Most roadways in the County, including the majority of county routes have a pavement width of 21-30 feet, sufficient for one travel lane in each direction with no on-street parking. Roadways with a pavement width above 40 feet include U.S. 46, NJ 31, NJ 57

and short segments of several municipal roadways. Additionally, many municipal roadways have a pavement width of less than 20 feet. Figure 3 maps the pavement widths of all roads in the County.

Figure 3: Pavement Width



Roadway Jurisdiction

Public roadways are under the jurisdiction of either the state, county, or municipality. Jurisdiction entails which agency is responsible for maintaining and improving the roadway. Warren County's 1982 Transportation Plan made several recommended changes to roadway jurisdiction, many of which have been implemented. Additionally, several roadway jurisdiction changes were undertaken that were not part of the 1982 Transportation Plan. All roadways added to the County roadway network were previously under municipal jurisdiction, and all roadways removed from the County roadway network reverted to the jurisdiction of the municipality. There has been no change to the state roadway network in Warren County.

Additions to the county roadway network (and their extents) from the 1982 plan include the following:

- CR 519 (Johnsonburg Bypass): CR 661 to CR 661 in Frelinghuysen
- CR 521: NJ 94 in Blirstown to Hardwick border
- CR 602 (Franklin Grove Road): from Millbrook Flatbrook Road to Newman Road in Hardwick
- CR 621: North Main Street in Phillipsburg to Lopatcong border
- CR 628: CR 623 to CR 649 in Washington Township and Washington Borough
- CR 629: CR 652 to CR 628 in Mansfield
- CR 632: NJ 57 in Mansfield to CR 651 in Washington Township
- CR 659: CR 602 to CR 521 in Hardwick
- CR 661 (Dark Moon Road): CR 661 in Frelinghuysen to Sussex County border
- CR 665 (Bilby Road): CR 517 to CR 604 in Hackettstown; portion from CR 517 to Independence/Hackettstown border deleted from County Road System in 2018
- CR 679: Lakeside Drive North to CR 611 in Liberty

Roadways removed from the county roadway network from the 1982 plan recommendations include the following:

- CR 601 (High St.): CR 602 (Bridge St.) to CR 521 Blirstown
- CR 602 (Bridge Street): CR 660 to NJ 94 in Blirstown
- CR 606 (River Road): Old Mine Road from I-80 to Delaware River National Recreation Area, formerly Pahaquarry Township merged into Hardwick Township
- CR 613: US 46 South to former L & H Railroad Station
- CR 621 Spur: Railroad Avenue to CR 621 in Harmony
- CR 656 (Old Vienna Rd., Old US 46 Loop) from US 46 to US 46 Independence
- CR 661: CR 519 to CR 519 in Frelinghuysen
- CR 677 (Morris Street): Raymond Street to U.S. 22 in Phillipsburg
- Belview Road: CR 519 in Lopatcong to Strykers Road in Harmony
- Mellicks Woods Road: CR 519 to CR 519 in Pohatcong
- Old Belvidere Road: from CR 646 to CR 646 in Harmony
- Penwell Road: NJ 57 in Mansfield to Hunterdon County border
- Roaring Rock Road: west of CR 623 in Washington Township

Additions and deletions to the county roadway network from the 1982 Transportation Plan are mapped in Figure 4.

Additions to the county roadway network not recommended in the 1982 Transportation Plan but occurring since then include the following:

- CR 658 (Polkville Road): CR 658 (Vail Road) in Knowlton to CR 655 (Mount Hermon Road) in Blirstown
- CR 680 (Mt. Pisgah Road): Jensen Drive to the County landfill
- CR 682 (West Crisman Rd): CR 658 (Polkville Rd) to NJ 94
- CR 683 (Ryan Road and Cat Swamp Road): CR 614 Petersburg Road in Independence to Allamuchy border

Roadways removed from the county roadway network not recommended in the 1982 Transportation Plan include the following:

- CR 601 (Blair Place): CR 660 (Main Street) to CR 602 (Bridge Street) in Blaiirstown
- CR 624 (Wall St.): CR 631 to NJ 31 Oxford
- CR 660 (Main St.): NJ 94 to CR 602 (Bridge St.)
- CR 665 (Bilby Road): CR 517 to Independence/Hackettstown border

A list of roadways remaining to be exchanged is shown in 6.

In addition to these changes made since the previous County transportation plan, the existing jurisdiction of roadways in the county were reviewed. Most (63 percent) roadway mileage falls under municipal jurisdiction though county, state and interstate roadways cater to far higher traffic volumes. Except for small pockets of the County with little to no development and large open areas (including Hardwick, Blaiirstown, and Franklin), the County is well-served by county roadways. Existing roadway jurisdiction is mapped in Figure 5.

Table 6: County Roadway Network Outstanding Changes

Road Name	Municipality	Length to be Added (miles)	Length to be Deleted (miles)
Cat Swamp Rd	Allamuchy	1.20	
Old Hackettstown Rd (CR 653)	Allamuchy		0.37
Ervey Rd (CR 669)	Allamuchy		1.25
Maple Lane (CR 668)	Allamuchy		1.05
High St	Alpha		0.85
Edge Hill Rd (CR 607)	Blaiirstown		0.75
Old Route 94 Alignment Loops	Blaiirstown		2.65
Edison Rd (CR 633)	Franklin		0.94
New Village-Stewartsville Rd (CR 638)	Greenwich		0.40
Greenwich Church Rd	Greenwich		0.40
Hutchinson Rd (CR 622)	Harmony		1.50
Swayzes Mill Rd (CR 610)	Hope		2.20
Old Route 517 Alignment Loop	Independence		0.20
Simpson Rd	Knowlton		0.80
Decator Green, Green & Columbia Sts	Knowlton		0.49
Tunnel Hill Rd (CR 650)	Mansfield		1.50
Mine Hill Rd	Oxford/Washington Twp	1.10	
Bowerstown Rd (CR 632)	Washington Twp		0.45
Plane Hill Rd	Washington Twp		0.45
Little Philadelphia Rd (CR 648)	Washington Twp		1.90
South Lincoln Ave	Washington Twp		0.62
Broad St	Washington Twp		0.13
Washburn Ave (CR 630)	Washington Twp		1.50
Changewater Rd (CR 645)	Washington Twp		1.70
Bryant Rd	Washington Twp		0.65
Mountain Lake Rd	White	0.75	
Foul Rift Rd	White	0.85	
North Beaver Dr (CR 618)	White		2.00
Old Route 519 Alignment Loop (two segments)	White		0.10 (each of the segments)

Figure 4: Roadway Jurisdiction Changes

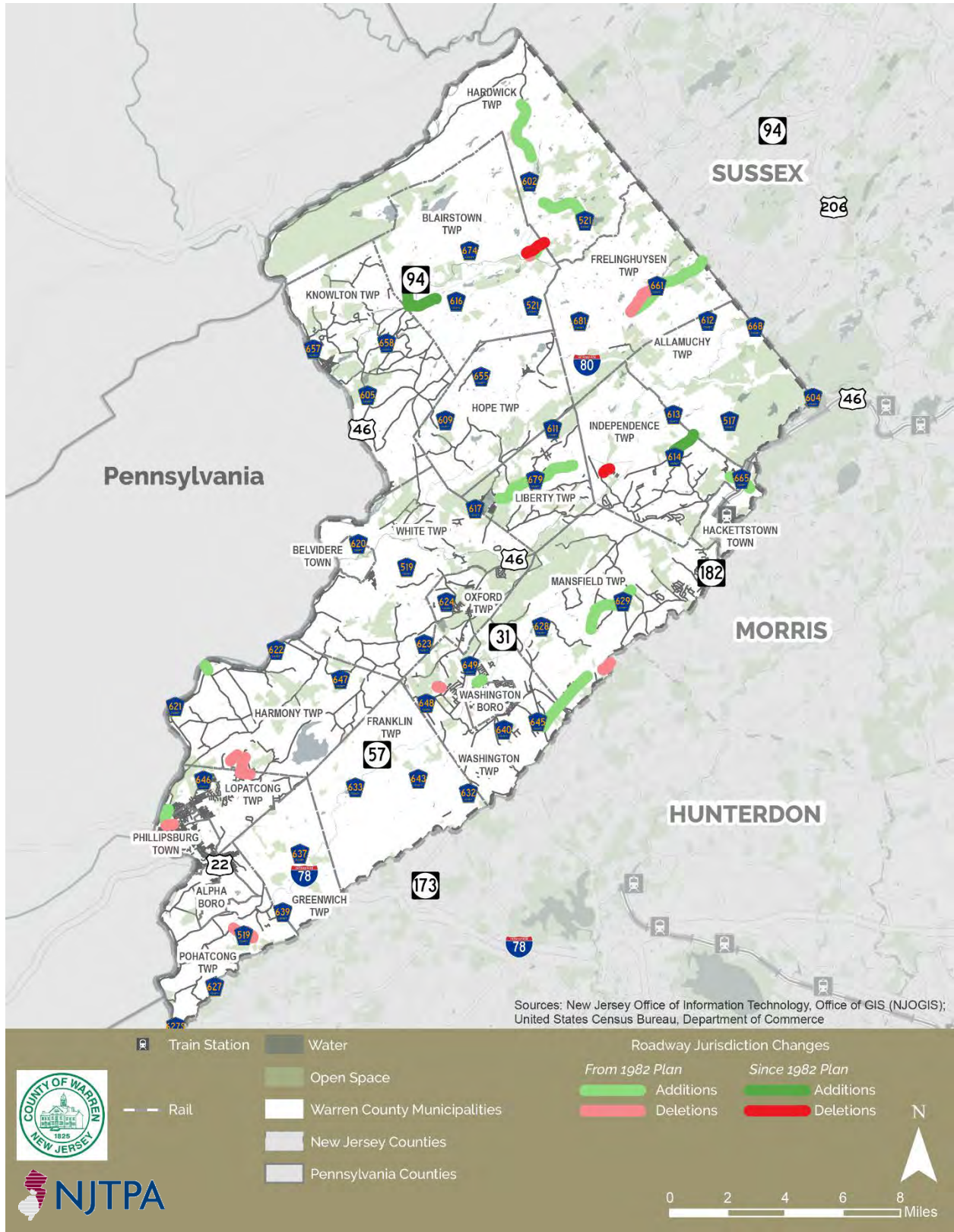
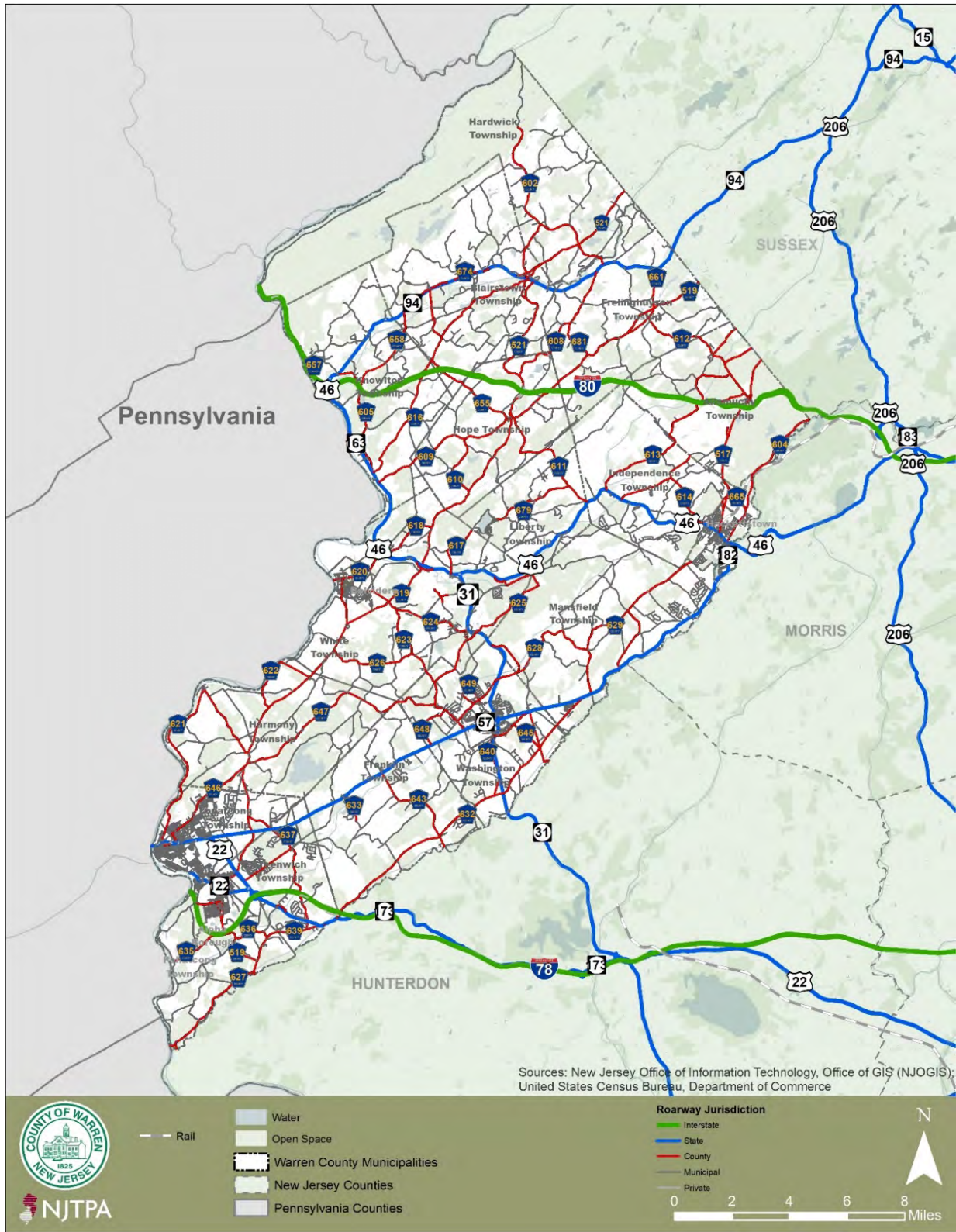


Figure 5: Roadway Jurisdiction



Traffic Volumes

Traffic counts on Warren County roadways conducted between 2016 and 2020 were obtained from NJDOT’s Traffic Monitoring System. Data for each count site included average annual daily traffic volume (AADT) for all vehicles, and separate truck volumes.

Traffic counts are highest on interstate roadways, with the highest being 106,000 AADT on Interstate 78, followed by 60,000 on Interstate 80 and 43,000 on U.S. 22. The lowest traffic counts on an interstate roadway were recorded on U.S. 46 being 14,000 AADT.

Several county roadways have an AADT above 10,000. Most traffic counts were conducted on higher-volume roadways and in the more developed areas of Hackettstown, Washington Borough, Phillipsburg, and Alpha.

Table 7 presents the list of corridors where AADT is greater than 10,000. Where multiple counts were taken along a corridor, the upper and lower AADT limits are shown. Ranges can widely vary due to the differing context along a corridor. Volumes are also mapped in Figure 6. Where multiple counts were taken at a location, only the most recent AADT is shown.

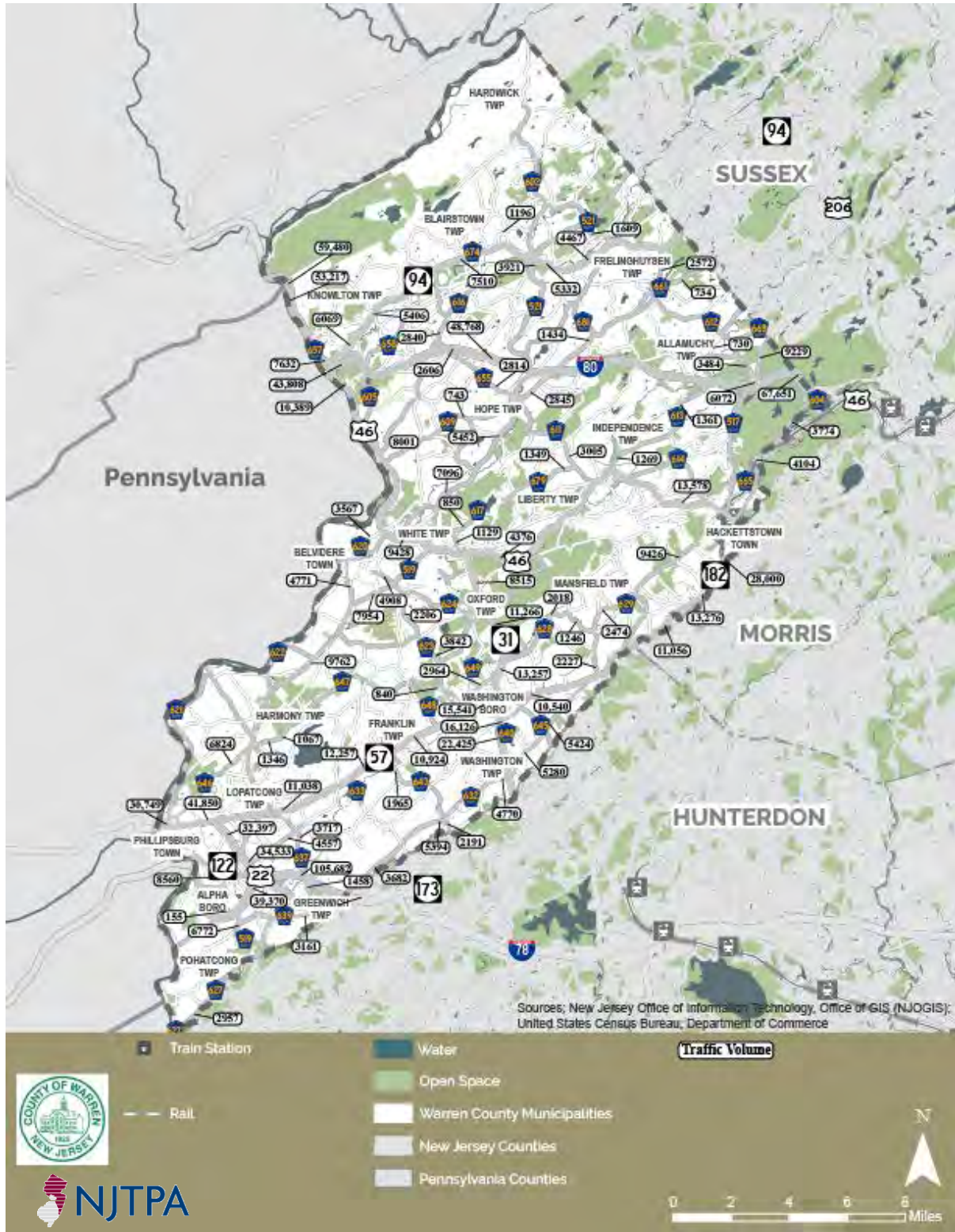
Table 7: Traffic Volumes

Roadway	AADT
I-78	106,000
I-80	40,000-60,000
U.S. 22	30,000-43,000
NJ 182	16,000-28,000
CR 517	13,000-18,000
NJ 173	13,000
NJ 31	11,000-24,000
NJ 57	10,000-16,000
U.S. 46	10,000-14,000
CR 519	11,000-13,000
CR 638	11,000-13,000
NJ 122	11,000-12,000



U.S. 22, Phillipsburg

Figure 6: Traffic Volumes



Average Annual Daily Traffic Volumes from NJDOT Safety Voyager tool, 2016-2018

Height and Weight Restrictions

Numerous bridges and roadways in Warren County have weight or height restrictions precluding use by trucks exceeding given limits, making travel through the County and between major roadways more difficult.

While necessary for physical and safety reasons, height and weight restrictions can have negative impacts. Restrictions can limit transportation accessibility for local businesses, impact local economic viability, increase vehicle miles traveled, and divert traffic through residential neighborhoods. Eleven county routes have height restrictions and six county routes have weight restrictions. State highway 173 has a 10 ton weight limit. Three bridges under the jurisdiction of the Delaware River Joint Toll Bridge Commission have weight restrictions. They are located at Riegelsville, Phillipsburg and Belvidere. The Riegelsville bridge has a height restriction as well.

County roads with height and weight restrictions tend to be around the periphery of Warren County. In Pohatcong, CR 636 and CR 639 have height restrictions of 11'3", and 13'6", respectively. Additionally, CR 519 in Alpha has a 13'9" height restriction and a 10'6" height restriction in Lopatcong. These restrictions present fewer opportunities for trucks entering from the southeast. In the

north, there are height restrictions along CR 658 in Knowlton, and CR 616 and CR 655 in Blairstown. Near the Delaware River, there are two height restrictions on CR 622 in Harmony, west of CR 519. To the north of this location, CR 620 Spur A in Belvidere has a 13-foot-9-inch height restriction.

Most weight-restricted county roadways are in the southern portion of the County. CR 519 in Pohatcong has a 4-ton limit and in Greenwich, an 8-ton limit. CR 637 in Lopatcong and Greenwich has a 10-ton limit. CR 646 in Phillipsburg, Lopatcong, and Harmony has a 4-ton limit. CR 620 has an 8-ton limit in White and Belvidere, and the short extent of CR 519 in Pohatcong has a 4-ton limit.

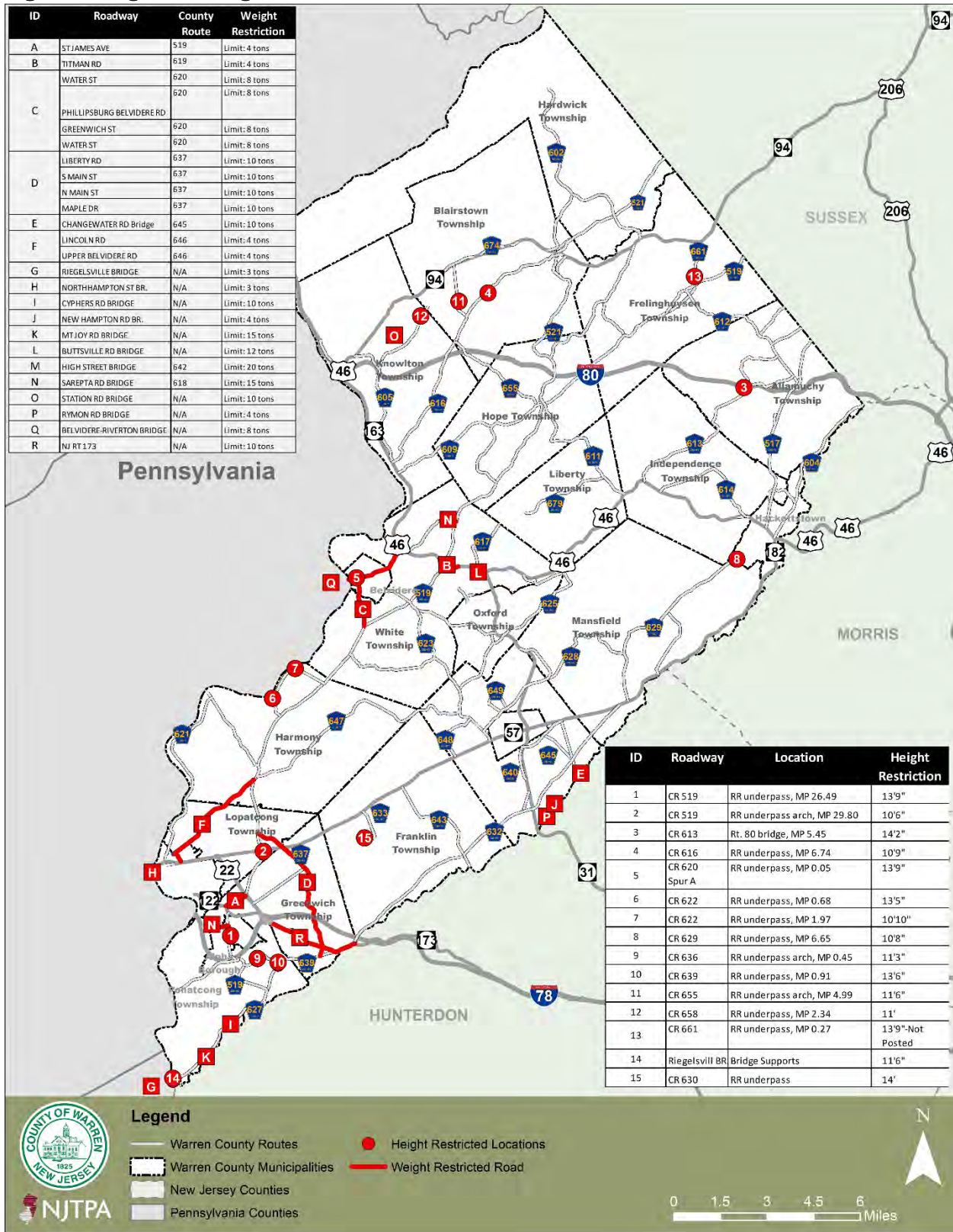
Additionally, at the request of Hope Township, the County conducted an engineering analysis of CR 519/CR 521 between the intersection of CR 519/U.S. 46 and CR 521/I-80 to impose a 13-ton directional weight limit. As an alternate route, vehicles over 13 tons would be directed to use U.S. 46 between CR 519 in White Township and the I-80 interchange in Knowlton Township. The request for the weight restriction is pending with the New Jersey Department of Transportation.

The location and a listing of height and weight restricted-county routes and DRJTBC are presented in Figure 7.



Northampton Street Bridge (3-ton limit), Phillipsburg

Figure 7: Height and Weight Restrictions (Please note that restrictions under municipal jurisdiction are not shown)



ID	Roadway	County Route	Weight Restriction
A	ST JAMES AVE	519	Limit: 4 tons
B	TITMAN RD	619	Limit: 4 tons
C	WATER ST	620	Limit: 8 tons
	PHILLIPSBURG BELVIDERE RD	620	Limit: 8 tons
D	GREENWICH ST	620	Limit: 8 tons
	WATER ST	620	Limit: 8 tons
	LIBERTY RD	637	Limit: 10 tons
E	S MAIN ST	637	Limit: 10 tons
	N MAIN ST	637	Limit: 10 tons
	MAPLE DR	637	Limit: 10 tons
F	CHANGewater RD Bridge	645	Limit: 10 tons
G	LINCOLN RD	646	Limit: 4 tons
H	UPPER BELVIDERE RD	646	Limit: 4 tons
I	RIEGELSVILLE BRIDGE	N/A	Limit: 3 tons
J	NORTH HAMPTON ST BR.	N/A	Limit: 3 tons
K	CYPHERS RD BRIDGE	N/A	Limit: 10 tons
L	NEW HAMPTON RD BR.	N/A	Limit: 4 tons
M	MT JOY RD BRIDGE	N/A	Limit: 15 tons
N	BUTTSVILLE RD BRIDGE	N/A	Limit: 12 tons
O	HIGH STREET BRIDGE	642	Limit: 20 tons
P	SAREPTA RD BRIDGE	618	Limit: 15 tons
Q	STATION RD BRIDGE	N/A	Limit: 10 tons
R	RYMON RD BRIDGE	N/A	Limit: 4 tons
S	BELVIDERE-RIVERTON BRIDGE	N/A	Limit: 8 tons
T	NJ RT 173	N/A	Limit: 10 tons

ID	Roadway	Location	Height Restriction
1	CR 519	RR underpass, MP 26.49	13'9"
2	CR 519	RR underpass arch, MP 29.80	10'6"
3	CR 613	Rt. 80 bridge, MP 5.45	142"
4	CR 616	RR underpass, MP 6.74	10'9"
5	CR 620	RR underpass, MP 0.05	13'9"
6	CR 622	RR underpass, MP 0.68	13'5"
7	CR 622	RR underpass, MP 1.97	10'10"
8	CR 629	RR underpass, MP 6.65	10'8"
9	CR 636	RR underpass arch, MP 0.45	11'3"
10	CR 639	RR underpass, MP 0.91	13'6"
11	CR 655	RR underpass arch, MP 4.99	11'6"
12	CR 658	RR underpass, MP 2.34	11'
13	CR 661	RR underpass, MP 0.27	13'9"-Not Posted
14	Riegelsvill BR	Bridge Supports	11'6"
15	CR 630	RR underpass	14'

Maintenance and Capital Improvement Plan

The County reconstructs surface treated pavements (such as oil and chip roads) every 3 to 4 years and resurfaces bituminous concrete surfaced roadways every 12-15 years, as outlined in the 1982 Transportation Plan.

The Warren County Engineering Department has designated standard cross-sections for each roadway classification category. These standards are used in implementing the county subdivision and site plan regulations as well as general implementation of the Circulation Plan. Since the county's 1982 Transportation Plan, county roadway cross-sections have been updated. Standard cross-sections from 1982 and the present for

various roadway types are shown in Figure 8 through 12. The 1982 and updated minor arterial cross-sections are displayed first, followed by the 1982 collector cross-section and updated major and minor collector cross-sections.

In 2021, the county budgeted funds to resurface 16 miles of roadway. Bridge and culvert improvements are planned and will be undertaken as funding and permitting become available. Nearly \$8,000,000 is presently budgeted for road and bridge improvements and maintenance, a majority of which is funded through the State Transportation Trust Fund.



CR 519, Hope Township

Figure 8: Minor Arterial Cross-Section (1982 Plan)

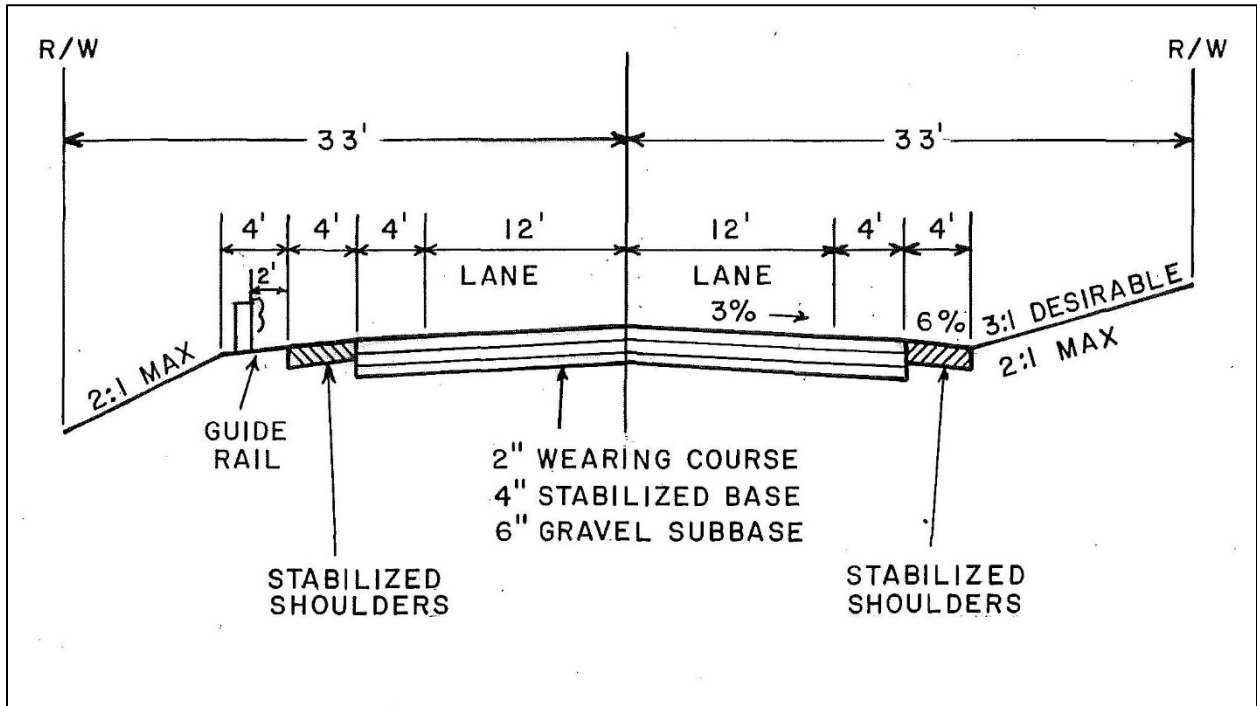


Figure 9: Minor Arterial Cross-Section (Updated)

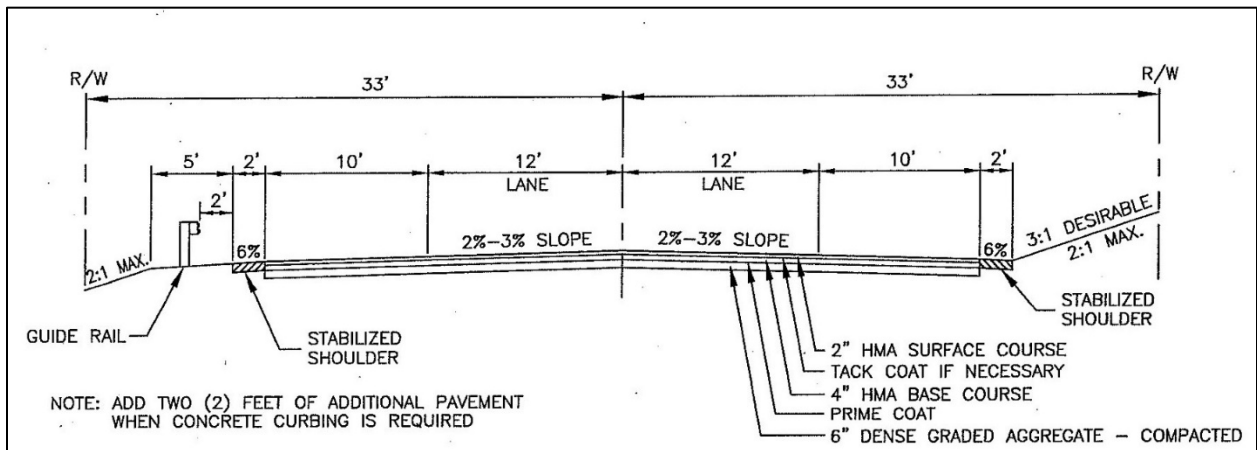
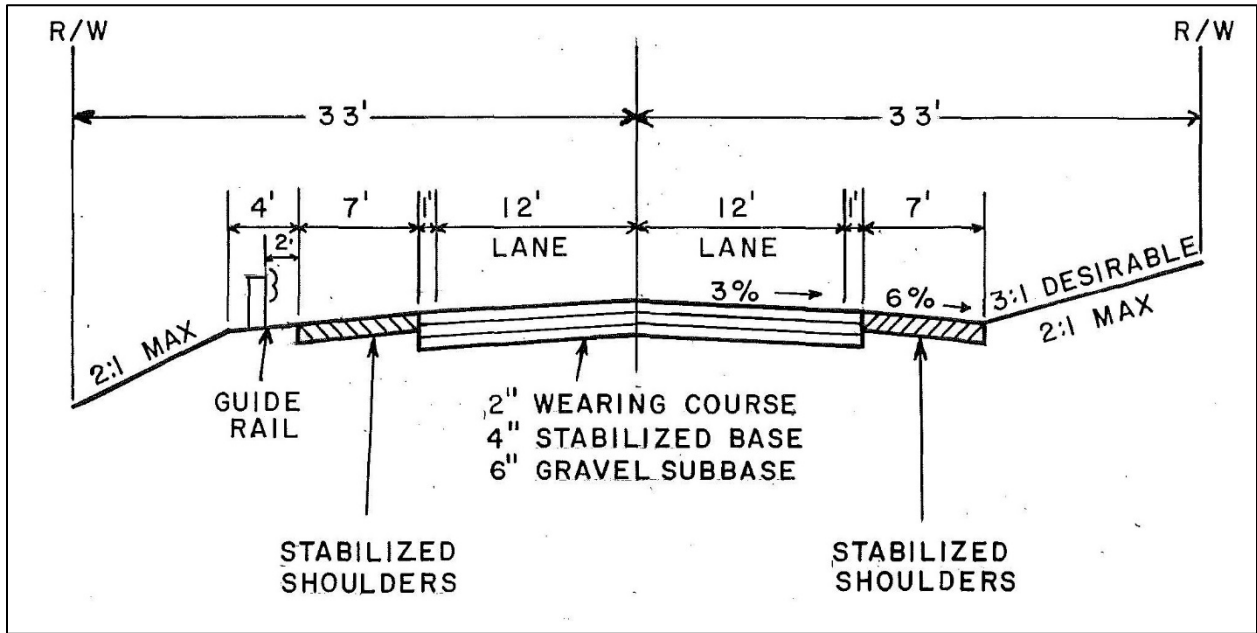


Figure 10: Major and Minor Collector Cross-Section (1982 Plan)



Washington Avenue, Oxford Township

Figure 11: Major Collector Cross-Section (Updated)

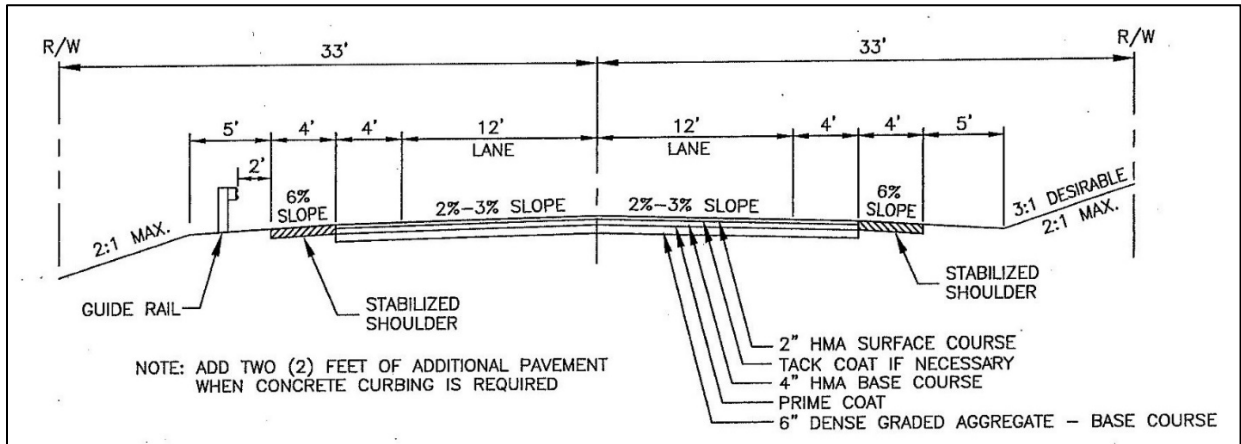
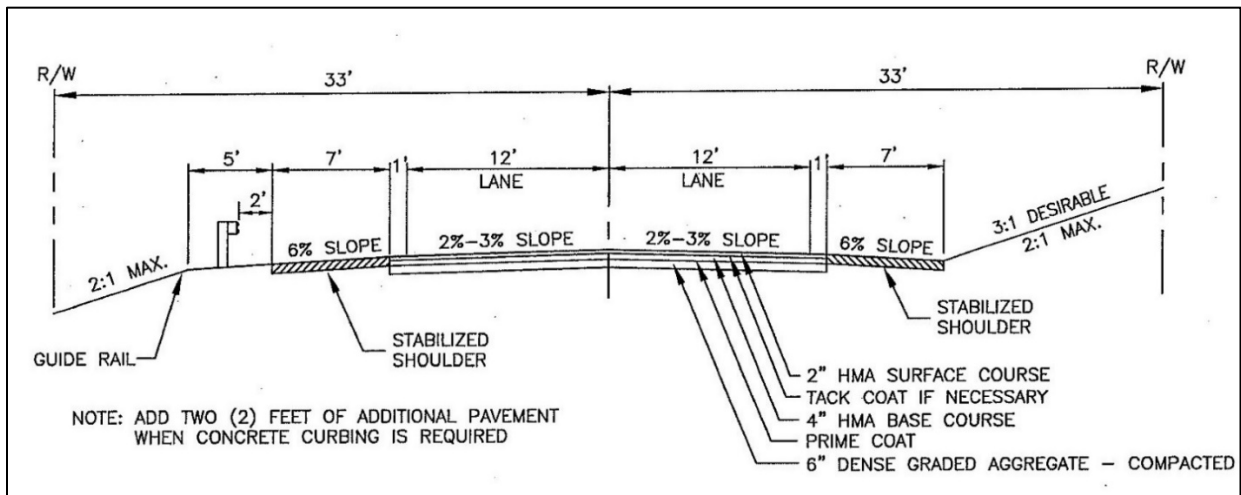


Figure 12: Minor Collector Cross-Section (Updated)



CR 624, Oxford Township

As illustrated in the figures above, the following changes were made between cross-sections in the 1982 plan and current county guidance.

Minor Arterial

- 2-foot stabilized shoulders instead of 4 feet
- 10-foot separation between travel lane and stabilized shoulder instead of 4 feet
- 3-foot provided to the outside of the guide rail instead of 2 feet
- 2-3 percent slope of roadway instead of 3 percent

Major Collector

- 4-foot stabilized shoulders instead of 7 feet

- 4-foot separation between travel lane and stabilized shoulder instead of 1 foot
- 3-foot provided to the outside of the guide rail instead of 2 feet
- 2-3 percent slope of roadway instead of 3 percent

Minor Collector

- 3-foot provided to the outside of the guide rail instead of 2 feet
- 2-3 percent slope of roadway instead of 3 percent

Each of the updated cross-sections provide adequate space for dedicated on-road bicycle facilities to be accommodated.



CR 631 (Washington Avenue), Oxford Township

Crashes

Crash records from 2016-2018 (the most recent available at the time the study commenced) were collected and mapped for all roads in Warren County. Particular attention was paid to crashes on county roadways. Crash hotspots were identified at locations with a high number of crashes. Intersections and corridor segments with the most crashes tended to be on state and U.S. roadways, which fall under NJDOT jurisdiction. Eight county roadway crash hotspots were identified, each with between 21 and 92 crashes. While including at least one county roadway, each of these hotspots tended to be located near the intersection with a state,

U.S., or interstate road. Throughout the County, crashes mainly occur on higher-speed and higher-volume roadways.

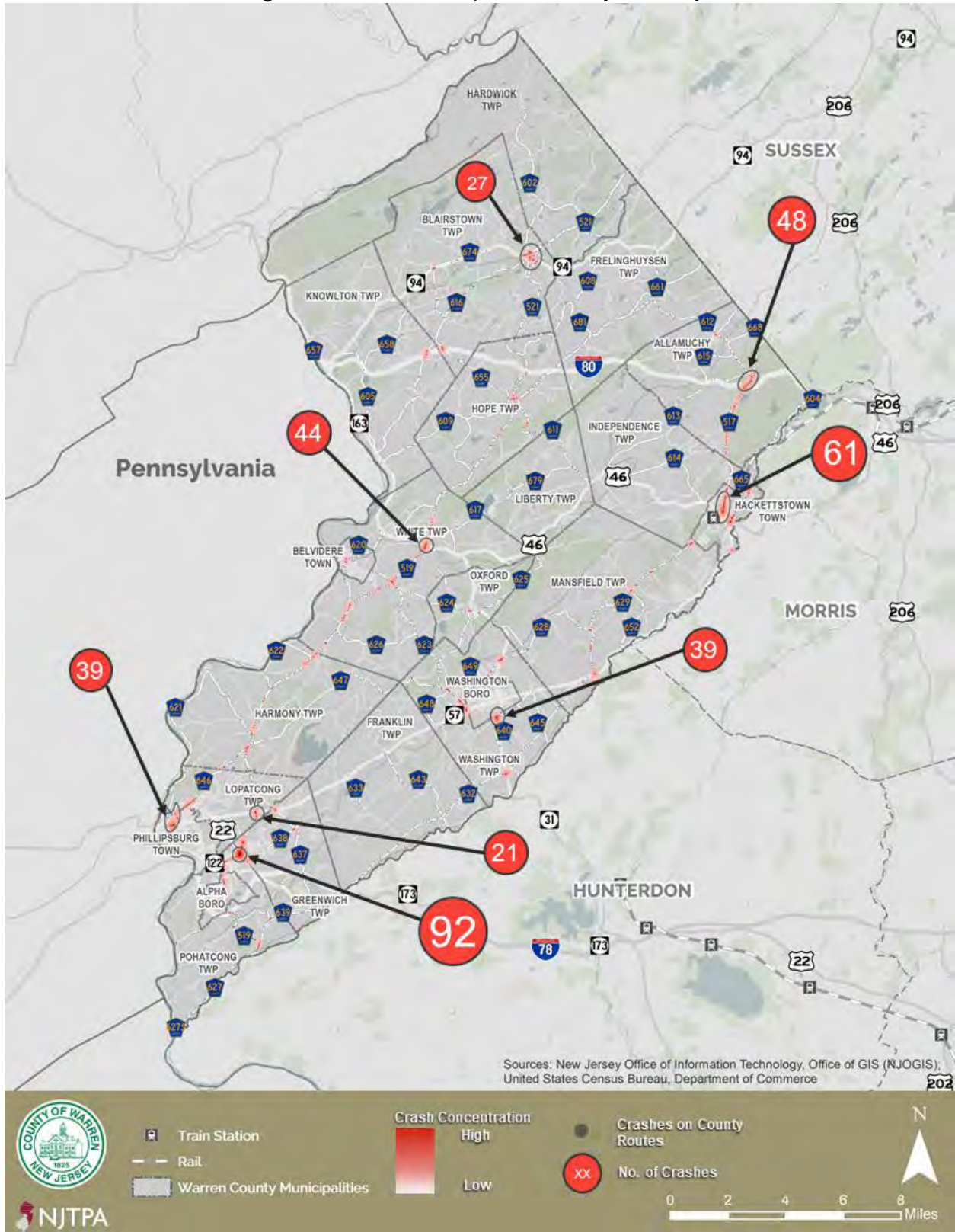
The location of crash hotspots on county roadways and number of crashes in each hotspot are mapped in Figure 13. Overrepresented crash types (compared to statewide averages on county roads) are shown in Table 8.

A more detailed analysis of crash characteristics in the county is provided in Technical Memo 2.4 in Appendix B.

Table 8: Crash Hotspots

Crash Hotspot	Number of Crashes	Municipalities	Overrepresented Crash Types (observes vs. statewide avg)
US 22/CR 519	92	Pohatcong/Greenwich	Rear End (55% vs. 48%) Backing (4% vs. 1%)
US 46/CR 517	61	Hackettstown	Right Angle (16% vs. 10%) Fixed Object (23% vs. 19%) Backing (4% vs. 1%) Pedestrian (3% vs. 1%)
U-80/CR 517	48	Allamuchy	Left/U-Turns (8% vs. 2%) Head-On (4% vs. 2%) Overturned (2% vs. 1%) Backing (6% vs. 1%) Animal (6% vs. 4%) Pedestrian (4% vs. 1%)
US 46/CR 519	44	White	Right Angle (34% vs. 10%)
US 22/CR 646/Morris St	39	Phillipsburg	Rear End (59% vs. 48%) Fixed Object (13% vs. 9%) Parked Vehicle (10% vs. 1%) Backing (3% vs. 1%)
CR 630/CR 640	39	Washington Twp	Rear End (59% vs. 48%) Fixed Object (13% vs. 9%) Head-On (5% vs. 2%) Overturned (3% vs. 1%)
NJ 94/CR 521/CR 602/CR 616/CR 607	27	Blairstown	Fixed Object (11% vs. 9%) Struck Parked Vehicle (26% vs. 1%) Left/U-turns (4% vs. 2%) Head-On (4% vs. 2%) Backing (19% vs. 1%)
NJ 57/CR 519	21	Lopatcong	Left/U-turns (14% vs. 2%) Right Angle (14% vs. 10%)

Figure 13: Crashes Hotspots on County Roadways



Biking, Walking and Trails

Biking and walking are integral parts of Warren County's transportation network, providing an alternative means to single-occupant motor vehicle use, and essential to mobility for the region's vulnerable populations. Biking and walking are also an important part of the county's attractiveness to visitors because of its scenic and rural character. The county's trail network provides recreation and scenic views, contributing greatly to the county's tourism industry. An inventory of bicycle compatibility and trails were conducted as part of this study as well as a review of crashes in the county involving cyclists and pedestrians.

Bicycle Compatibility Analysis

Prior to the development of this Warren County Transportation Plan, the County completed a bicycle compatibility analysis of all county roadways based on bicycle level of traffic stress (LTS). LTS measures a cyclist's expected comfort of a given roadway based on roadway conditions including volume, speed, and shoulder width. Based on an analysis of the criteria, the LTS for a given roadway segment is classified into one of four categories, with LTS 1 indicating comfort for most users (including children and the elderly) and LTS 4 indicating comfort for only the most experienced riders. The bicycle compatibility analysis indicates expected comfort on the

existing roadway, or the compatibility of biking. It does not indicate the most advantageous places to install dedicated cycling facilities.

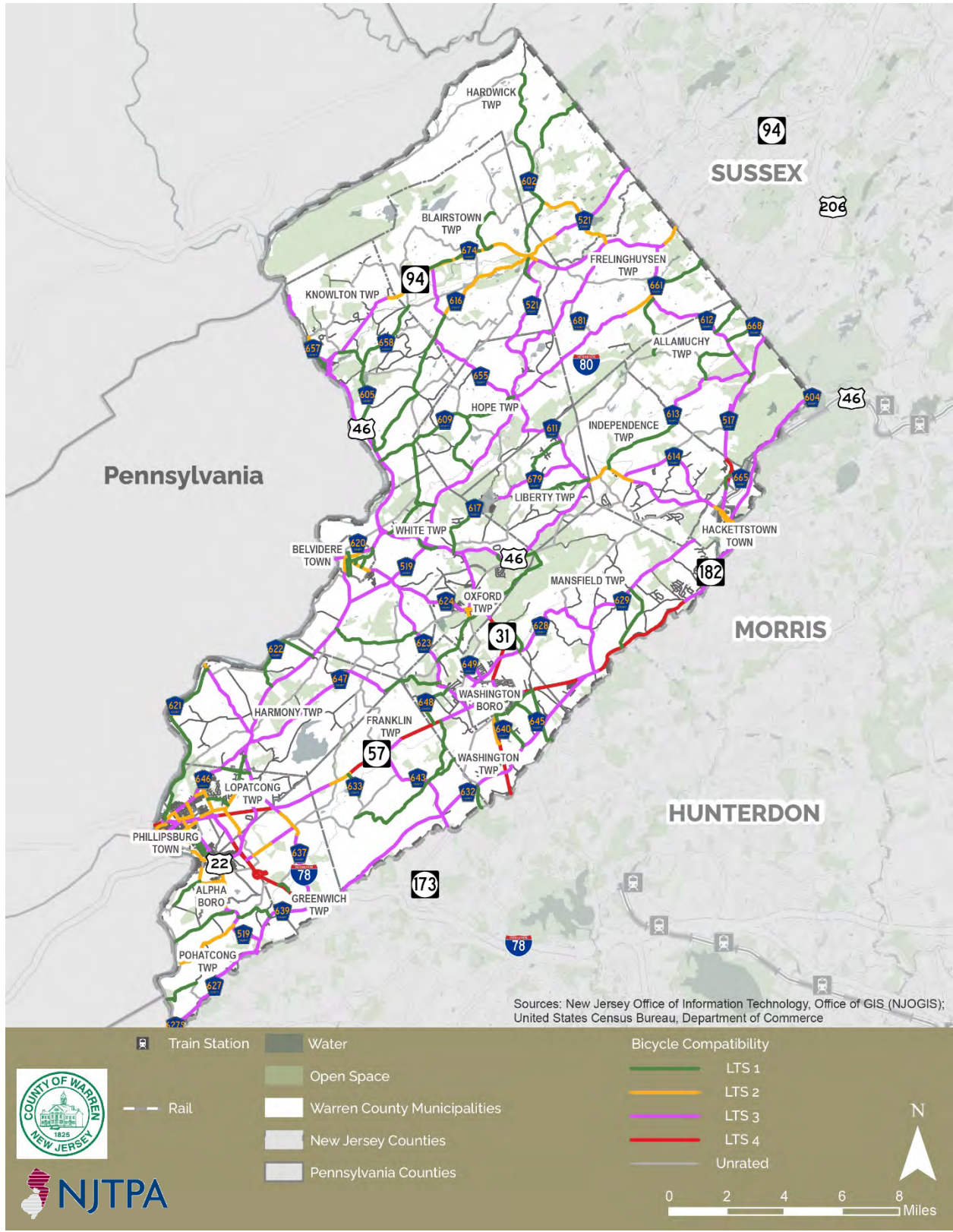
Most municipal roads were categorized as LTS 1 with the majority of county roadways designated LTS 3, indicating a need for physical improvements to enhance cyclist safety. Figure 14 maps bicycle compatibility for all roadways in the county.

A more complete explanation and review of bicycle compatibility analysis is presented in Technical Memo 2.



U.S. 46, Hackettstown

Figure 14: Bicycle Compatibility Analysis



Bicycle and Pedestrian Safety

Though a safety analysis of crash incidents on county roadways was conducted to identify crash hotspots, a thorough analysis of bicycle and pedestrian crashes was not conducted as part of this Transportation Plan. Despite this, a review of the location of bicycle and pedestrian crashes in the county reveal that two-thirds of crashes (59 of 89) involving cyclists or pedestrians occurred in one of three municipalities: Phillipsburg, Hackettstown and Washington Borough. These three municipalities account for only 2.4 percent of the county's area but an overwhelming number of bicycle and pedestrian crashes. Most of these crashes occurred on state or municipally maintained roadways.

The following trends were found in the bicycle and pedestrian crash data. All comparisons with countywide crashes refer to crashes of all types (not only bicycle and pedestrian crashes) on the entire roadway network (local, county and state roadways):

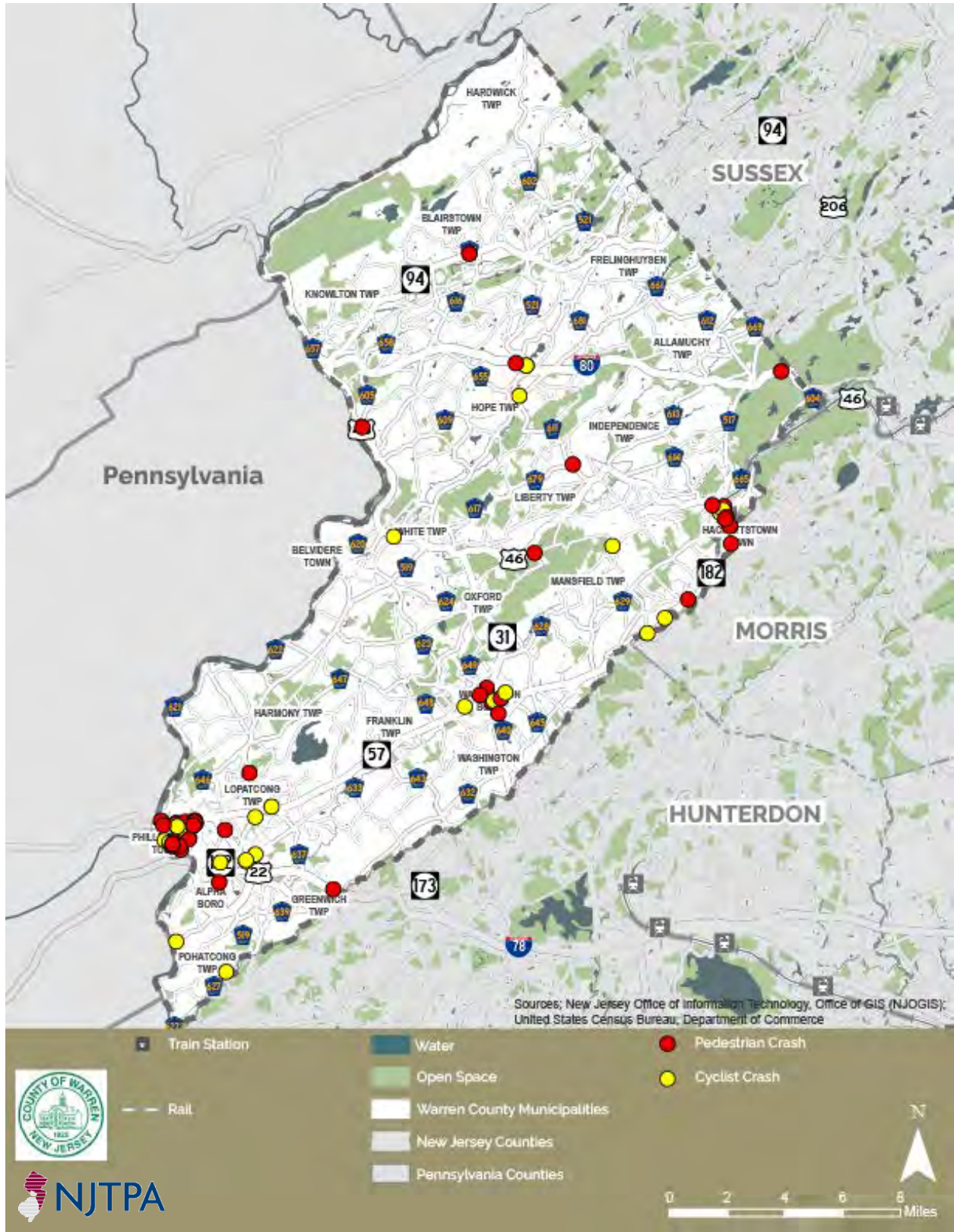
- Crashes were more likely to occur from mid-afternoon to early evening with more than one quarter of crashes occurring between 2pm and 5pm
- Crashes were evenly distributed between those at intersections and those between intersections, this compares to 81 percent of crashes of all types countywide occurring between intersections
- Crashes were more likely to occur on municipal roads (44 percent) compared to only 24 percent of all crashes countywide
- Crashes were equally likely to occur during daylight (63 percent) as crashes countywide (66 percent)
- Crashes were more likely to occur during clear weather conditions (87percent) than crashes countywide (75 percent)
- Crashes were far more likely to occur on roadways with a posted speed limit of 25 mph (56 percent) than crashes countywide (21 percent)

A map presenting bicycle and pedestrian crashes is shown in Figure 15.



NJ 57, Washington Borough

Figure 15: Bicycle and Pedestrian Crash Incidents



Regional Trail Network

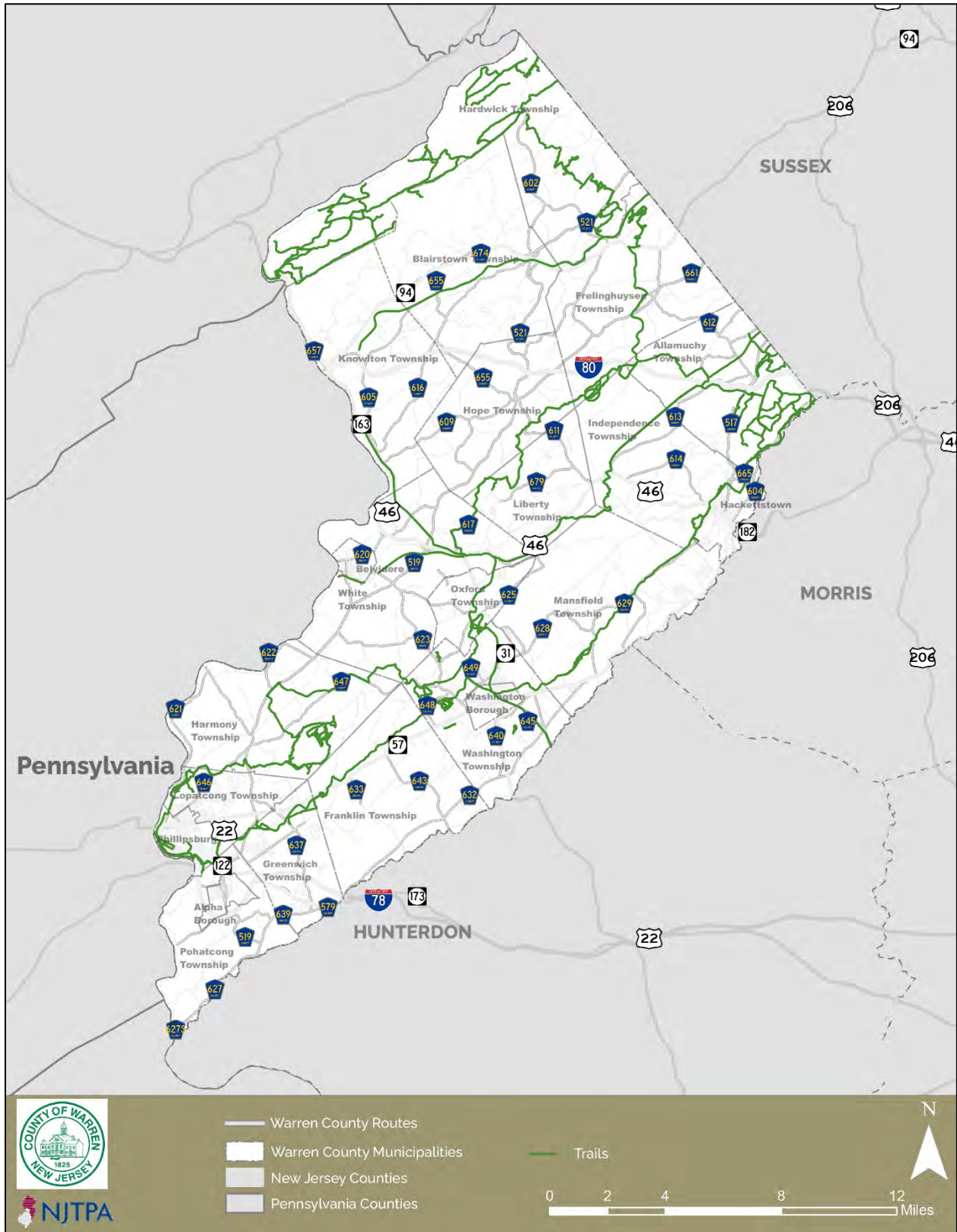
The county provides a vast network of regional and local trails. 9 provides a list of the 180 miles of trails in the county, indicating segments that are part of a regional trail system. Several of the larger regional trail corridors/networks are discussed below.

Figure 16 maps the location of major trails in the county. In addition to providing a means of transportation, exercise and recreation, the trail system strongly contributes to tourism in the county.

Table 9: Trails

Trail Name	Part of Regional Trail	Length Miles
Allamuchy Mountain State Park Trails	Warren-Highlands/Morris Canal	23.02
Appalachian Trail	Appalachian Trail	14.56
Bread Lock Park Trails	Morris Canal	2.10
Florence Kuipers Park Trails	Morris Canal	2.43
Jenny Jump Trails	Warren Highlands	13.64
Lehigh Hudson Trail	LH Trail/Pequest Valley	10.80
Merrill Creek Trails	Warren Highlands	12.60
Marble Hill Trails	Warren Highlands	4.86
Mt. Rascal Trail	Morris Canal	1.04
Delaware Water Gap National Recreation Area and Worthington State Forest Trails	Appalachian Trail	40.29
Paulinskill Valley Trail	Liberty Water Gap/911 Trail	12.70
Phillipsburg Riverfront Heritage Trail	Morris Canal	6.91
Port Murray Preserve Trail	Morris Canal	1.75
Port Warren Trail	Morris Canal	1.06
Ridge and Valley Trails	Ridge and Valley Trails	18.37
Washington Township Park Trails	Morris Canal	6.95
East Oxford Mountain Trail	Warren Highlands	0.56
West Oxford Trails	Warren Highlands	2.77
White Lake Trail	Ridge and Valley Trails	4.06
Total Trail System		180.56

Figure 16: Major Trails



Appalachian Trail

The Appalachian Trail is a more than 2,180-mile-long public footpath between Maine and Georgia traversing the scenic, wooded, pastoral, wild, and culturally resonant lands of the Appalachian Mountains. The trail skirts the northern part of Warren County within Worthington State Forest.

Morris Canal Greenway

The Morris Canal Greenway is envisioned as a 111-mile continuous east-west pedestrian and bicycle trail connecting six counties in northern New Jersey. Once completed, it will extend from the Delaware River in Phillipsburg to the Hudson River in Jersey City.

The acquisition of the historic Morris Canal has been a high priority of the county for years. The Morris Canal was listed on the National and State Registers for Historic Places in 1974. The Morris Canal Greenway Trail uses a mix of public open spaces/parks and public roadways as the route in several areas, providing the needed connections between Morris Canal sites. The total existing length of the Morris Canal Greenway in Warren County is 36 miles.

The Morris Canal Greenway is comprised of the following local trail systems:

- Bread Lock Park Trails, Franklin (2.1 miles)
- Florence Kuipers Park Trails, Hackettstown (2.4 miles)
- Mt. Rascal Trail, Independence (1.0 mile)
- Riverfront Heritage Trail, Phillipsburg (6.9 miles)
- Port Murray Preserve Trail, Mansfield (1.8 miles)
- Port Warren Trail, Greenwich/Lopatcong (1.0 mile)
- Meadowbreeze Park, Washington Twp (7 miles)

In 2012, the NJTPA published a 25-year Action Plan that described specific strategies, recommendations and projects intended to guide the next 25 years of development for the Morris

Canal Greenway. It prioritized specific items based on the feasibility, costs and public support. The action in the study examined ways to provide safe pedestrian and bicycle access along the canal greenway while promoting historic awareness. In 2018, NJTPA released the *Morris Canal Greenway Corridor Study* as an implementation-focused plan to develop the full canal corridor as a greenway while preserving the area's historic, recreational, and scenic resources, and leveraging the greenway to enhance local communities. The study developed both short- and long-term trail alignments while aiming to maximize the use of off-road trails. Several trail typologies were developed based on immediate surroundings and land uses.

Warren Highlands Trail

The Warren Highlands Trail is a spur of the main Highlands Trail extending over 150 miles from Storm King Mountain on the Hudson River in NY south to Riegelsville, NJ on the Delaware River. One section of the main trail is in Warren County and traverses Allamuchy Mountain and Stephens State Parks. The Warren Highlands Trail spur travels 52.4 miles from the Delaware River in Phillipsburg to the Morris Canal Greenway Trail in Allamuchy. The trail travels through Phillipsburg, Lopatcong, Harmony, Washington Township, Oxford, White, Hope, Liberty, Frelinghuysen, Independence, and Allamuchy. The trail passes through 22,700 acres of preserved natural area including Merrill Creek Reservoir, Jenny Jump Mountain, Pequest River Wildlife Management Area, and Allamuchy Mountain State Park and travels near several historic sites including Shippen Manor, Van Nest Hoff Vannatta Farmstead, and Rutherford Hall. The Warren-Highlands Trail connects with the main trail in Allamuchy Mountain State Park.

Local trail systems along the Warren Highlands Trail include:

- Allamuchy Mountain State Park Trails (23 miles)
- Jenny Jump Trails (13.6 miles)
- Pequest River WMA Trails

Warren County Transportation Plan

- Merrill Creek Trails (12.6 miles)
- Marble Hill Trails (4.9 miles)
- East and West Oxford Mountain Trails (3.3 miles)



Trail in Oxford

Public Transportation

Public transportation options in Warren County include a county shuttle system and one NJ TRANSIT train station.

Bus/Shuttle

Easton Coach Company operates existing bus service along NJ 57 as the Route 57 Shuttle with two routes in the county. Each route terminates at Abilities of Northwest Jersey in Washington Township, with one route operating from Phillipsburg and the other from Hackettstown. Service mainly operates on an hourly basis during weekdays. Additionally, from June 2016 to December 2018, the 31Ride Shuttle operated from Oxford to the Clinton (Hunterdon County) Park & Ride.

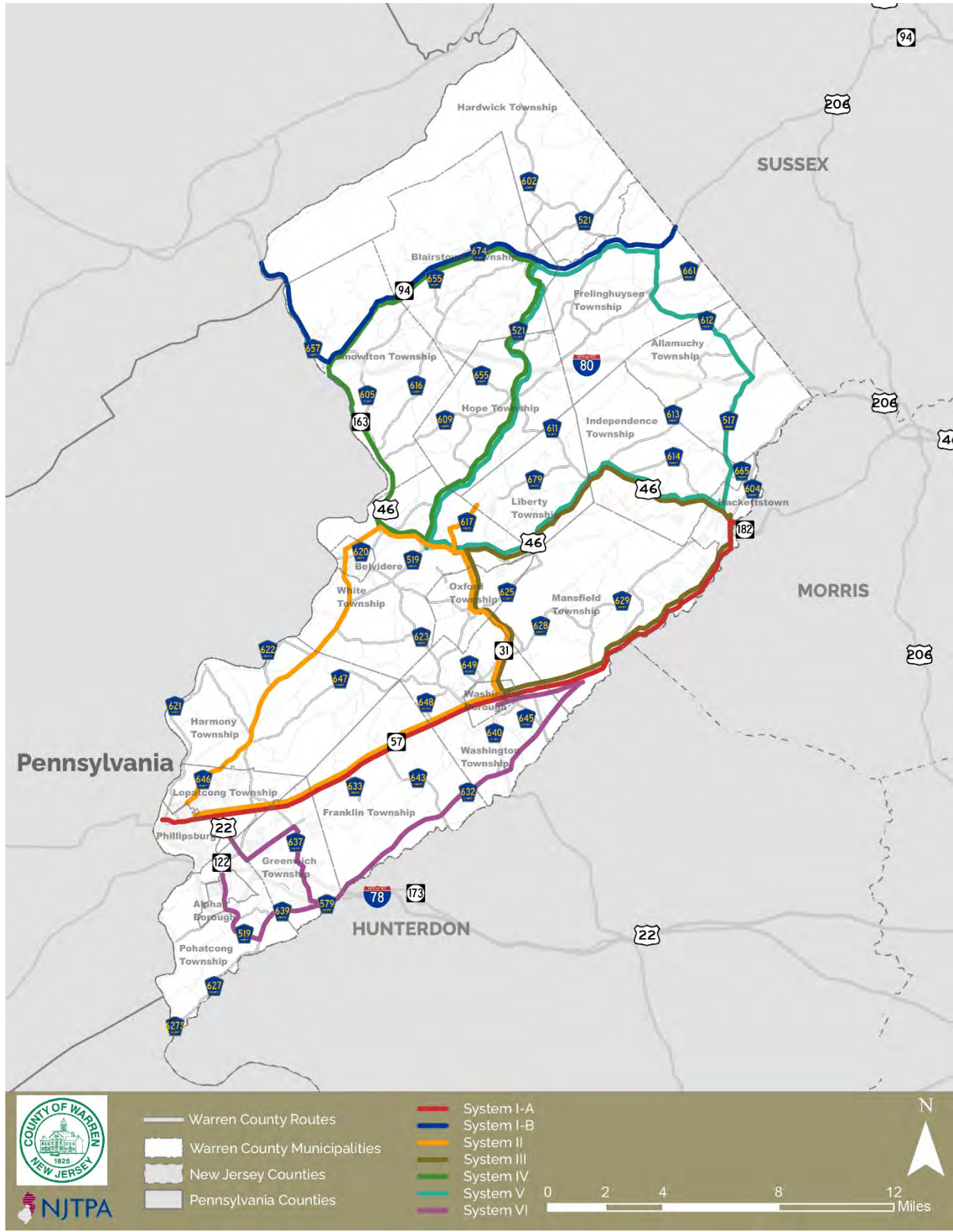
The 1982 Warren County Transportation Plan proposed a series of transit service initiatives to address inter- and intra-county travel needs and offer modal opportunities other than single occupant vehicles. The intra-county system envisioned a series of five bus loops,

each operating two days per week to cumulatively provide coverage to a broad area of the county (see Figure 17). At the time of the plan's development, much of the service was expected to remain a long-term initiative, with immediate implementation infeasible at the time due to low population density and lack of available funding. Existing NJ 57 shuttle service operates as one of the five desired routes. The other routes were each intended to serve a specific part of the county (southern, northwestern, etc.) including various interchange points, allowing for transfers when service schedules aligned. Implementation of the larger system remains infeasible due to low population density and lack of funding.



Warren County Transportation Shuttle

Figure 17: 1982 Shuttle Service Recommendations



Passenger Rail

The county's only NJ TRANSIT rail station is in Hackettstown, south of U.S. 46 on Stiger Street. This station is the western terminus of NJ TRANSIT's Morristown Line (a branch of the Morris & Essex Line) and Montclair-Boonton

Line. The current schedule operates seven trains to/from Hackettstown each day. Passengers traveling to/from Penn Station in New York City must transfer at either Dover or Newark Broad Street.



Hackettstown Train Station (source: Wikipedia)

Airports

The two public-use airports in the county are Hackettstown Airport and Blirstown Airport, both primarily used for recreational purposes. The 1982 Transportation Plan stressed the need to keep these airports operational and functional, a desire that remains in place.

The New Jersey Department of Transportation's 2007 State Airport System Plan identified Hackettstown Airport as a Core Candidate Airport, housing approximately 90 percent of the system's aircraft and essential to the future aviation system in New Jersey. If improved, Core Candidate airports could provide needed landside storage capacity and reduce capacity constraints at core airports.

Hackettstown Airport provides aviation services such as fuel, hangars, tie downs and flight instruction.

The NJDOT's 2007 State Airport System Plan identified Blirstown Airport as a Core General Service Airport, intended to support smaller corporate aircraft, such as twin-engine aircrafts, and the operation of general aviation aircraft for business and pleasure. General Service airports provide most of the system's operational and storage capacity for single and multi-engine piston aircraft. Blirstown Airport provides flight training, and rental and scenic air tours.



Hackettstown Airport (Source: hackettstownairport.com)

Freight/Goods Movement

Trucks

Warren County provides access to high volumes of truck traffic on its network of county, state and interstate routes. The plethora of county routes provide connections to major roadways and local access to industrial, warehousing, commercial, and manufacturing establishments located throughout the county. Routes under State jurisdiction, including NJ 31, NJ 57, U.S. 22, and U.S. 46, provide freight access across the county and larger region. Annual truck ton flows along Interstates 78 and 80 are among the highest in the state. These corridors serve truck traffic both stopping in and passing through Warren County to reach transportation assets and distribution centers in North Jersey, eastern Pennsylvania and beyond. Together, this network of roadways is essential to the continuation of efficiently moving goods throughout the region. Public outreach and discussions with County staff and stakeholders revealed an acute lack of overnight truck parking along the major highway corridors in northern New Jersey, leading to freight haulers to sometimes park overnight in unsafe conditions.

The 2020 *Warren County Light Industrial Site Assessment* introduced earlier in this report aimed to understand the potential long-term impact of warehousing and distribution development in the county. A build-out

analysis led to the development of mitigation measures recommended to maintain an efficient level of service, as well as improve safety.

Truck Routes

Truck routes are identified as New Jersey Access Network, National Highway System (NHS), or Trucks Not Permitted. These routes are consistent with NJDOT's Truck Network Map, which identifies the New Jersey Access Network (N.J. Admin Code § 16:32-1.1), a series of routes where double-trailer truck combinations or 102-inch wide trucks are permitted, the NHS (23 U.S. Code § 103), the Federally designated system of major intra- and interstate roadways, and New Jersey's Blue Routes, a series of roadways where trucks are permitted only when making local deliveries (defined in N.J. Admin Code § 16:32).

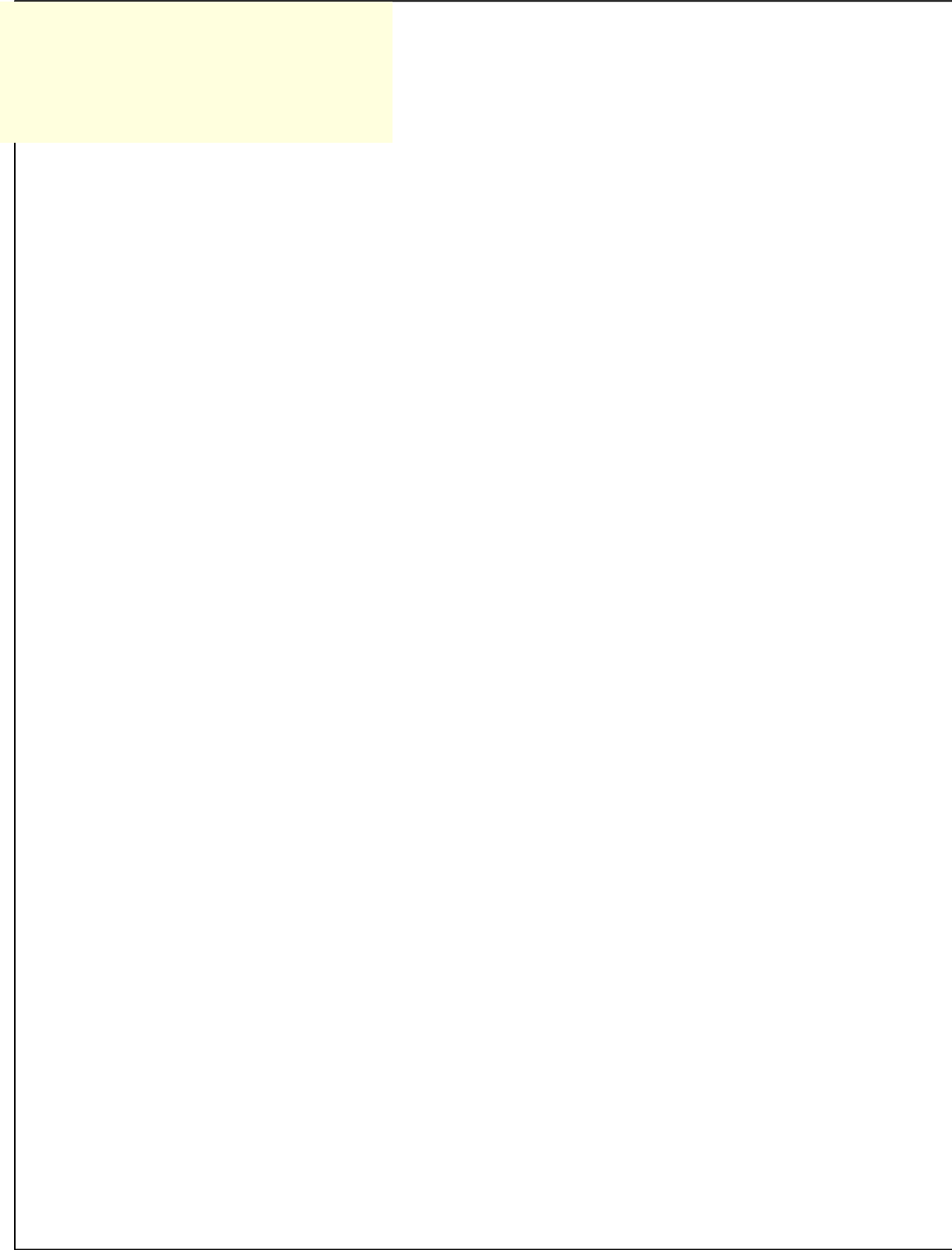
Both Interstates 78 and 80 are part of the NHS. The New Jersey Access Network includes U.S. 22, U.S. 46, NJ 31, NJ 57, NJ 94 and NJ 122. Trucks are prohibited from NJ 173 in Greenwich Township, CR 521 (north of NJ 94), CR 519 (north of central Frelinghuysen), and CR 519 (south of Alpha Borough).

Truck routes in Warren County and surrounding counties are mapped in Figure 18.



Trucks on I-80

Figure 18: Truck Routes



Freight Rail

Three freight railways provide service in Warren County. This infrastructure is essential to the continued efficient movement of goods throughout the county and beyond. Several projects are underway to improve freight rail movement within the county.

Norfolk Southern operates two lines entering the county in Phillipsburg. Norfolk Southern's principal line extends from Allentown to North Jersey and the Lehigh Line extends from Somerset County, NJ to eastern Pennsylvania. Thirty trains per day use this line, which passes through Alpha before crossing south into Hunterdon County. This line does not serve any local Warren County customers. Norfolk Southern's Portland Secondary line passes through Phillipsburg and runs north along the Delaware River to Brainards where it crosses to Martin's Creek, PA.

The Dover and Delaware River Railroad is a short line railroad operating between Phillipsburg and Hackettstown. The railroad is leasing the Washington Secondary line from Norfolk Southern. Short line railroads include small to mid-sized rail companies operating over a relatively short distance as compared to regional or national rail lines, such as Norfolk Southern. The line connects to Norfolk Southern's Lehigh Line and runs northeast past the Bridgeport 78 Industrial Park to Washington, Port Murray, Rockport and Hackettstown. This railroad has trackage rights beyond Hackettstown over NJ TRANSIT as far as Newark. The route serves local customers in Morris, Passaic and Warren Counties.

The Belvidere & Delaware River Railway is a short line railroad affiliated with the Dover and Delaware River Railroad. The railway connects with Norfolk Southern's Lehigh Line in Phillipsburg and runs south along the Delaware River passing into Hunterdon County at Riegelsville. The railway serves Builder's First Source and Baer Aggregates in Warren County. In addition to freight use, the railway is a partner with the New York Susquehanna and Western Railway Technical and Historic Society in providing tourist passenger train service to 75,000 visitors in Phillipsburg annually.

All rail lines in Warren County are cleared for Plate F railcars and can accommodate railcars up to 286,000 pounds (286K), which is the industry standard, except for east of Hackettstown on the Washington Secondary. To improve the suitability of rail service in Warren County, a study was conducted to explore improvements to the Hackettstown drainage bridge, which cannot accommodate the 286K rail cars. The drain runs under the railroad track at Third Avenue and Moore Street in Hackettstown and is essential to allow stormwater to flow underneath the track. The study recommended replacing the slab with precast slab panels. The Norfolk Southern Lehigh Line is cleared for double-stack intermodal trains.

Scenic Byways and Points of Interest

Warren County possesses a network of scenic and cultural corridors and points of interest. In addition to the county's vast trails network elaborated upon on page 47, a network of scenic byways and cultural and historical points of interest contribute to tourism in Warren County. The trail network provides scenic views traversing mountaintops and mountainsides, inactive railroad and river corridors, lakesides, and the historic Morris Canal. Additionally, several corridors present scenic byways for cyclists and motorists to view the county's beautiful natural landscapes.



CR 632 (Asbury Anderson Road), Port Murray, Mansfield Township

Scenic Byways

The NJDOT has designated eight scenic byways throughout the state. These byways “highlight transportation corridors that have outstanding scenic, natural, recreational, cultural, historic or archaeological significance...represent[ing] the uniqueness and diversity of the state,” according to NJDOT.

The Warren Heritage Scenic Byway travels 19 miles along NJ 57 between Greenwich Township and Hackettstown. The route follows a trail first established by the Leni Lenape Indians to connect camp sites and villages with hunting and fishing grounds. The route was subsequently used by Europeans as they arrived on horseback and in wagons to settle in the region. The route is locally known for its scenic Highlands setting, rolling fertile valleys and streamside views traversing the region’s distinctive mountains ridges, and three stream watersheds. The byway also provides views of the historic Morris Canal, designated a Historic Civil Engineering Landmark.

Warren Heritage Scenic Byway Corridor Management Plan (2011)

The 2011 *Warren Heritage Scenic Byway Corridor Management Plan* described the special qualities of the Route 57 Scenic Byway. The byway runs through Greenwich Township, Franklin Township, Washington Borough, Washington Township, and Mansfield Township to Hackettstown. Lopatcong Township was included in the study but the Township declined to officially designate its section of the highway as a scenic byway. This plan outlines strategies for preservation, enhancement, and interpretation of the corridor’s unique resources, and sets forth a vision for the future of the byway along with practical steps to better publicize its special features to

visitors. The Corridor Management Plan was developed through a collaborative working group representing local officials, County agencies, NJDOT, civic groups, and non-profit organizations with an interest in the area’s heritage.

This plan identified goals and strategies for preserving and enhancing the corridor’s unique qualities, improving access and transportation, developing a sign program, interpreting byway resources, and encouraging tourism. These actions will require coordination among a variety of organizations over a period of several years. An institutional survey was conducted for the plan which identified initiatives and resources for implementation.

Since the plan was completed, the County has worked with NJDOT to create a scenic byway logo and branding and coordinated tourism promotion with wayfinding efforts. A Warren Heritage Scenic Byway Committee composed of municipal, county, state, and non-profit representatives was formed. The committee’s efforts thus far have included extending the scenic byway north into Waterloo Village in Sussex County and south to Union Square in Phillipsburg. Additionally, NJDOT has developed and implemented a process for monitoring compliance with outdoor advertising strategies along the corridor.

Ongoing work includes supporting efforts to preserve, protect, and link Morris Canal sites, and support preservation efforts by local historical societies. The county also continues to support local farming and farmland/open space preservation, initiatives to protect environmental quality, and implementation of the Musconetcong River Management Plan.

Points of Interest

Warren County is home to an array of state and federally recognized historic properties and districts — 29 individually recognized properties and 1601 properties that are part of 22 historic districts. Each of these sites represent a tourist attraction and many provide pedestrian or cycling connections with scenic trails. Notable points of interest and historic sites include:

- Morris Canal, including Port Warren (Inclined Plane 9 west), Bread Lock Park (Lock 7), Saxton Falls, Allamuchy Mountain State Park
- Oxford Industrial Historic District including Shippen Manor and Oxford Furnace
- Old Mine Road Historic District
- Blair Presbyterian Academy
- Asbury Historic District
- Delaware River Water Gap/Mount Tammany, Delaware River Water Gap National Recreational Area
- White Lake
- Centenary University

- Merrill Creek Reservoir
- Van Nest Farmstead
- Belvidere Historic District
- Great Meadows
- Hackettstown Business District
- Warren County Farmers Fair and Fairgrounds

Warren County is home to several breweries and wineries that act as points of interest, drawing visitors from outside the county. Breweries include brewpubs, restaurants serving beer made on-site with their meals. State legislation in 2012 enhanced the ability for microbreweries to operate in the state, allowing locations brewing less than six million barrels per year to sell beer by the glass in taprooms, or in cans, growlers and keys to-go. Brewpubs can also sell to liquor stores and other restaurants. Warren County's rural landscape also caters to wineries. These businesses tend to utilize locally-grown resources with some offering tours and catering to all-day or multi-day tourist trips.



Shippen Manor, Oxford Township

4. Scenario Planning

Scenario Planning Overview

A scenario planning exercise was conducted to help understand and prepare for anticipated changes and growth, using a comprehensive community-based planning process to gather and evaluate comments and concerns from the wide variety of Warren County stakeholders. Scenario planning is an analytical tool that can help decision makers and stakeholders understand and prepare for what lies ahead. Scenario-based methodologies provide a platform for evaluating a range of potential outcomes, visions and investment scenarios by testing a mix of infrastructure, demographic, land use and/or policy changes.

This process actively involves the public, the business community, and elected officials on a broad scale, educating them about growth trends and trade-offs, and incorporating their values and feedback into future planning initiatives.

This type of inclusive collaborative process is essential to identifying the issues, interests,

needs, and priorities unique to those who live, work, and conduct business in Warren County, and helps shape its future.

The scenario planning exercise draws upon the existing conditions analysis, assessment of trends and changes, and collaboration with stakeholders. This scenario planning exercise evaluated several development patterns to determine how each impacts the roadway network. Based on the modeling scenarios, the county, stakeholders and local businesses can contribute to actions to mitigate projected negative traffic impacts. Although the county does not have control over many aspects of land use development, there are steps the county and its municipalities can take to shape how communities develop and grow.

Beyond what is included in the following pages, more detailed modeling and analysis information is provided in Technical Memo 3 in Appendix B.

Planning Tool Refinement

To better evaluate the impacts of proposed light industry development in Warren County, modifications were made to the base traffic analysis zone system and the highway network. These changes were made primarily to include the 15 additional TAZ zones, each representing the location of the proposed industrial sites as discussed below. One of the

15 sites was determined to be unbuildable and thus removed from consideration and further analysis.

Figure 19 maps the location of the 14 potential light industrial sites. Table 10 presents a list of the 14 sites, their municipality, zoning district, and total lot area.

Figure 19: Identified Industrial Sites and NJRTM-E Traffic Analysis Zones

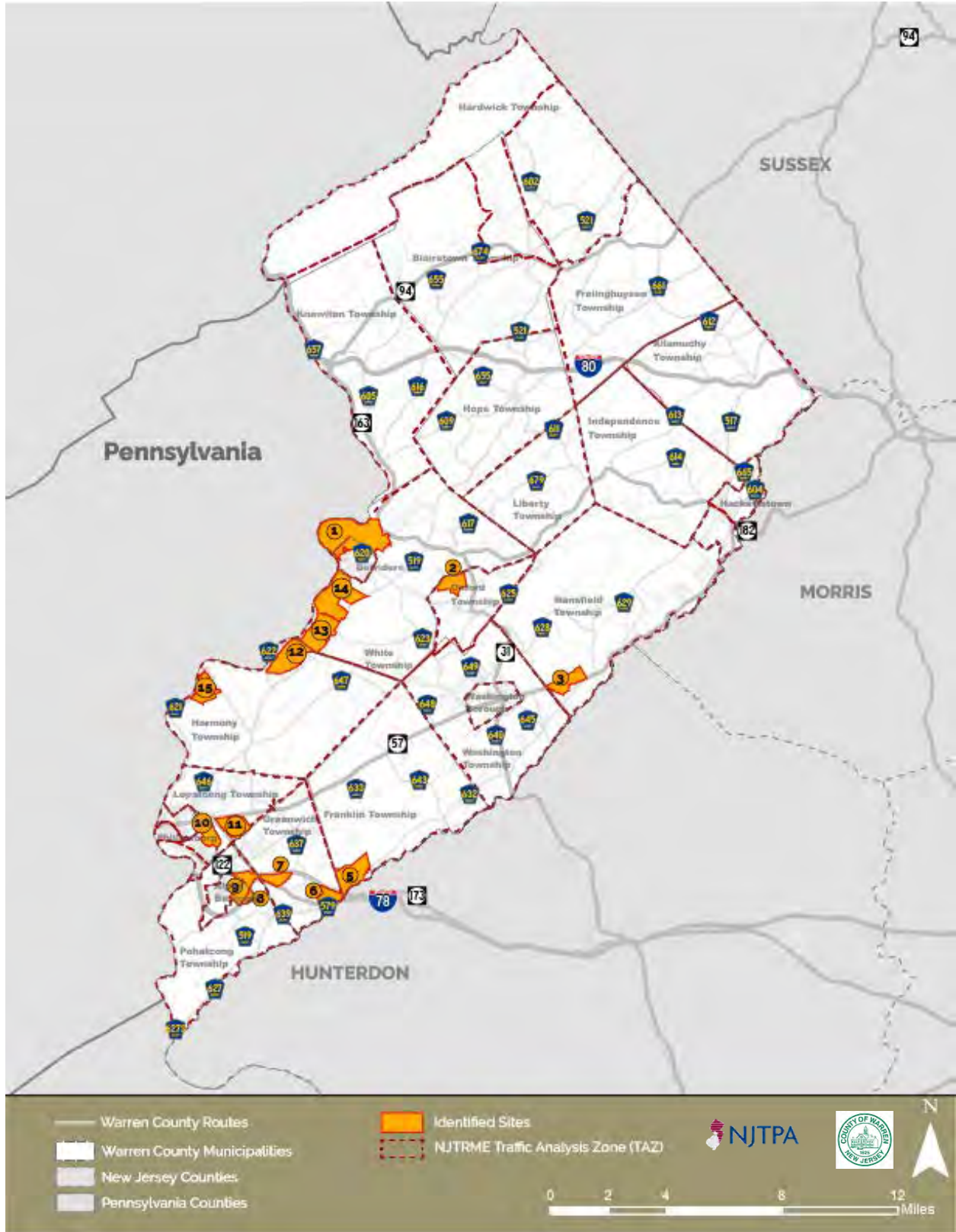


Table 10: Identified Light Industrial Sites

Site ID	Municipality	Zoning	Total Area (Acres)	Potential (1,000 Sq. Ft.)	Modeled (1,000 Sq. Ft.)
1	Belvidere	LM - Light Manufacturing	283.2	8,174	500
	White	I - Industrial	1260.7		
2	Oxford	I - Industrial	49.0	1,332	100
	Oxford	I - Industrial, O & LI - Office and Light Industrial	66.6		
	Oxford	I - Industrial, LI - Light Industrial	186.2		
3	Mansfield	I - Industrial	356.0	962	100
4	Franklin	I - Industrial	141.3	968	0
5	Franklin	I - Industrial, IP-A - Industrial Park	89.8	3,413	1,700
	Franklin	I - Industrial, IP-A - Industrial Park	444.7		
6	Greenwich	ROM - Research, Office & Manufacturing	246.9	980	1,000
7	Greenwich	RO - Research, Office	199.7	658	650
8	Alpha	I - Industrial	71.6	694	175
9	Pohatcong	I - Industrial	146.0	1,123	1,863
	Alpha	I - Industrial	239.0		
10	Phillipsburg	I - Industrial, Phillipsburg Commerce Park Redevelopment Area	384.6	5,672	4,300
11	Lopatcong	ROM -Research, Office & Manufacturing	376.2	1,648	1,100
12	Harmony	I - Industrial	623.9	5,066	500
13	White	LDI -Low Density Industrial	622.8	4,877	2,600
14	White	I - Industrial	943.3	5,750	575
15	Harmony	I - Industrial	369.0	4,073	400
TOTAL			6817.3	37,216	15,063

Source: Warren County

Scenario Alternatives

Based on the data review, demographic assumptions and evaluation of light industrial sites detailed in the *Warren County Light Industrial Site Assessment*, several scenario alternatives were developed. If developed, these potential light industrial sites could have a significant impact on Warren County's future and the WCTP scenario planning process sought to describe and understand what may happen, the potential impacts and benefits, and how Warren County can prepare through specific planning and policy initiatives, and multimodal transportation improvements.

Warren County's location in the region and proximity to Interstates 78 and 80 position the county as a desirable center for warehouse development and the related need for freight and goods movement by truck. According to the *Warren County Light Industrial Site Assessment*, 14 sites with the potential for industrial development were identified, with the potential for over 4,000 acres and over 45 million square feet of gross floor area. These sites are in Alpha, Belvidere, Franklin,

Greenwich, Harmony, Lopatcong, Mansfield, Oxford, Phillipsburg, Pohatcong, and White.

Based on zoning, site constraints, accessibility, proximity to regional interstate highways, and other factors including those sites already formally proposed or under construction, about one-third of this total was projected for the purposes of the WCTP and scenario planning process, for a total of 15.563 million square feet. Site 4 was determined to be not viable, leaving the remaining 14 eligible light industrial sites, with most at a much lower scale of buildout than the initially estimated full potential. The WCTP scenario planning process is therefore based on an assumption of 15.563 million square feet of light industrial development compared to the initial estimate for 45 million square feet included in the *Warren County Light Industrial Site Assessment*. Table 11 presents the list of sites with developable area, gross floor area and number of anticipated on-site jobs.



Development on Strykers Road, Lopatcong

Table 11: 2045 Employment Estimates per Site

Site ID	Total Area (Acres)	Developable Area (Acres)	Potential Gross Floor Area (1,000 SQFT)	Modeled Gross Floor Area (1,000 SQFT)	Employment (# of jobs)*
1	1,543.9	809.2	8,175	500	4,088
2	301.7	152.9	1,332	100	666
3	356.0	88.3	962	100	481
4	141.3	88.9	968	0	484
5	534.5	313.4	3,413	1,700	1,707
6	246.9	149.9	980	1,000	490
7	199.7	151.2	658	650	329
8	71.6	53.1	694	175	347
9	385.0	143.8	1,123	1,863	562
10	384.6	325.5	5,672	4,300	2,836
11	376.2	189.2	1,648	1,100	824
12	623.9	387.7	5,066	500	2,533
13	622.8	559.8	4,877	2,600	2,439
14	943.3	660.0	5,750	575	2,875
15	369.0	311.7	4,073	400	2,037

*based on 2,000 square feet per employee

For the purposes of the scenario planning, new light industrial jobs are anticipated to be filled by three population groups:

- Existing residents, which would not add new population or households to Warren County
- Residents from neighboring counties and regions including Pennsylvania’s Lehigh Valley, which would not add new population or households to Warren County
- New resident (and households) moving to Warren County to fill newly generated jobs

This study assumes a 50-50 split, with half of the jobs being filled by existing residents and the other half by new residents (and households) moving to Warren County.

The NJTPA projections for employment, population, and households for 2045 indicate that Warren County features a slightly smaller household size (2.41 per household in Warren County versus 2.66 for the NJTPA region) and generates fewer new jobs per resident (0.34

jobs per resident versus 0.46) than the NJTPA region as a whole.

The National Association for Industrial and Office Parks (NAIOP) and Institute of Traffic Engineers (ITE) include trip generation estimates based on industry experience with recent and historical development projects and actual counts of new jobs and trips generated. The potential Warren County development sites listed in Table are anticipated to include a mix of conventional warehousing and e-commerce fulfillment centers.

In consultation with the NJTPA and Warren County, a mix of 60 percent conventional, 40 percent fulfillment was agreed to; based on this development mix and NAIOP and ITE trip generation data, an estimate of one new job per 2,220 square feet was used. Based on these data and estimates, the projected 15.563 million square feet of new light industrial development is anticipated to generate 7,010 new jobs, 8,716 new residents, and 3,616 new households in

Warren County through 2045. Fulfillment industrial sites include those receiving, packaging and shipping goods but do not manufacture goods on-site.

Furthermore, the Centers-Based and Warren County Blend scenarios were also modeled under additional build conditions, elaborated upon toward the end of this chapter.

The following sections provide the assumptions, performance measure results and conclusions for each of the scenarios.

A summary of the results of each of the scenarios is shown in Table 1212.

Table 12: Scenario Results

Population	Households	Employment	Auto Daily Person Trips (includes Trucks)	Non-Motorized Trips	Average Speed (mph)	Average Trip Length (miles)	Vehicle Miles Traveled (VMT)	Vehicle Hours of Travel (VHT)
2020 Existing								
110,763	44,426	37,163	7,201,511	910.37	22.04	9.48	3,883,819	100,627
2045 Baseline								
120,404	49,949	41,461	7,201,511	980.86	21.65	9.21	4,485,471	116,736
2045 Logistics Hub								
126,881	52,636	46,670	7,241,178	983.00	21.73	9.23	4,445,990	119,488
2045 Centers-Based								
126,881	52,636	46,670	7,463,225	1,002.78	21.81	9.27	4,585,634	122,109
2045 Warren County Blend								
126,881	52,636	46,670	7,377,829	1,030.93	21.83	9.29	4,515,147	120,681
2045 Centers Build								
126,881	52,636	46,670	7,266,212	1,189.79	21.3	9.26	4,456,043	118,960
2045 Warren County Blend Build								
126,881	52,636	46,670	7,162,883	1,226.62	21.35	9.32	4,379,859	117,796



NJ 57, Washington Borough

Baseline Scenarios

2020 Existing Baseline Scenario

Scenario planning for the WCTP begins with the 2020 Existing Scenario which represents the reference point for comparison with all future scenario alternatives. The analysis looks at what happens to travel conditions as population grows and new jobs are created. It will also consider whether traffic congestion spreads to new corridors and intersections and what mix of improvement projects is recommended to maintain system performance through the year 2045. The 2020 Existing Scenario includes 44,426 households, 110,763 people and 37,163 jobs.

2045 Baseline Scenario

The 2045 Baseline Scenario represents one reference point for comparison with all future scenario alternatives, indicating what would happen to travel conditions in the region if no new plans, policies, programs, or projects are introduced beyond what has already been approved and adopted within the 2045 timeframe.

The 2045 Baseline scenario is based on the following assumptions:

- Current trend line of population growth and development patterns for Warren County and the NJTPA region

- NJTPA demographic projections for population, households, and employment
- Includes only the approved NJTPA Transportation Improvement Program (TIP) and Plan 2045 roadway and transit improvements (see Table 13)
- Includes the three new light industrial projects under construction and/or approved within the 2045 timeframe (Alpha Industrial Ave/Edge Rd; Phillipsburg I-78 Logistics Park; Lopatcong-Strykers Road)
- These new jobs are allocated to the municipalities where the three proposed Baseline light industrial sites are located, and the new population and households are allocated proportionately to each Warren County municipality, based on their current share of the overall county population

Based on these data and estimates, the Warren County Baseline Scenario projects 3.99 million square feet of new light industrial development with 1,801 new jobs, 2,239 new residents, and 929 new households. These are part of the projected 120,404 population, 49,949 households and 41,461 jobs.

Table 13: Programmed NJTPA TIP and LRP Projects

Project Name	Project Type
Route 31, Bridge over Furnace Brook	Bridge Replacement
Route 31, Franklin Road (CR 634) to Route 46	Resurfacing
Route 46, Route 80 to Walnut Road	Pavement Reconstruction
Route 57, Bridge over Branch Lopatcong Creek	Bridge Replacement
Route 57 & CR 519	Intersection Improvement
Route 78, Route 22 to Drift Road/Dale Road	Intelligent Transportation Systems
Route 80, WB Rockfall Mitigation	Stabilize Rock Outcrop
Route 94, Bridge over Jacksonburg Creek	Bridge Replacement

2045 Baseline vs. 2020 Existing Performance

The travel demand model performance measures for the 2045 Baseline reflect additional travel demand and traffic congestion commensurate with the projected increase in demographic inputs (population, households, and employment) based on the NJTPA demographic projections and the three light industrial projects currently under construction, yielding an 8.7 percent increase in population, 12.4 percent increase in households, and 11.6 percent increase in employment compared with 2020 demographics.

Compared to the 2020 Existing Scenario, the 2045 Baseline experiences small decreases in average speed and average trip length; increases of 15.5 percent and 18.2 percent in total vehicle miles traveled (VMT) and total vehicle hours traveled (VHT); with VMT and VHT per capita projected to increase moderately by 6.2 percent and 8.8 percent, respectively.

Data points for the two scenarios are shown in Table 14.

Table 14: 2020 Existing vs. 2045 Baseline

Population	Auto Daily Person Trips (Includes Trucks)	Non-Motorized Trips	Average Speed (mph)	Avg. Trip Length (miles)	Vehicle Miles of Travel (VMT)	VMT per Capita	Vehicle Hours of Travel (VHT)	VHT per Capita
2020 Existing								
110,763	7,201,511	910.4	22.0	9.5	3,883,819	35.1	100,627	0.91
2045 Baseline								
120,404	7,300,406	979.4	21.7	9.2	4,485,471	37.3	118,906	0.99
% Change								
8.7%	1.4%	7.6%	-1.4%	-2.4%	15.5%	6.2%	18.2%	8.7%

The NJTPA travel demand models also forecast an increasing impact to Warren County’s state, county, and local roadways through 2045. The share of VMT on freeways and expressways drops by a small amount from 59 percent in 2020 Existing to 58 percent for 2045 Baseline, the beginnings of a shift in travel from higher to lower functional classification roadways. A similar pattern of diversion in travel and congestion has also been observed in regional and countywide planning studies for other NJTPA counties. As demand and congestion on higher functional classification roadways grow, some travel

migrates down to lower functional classification roadways, as travelers seek less congested travel routes, which could impact smaller towns and communities.

Overall, the 2045 Baseline forecasts that Warren County residents and workers will be traveling more miles and more hours, taking longer trips at slightly lower speeds, and traveling more on lower functional classification roadways than they do today. Data points for the two scenarios by roadway classification are shown in Table 15.

Table 15: 2020 Existing vs. 2045 Baseline by Roadway Classification

Vehicle Miles of Travel (VMT)	VMT per Capita	Freeways + Expressways	% of Total	Principal Arterials	% of Total	Major Arterials	% of Total	Minor Arterials / Collectors / Locals	% of Total
2020 Existing									
3,883,819	35.1	2,275,242	59%	673,925	17%	390,093	10%	544,558	14%
2045 Baseline									
4,485,471	37.3	2,614,286	58%	798,312	18%	444,380	10%	628,493	14%
% Change									
15.5%	6.2%	14.9%		18.5%		13.9%		15.4%	

The data shows that the potential benefits of newly projected reduced population growth rate and resulting changes in travel are counterbalanced by the higher than anticipated growth in employment. These

trends have similar consequences for travel demand and congestion, projecting a smaller increase in congestion than forecast by the 2018 Transportation Technical Study.



Washington Borough

2045 Logistics Hub Scenario

The Logistics Hub Scenario assumes the projection of the 14 eligible sites from the emerging trend of light industry development proposed in areas of Warren County with available land and or/compatible zoning, compared to the three sites for the 2045 Baseline, as documented in Table 13 above. The Logistics Hub Scenario balances the benefits of opportunity – new jobs and economic development – with the traffic and congestions impacts of more workers, large trucks and delivery vehicles on the county’s transportation network.

The 2045 Logistics Hub Scenario is derived from similar assumptions as the 2045 Baseline but includes all 14 of the potential sites. This scenario assumes:

- Current trend line of growth and development patterns for both Warren County and the overall NJTPA region
- NJTPA demographic projections for population, households, and employment
- Includes only transit and road improvements in the NJTPA TIP and Plan 2045
- Includes the 14 potential light industrial sites
- Similar to the Baseline, these new jobs are allocated to the municipalities where the proposed light industry sites are located, and the new population and households are allocated proportionately to each Warren County municipality, based on their current share of the overall County population.

Based on these data and estimates, the Warren County Logistics Hub Scenario projects 15.563 million square feet of new light industrial development with 7,010 new jobs, 8,716 new residents, and 3,616 new households

2045 Logistics-Hub Performance

The travel demand model performance measures for the 2045 Logistics Hub reflect additional travel demand and traffic congestion commensurate with the projected increase in demographic inputs (population, households, and employment). Based on the NJTPA demographic projections and the 14 light industrial projects projected to be built within the 2045 timeframe, this yields a 14.6 percent increase in population, 18.5 percent increase in households, and 25.6 percent increase in employment compared to 2020.

The 2045 Logistics Hub experiences similar changes in performance as the 2045 Baseline Scenario when compared to 2020: small decreases in average speed and average trip length (-1.4 percent and -2.6 percent, respectively); increases of 14.5 percent and 18.7 percent in total VMT and total VHT; with per capita almost unchanged (-0.1 Percent decrease), and a moderate increase in VHT per capita (3.7 percent).

Data points for the 2045 Logistics Hub and 2045 Baseline scenarios are shown in Table 16.

Table 16: 2045 Logistics-Hub vs. 2045 Baseline

Population	Auto Daily Person Trips (Includes Trucks)	Non-Motorized Trips	Average Speed (mph)	Average Trip Length (miles)	Vehicle Miles of Travel (VMT)	VMT per Capita	Vehicle Hours of Travel (VHT)	VHT per Capita
2045 Baseline								
120,404	7,300,406	979.4	21.7	9.2	4,485,471	37.3	118,906	0.99
2045 Logistics-Hub								
126,881	7,241,178	983.0	21.7	9.2	4,445,990	35.0	119,488	0.94
% Change vs 2045 Baseline								
5.4%	0.8%	0.4%	0.0%	-0.1%	-0.9%	-5.9%	0.5%	-4.6%
% Change vs 2020 Existing								
14.6%	0.6%	8.0%	-1.4%	-2.6%	14.5%	-0.1%	18.7%	3.7%

The NJTPA travel demand models for the Logistics Hub forecast a more substantial impact than the Baseline to Warren County’s state, county, and local roadways through 2045. The share of VMT on freeways and expressways drops from 58.6 percent in 2020 Existing to 58.1 percent for 2045 Baseline to 56.3 percent for 2045 Logistics Hub, a more than 2 percent change. As demand and congestion on higher functional classification roadways grow, increasing levels of travel are forecast to migrate down to lower functional classification roadways, as travelers seek less congested travel routes, which could impact

Warren County’s smaller towns and communities. The additional demand created by the 14 light industrial sites for the Logistics Hub and the associated population growth have a much greater net effect than the three sites used in the 2045 Baseline. Local communities would see increased traffic and a measurable share of travel would shift to the lower classification roadways.

Data points for the 2045 Logistics Hub scenario by roadway classification are shown in Table 17.



Front Street, Belvidere Town

Table 17: 2045 Logistics-Hub by Roadway Classification

Vehicle Miles of Travel (VMT)	VMT per Capita	Freeways + Expressways	% of Total	Principal Arterials	% of Total	Major Arterials	% of Total	Minor Arterials / Collectors / Locals	% of Total
2045 Baseline									
4,485,471	37.3	2,614,286	58%	798,312	18%	444,380	10%	628,493	14%
2045 Logistics Hub									
4,445,990	35.0	2,501,305	56%	805,980	18%	461,457	10%	677,249	15%
% Change vs Baseline									
-0.9%	-5.9%	-4.3%		-1.0%		3.8%		7.8%	

Overall, the 2045 Logistics Hub forecasts that Warren County residents and workers will be traveling more miles and more hours at lower speeds and traveling significantly more on lower functional classification roadways than they do today.

Any potential benefits of the newly projected reduced population growth rate are forecast to be overtaken by the higher than anticipated employment growth, creating new population and households, and causing measurable impacts regarding travel demand, congestion, and travel burden on lower functional classification roadways by 2045.



Garret Wall, Belvidere Town

2045 Centers-Based Scenario

The Centers-Based Scenario examines the potential of targeting new population and households to existing centers rather than continuing patterns of decentralization across lower density areas – such as farmlands or other undeveloped lands – lacking adequate infrastructure.

The Centers-Based Scenario is derived from similar assumptions as the Logistics Hub, and also includes the 14 potential light industrial sites. This scenario assumes:

- Current trend line of growth and development patterns for both Warren County and the overall NJTPA region
- NJTPA demographic projections for population, households, and employment
- Includes only the road and transit improvements in the NJTPA TIP and Plan 2045
- Includes the 14 potential light industrial sites
- In contrast to the Baseline and Logistics Hub, however, these new jobs are allocated to the municipalities with the greatest potential to benefit from sustainable smart growth development and housing principles, rather than on a proportional basis. These include Belvidere, White Township, Greenwich, Washington Township, Washington Borough, Phillipsburg, Hackettstown,

Lopatcong, Pohatcong, Alpha Borough, Oxford Borough

Based on these data and estimates, the Warren County Centers-Based scenario includes the same projected totals as the Logistics Hub: 15.563 million square feet of new light industrial development, 7,010 new jobs, 8,716 new residents, and 3,616 new households.

This scenario also recognizes that many of the new jobs created by light industrial development are lower- or moderate-wage jobs, and therefore most likely to attract workers from a relatively short commute area, as opposed to higher paying jobs which may be more likely to attract longer-commuting workers.

Rather than the proportional allocation pattern of the Baseline and Logistics Hub scenarios, new population and households are instead allocated primarily to municipalities with:

- Existing centers or walkable downtowns
- Potential to reduce new vehicular travel and use multimodal networks
- Attract employees from a relatively nearby commute area, with proximity to one or more of the proposed 14 light industrial sites



Easton-Phillipsburg Toll Bridge

2045 Centers-Based Performance

Similar to the 2045 Logistics Hub, the travel demand model performance measures for the Centers-Based Scenario reflect additional travel demand commensurate with the projected increase in demographic inputs (population, households, and employment). Based on the NJTPA demographic projections and 14 light industrial projects, this scenario yields a 14.6 percent increase in population, 18.5 percent increase in households, and 25.6 percent increase in employment compared to 2020.

However, in contrast to the 2045 Logistics Hub performance, the Centers-Based Scenario demonstrates the benefits of smart growth land use strategies through targeting new population and households to existing centers rather than continued decentralization across lower density areas. Changes in performance include higher average speeds and more non-motorized trips than Logistics Hub.

Data points for the 2045 Centers-Based and 2045 Baseline scenarios are shown in Table 18.

Table 18: 2045 Centers-Based vs. 2045 Baseline

Population	Auto Daily Person Trips (Includes Trucks)	Non-Motorized Trips	Average Speed (mph)	Average Trip Length (miles)	Vehicle Miles of Travel (VMT)	VMT per Capita	Vehicle Hours of Travel (VHT)	VHT per Capita
2045 Baseline								
120,404	7,300,406	979.4	21.7	9.2	4,485,471	37.3	118,906	0.99
2045 Centers-Based								
126,881	7,463,225	1,002.8	21.8	9.3	4,585,634	36.1	122,109	0.96
% Change vs 2045 Baseline								
5.4%	2.2%	2.4%	0.4%	0.2%	2.2%	-3.0%	2.7%	-2.5%
% Change vs 2045 Baseline								
14.6%	3.6%	10.2%	-1.0%	-2.2%	18.1%	3.1%	21.3%	5.9%

The NJTPA travel demand models for the Centers-Based Scenario also project significantly less impact to Warren County’s state, county, and local roadways than the Logistics Hub, cutting in half the shift in VMT from freeways and expressways to lower functional classification arterials, collectors, and local streets. Much less VMT is forecast to

migrate down to lower functional classification roadways, due to the benefits of targeted population growth being located closer to new employment opportunities.

Data points for the 2045 Centers-Based Scenario by roadway classification are shown in Table 19.

Table 19: 2045 Centers-Based by Roadway Classification

Vehicle Miles of Travel (VMT)	VMT per Capita	Freeways + Expressways	% of Total	Principal Arterials	% of Total	Major Arterials	% of Total	Minor Arterials / Collectors / Locals	% of Total
2045 Baseline									
4,485,471	37.3	2,614,286	58%	798,312	18%	444,380	10%	628,943	14%
2045 Centers-Based									
4,585,634	36.1	2,624,144	57%	822,415	18%	460,861	10%	678,214	15%
% Change vs Baseline									
2.2%	-3.0%	0.4%		3.0%		3.7%		7.9%	

Although the newly projected reduced population growth rate is forecast to be overtaken by the higher than anticipated growth in employment, concentrating

population growth in more densely populated centers can help mitigated increases in congestion and shifts to lower functional classification roadways.



Farm and Hill Landscape in Warren County

2045 Warren County Blend Scenario

The Blend Scenario combines the most beneficial elements of the Logistics Hub and the Centers-Based scenarios. It includes the anticipated growth in Warren County's light industrial sector and targets the associated growth in population and households to just six municipalities (compared to the 11 in Centers-Based) that are both closer to these new jobs and that afford the greatest potential to benefit from center-based development and multimodal travel networks, providing an opportunity to mitigate new travel demand and congestion.

- The 2045 Blend Scenario's more targeted approach assumes: Current trend line of growth and development patterns for both Warren County and the overall NJTPA region
- NJTPA demographic projections for population, households, and employment
- Includes only road and transit improvements included in the NJTPA TIP and Plan 2045
- Includes the 14 proposed light industry projects
- Targets the new population and households generated by light industrial sector growth to the six most viable centers-based municipalities: Belvidere, White Township, Pohatcong, Alpha

Borough, Washington Borough, and Phillipsburg

2045 Warren County Blend Performance

Similar to the 2045 Logistics Hub and Centers-Based scenarios, the travel demand model performance measures for the 2045 Warren County Blend reflect additional travel demand commensurate with the projected increase in demographic inputs (population, households, and employment) based on the NJTPA demographic projections and the 14 light industrial sites. This yields a 14.6 percent increase in population, 18.5 percent increase in households, and 25.6 percent increase in employment compared to 2020.

The Blend realizes some but not all the potential benefits of smart growth land use strategies through targeting new population and households to existing centers rather than continued decentralization across lower density areas. The Blend recoups some of the degradation in performance experienced from 2020 to 2045 due to new population, household, and employment growth, and features the best overall 2045 performance for average speed. The Blend also generates fewer daily auto person trips and more non-motorized trips than the Centers-Based.

Data points for the 2045 Blend and 2045 Baseline scenarios are shown in Table 20.

Table 20: 2045 Blend vs. 2045 Baseline

Population	Auto Daily Person Trips (Includes Trucks)	Non-Motorized Trips	Average Speed (mph)	Average Trip Length (miles)	Vehicle Miles of Travel (VMT)	VMT per Capita	Vehicle Hours of Travel (VHT)	VHT per Capita
2045 Baseline								
120,404	7,300,406	979.4	21.7	9.2	4,485,471	37.3	118.906	0.99
2045 Blend								
126,881	7,377,829	1,030.93	21.8	9.3	4,515,147	35.6	120.681	0.95
% Change vs Baseline								
5.4%	1.1%	5.3%	0.5%	0.5%	0.7%	-4.5%	1.5%	-3.7%
% Change vs Baseline								
14.6%	2.4%	13.2%	-0.9%	-2.0%	16.3%	1.5%	19.9%	4.7%

However, the benefit to lower functional classification roadways in Warren County is not as fully realized as the Centers-Based Scenario, with some degradation to the lower classification roadways.

Additional land use, multimodal, and transit enhancement would be required to fully realize the benefits of the Blend Scenario. In the absence of these, travel demand models indicate that the Centers-Based, with a more diverse targeting of new population and households across a greater number of existing centers, yields better performance and recoups more of the degradation in performance over the 25-year analysis timeframe than any of the other 2045 scenario alternatives.

A similar pattern of growing travel demand and congestion was observed in long range planning studies in other New Jersey counties, which demonstrated that increased density alone could not adequately realize the desired benefits of reduced trip-making, congestion mitigation, travel mode shifts, and reduced VMT impact to lower-classification roadways. Rather density changes and centers-based development patterns must be paired with enhanced mode choice and improved multimodal networks to achieve long term benefits and mitigate costly roadway widenings, new bridges, and large-scale construction projects.

Data points for the 2045 Blend Scenario by roadway classification are shown in Table 21.

Table 21: 2045 Blend vs. 2045 Baseline by Roadway Classification

Vehicle Miles of Travel (VMT)	VMT per Capita	Freeways + Expressways	% of Total	Principal Arterials	% of Total	Major Arterials	% of Total	Minor Arterials / Collectors / Locals	% of Total
2045 Baseline									
4,485,471	37.3	2,614,286	58%	798,312	18%	444,380	10%	628,493	14%
2045 Blend									
4,515,147	35.6	2,542,615	56%	823,774	18%	465,023	10%	683,735	15%
% Change vs Baseline									
0.7%	1.5%	-2.7%		3.2%		4.6%		8.8%	

Build Scenarios

Two additional 2045 scenarios were developed to test the potential for highway and multimodal improvement projects and evaluate their ability to mitigate the degradation in performance experienced under the 2045 scenario alternatives. These include:

- Centers-Based: Build Version, and
- Warren County Blend: Build Version

These scenarios assume the completion of several transportation improvement projects, also included in the previously discussed Logistics, Centers-Based and Blended scenarios. These proposed projects were developed based on a combination of factors, including:

- Consensus Goals and Vision (Tech Memo 1)
- Multimodal system performance assessment (Tech Memo 2)
- Comments, concerns, and suggestions from the WCTP community engagement and outreach
- Previous plans and studies
- *Warren County Light Industrial Site Assessment*
- Collaboration with Warren County and Steering Committee

Based on these variables, as well as the results from the 2045 scenarios, two further substantial potential improvements were incorporated into the model (detailed below) to determine their impact on the larger transportation network:

- Widening of Belvidere Road from two to four lanes
- Implementation of a shuttle/jitney service via CR 519 and CR 632

The route for the potential shuttle/jitney service was selected with the aim of connecting existing population centers with anticipated light industrial sites. NJRTM-E data indicate a worsening of congestion on three segments of Belvidere Road; all located adjacent to several of the new light industrial sites. In the model, Belvidere Road was widened along three contiguous segments:

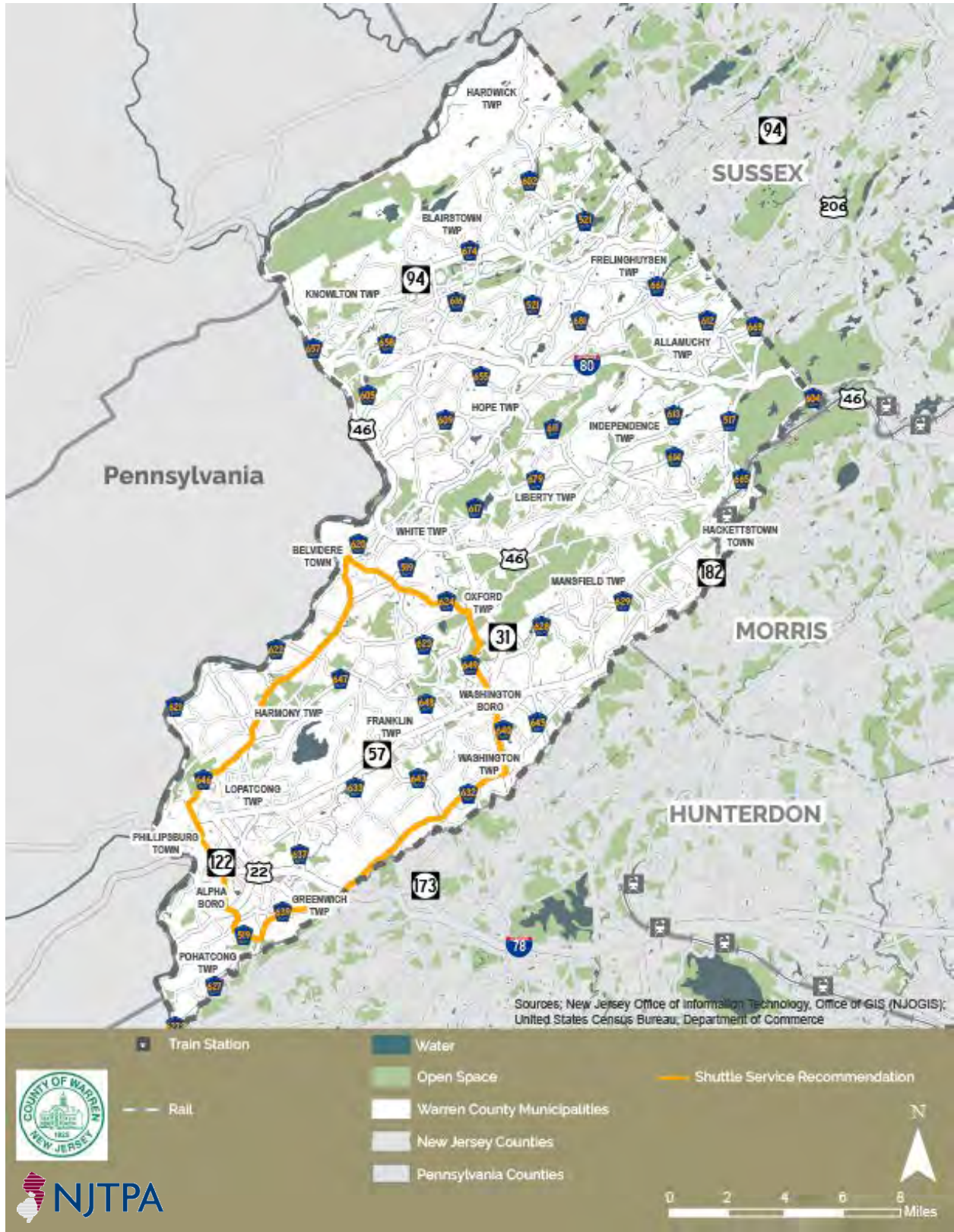
- CR 646 Belvidere Rd – Roseberry Street, Phillipsburg to CR 519
- CR 519 Belvidere Rd – CR 646 Belvidere Rd to CR 620
- CR 620 Belvidere Rd – CR 519 to Belvidere municipal boundary/Greenwich Street

Results from the 2045 Centers-Based and Blend scenarios indicate that a more extensive local and regional bus/transit system might be necessary to realize the full benefits of smart growth land use strategies. Although the new population is targeted to centers and municipalities with new light industrial employment, these new employment generators are still dispersed from the population centers and therefore diminish some of the potential trip reduction and congestion mitigation benefits. Rather than being located adjacent to new population or within walking distance, new sites are located along state and county roadways and thus generate more VMT on these roadways.

Two new improvements in transit service were developed to be further studied, as depicted in Figure 20:

- Belvidere to Alpha via CR 519
- Phillipsburg–Pohatcong–Alpha to Washington/Oxford via CR 632

Figure 20: Build Condition Transit Service



2045 Centers-Based Build Scenario

The Centers-Based Build scenario is derived from the same assumptions as the non-build 2045 Centers-Based scenario by targeting new population and households to existing centers rather than continued patterns of decentralization across lower density areas. It is designed to evaluate the potential benefits of targeted highway and transit improvements. Assumptions include:

- Current trend line of growth and development patterns
- NJTPA demographic projections for population, households, and employment
- Includes only road and transit improvements included in the TIP and Plan 2045
- Includes the 14 potential light industrial sites
- The new jobs are allocated to 11 municipalities with the greatest potential to benefit from sustainable smart growth development and housing principles, rather than on a proportional basis. These include Belvidere, White Township, Greenwich, Washington Township, Washington Borough, Phillipsburg,

Hackettstown, Lopatcong, Pohatcong, Alpha Borough, Oxford Township

In addition to these, the Centers-Based Build includes the three proposed highway improvements and two transit service improvements.

2045 Centers-Based Build Performance

The Centers-Based Build Scenario yields improved performance compared to the (non-build) Centers-Based Scenario, including:

- Significant increase in non-motorized trips
- Fewer auto-person trips
- Less VMT and VHT
- Substantially lower shift of VMT from freeways and expressways to arterials, collectors, and local streets than Logistics Hub

Centers-Based Build improves access and utility of multimodal trips choices, resulting in a similar VMT along minor arterials, collectors and local roads as the non-build Centers-Based Scenario while facilitating a higher number of non-auto trips (see Table 22 and Table 23).

Table 22 - 2045 Baseline versus 2045 Centers-Based Build

Population	Auto Daily Person Trips (Includes Trucks)	Non-Motorized Trips	Average Speed (mph)	Average Trip Length (miles)	Vehicle Miles of Travel (VMT)	VMT per Capita	Vehicle Hours of Travel (VHT)	VHT per Capita
2045 Baseline								
120,404	7,300,406	979.41	21.73	9.25	4,485,471	37.25	118,906	0.99
2045 Centers-Based Build								
126,881	7,266,212	1,189.78	21.32	9.26	4,456,043	35.12	118,960	0.94
Percent Change vs Baseline								
5.4%	-0.5%	21.5%	-1.9%	0.1%	-0.7%	-5.7%	0.0%	-5.1%

Table 23- 2045 Baseline vs 2045 Centers-Based Build VMT

Vehicle Miles of Travel (VMT)	VMT per Capita	Freeways + Expressways	% of Total	Principal Arterials	% of Total	Major Arterials	% of Total	Minor Arterials / Collectors / Locals	% of Total
2045 Baseline									
4,485,471	0.99	2,614,286	58%	798,312	18%	444,380	10%	628,493	14%
2045 Centers-Based Build									
4,456,043	0.94	2,494,750	56%	812,868	18%	470,436	11%	677,989	15%
Percent Change vs Baseline									
-0.7%	-5.1%	-4.6%		1.8%		5.9%		7.9%	

2045 Warren County Blend Build Scenario

The Warren County Blend Build Scenario is also derived from the same assumptions as the 2045 Blend by targeting new population and households to just six existing centers rather than continued patterns of decentralization across lower density areas and is designed to evaluate the potential benefits of targeted highway and transit improvements. Assumptions include:

- Current trend line of growth and development patterns
- NJTPA demographic projections for population, households, and employment
- Includes only road and transit improvements in the NJTPA TIP and Plan 2045
- Includes the 14 potential light industrial sites
- The new jobs are allocated to 11 municipalities with the greatest potential to benefit from sustainable smart growth development and housing principles, rather than on a proportional basis. These include Belvidere, White Township, Greenwich, Washington Township, Washington Borough, Phillipsburg, Hackettstown, Lopatcong, Pohatcong, Alpha Borough, Oxford Township

In addition to these, the Centers-Based Build scenario includes the three proposed highway improvements and two transit service improvements.

2045 Blend: Build Performance

The Blend Build Scenario yields the best overall performance of any 2045 scenario:

- Lowest auto person trips
- Highest non-motorized trips
- Lowest VMT and VHT
- Lowest VMT and VHT per-capita

Blend Build realizes the potential of smart growth strategies by showing that density alone is not enough, but rather must be paired with targeting new population to existing centers that are proximate to new jobs, coupled with enhanced mode choice and improved multimodal networks (see Table 241124 and Table 251225). Trips can only shift to alternate travel modes if adequate multimodal networks and service capacity are a viable and accessible option. The Blend Build scenario indicates that investments in improved walk-bike-transit networks and connectivity that connect people to jobs can help to mitigate future congestion and traffic impacts to Warren County communities.

Table 24 - 2045 Baseline versus 2045 Blend Build

Population	Auto Daily Person Trips (Includes Trucks)	Non-Motorized Trips	Average Speed (mph)	Average Trip Length (miles)	Vehicle Miles of Travel (VMT)	VMT per Capita	Vehicle Hours of Travel (VHT)	VHT per Capita
2045 Baseline								
120,404	7,300,406	979.41	21.73	9.25	4,485,471	37.25	118,906	0.99
2045 Blend Build								
126,881	7,162,883	1,226.62	21.35	9.32	4,379,859	34.52	117,796	0.93
Percent Change vs Baseline								
5.4%	-1.9%	25.2%	-1.8%	0.8%	-2.4%	-7.3%	-0.9%	-6.0%

Table 25 - 2045 Baseline vs 2045 Blend Build VMT

Vehicle Miles of Travel (VMT)	VMT per Capita	Freeways + Expressways	% of Total	Principal Arterials	% of Total	Major Arterials	% of Total	Minor Arterials / Collectors / Locals	% of Total
2045 Baseline									
4,485,471	0.99	2,614,286	58%	798,312	18%	444,380	10%	628,493	14%
2045 Blend Build									
4,379,859	0.93	2,413,673	56%	808,771	18%	474,311	10%	683,105	15%
Percent Change vs Baseline									
-0.66%	-5.06%	-7.7%		1.3%		6.7%		8.7%	

Warren County Blend Build also provides implications for municipal zoning, land use, and affordable housing. Municipalities may welcome the new jobs but must also recognize the traffic impacts they can bring and evaluate the extent to which light industrial zoning is

used. They must also recognize that the siting of affordable housing is a critical factor in mobility and access to work opportunities. Affordable housing should have access to adequate multimodal transportation options and networks.



Sycamore Landing, Phillipsburg

Scenario Modeling Conclusion

The results of the scenario planning exercise present Warren County with several development options. Under the 2045 Baseline Scenario, without any change in trends, county residents and workers will be traveling more miles and hours, taking longer trips at slightly lower speeds and traveling more on lower functional classification roadways than today.

Each of the other future scenarios lead to the following changes compared to the Baseline:

- 2045 Logistics Hub – more auto trips at similar speeds and distances, with more vehicle hours of travel
- 2045 Centers-Based – more auto trips at slightly higher speeds, slightly longer trips, significant increases in VMT, VHT, and non-motorized trips
- 2045 Blend – significant increase in auto trips, speed, trip length, non-motorized trips and VHT, with a slight increase in VMT
- 2045 Centers-Based Build – significantly more non-motorized trips, and slightly more auto trips at lower speeds with similar trip lengths, VMT and VHT
- 2045 Blend Build – significantly more non-motorized trips, and slightly fewer auto trips at lower speeds with longer trips, and minimal change in VMT and VHT

It's important to also compare the 2045 scenarios because other than the 2045 Baseline, they include the 14 logistics sites. The 2045 Logistics Hub scenario represents the likely direction of growth in the county based on current zoning and land uses. When compared against one another, the subsequent scenarios show the following changes:

- 2045 Centers-Based – increased speed, VMT and VHT; more non-motorized trips as compared to 2045 Logistics Hub
- 2045 Blend – increased speed, VMT and VHT but at a lower level than Centers-Based; more non-motorized trips than Logistics or Centers-Based; more person-trips than logistics but fewer than Centers-Based. This falls short of potential benefits of smart growth and centers-based development patterns because it does not improve the multi-modal network and people lack bus/transit options and would have to drive to new jobs
- 2045 Centers-Based Build – significant increase in non-motorized trips, decrease in person trips, VMT and VHT compared to the 2045 Centers-Based Scenario. Compared to 2045 Logistics Hub, there are improvements in non-motorized trips and VHT, but increased VMT, person trips, and slower travel speeds.
- 2045 Blend Build – results in fewer person trips, more non-motorized trips, and lower VMT and VHT than any other scenario. Speeds are slightly lower and trip length is slightly higher, but overall it shows the best performance of any 2045 scenario.

With significant employment growth expected and slow but steady population growth, it is anticipated that the county will cater to more trips. The 2045 Blend Build scenario most successfully minimizes the negative impacts of these additional trips by catering to fewer auto daily person trips and more non-motorized trips than all other scenarios. This scenario also results in only minimal changes to speed (-1.4%), trip length (+1.1%), VMT (+2.4%), and VHT (+0.9%) compared to the 2045 baseline. This centers-based scenario also supports the Vision laid out on page 18 “supporting multimodal transportation choices” by encouraging development in

established centers while preserving the “scenic rural landscapes, prized farmlands, natural and historic assets, and desirable quality of life.”

The scenario planning results indicate that density alone will not achieve desired improvement in performance and congestion. Enhanced mode choice, improved multimodal networks, and targeting new population to existing centers close to new jobs are needed for the best performance outcome.

A summary of the scenario results is shown in Table 26.

In addition to systemwide conclusions, some corridor-specific conclusions can be drawn concerning where congestion is expected to improve or worsen. Due to the gradual change in population and employment spread throughout the County, traffic impacts are expected to also occur gradually though certain corridor segments are anticipated to face worse conditions than others. Corridors expected to experience worsened congestion during any of the scenarios are listed in Table 27.



Rural Landscape in Warren County

Table 26: Scenario Summary Results

Population	Households	Employment	Auto Daily Person Trips (includes Trucks)	Non-Motorized Trips	Average Speed (mph)	Average Trip Length (miles)	Vehicle Miles Traveled (VMT)	Vehicle Hours of Travel (VHT)
2020 Existing								
110,763	44,426	37,163	7,201,511	910.37	22.04	9.48	3,883,819	100,627
2045 Baseline								
120,404	49,949	41,461	7,201,511	980.86	21.65	9.21	4,485,471	116,736
2045 Logistics Hub								
126,881	52,636	46,670	7,241,178	983.00	21.73	9.23	4,445,990	119,488
2045 Centers-Based								
126,881	52,636	46,670	7,463,225	1,002.78	21.81	9.27	4,585,634	122,109
2045 Warren County Blend								
126,881	52,636	46,670	7,377,829	1,030.93	21.83	9.29	4,515,147	120,681
2045 Centers Build								
126,881	52,636	46,670	7,266,212	1,189.79	21.30	9.26	4,456,043	118,960
2045 Warren County Blend Build								
126,881	52,636	46,670	7,162,883	1,226.62	21.35	9.32	4,379,859	117,796

Table 27: Roadways with Worsening Congestion

Corridor	Segment	Direction	Scenario	Period
CR 519	I-80 to CR 609/High St (Hope Twp.) to	SB	2045 Baseline	AM/PM
CR 623	NJ 57 to CR 519	NB	2045 Baseline	AM
CR 646	US 22 to Uniontown Rd/CR 519	NB	2045 Baseline	AM
CR 519	CR 610/Swayze Mill Rd to CR 623/Brass Castle Rd	SB	2045 Baseline	PM
CR 623	CR 624/Hazen Oxford to CR 519	NB	2045 Baseline	PM
CR 623	NJ 57 to Buckhorn Dr	NB	2045 Baseline	PM
CR 646	Red School Ln to US 22	SB	2045 Baseline	PM
US 22	NJ 57/US 22 to CR 646/Lincoln Rd	WB	2045 Baseline	PM
NJ 57	NJ 31 to US 22	WB	2045 Baseline	PM
NJ 122	Center St to US 22	WB	2045 Baseline	PM
CR 517	Bilby Rd to Bald Eagle Rd	NB	2045 Baseline	PM
CR 519	US 46 to CR 609/ High St	NB	2045 Centers	AM
CR 623	Buckhorn Rd to CR 626/Summerfield Rd	SB	2045 Centers	AM
CR 623	CR 647/ Harmony Brass Castle Rd to NJ 57	SB	2045 Centers	AM
CR 623	CR 626/Summerfield Rd CR 647/Harmony Brass Castle Rd	SB	2045 Centers Build	AM
NJ 122	CR 519 to US 22	WB	2045 Centers Build	PM
CR 623	5th St (Belvidere) to CR 519	SB	2045 Blend	AM
CR 623	CR 626/Summerfield Rd to Harmony Brass Castle Rd	SB	2045 Blend	AM
CR 519	CR 610/Swayze Mill Rd to US 46	SB	2045 Blend Build	PM

5. Recommendations

The following recommendations stem from the review of previous studies, existing conditions analysis and the scenario modeling exercise. These recommendations should be considered in tandem with the many other recommendations proposed in earlier studies. An implementation matrix of this Plan's recommendations is provided in Appendix A while a summary of previous recommendations is provided in Technical Memo 2.1 of Appendix B.



Pequest Wildlife Management Area Trail, Oxford Township

Roadway and Bridges

Recommendations from Recent Studies

Warren County's network of roadways and bridges are essential to safely and efficiently move people and goods. In addition to analysis conducted as part of this Plan, several roadway recommendations were proposed in the *2020 Warren County Light Industrial Site Assessment*. The following safety improvements were recommended based on crash data. These recommendations should continue to be studied and pursued.

U.S. 22 Phillipsburg

- Consider consolidating driveways
- #### U.S. 46/NJ 182/CR 517/CR 604
- Consider realigning U.S. 46 westbound approach closer to perpendicular and curbing the reclaimed area

U.S. 22/CR 638/CR 519

- Consider extending acceleration lanes and adjusting signal timing

U.S. 22/CR 646

- Consider improving signage from U.S. 22 to signify the transition into a residential neighborhood and tightening the curve from U.S. 22 westbound on CR 646 northbound
- Public and stakeholder feedback indicated a need to study the interchange of I-78/U.S. 22/NJ 173

Further priority intersections were listed in the Warren County Transportation Technical Study based on congestion, pavement, bridge, and

crash data. Priority intersections at county roadways included but are not limited to:

- U.S. 22 at CR 638 in Greenwich
- U.S. 22 at CR 519 in Pohatcong/Greenwich
- NJ 57 at CR 629 in Mansfield
- U.S. 46 at CR 519 in White

Additionally, the safety analysis conducted as part of this study and provided in Technical Memo 2.4 of Appendix B should be used to assist with targeting additional intersection and corridor improvements. The details of crash incidents, including their type (sideswipe, rear-end, etc.), time of day, and proximal lighting conditions can assist in developing proper recommendations.

Bridge Maintenance

The 2018 *Warren County Transportation Technical Study* identified 24 structurally deficient and 58 functionally obsolete bridges on state, county and municipal roadways. Each of these structures should be studied for maintenance improvements, rehabilitation, or replacement, as necessary. The 24 structurally deficient bridges are listed on pages 19-20 of Technical Memo 3.2 of the 2018 Warren County Transportation Technical Study. Most of these structures carry a relatively low volume of traffic and carry a combination of U.S, state, county and municipal roadways.

Height and Weight Restricted Structures

There are 11 height-restricted structures and seven weight-restricted structures on county roads. These restrictions can limit transportation accessibility for local businesses, impact local economic viability, increase VMT, and divert traffic through residential neighborhoods. Removing height restrictions along railways can be costly and difficult. Therefore, it may be prudent to remedy weight-restricted roadways first.

Though further analysis could reveal engineering and structural constraint and variables for prioritizing these improvements, an initial list of priority height and weight restrictions is provided in Table 28. These sites were selected based on proximity to light industrial sites selected as part of the *Warren County Light Industrial Site Assessment* and detailed in Technical Memo 3. All height and weight restricted structures on county roadways are mapped and listed in Figure 7.

Table 28: Priority Height and Weight Restrictions

Restriction Type	Roadway	Municipality	Restriction	Location
Height	CR 519	Alpha	13'9"	RR underpass, MP 26.49
Height	CR 519	Lopatcong	10'0"	RR underpass arch, MP 29.80
Height	CR 622	Harmony	13'5"	RR underpass, MP 0.68
Height	CR 622	Harmony	10'10"	RR underpass, MP 1.97
Height	CR 636	Pohatcong	11'3"	RR underpass arch, MP 0.45
Height	CR 639	Pohatcong	13'6"	RR underpass, MP 0.91
Weight	CR 519	Pohatcong	4 tons	
Weight	CR 637	Lopatcong/Greenwich	10 tons	
Weight	CR 646	Greenwich/Phillipsburg Lopatcong	4 tons	



Truck Stuck in CR 519 Tunnel



Interstate 80

Biking, Walking, and Trails

Walking and biking infrastructure represent vital pieces of Warren County's transportation system. Sidewalks are necessary elements in the county's more densely settled areas and provide a safe refuge for travel. The county's network of trails offers a recreational opportunity to view Warren County's scenic landscape from a variety of angles. Some cyclists also ride comfortably along roadways though dedicated facilities for cyclists would entice more users. In addition to trails infrastructure catering to recreational users, improved bicycle and pedestrian infrastructure in the county's more densely settled centers will help support the conclusion of the scenario modeling exercise to target growth in these centers while allowing for the continued preservation of the county's scenic and rural landscapes. Efforts at improving conditions for cyclists and pedestrians in the county can take many forms, as described below.

Targeted speed reductions would also provide benefits to Warren County's multimodal travelers and vulnerable populations by lowering speeds to be better compatible with local context. The tool USLimits2 (an approved FHWA Safety countermeasure) has proven effective in helping New Jersey municipalities and counties achieve targeted and strategic speed limits reductions.

Sidewalks

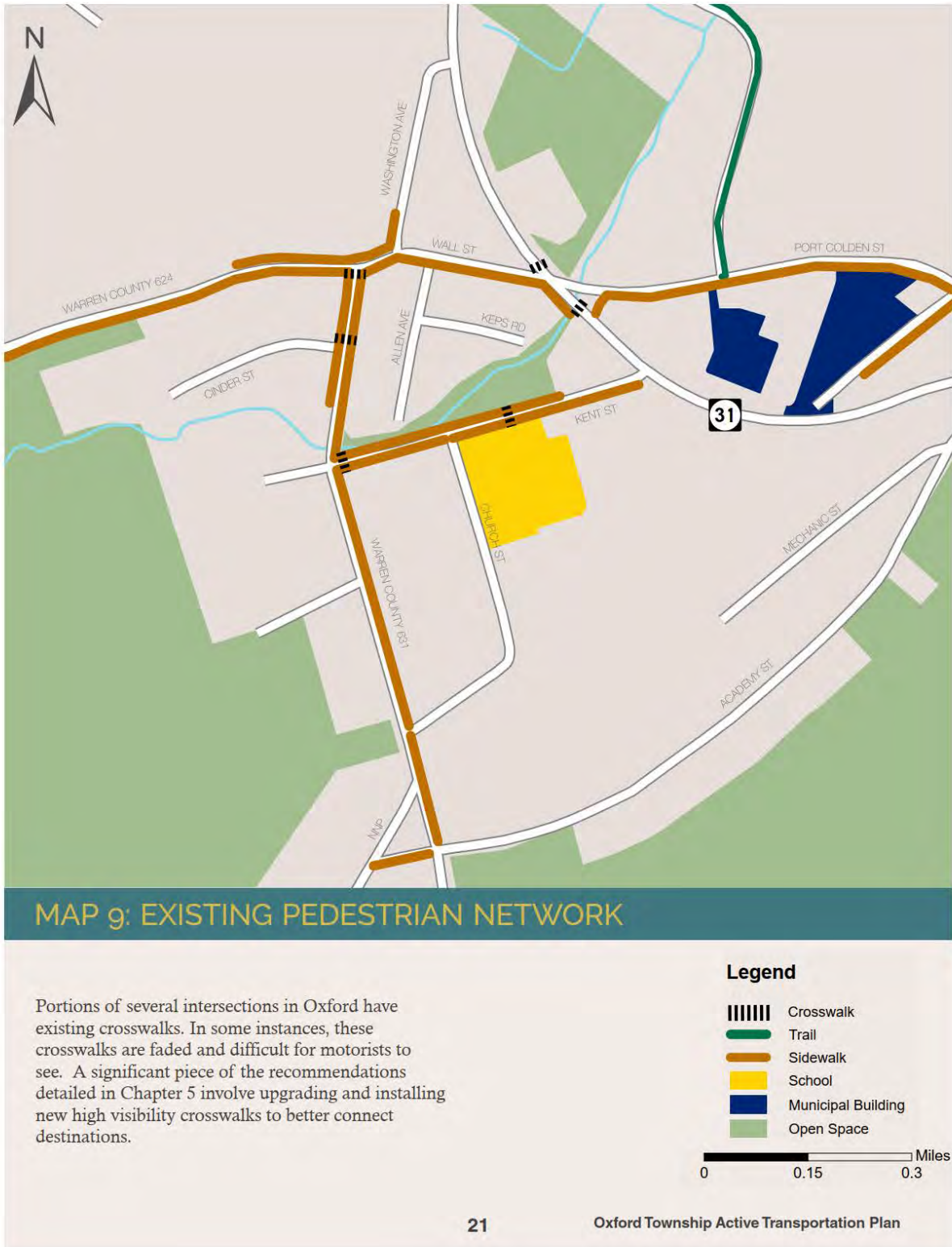
Properly constructed and maintained sidewalks promote walking and provide accommodations for those with mobility impairments or who are unable, or uninterested in driving. In a rural setting such as Warren County, sidewalks are not warranted on every roadway. They should be constructed in the more densely populated portions of the county, near public transit

stops/stations, between existing sidewalks to fill gaps, and near particular points of interest that tend to facilitate walking (schools, parks, houses of worship, government facilities, certain retail locations, etc.) Improved sidewalk infrastructure can promote development, improve quality of life and enhance tourism in such centers.

A county-wide inventory of walking accommodations is recommended. This can include sidewalks, crosswalks, and ADA-accessible curb ramps and consider pedestrian crash characteristics. Warren County should conduct a study for its own roadways as well as provide resources and collaboration for municipalities to do the same.

Community walkability workshops and Road Safety Audits are also recommended for site-specific reviews of walkability conditions including sidewalks, crosswalks, traffic signal timing, and location-specific walking impediments. Senior mobility workshops can provide a similar benefit in areas with many seniors. As noted in the Previous Studies review in Technical Memo 2.1 of Appendix B, Phillipsburg conducted a walkable community workshop in 2010 for the intersection of Roseberry Street and U.S. 22. As a result, ADA compliant crosswalks and new signal heads were installed and retimed to allow pedestrians to cross the highway safely. In addition to developing potential solutions to walkability issues, these focused workshops help stakeholders consider walkability in their day-to-day lives and instill an interest in walkability that is beneficial for future studies and projects. Figure 21 provides an example of a sidewalk and crosswalk inventory map completed as part of the 2019 Oxford Township Active Transportation Plan.

Figure 21: Oxford Township Sidewalk and Crosswalk Inventory



Safety Analysis

As detailed in the Bicycle and Pedestrian Safety section of this document on page 45, 89 bicycle and pedestrian crashes occurred in the county from 2016 to 2018 with nearly two-thirds of these occurring in Phillipsburg, Hackettstown or Washington Borough. The county should encourage and collaborate with these three municipalities to address safety concerns for cyclists and pedestrians. Additionally, the bicycle and pedestrian safety analysis trends listed on [page 45](#) indicate the need for complete streets and traffic calming measures to slow traffic on municipal roadways with a 25-mph speed limit to ensure motorists are traveling at a safe speed in the county's more densely developed communities. A walkable community workshop, Road Safety Audit, or similar intervention would be helpful for addressing these concerns. Warren County should collaborate with local and regional organizations, including TransOptions to educate particularly vulnerable populations, such as school-age children, about how to walk, bike and cross streets safely.

Scenic Byways, Trails and Points of Interest

The broad array of scenic byways, trails and points of interest necessitate further study and analysis to determine how Warren County can continue to provide connections to and benefit from these sites. Several findings from Warren County's 2018 Transportation Technical Study can work in tandem with such efforts, including the "County-wide need for traffic calming and gateways to preserve traditional villages, small town quality of life, and safety" and the associated theme of "balancing the strongly-expressed interest in preservation vs. the need for, and impact of, future growth and development." Further study should inventory and analyze the location and characteristics of scenic byways, trails and points of interest, including agritourism sites, which will better allow the county to develop a comprehensive and concerted effort to present these cultural and tourism assets to residents and visitors.

Such a study should also make recommendations for additional biking, walking and recreational infrastructure.

Complete Streets

Warren County should develop and adopt a Complete Streets policy. As defined by the National Complete Streets Coalition, Complete Streets:

"Are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists and transit riders of all ages and abilities must be able to safely move along and across a complete street."

NJDOT adopted its nationally recognized Complete Streets policy in 2009 with the purpose of "[providing] safe access for all users by designing and operating a comprehensive, integrated, connected multi-modal network of transportation options." A critical component in the design of a Complete Street is that its accommodations be provided with the same level of detail and attention that has been historically afforded to the movement of automobiles. Though not included in either of these definitions, the needs of freight vehicles should be also considered as part of Complete Streets. In 2019, NJDOT published *Complete Streets for All: Model Complete Streets Policy and Guide* which is a one-stop resource to implement Complete Streets. A complete list of county and municipal Complete Streets policies in New Jersey can be found through the New Jersey Bicycle & Pedestrian Resource Center here:

<http://njbikeped.org/complete-streets-2/>

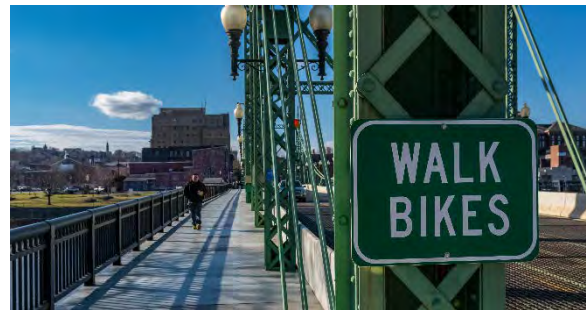
Though one may think a Complete Streets policy is not necessary for a rural county, such a policy can be tailored to Warren County's needs and specify in what locations and what kind of roadways Complete Streets measures (sidewalks, bike-compatible shoulders, dedicated bike facilities, etc.) are required. The county should also work with NJDOT to encourage and provide resources for municipalities to adopt their own Complete

Streets policies. Several of the more densely populated communities would also benefit from developing a bicycle and pedestrian master plan, particularly Phillipsburg, Hackettstown, and Washington Borough. As noted earlier in the Equity Assessment and detailed in full in Technical Memo 2.2, these communities are also home to more historically disadvantaged and vulnerable populations that rely on this infrastructure. The development of Complete Streets policies and infrastructure such as traffic calming elements, supports the conclusion of the scenario modeling exercise to target development in established centers.

The county should consider completing a comprehensive trails/pedestrian plan (similar to those conducted in Somerset County and for the Greater Mercer Transportation Management Association) that develops a cohesive guide and map to maximize the public's awareness and understanding of its vast trail system. A sample map of Somerset County's biking and trail network is shown in Figure 22. It would also be beneficial for such a study to inventory pedestrian facilities

(sidewalks, crosswalks, ADA-accessible curb ramps), review pedestrian crashes, and formulate recommendations for improving walking conditions in the county's town centers, a means of establishing gateways into communities.

In addition, there should be a county-wide study of biking and walking mobility and safety. Several municipalities, including those with significant vulnerable populations such as Phillipsburg, Hackettstown, and Washington Borough, would also benefit from master plans for biking and walking.

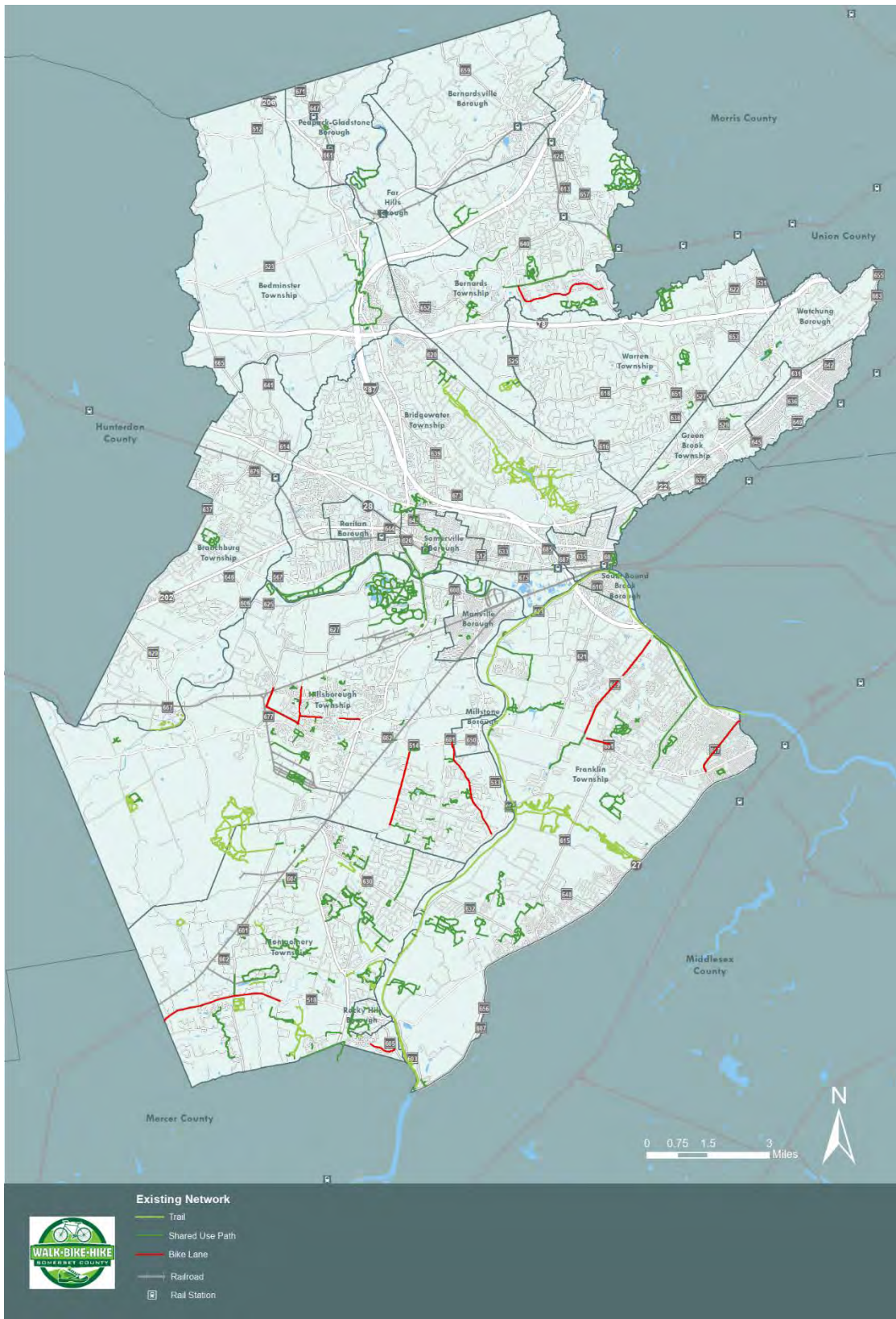


Northampton Street Bridge



Pedestrian Crossing in Washington Borough

Figure 22: Existing Biking and Trail Network from Somerset County WalkBikeHike Plan



Bicycle Facilities

Warren County completed a bicycle compatibility analysis of all county roadways. The bicycle compatibility analysis indicates expected comfort of biking on a given roadway and is calculated based on a variety of variables including speed limit, traffic volumes, and pavement width. Using these same variables, and the bicycle compatibility analysis scores, the project team developed a set of bike facility recommendations for county roadways. Though a variety of bicycle facility types exist and are used throughout New Jersey, only those types recommended on the county's existing roadway network are detailed below. Additionally, changes to vehicular speeds and volumes that may result from the actions taken in response to scenario planning may increase opportunities for bicycle facility recommendations.

Many Warren County roadways were found to be too narrow to accommodate dedicated bicycle facilities, and many roads also lack adequate sidewalks. Sidepaths may be particularly useful and warrant further study along busy county roads due to the narrow

width and high prevailing travel speeds. Design standards for county and municipal roads should be updated to better accommodate safe biking and walking throughout Warren County. Regardless of whether road standards are updated, the implementing agency or jurisdiction faces no legal liability concerns as long as bike facilities are properly designed and maintained. Proper bicycle facility design guidance can be found on page 89-107 of NJDOT's Complete Streets Design Guide.

Sample locations are provided for each of the pertinent facility types other than sidepaths. These recommended bike facilities are intended to introduce biking infrastructure to many places in the county and form the foundation for further study and improvements. As noted earlier, a more thorough countywide trails and biking plan is recommended to further evaluate these recommendations.



Oxford Bikeway in Oxford Township

Four types of facilities are recommended as most applicable Warren County; sidepaths, bicycle boulevards, shared-lane markings, and bike lanes.

Sidepaths

A sidepath is a path next to the road, generally separated by a buffer and wider than a sidewalk, that is designated for bicycle or pedestrian use. They function similarly to a multi-use path or paved trail though trails are often found in recreation areas and multi-use paths need not be immediately adjacent to a roadway. Sidepaths are intended to minimize conflicts between all users and provide access to destinations (commuting or recreation). Along high-speed, high-volume roads, sidepaths may be more desirable than sidewalks or bike lanes. Sidepaths provide

dedicated opportunities for those who wish to ride a bicycle or walk and may increase the use of non-motorized modes. Sidepaths can be one-way or two-way; the selection of the appropriate configuration requires an assessment of many factors including safety, connectivity, available right of way, and intersection navigation. Sidepaths should be signed to discourage or prevent unauthorized motorized access.

Due to limited width along existing cross-sections of county roadways, no sidepaths are recommended under current conditions though sidepaths should be considered under all roadway widenings including recommended widenings of CR 519 and CR 620 detailed beginning on page 104.



CR 638 Sidepath, Greenwich Township

Bicycle Boulevard

Bicycle boulevards, also referred to as neighborhood greenways or quiet streets, are traffic calmed streets that prioritize bicycle travel, creating a more comfortable bicycling environment. While bicyclists share the street with motor vehicles, the low-speed and low-volume character of a bicycle boulevard creates a low-stress facility for bicyclists of all ages and abilities.

Many neighborhood residential streets provide the basic components of a bicycle boulevard. These streets can be enhanced to create a bicycle boulevard through a variety of design treatments deterring high vehicle speeds and discouraging through-trips by motor vehicles. Many of these treatments benefit not only bicyclists but by creating a safe and quiet environment, benefit pedestrians and motorists.

Where constraints prevent bicycle improvements on arterial roadways, utilizing parallel neighborhood streets as bicycle boulevards provide convenient, attractive alternative routes for cyclists.

Key elements of a bicycle boulevard include:

Reduced Speed Limits: the preferred speed limit of a bicycle boulevard is 20 mph, five miles per hour slower than typical residential streets

Signage and Markings: pavement markings and wayfinding signage highlight the corridor as a priority route for bicyclists and the intention for the roadway as a shared, slow street

Speed Management: traffic calming elements appropriate for the context, such as curb extensions, speed cushions, chicanes or mini-roundabouts, should be used to reinforce the low speed limit and discourage cut-through traffic

Access Management: depending on the context, elements such as diverters or medians can be used to deter or prevent vehicular through-traffic, while still accommodating local access and prioritizing bicycle through-trips

Intersection Crossings: appropriate intersection treatments, particularly at crossings with major streets, are crucial to minimize bicyclist delay and ensure a safe, comfortable street for bicyclists of all ages and abilities

Bike boulevards are recommended for further study for portions of several corridors including CR 519 in Greenwich, CR 620 in Belvidere, CR 631 in Oxford, and CR 642 in Alpha.



Bicycle Boulevard in Ocean City, NJ

Shared Lane Markings

On roadways that cannot accommodate dedicated bicycle facilities, shared-lane markings may be used to indicate a shared environment for bicycles and automobiles. Shared lane markings can provide several benefits:

- Assert the legitimacy of bicyclists on the roadway
- Provide directional and wayfinding guidance
- Direct bicyclists to ride in the most appropriate location on the roadway
- Provide motorists with visual cues to anticipate the presence of bicyclists

Shared lane markings can be used to provide connections to major destinations where there is limited cartway width or other constraints limiting implementation of other bicycle facilities.

Shared lane markings are typically applied on streets with a speed limit of 25 mph or less.

The markings typically consist of a bicycle and chevron symbol, with or without a green background. Shared lane markings should also be paired with traffic calming treatments to reinforce the low speed limit and support a more comfortable environment conducive to sharing the roadway with multiple types of road users. Shared lane marking treatments can include “Share the Road” signage as is currently implemented along Southtown Road in Frelinghuysen Township.

To increase the visibility and effectiveness of the marking, the marking can be applied on a green background. This “enhanced” or “green back” shared lane marking is particularly useful on streets with higher traffic volumes and more activity, which benefit from improved visibility.

Shared lane markings are recommended for low speed sections of roadways throughout the county including CR 602 in Hardwick, CR 616 in Blairstown, CR 609 in Hope, CR 625 in Oxford, CR 621 in Harmony and CR 626 in White, among other locations.



Shared-Lane Markings in Princeton, NJ

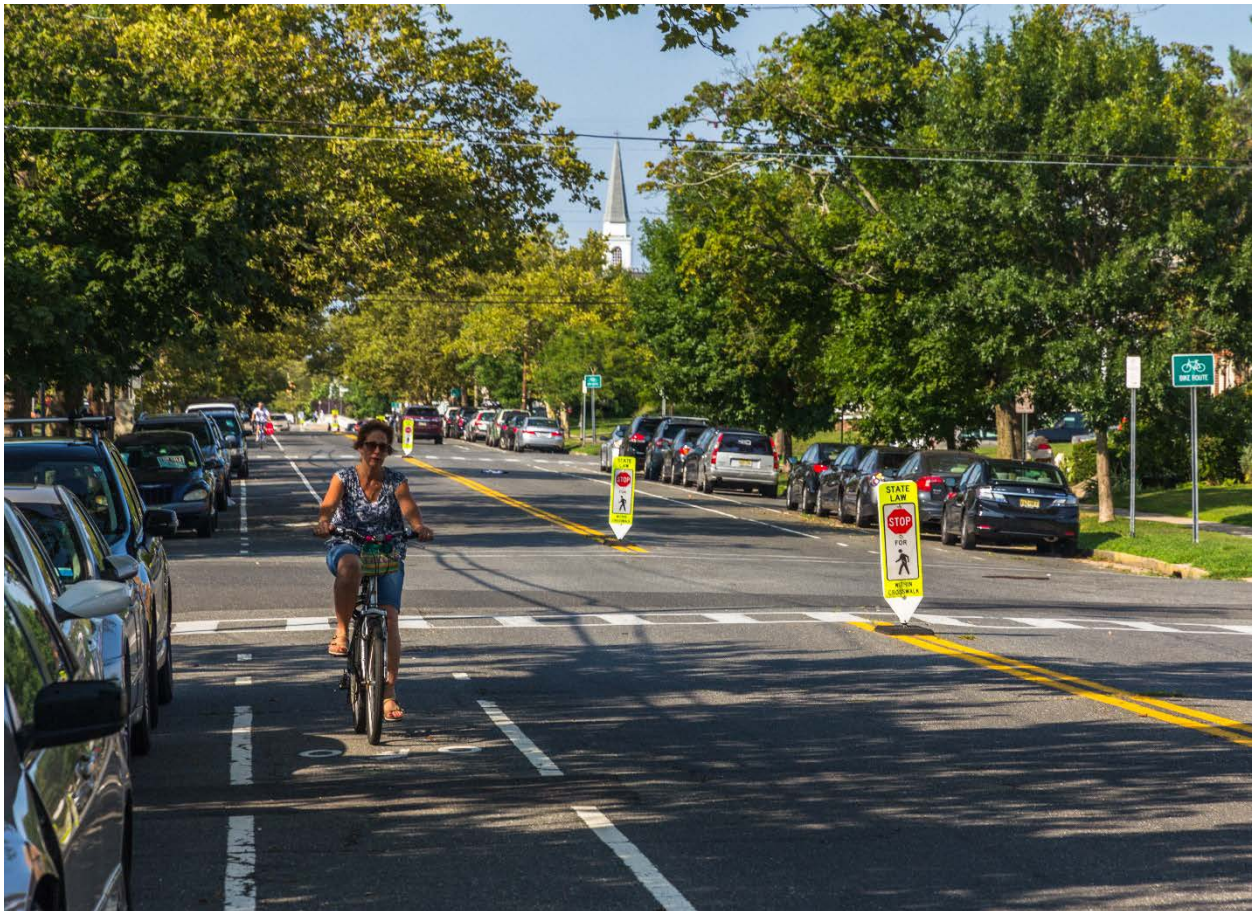
Bike Lane

Standard or conventional bicycle lanes provide an exclusive space for bicyclists through the use of pavement markings and signage. They enable bicyclists to ride at their preferred speed, free from interference from motorists, and help facilitate predictable behavior and interaction between bicyclists and motorists. Bicyclists may leave the bicycle lane to pass other bicyclists, make turns, or avoid obstacles and conflicts. Motorists may pass through the bicycle lane to access parking or make other turning movements, but they cannot stand or park in the lane. Standard bike lanes provide dedicated space for cyclists, but no vertical or horizontal separation from moving traffic.

For example, based on factors such as local context, roadway width, speed, traffic volume and network connectivity, a bike lane is recommended for CR 678 in Phillipsburg. The existing network of county roadways is limited in bike compatibility due to width constraints, but if changes to cross sections occur in the future, a bike network can be expanded to other roads.

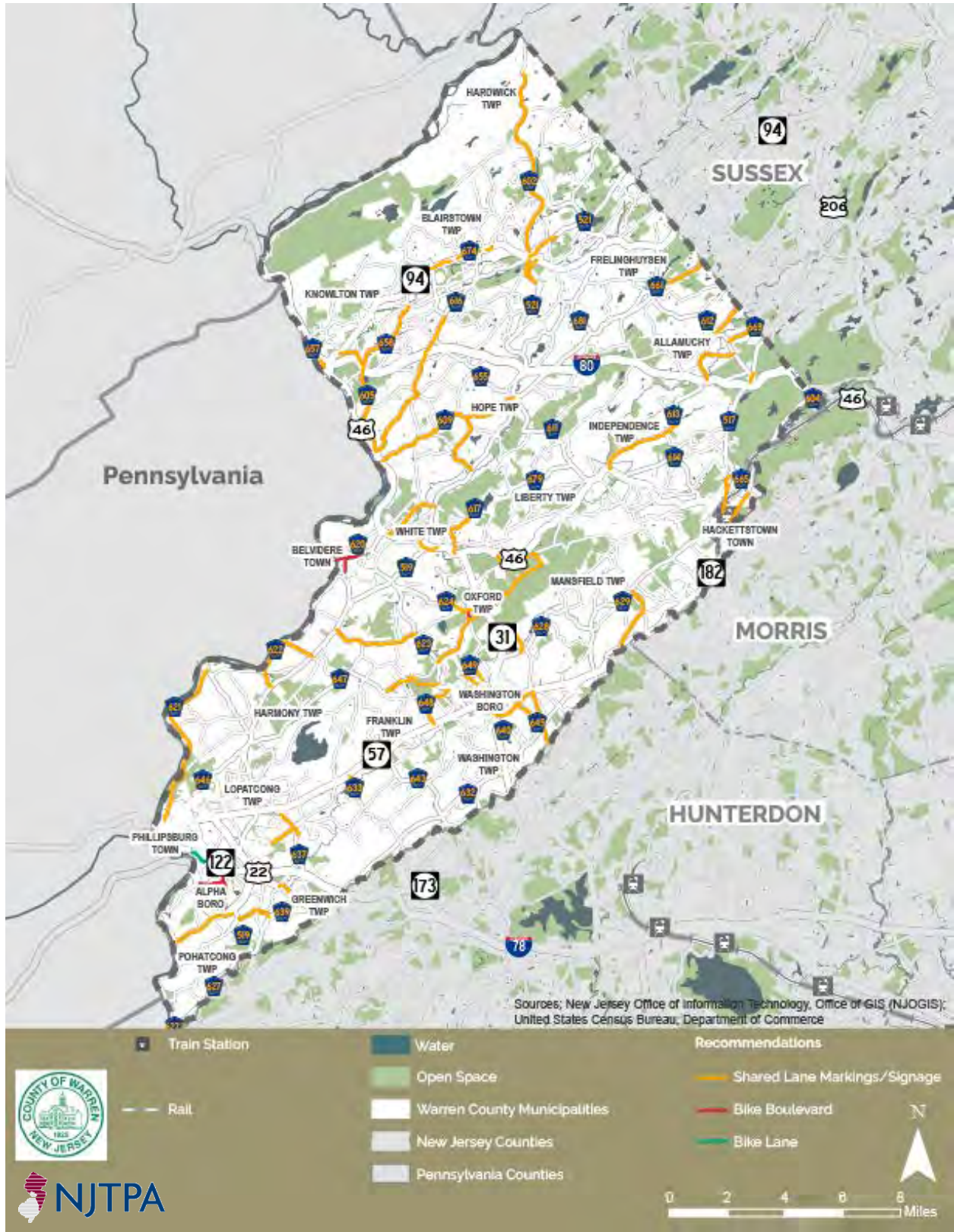
Recommendations Summary

These recommended bicycle facilities are intended to serve as a basis for future bike infrastructure in the county. A more thorough planning, traffic and engineering analysis is required before these facilities are implemented. Recommended bicycle facilities are mapped in Figure 23.



Bike Lane in Asbury Park, NJ

Figure 23: Recommended Bicycle Facilities



Public Transportation

The full 1982 transit plan from the County’s transportation plan published in the same year did not achieve the funding or institutional support necessary for implementation; however, its intent to move people within and outside the county should not be discounted. New technologies and methods of service delivery offer opportunities to explore mobility solutions that may rely on fixed route bus service. Another reason to enhance public transportation is to attempt to reduce greenhouse gas emissions from single-occupant vehicles.

Although overall performance and service levels for Warren County transit have declined in recent years (Table 169), a fresh look at opportunities to modernize and revisit key corridors and the 1982 plan are warranted.

Table 29 - Recent Transit Ridership

Year	Route 57 Shuttle	31Ride Shuttle
2016	115,800	1,102
2017	121,638	1,833
2018	107,446	1,948
2019	94,263	No service
2020 (Jan-Mar) pre-COVID	18,989	No service
2020 (Apr-Sept) COVID	11,643	No service

The following elements should be included in considering public transit improvements:

- Build on successful elements of the Route 57 Shuttle
- Create user-friendly services, with consistent and clearly communicated routes/schedules
- Explore opportunities to enhance demand-response services and seek integration with public transit (funding sources must be considered)
- Provide regular (at least every hour, ideally every half hour) service throughout the day

to maximize use of service. Rural shuttle services are often focused on facilitating travel during peak commute times or to make connections to more intensive transit uses (higher-capacity buses or trains) but such methods limit the ability for people to take advantage of and trust the service.

Several public transit related recommendations were made in the 2018 Warren County Transportation Plan including:

- Improving access to key destinations such as Warren County Community College, schools and vocational high schools, Veterans Affairs New Jersey Health Care System, hospitals, grocery stores, and employment centers
- Include extended and non-peak transit service for shift work, evenings, and weekends
- Provide information on transit service and schedules in various languages, as needed by county residents
- Mitigate capacity limitations at the Clinton Park & Ride

Additional recommendations were included in the plan and previous proposed in a 2004 study, including:

- Restoring passenger rail service in northern Warren County along the Lackawanna Cut-off
- Implementing passenger rail service between Hackettstown and Phillipsburg along the Washington Secondary
- Extending passenger rail service to Phillipsburg along the Raritan Valley rail line from High Bridge (Hunterdon County)

Warren County should complete a detailed examination based on the public transit improvements included in the 2045 build scenarios elaborated upon in Technical Memo 3 of Appendix B to potentially provide new service along CR 519 and CR 632, connecting the expected future employment centers with

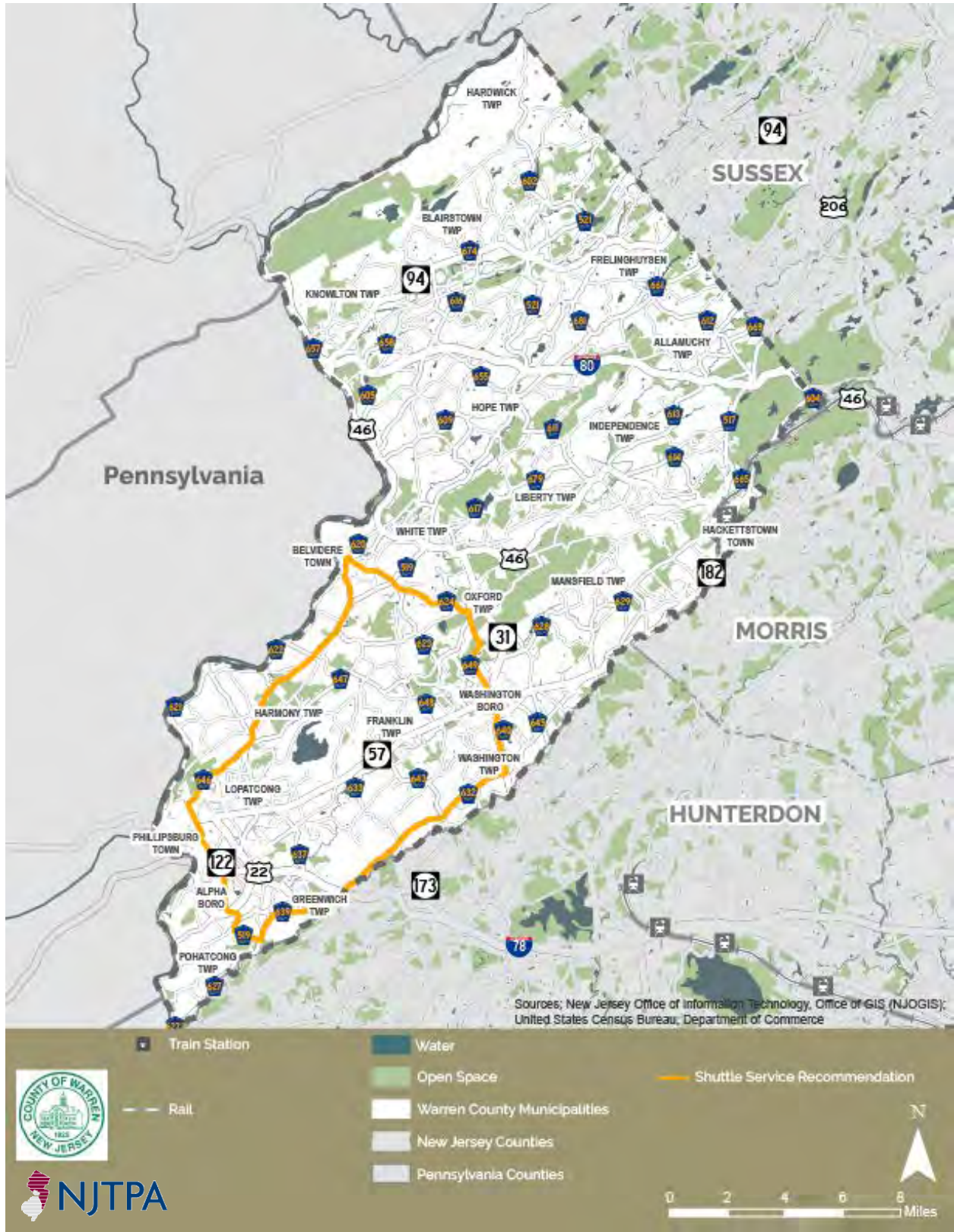
the regional centers of Alpha, Belvidere, Oxford and Washington Borough, as well as possible service to Easton, PA, with social, economic and geographic ties to Phillipsburg. Such improvements would help facilitate centers-based growth as elaborated upon in the scenario modeling exercise. The extension of public transit routes would likely increase maintenance costs and lengthen routes (thus increasing total route travel time. These issues must be considered in tandem with

broadening the feasibility and appeal of public transit in the county, and the ability to connect destinations. A graphic illustrating the potential routes is shown in *Figure 24*. Additional analysis is required to finalize a route. Upon further review, other alignments, including those traveling along interstate highways, may be preferable. Consideration should be given to the need to connect the existing and growing centers with future light industrial sites.



Warren County Shuttle in Phillipsburg

Figure 24: Potential Public Transit Improvements



Goods Movement

Freight is becoming an increasingly important part of our daily lives, as demand for next-day and home deliveries increases. With this demand comes higher truck volumes on local and county roadways, many of which were not designed with trucks in mind. Warren County is particularly impacted by this trend as it experiences not only increased demand for local shipments but also greater demand for warehousing sites necessary to meet consumers' needs. The 2020 *Warren County Light Industrial Site Assessment* identified 14 sites encompassing more than 4,000 acres, which could potentially be developed for industrial uses such as warehousing or e-commerce. If developed, these sites would generate a significant amount of traffic from both trucks and automobiles, as increased employment and goods movement would be generated to and from these sites. A capacity analysis was conducted as part of the *Warren County Light Industrial Site Assessment* under existing 2020, no-build 2045 and build 2045 conditions. No-build 2045 conditions assumed the 14 identified sites would not be built and all trends in the county would continue at their current rate. The build 2045 scenario assumes all 14 sites were built-out. This traffic model was run using NJTPA's NJRTM-E model scenario, also used in the Warren County Transportation Plan modeling exercises. To accommodate the expected increase in traffic that would result from the development of the 14 industrial sites and provide an acceptable level of service, a combination of improvements including additional turning lanes and intersection alignments, traffic signal timing adjustments, and travel demand management strategies were explored. The potential increase in cars and trucks can be better accommodated at intersections through a variety of potential improvements ranging from low cost solutions such as optimizing stop bars to higher cost investments such as roadway widening. Other physical improvements to mitigate roadway impacts, such as roundabouts, should be

explored in the future as sites are developed. For all mitigation treatments (corridor, intersection and others), close and early coordination with the site developer is recommended to ensure the most appropriate mitigation strategies based on anticipated site uses and associated traffic levels. Workforce access, as part of a larger Transportation Demand Management (TDM) strategy, elaborated upon below, is also an important consideration early in the development process. Several of the light industry sites were identified as requiring mitigation strategies, as detailed below.

Corridor Treatments

As studied under the build scenarios detailed in Technical Memo 3, CR 519's existing one lane of traffic in either direction is not expected to be sufficient to handle future traffic demands under the 2045 build conditions. A more thorough analysis of potentially widening the corridor to two travel lanes in either direction from CR 646/Uniontown Road in Harmony Township to CR 620 in Belvidere is recommended. Dependent on further study, intersection treatments may also be beneficial in addition to or in lieu of a corridor widening. Intersection treatments can be implemented at what are expected to be the busiest intersections to reduce bottlenecks by expanding approaches to include dedicated turning lanes. Other site-specific improvements can include a short passing lane or truck climbing lane along a hill. Additionally, any study of the CR 519 corridor should consider the need for bicycle and pedestrian improvements and connectivity. Traveling north-south through the entirety of Warren County, CR 519 also continues south into Hunterdon County and north into Sussex County for a total of 89 miles, New Jersey's longest county route. This length presents an opportunity to improve biking and walking connections between these counties and communities. Depending on specific site conditions, available

right-of-way and topography, a sidepath along the corridor may be feasible.

Additionally, it is recommended to widen a segment of CR 620 between Belvidere and CR 519 from one to two lanes in both directions to accommodate the anticipated auto traffic expected to be generated due to site developments. This widening should be carried through each intersection along the corridor. Such roadway widening should consider the need for bicycle and pedestrian improvements and connectivity.

Phased or partial implementation is recommended for roadway widenings and intersection improvements as light industrial sites and other proposed developments that would contribute to the volume of traffic are approved and constructed. When possible, the municipalities and county should require that developers contribute a fair share towards needed improvements directly related to site development.

Intersection Treatments

While this study suggests widening two corridors, treatments at specific intersections can result in similarly beneficial impacts to traffic by targeting the locations expected to present the worst traffic conditions.

Intersection treatments can include marking a new turn lane, signaling a stop-controlled intersection, optimizing signal timing, or altering the location of stop bars to better allow turning movements by oversized vehicles.

The following treatments are recommended for the respective intersections. More detailed analysis and graphics of each of the recommendations can be found in the *Warren County Light Industrial Site Assessment*.

- U.S. 46/CR 519
 - Optimize signal timing
 - Pull back stop bars
 - Widen approaches to add turn lanes
- CR 519/CR 623
 - Signalize intersection
 - Widen all approaches to add turn lanes
- CR 519/CR 620
 - Signalize intersection
 - Widen all approaches to add turn lanes
- CR 519/Foul Rift Road
 - Signalize intersection
 - Widen approaches to add turn lanes
 - Consider adjusting turning radii to accommodate trucks
- CR 519/CR 626
 - Signalize intersection
 - Widen all approaches to add turn lanes
- CR 519/CR 622 (Roxburg Station Road)
 - Signalize intersection
 - Widen all approaches to add turn lanes
 - Consider adjusting turning radii to accommodate trucks
- CR 519/CR 621 (Brainards Road)
 - Signalize intersection
 - Widen all approaches to add turn lanes
 - Pull back stop bars
- CR 519/CR 647
 - Widen approaches to add turn lanes
- CR 519/CR 646
 - Signalize intersection
 - Widen all approaches to add turn lanes
 - Pull back stop bars
- CR 519/NJ 57
 - Widen all approaches to add turn lanes
- CR 519/Strykers Road
 - Signalize intersection
- I-78/CR 632

- Signalize intersection
- Consider adjusting turning radii to accommodate trucks
- NJ 31/CR 632
 - Pull back stop bars

Truck Parking

An important piece of the infrastructure necessary for freight movement is a place for trucks to park overnight, while staging as they wait for a pick up/delivery appointment, outwait inclement weather conditions, or rest after exhausting their maximum allowable driving time. The public outreach process and discussions with County and municipal staff revealed a long-term concern for increased truck parking. Presently, trucks often park on the side of roadways not intended for such use. Warren County should work with the NJTPA, and NJDOT as they conduct a study specific to the need for truck parking, preferably for the two most widely used truck routes in the county, Interstates 78 and 80. These studies would ideally include cooperation with the other counties home to these interstates including Hunterdon, Somerset, Union, Essex and Hudson counties for Interstate 78 and Sussex, Morris, Essex, Passaic and Bergen counties for Interstate 80. More complete truck parking infrastructure and facilities may not be necessary in Warren County itself, but additional infrastructure should be investigated along with adjacent

counties. Based on the anticipated increase in freight-focused warehousing and light industrial use, the County can also work with developers of large industrial parcels to provide truck parking and amenities on-site or find adequate space nearby to assure sufficient parking is available for truck drivers while mitigating any negative impacts of truck parking on local residents.

Transportation Demand Management (TDM) Strategies

The *Warren County Light Industrial Site Assessment* proposed an array of freight-focused TDM recommendations. TDM provides solutions focusing on creating a more efficient transportation network through targeted policies and strategies focused on demand. These strategies are optimal in locations where existing constraints limit physical improvements or where funding for capital improvements is not available or feasible. Strategies include promoting non-peak trips and creating a county-wide freight transportation advisory group. The *Warren County Light Industrial Site Assessment* provides a detailed assessment and recommendations for future industrial developments. While the *Warren County Light Industrial Site Assessment* framed TDM in terms of freight, these strategies can be used for mitigating other congestion sources as well.



Trucks Parked at Truck Stop on U.S. 46

Gateways

The county and its municipalities should conduct a study of incorporating gateway treatments for several communities, including, but not limited to, Belvidere, Hackettstown, Oxford, and Washington Borough. As detailed on page 114 of the NJDOT *Complete Streets Design Guide*, gateway treatments incorporate visual cues to alert users of a change in street typology or context. Such treatments are particularly helpful on higher-speed county or state roadways that enter a more densely populated area. Gateway treatments can also help a location serve as a de facto entrance to a downtown, historic district or public square. By alerting users of the change in character and context of the roadway, gateway treatments are intended to trigger and enforce a change in user behavior, such as for drivers to reduce speed or be aware of a higher level of pedestrian and bicyclist activity. Gateway treatments can also facilitate tourism, placemaking and improve an area's economic vitality.

There are a variety of potential gateway treatments, many of which overlap with general Complete Streets tools. Specific improvements should be based on local context, but treatments can include:

- Specialty light fixtures
 - Signing and striping
 - Pavement texture treatments and transverse rumble strips
 - Public art installations
 - Radar speed signs to highlight a change in speed limit
 - Raised crosswalks or intersections
 - Wayfinding kiosks, signage or map displays
 - High-visibility crosswalk striping or a unique crosswalk striping design distinctive of the district or neighborhood
 - Curb extensions to narrow the intersection
- Gateway treatments are currently used to a limited extent along the Warren Heritage Scenic Byway (NJ 57) incorporating signage and shoulder treatments when entering the villages of Broadway and New Village. Gateway treatments can help instill a sense of place, supporting placemaking and downtown development, as well as encouraging growth in such gateway communities, as elaborated upon in the earlier scenario modeling exercise.

Source; Goole Maps, Existing Gateway Elements in New Village, Franklin Township, NJ

Policy Recommendations

One purpose of this update to Warren County's Transportation Plan is to direct how resources and attention should be allocated going forward. Several transportation issues in the county warrant further study, review, analysis, and consideration including those detailed below. These recommendations are intended to complement recommendations made in previous plans, including the 2018 Transportation Technical Study and 1982 Transportation Plan.



Agricultural Land in Warren County

Land Use & Zoning Updates

The scenario planning exercise and resultant recommendations made in this document assume land uses will remain the same, other than the specified light industrial sites. Other changes made to municipal land use and zoning regulations have the potential to mitigate traffic impacts from those discussed in the scenario planning, and thus potentially require fewer mitigations. The results of the scenario planning exercise should be shared with municipalities and considered in the context of land use and zoning updates. As per the modeling results, the county and municipalities should continue focusing growth through land use and zoning updates in the county's existing centers, helping maintain the rural character of other communities. Municipalities should work with the county and consider future land use and traffic scenario planning to best determine necessary traffic measures to ensure an efficient roadway network.

Complete Streets

Future planning should encourage the use of all modes through supportive non-motorized policies and studies to include:

- County Complete Street Policy
- Update county and municipal roadway design standards to accommodate safe biking and walking
- Countywide walk, bike, hike study

Climate Resiliency

Expected light industrial development and any corresponding residential development will have an impact on the county's environmental integrity, including runoff and stormwater issues. This is in addition to larger climate trends bringing about more extreme weather conditions. While these changes will not occur overnight, Warren County should be aware of these ongoing concerns when planning for and implementing transportation improvements. Climate change hazards can also impact the proper functioning of the county's transportation assets, including

roadways, public transit and airports. The county should consider "weather hardening" the most critical assets, such as bridges. Additionally, resiliency and stormwater measures should be utilized in municipal zoning codes, assuring that new developments and construction consider stormwater and resiliency needs. This is particularly important for parcels that are critical for development in these communities, including those to be used for affordable housing.

Several resources are available to become more aware of and incorporate climate change issues into the planning process including:

- The State of New Jersey Hazard Mitigation Plan (2014)
- NJTPA's Plan 2045 (2017)
- New Jersey Draft Climate Change Resilience Strategy (2021)
- New Jersey Climate Change Trends and Projections Summary (2013)
- NJDOT's Complete & Green Streets For All Model Complete Streets Policy & Guide (2019)

Though Warren County is not as prone to some of same climate hazards as other New Jersey communities (flooding along the Shore), the county is not immune to climate issues. Warren County should consider resiliency and stormwater issues when planning for transportation. The county is currently revising its hazard mitigation plan. The recommendations developed in the hazard mitigation plan and should work in tandem with this Warren County Transportation Plan, and future revisions of each should consider the other.

Stakeholder Coordination

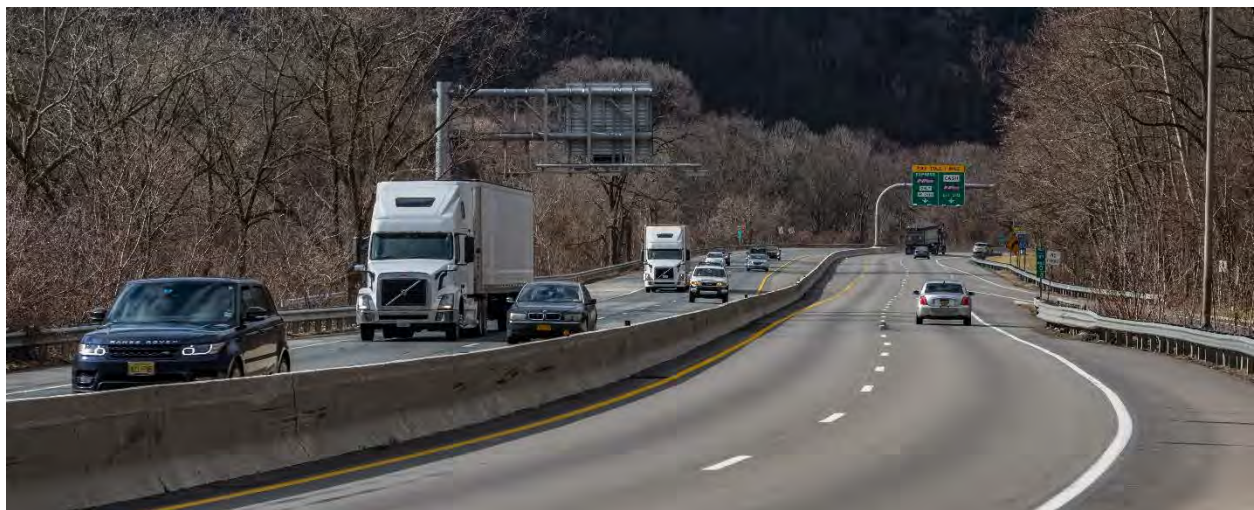
Future planning development should actively engage stakeholders. Depending on the location, scale and type of project, stakeholders can include residents, individuals employed in Warren County,

tourists/visitors, freight carriers, or those merely traveling through Warren County to reach their destinations. If social distancing restrictions continue to be mandated or recommended, innovative public outreach techniques should be utilized to encourage on-line and virtual participation. Particular attention should be paid to those stakeholders identified in the Equity Assessment/Environmental Justice analysis as these communities have been traditionally and historically underrepresented in planning matters and may have more difficulty having their voices heard. Though updated demographic and equity data will be made available each year through the United States Census, the equity assessment conducted as part of this study and included in Technical Memo 2.2 of Appendix B should serve as a resource for the county to target stakeholder input from these historically under presented communities. Accommodations should also be considered for these communities, including where, when and how public meetings are conducted.

Funding and Support

Warren County and its municipalities should work with the NJTPA, as appropriate, to receive planning support through NJTPA's Complete Streets Technical Assistance program. The NJTPA connects approximately ten communities each year with Sustainable Jersey and the Alan M. Voorhees Transportation Center to assist with Complete Streets training, program marketing, public education, technical assistance, and assistance with applying for grants. Eligible projects include walkable community workshops, bicycle corridor and network plans, demonstration project guidance and conceptual renderings. Additional funding opportunities for regional and subregional studies recommended earlier in this document may also be available from NJTPA.

NJDOT's Local Aid Resource Center helps connect counties and municipalities with consultants to provide guidance in grant applications, project planning, and project delivery. Guidance for both federal funding and state funding is available, including municipal aid, transit village, bikeways and walkways, local bridges and local freight impact funds, Safe Routes to School, and other transportation funding sources.



Interstate 80

6. Appendices

Appendix A: Implementation Matrix

Appendix B: Technical Memos

Technical Memo 1 – Vision and Goals

Technical Memo 2.1 – Previous Studies

Technical Memo 2.2 – Equity Assessment

Technical Memo 2.3 – WikiMap Assessment

Technical Memo 2.4 – Data Assessment

Technical Memo 3 – Model and Analysis

Technical Memo 4 - Recommendations

Appendix C: Public Outreach Materials

Appendix A



Implementation Matrix

The below implementation matrix (Table 30) is intended to help Warren County prioritize and track improvements. The following table includes only those improvements recommended in this 2021 Warren County Transportation Plan, both initially recommended here as well as those recommended in previous studies and reiterated here. Additional recommendations incorporated in this document include those originally proposed in the 2018 Warren County Transportation Plan Technical Transportation Study and the 2020 *Warren County Light Industrial Site Assessment*. Hundreds more recommendations have been proposed in the many studies conducted over the preceding decades throughout the county and are summarized and listed in Technical Memo 2.4 of Appendix B. For each recommendation listed in (Table 301730), information is provided for the general type, lead agency, and general cost estimate (on a scale of \$ to \$\$\$, with \$\$\$ being the most expensive). These are intended to be rough cost estimates with \$ projects costing less than \$500,000, \$\$ projects costing less than \$5,000,000 and \$\$\$ projects costing more than \$5,000,000. The “type” of improvement is intended to provide broad categorization of the recommendations though there can be substantial overlap between these types (for example, freight and roadway).



Rural Area in Oxford Township

Table 30: Implementation Matrix

Improvement	Type	Lead Agency	Cost
U.S. 22 Phillipsburg - Consolidate driveways	Roadway and Bridges	NJDOT	\$\$
U.S. 46/NJ 182/CR 517/CR 604 – Realign U.S. 46 westbound approach closer to perpendicular and curbing the reclaimed area	Roadway and Bridges	NJDOT	\$\$
U.S. 22/CR 638/CR 519 – Extend acceleration lanes and adjusting signal timing	Roadway and Bridges	NJDOT	\$
U.S. 22/CR 646 – Improve signage from U.S. 22 to signify the transition into a residential neighborhood and tightening the curve from U.S. 22 westbound on CR 646 northbound	Roadway and Bridges	NJDOT	\$
U.S. 22/CR 638 – Intersection safety improvements	Roadway and Bridges	NJDOT	\$\$
U.S. 22/CR 519 – Intersection safety improvements	Roadway and Bridges	NJDOT	\$\$
NJ 57/CR 629 – Intersection safety improvements	Roadway and Bridges	NJDOT	\$\$
U.S. 46/CR 519 – Intersection safety improvements	Roadway and Bridges	NJDOT	\$\$
I-78/U.S. 22/NJ 173 – intersection improvements	Roadways and Bridges	NJDOT	\$\$
Investigate feasibility of removing height restrictions from bridges	Roadway and Bridges	County, NJTPA	\$\$\$
Study feasibility of maintenance improvements, rehabilitation or replacement of the structurally deficient and functionally obsolete bridges in the County	Roadway and Bridges	County, NJTPA	\$\$\$
Conduct county-wide sidewalk inventory	Walking, Biking and Trails	County, NJTPA	\$
Provide resources for municipalities to conduct community walkability workshops and/or senior mobility workshops	Walking, Biking and Trails	County, NJTPA	\$
Encourage and collaborate with municipalities to address safety concerns, particularly bike/ped crashes in Phillipsburg, Hackettstown and Washington Borough	Walking, Biking and Trails	County, Municipalities	\$

Conduct a study to inventory and analyze the location and characteristics of scenic byways, trails and points of interest, including agritourism sites; making biking, walking and recreational infrastructure recommendations	Walking, Biking and Trails	County, NJTPA	\$
Adopt a County-wide Complete Streets Policy	Walking, Biking and Trails	County	\$
Encourage and provide resources for municipalities to adopt their own Complete Streets policies	Walking, Biking and Trails	County, Municipalities, NJTPA	\$
Encourage and provide resources for municipalities to develop bicycle and pedestrian master plans, particularly Phillipsburg, Hackettstown and Washington Borough including working with NJTPA, as appropriate, to receive planning support through Complete Streets Technical Assistance Program	Walking, Biking and Trails	County, Municipalities, NJTPA	\$
Conduct comprehensive trails/pedestrian plan	Walking, Biking and Trails	County, NJTPA	\$
Utilize the bicycle compatibility recommendations included in the Bicycle Facilities section beginning on page 43	Walking, Biking and Trails	County	\$\$
Investigate improving public transit access to key destinations such as Warren County Community College, schools and vocational high schools, Veterans Affairs New Jersey Health Care System, hospitals, grocery stores, and employment centers	Public Transportation	County, NJTPA	\$\$
Investigate offering extended and non-peak transit service for shift work, evenings and weekends	Public Transportation	County	\$\$
Work with NJ TRANSIT to provide information on transit service and schedules in various languages, as needed by County residents	Public Transportation	County	\$\$
Warren County should work with Hunterdon County and NJ TRANSIT to identify ways to mitigate capacity limitations at the Clinton Park & Ride	Public Transportation	County	\$\$
Investigate feasibility of restoring passenger rail service in northern part of County along the Lackawanna Cut-off	Public Transportation	NJ TRANSIT	\$\$\$
Investigate feasibility of implementing passenger rail service between Hackettstown and Phillipsburg along the Washington Secondary	Public Transportation	NJ TRANSIT	\$\$\$
Investigate feasibility of restoring passenger rail service to Phillipsburg along the Raritan Valley rail line from High Bridge (Hunterdon County)	Public Transportation	NJ TRANSIT	\$\$\$
Consider providing shuttle service along CR 519 and CR 632, connecting Alpha, Belvidere, Oxford and Washington Borough. Provide at least hourly and on weekends to maximize use of service	Public Transportation	County	\$\$\$

Conduct analysis of potentially widening CR 519 to two travel lanes in either direction and/or implementing intersection capacity improvements; also consider biking and walking infrastructure along corridor	Goods Movement	County	\$\$\$
Conduct analysis of widening segment of CR 620 between Belvidere and CR 519 from one to two travel lanes in either direction to accommodate the anticipated auto traffic expected to be generated due to site developments	Goods Movement	County	\$\$\$
U.S. 46/CR 519 – optimize signal timing, pull back stop bars and widen approaches to add turn lanes	Goods Movement	NJDOT	\$\$
CR 519/CR 623 – signalize intersection and widen all approaches to add turn lanes	Goods Movement	County	\$\$
CR 519/CR 620 – signalize intersection and widen all approaches to add turn lanes	Goods Movement	County	\$\$
CR 519/Foul Rift Road – signalize intersection, widen approaches to add turn lanes and consider adjusting turning radii to accommodate trucks	Goods Movement	County	\$\$
CR 519/CR 626 – signalize intersection and widen all approaches to add turn lanes	Goods Movement	County	\$\$
CR 519/CR 622 (Roxburg Station Road) – signalize intersection, widen all approaches to add turn lanes and consider adjusting turning radii to accommodate trucks	Goods Movement	County	\$\$
CR 519/CR 621 (Brainards Road) – signalize intersection, widen all approaches to add turn lanes and pull back stop bars	Goods Movement	County	\$\$
CR 519/CR 647 – widen all approaches to add turn lanes	Goods Movement	County	\$\$
CR 519/CR 646 – signalize intersection, widen all approaches to add turn lanes and pull back stop bars	Goods Movement	County	\$\$
CR 519/NJ 57 – widen all approaches to add turn lanes	Goods Movement	County	\$\$
CR 519/Strykers Road – signalize intersection	Goods Movement	County	\$
I-78/CR 632 – signalize intersection and consider adjusting turning radii to accommodate trucks	Goods Movement	NJDOT	\$\$
NJ 31/CR 632 – pull back stop bars	Goods Movement	NJDOT	\$
Conduct study specific to the need for truck parking, particularly for I-78 and I-80; consider cooperation and collaboration with other New Jersey counties with these routes	Goods Movement	County, NJDOT, NJTPA	\$
Consider use of Transportation Demand Management strategies	Goods Movement	County, NJTPA	\$

Pursue gateway treatments into Belvidere, Hackettstown, Oxford and Washington Borough	Gateway	County, Municipalities	\$\$
Make any necessary and/or desirable changes to municipal land use and zoning updates to mitigate negative impact of future development	Policy	Municipalities, County	\$
Implement "weather hardening" at the most critical transportation assets, such as bridges	Policy	County	\$\$\$
Utilize resiliency and stormwater measures in municipal zoning codes, assuring that new developments and construction consider stormwater and resiliency needs	Policy	County	\$
Consider developing a County Hazard Mitigation Plan	Policy	County	\$

Appendix B

Technical Memorandum 1: Goals and Vision

Warren County Transportation Plan

JANUARY 2021

Introduction

Warren County, in partnership with the NJTPA, is developing a long-range transportation plan to forge a vision for the future of the County's transportation network through 2045. The Warren County Transportation Plan (Plan) will identify recommendations and a phased implementation plan to address transportation needs, overcome challenges, and leverage opportunities across a broad range of projects, policies, and strategies.

Plan Goals

An early component of the development of the Plan was to review and update the goals from the Transportation Technical Study (TTS-2018), completed in 2018. The TTS-2018 goals were derived through a collaborative planning and engagement effort and drew upon several previous studies including the previous generation of the Transportation Technical Study (2004/2007) and the Warren County Strategic Growth Plan (2005).

The revised goals will be used to evaluate, screen, and prioritize the Plan's final recommended projects, policies, and strategies.

The Warren County Planning Department sought to initiate the development of the Plan by revisiting the TTS-2018 goals to ensure that an appropriately comprehensive, diverse, and historical perspective was applied to their development and formulation. The study team examined several key resources to undertake this effort, including the goals prepared for 1982 Warren County Transportation Plan and the 22 municipal master plans. The team worked directly with the Steering Advisory Committee to revisit and update the Plan goals with assistance from the Warren County Planning and Engineering Departments. Three discussion groups – including freight, public transit, and bicycle and pedestrian issues – were also convened to identify and evaluate key issues, needs, and opportunities.

Guidance from the Planning Department noted that the goals should be unique to transportation; reflect both current and historic priorities and needs; emphasize preservation of Warren County's rural and scenic qualities; incorporate emerging issues, technologies, and challenges; prioritize equity, safety, resilience, and access to opportunity; and use a multimodal approach to mobility and accessibility.

The team started with the following 12 goals from the TTS-2018:

1. Preserve and enhance the County's rural character
2. Focus growth and infrastructure in existing centers
3. Protect and enhance water quality and quantity
4. Maintain and improve the existing transportation system
5. Provide transportation choices that increase mobility and improve safety
6. Increase the resiliency of the County's infrastructure
7. Provide a mix of housing types

8. Increase educational and employment opportunities
9. Promote cooperation to advance mutual interests
10. Encourage state legislation to provide more local control over growth
11. Seek equitable outcomes for residents, landowners, and businesses
12. Monitor technological and economic trends

Key findings of the goals review and update included:

- References to growth and housing are frequently more land use-oriented than “unique to transportation” so these should be deleted or modified to focus more specifically on transportation and mobility
- References to equity, resilience, technology, and water quality are consistent with emerging trends, needs, and priorities

Comparison of TTS-2018 to the 1982 Master Plan found that:

- The TTS-2018 should and does more specifically reference mobility, access, and safety than the previous emphasis on highway expansion and motor vehicle travel
- The 1982 Master Plan included at least four goals specific to transportation system maintenance and expansion and these can be stated more succinctly to emphasize multimodal travel and network
- Plan goals should note the intended purpose of the cooperation and collaboration efforts, i.e. to advocate for enhanced local authority over the impacts of traffic impacting their roadways from new development

Comparison of TTS-2018 to the 22 municipal Master Plans and circulation elements found that:

- The TTS-2018 references to equity, resilience, technology, and water quality are more advanced than many municipal plans
- Local plans should be refreshed to reflect these and other emerging trends, needs, and priorities to ensure that the local transportation networks are more comprehensive, multimodal, and equitable
- Many local plans do include goals for system preservation and enhancements, as reflected in TTS-2018
- Most local plans emphasize the need to mitigate impacts of heavy trucks and regional through-travel, which is a theme of TTS-2018

Table 1 provides a detailed comparison of TTS-2018, 1982 Master Plan, and proposed revisions to the Plan goals.

Plan Goals

The final draft goals for the Warren County Transportation Plan, based on this assessment and the stakeholder collaboration efforts, are a more succinct and focused group of ten goals. They are:

1. Provide transportation infrastructure that is consistent with Warren County's rural character
2. Focus growth and infrastructure in existing centers
3. Minimize and mitigate environmental and stormwater impacts of transportation infrastructure
4. Maintain and improve the existing transportation system
5. Provide multimodal transportation choices that improve safety, mobility, and equity
6. Improve the resiliency of Warren County's transportation infrastructure
7. Improve access to education and employment opportunities
8. Promote cooperation and participation to advance mutual interests
9. Encourage state enabling legislation to provide municipalities and counties more authority over the impacts of traffic impacting their roadways from new development
10. Monitor and incorporate technological trends and innovations in transportation projects and strategies

Warren County Transportation Vision

Warren County is known for its scenic rural landscapes, prized farmlands, natural and historic assets, and desirable quality of life. The Warren County Transportations Plan is a collaborative and cooperative effort to preserve and enhance these qualities and provide multimodal transportation choices that improve safety, and mobility, and create a more equitable, sustainable, and resilient future.

Warren County stakeholders must work in a collaborative and concerted effort to implement the recommendations of the Plan, secure a fair share of state and regional transportation funding and resources, and achieve the Plan goals.

Table 1 – Goal Comparison and Draft Revised Goals

Transportation Technical Study 2018 (TTS)	1982 Master Plan Goals	Comparison: TTS Goals vs. 1982	Suggested Changes for Discussion	Revised Goals based on Stakeholder Collaboration
1. Preserve and enhance the County’s rural character	5. Include environmental concerns in the transportation planning process	TTS Goal 1 is more detailed and expansive than 1982 Plan Goal 5, but TTS Goal 1 should be more specific to transportation. Also recommend to combine TTS Goals 1 and 3	Change to: Minimize and mitigate environmental and stormwater impacts of transportation infrastructure	1. Provide transportation infrastructure that is consistent with Warren County's rural character
2. Focus growth and infrastructure in existing centers	6. Monitor growth and development patterns and adjust the transportation plan as required to accommodate unanticipated changes.	Both are similar but 1982 Plan Goal 6 is more directly related to land development than transportation	No Change to TTS Goal 2	2. Focus growth and infrastructure in existing centers
3. Protect and enhance water quality and quantity	None	TTS Goal 3 is new and not in 1982 Plan. TTS Goal 3 should be more specific to transportation. Also recommend to combine TTS Goals 1 and 3	Recommend to combine with TTS Goal 1 and delete TTS Goal 3	3. Minimize and mitigate environmental and stormwater impacts of transportation infrastructure
4. Maintain and improve the existing transportation system	1. Promote and maintain a highway system which provides for efficient movement of people and goods within and through the County 2. Upgrade and maintain the traffic safety characteristics of the County Road System 7. Continue to and add to the Warren County Highway Inventory 8. Maintain present level of service	TTS Goal 4 combines multiple related references from 1982 Plan (Goals 1,2,7, and 8); TTS Goal 4 is more efficiently stated	No Change to TTS Goal 4	4. Maintain and improve the existing transportation system
5. Provide transportation choices that increase mobility and improve safety	9. Improve commuter rail and bus services 10. Expand the availability and type of transportation systems for all residents	TTS Goal 5 combines and enhances 1982 Plan Goals 9 and 10. Should include reference to multimodal transportation and equity	Change to: Provide multimodal transportation choices that improve safety, mobility, and equity	5. Provide multimodal transportation choices that improve safety, mobility, and equity.
6. Increase the resiliency of the County’s infrastructure	None	TTS Goal 6 is new; emphasis on resilience not present in 1982 Plan Goals, Change increase to improve	Change to: Improve the resiliency of transportation infrastructure	6. Improve the resiliency of Warren County’s transportation infrastructure
7. Provide a mix of housing types		TTS Goal 7 is new and not in 1982 Plan	Recommend to delete: this Goal is not specific to transportation	remove
8. Increase educational and employment opportunities	None	TTS Goal 8 is new and not present in 1982 Plan. TTS Goal 8 should be more specific to transportation	Change to: Improve access to education and employment opportunities	7. Improve access to education and employment opportunities

Transportation Technical Study 2018 (TTS)	1982 Master Plan Goals	Comparison: TTS Goals vs. 1982	Suggested Changes for Discussion	Revised Goals based on Stakeholder Collaboration
9. Promote cooperation to advance mutual interests	3. Encourage the use of Federal and State funding for all major roadway improvements proposed 4. Coordinate improvements to existing facilities (... through partner coordination, collaboration, etc.) 11. Increase public participation in the overall transportation planning process for the County by creating a County Transportation Committee	TTS Goal 9 combines but is revised from 1982 Plan Goals 3, 4, and 11. Should include 1982 Goals reference to participating in the planning process	Promote stakeholder cooperation and participation to advance mutual interests	8. Promote cooperation and participation to advance mutual interests
10. Encourage state legislation to provide more local control over growth	None	TTS Goal 10 is new and not present in 1982 Plan	Recommend to delete: this Goal is not specific to transportation	9. Encourage state enabling legislation to provide municipalities and counties more authority over the impacts of traffic impacting their roadways from new development
11. Seek equitable outcomes for residents, landowners, and businesses	None	TTS Goal 11 is new and not present in 1982 Plan. Add equity to TTS Goal 5 instead of having a separate Goal for equity	Recommend to TTS Goal 11 and combine with Goal 5: Provide multimodal transportation choices that improve safety, mobility, and equity.	Remove and combine with Goal 5
12. Monitor technological and economic trends	None	TTS Goal 12 is new and not present in 1982 Plan. Replace "economic trends" with "innovation" and refer more specifically to transportation	Monitor and incorporate technological trends and innovations in transportation projects and strategies	10. Monitor and incorporate technological trends and innovations in transportation projects and strategies

Technical Memorandum 2: Needs Assessment

Warren County Transportation Plan

Tech Memo 2.1 Previous Studies

Tech Memo 2.2 Equity Assessment

Tech Memo 2.3 WikiMap

Tech Memo 2.4 Data Assessment

JANUARY 2021

Technical Memorandum 2.1: Previous Studies

Warren County Transportation Plan

SEPTEMBER 2020

Contents

Warren County Transportation Plan 3

Liberty Township Master Plan 3

Warren County Strategic Growth Plan-Transportation Technical Study..... 3

Knowlton Township Master Plan Reexamination Report..... 3

Washington Borough Downtown Redevelopment Plan..... 4

Phillipsburg Walkable Community Workshop Report 4

Morris/Warren County Rail Corridor Study 4

Phillipsburg Master Plan Reexamination Report 4

New Jersey Statewide Freight Plan 5

Plan 2045: Connecting North Jersey 5

Hackettstown Master Plan Reexamination Report..... 6

Mansfield Township Master Plan Reexamination Report 6

Morris Canal Greenway Corridor Study..... 6

Warren County Transportation Technical Study Update 6

Freight Rail Industrial Opportunities Corridor Program 6

Oxford Township Active Transportation Plan 7

White Township Proposed Master Plan Amendment..... 7

Warren County Light Industrial Site Assessment 7

2050 Freight Industry Level Forecasts Study 7

Introduction

Warren County, in partnership with the NJTPA, is developing a long-range transportation plan to forge a vision for the future of the County’s transportation network through 2045. The Warren County Transportation Plan (Plan) will identify recommendations and a phased implementation plan to address transportation needs, overcome challenges, and leverage opportunities across a broad range of projects, policies, and strategies.

To build upon existing knowledge, the project team consulted numerous Master Plans and planning studies undertaken by municipal, county, and regional entities concerning Warren County in recent years. These resources provided valuable information and background for analysis. This synergy will produce a more comprehensive and expansive set of recommendations. The breadth and detail of previous studies speak to the communities’ desire to continue to operate an effective and efficient transportation system while directing growth to existing centers.

This Previous Study summary includes additional studies that have been conducted since the 2018 Transportation Technical Study (TTS). An associated Previous Study Matrix is included with this document. This matrix lists location-specific recommendations from the studies listed below plus those reviewed in the 2018 TTS that have not yet been implemented. The selected studies (Table 1) were chosen based on recommendation from the study team, the scope of their focus, and their relevance to transportation planning in Warren County. Where available, municipal master plans were reviewed and summarized. The corresponding recommendations from each study in the associated Previous Study Matrix are identified under the “Matrix Number” column.

Table 1 - Studies Reviewed

Title	Year	Lead Jurisdiction	Matrix Number
Warren County Transportation Plan	1982	County	24
Liberty Township Master Plan	2003	Municipality	25
Warren County Smart Growth Plan-Transportation Technical Study	2004	County	1
Knowlton Township Master Plan Reexamination Report	2009	Municipality	*
Washington Borough Downtown Redevelopment Plan	2009	Municipality	27
Phillipsburg Walkable Community Workshop Report	2010	MPO	18
Morris/Warren County Rail Corridor Study	2013	MPO	14
Phillipsburg Master Plan Reexamination Report	2013	Municipality	23
New Jersey Statewide Freight Plan	2017	NJDOT	29
Plan 2045: Connecting North Jersey	2017	MPO	30
Hackettstown Master Plan Reexamination Report	2018	Municipality	31
Mansfield Township Master Plan Reexamination Report	2018	Municipality	32
Morris Canal Greenway Corridor Study	2018	MPO	33
Warren County Transportation Technical Study Update	2018	County	28
Freight Rail Industrial Opportunities Corridors Program	2019	MPO	34
Oxford Township Active Transportation Plan	2019	Municipality	35
White Township Proposed Master Plan Amendment	2019	Municipality	36
Warren County Light Industrial Site Assessment	2020	County	37
2040 Freight Industry Level Forecasts	2020	MPO	*

*Studies with an asterisk under “Matrix #” do not have any unfinished location-specific recommendations to include in the associated matrix

Warren County Transportation Plan

The 1982 Warren County Transportation Plan provided an orderly and timely plan for coordinated development of different transportation modes and identified deficiencies in present modes. Through the plan, the County Planning Board adopted 11 high-level goals and objectives (each with several sub-goals) for maintaining existing infrastructure and expanding network opportunities where feasible.

- Promote and maintain a highway system which provides for efficient movement of people and goods within and through the County
- Upgrade and maintain the traffic safety characteristics of the County Road System
- Encourage the use of Federal and State funding for all major roadway improvements
- Coordinate improvements to existing facilities
- Include environmental concerns in the transportation planning process
- Monitor growth and development patterns and adjust the transportation plan as required to accommodate unanticipated changes
- Continue to update and add to the Warren County Highway Inventory
- Maintain present level of service
- Improve commuter rail and bus service
- Expand the availability and type of transportation systems for all residents
- Increase public participation in the overall transportation planning process for the County by creating a County Transportation Committee

Liberty Township Master Plan

The Liberty Township Master Plan, revised in 2003 aims to focus growth in already developed neighborhoods while promoting transportation options with objectives including:

- Encourage a development pattern emphasizing pedestrian, non-motorized transportation
- Investigate the potential for use of traffic calming devices
- Promote pedestrian and bicycle travel through designation of bicycle lanes and pedestrian accessways
- Consider all existing right-of-way for use as pedestrian paths

Warren County Strategic Growth Plan-Transportation Technical Study

The 2004 Warren County Transportation Technical Study provided a key step in the development of the Warren County Smart Growth Plan. This study developed a land use and transportation model to test the impacts of land use decisions on the roadway network and predict future traffic levels. Existing zoning was compared with a centers-based land use scenario in which development was focused in three regional centers, and 22 local centers. The model determined a 35 percent reduction in vehicle miles traveled in the centers-based approach compared to future no-build conditions. Recommendations to preserve the transportation network's capacity and efficiency include restoring or extending passenger rail service along three corridors in the County, assessing fees related to the burden of future development on the transportation system, and improving site design and access management.

Knowlton Township Master Plan Reexamination Report

The Knowlton Township Master Plan Reexamination Report, published in 2009, revised its 1984 Master Plan with the consistent aim of retaining the community's rural and agricultural qualities. Primarily focused on land use, the report includes the goal of minimizing the impact of development on the local

road network and the need to create trail linkages. Since the previous reexamination, traffic flow at Exit 4 on I-80 was altered to facilitate truck u-turns; thus, reducing safety conflicts discussed in several previous plans.

Washington Borough Downtown Redevelopment Plan

Washington Borough's Downtown Development Plan was adopted in 2009 and created a comprehensive vision for a vibrant downtown. Much of the plan's focus was on zoning, land use, and design, although several transportation goals were listed including maximizing pedestrian connections, diverting traffic from residential streets, and creating parking regulations capable of supporting mixed-use development.

Phillipsburg Walkable Community Workshop Report

A Walkable Community Workshop with an associated document was completed in 2010 for the intersection of Roseberry Street and U.S. 22 in Phillipsburg. This location was chosen in part due to its inclusion in NJTPA's 2008 Regional Priority Update Study listing of high crash locations, and the presence of pedestrian-friendly land uses. Walkable Community Workshops consist of an introduction to local stakeholders, presentation of best practices for walkable communities, a guided walking audit of the study area, and small group discussions of proposed improvements. Recommendations for the intersection and adjacent street segments include constructing, widening, and increasing the setback of sidewalks where appropriate, and replacing existing pedestrian signal heads with new countdown signal heads with push buttons. Incorporation of an educational component was also highly advised. Subsequent to the study, the intersection was milled and paved and short lengths of cracked sidewalk on Roseberry Street were removed and replaced. A traffic signal was installed to enhance pedestrian safety at the intersection.

Morris/Warren County Rail Corridor Study

The 2013 Morris/Warren County Rail Corridor Study detailed the existing conditions of the 52 mile Washington Secondary/Morristown Line Corridor between Phillipsburg (Warren County) and Morristown (Morris County). Across the county, state and nation, upgrades to rail have not kept pace with the evolving demands of rail-served industries. In 1995, the Association of American Railroads issued a new standard which increased the maximum gross-weight-on-rail allowed per train car to 286,000 lbs (known as 286k) whereas the previous maximum was 263,000 lbs (263k). Due to vertical and weight constraints, much of the corridor is unable to cater to 17-foot tall 286k railcars, the standard designated by the Association of American Railroads in 1995. Up to 90 percent of revenue travel on the corridor are adversely affected by these limitations. This results in higher costs for local freight users, and less desirable sites for businesses. One vertical clearance constraint and three weight-restricted bridges were identified in Warren County along the rail corridor. It is estimated that three clusters along the corridor in Warren County have the potential to provide 1.6 million square feet of industrial space to rail served industries. The three clusters are in Phillipsburg, Washington Borough, and Mansfield. Together, these sites could bring thousands of jobs, and more than \$100 million dollars to local tax rolls. Preliminary concepts and costs were identified for upgrading these facilities to 286k standards.

Phillipsburg Master Plan Reexamination Report

Phillipsburg's 2004 Master Plan was further reviewed in 2013 with the release of the Phillipsburg Master Plan Reexamination Report. Several circulation issues identified in previous plans and reexaminations were found to continue being present including congestion on South Main Street, poor regional circulation, and through truck traffic on local streets.

The Reexamination described several initiatives that have been undertaken to improve these and other circulation concerns including adopting a municipal Complete Streets policy, and the completion of studies concerning three corridors. The summary of each included in this report is as follows:

- A study of U.S. 22 by Warren County resulted in a call for additional efforts to develop a comprehensive bicycle plan for the region with appropriate linkages to key activity generators.
- A group of three studies of I-78 by NJTPA focused on bus and commuter alternatives with the goal of improving transit service along the U.S. 22 and I-78 corridors. Recommendations include expanding park-and-ride capacity in the short-term and extending Raritan Valley Line commuter rail service in the long-term.
- A 2012 25-Year Action Plan of the Morris Greenway aimed to provide safe bike and pedestrian access along the canal while promoting historic awareness. This study was complemented by the subsequently discussed 2018 Morris Canal Greenway Study.

New Jersey Statewide Freight Plan

The 2017 NJDOT Statewide Freight Plan presents a comprehensive framework to address freight's challenges and opportunities, improve New Jersey's freight transportation system, and strengthen the State's economic competitiveness. The plan provides a blueprint for NJDOT investment, identifying discrete projects that immediately address critical freight system improvements. The document is an update of the 2007 plan. Several potential projects in Warren County were identified including improvements to portions of U.S. 22, I-78 and I-80, and removing rail 286k height and rail constraints.

Plan 2045: Connecting North Jersey

NJTPA's Long Range Transportation Plan "Plan 2045: Connecting North Jersey," completed in 2017 aims to lay out a plan for transportation infrastructure improvements for the next 25+ years. Goals of the plan's initiatives include:

- Protect and improve natural ecosystems, the built environment and quality of life.
- Provide affordable, accessible and dynamic transportation systems responsive to all current and future travelers.
- Retain and increase economic activity and competitiveness.
- Enhance system coordination, efficiency, overall safety and connectivity for people and goods across all modes of travel.
- Maintain a safe, secure and reliable transportation system in a state of good repair.
- Create great places through select transportation investments that support the coordination of land use with transportation systems.
- Improve overall system safety, reducing serious injuries and fatalities for all travelers on all modes.

Demographic, transportation, and technology trends most impacting the NJTPA region were identified. Specific trends most affecting Warren County include an aging population, long commute times, and limited bus and rail service. After reviewing these trends, the plan details performance-based funding scenarios and a set of nine Regional Capital Investment Strategy (RCIS) principles to guide project funding going forward. These principles include moving freight more efficiently, supporting walking and biking, and managing incidents and applying transportation technology. Twenty-nine near and mid-term road, highway, and transit projects within Warren County are also provided.

Hackettstown Master Plan Reexamination Report

The Hackettstown Township Master Plan Reexamination Report, published in 2018, revised its 1978 Master Plan after several reexaminations in the intervening years. The plan encourages the preservation and revitalization of the historic center and older residential neighborhoods as well as the mending of downtown traffic circulation difficulties that coordinate with County and State initiatives, providing off-street parking, and limiting driveway access. Additional recommendations include providing a continuous trail along the Musconetcong River, developing wayfinding signage, encouraging filling in sidewalk gaps, and preparing a bike and pedestrian master plan.

Mansfield Township Master Plan Reexamination Report

The Mansfield Township Master Plan Reexamination Report, published in 2018, represented a revision of its 1999 Master Plan. The study found minimal changes in the land use characteristics and demographics of the Township from the previous reexamination. Concordant with the aim to focus any growth into areas with existing infrastructure, the study cited the goal of protecting the township's rural road system by restricting more intense development and regional traffic to County and collector roads.

Morris Canal Greenway Corridor Study

NJTPA's 2018 Morris Canal Greenway Corridor Study established an implementation-focused plan to develop the full 102-mile Morris Canal corridor as a greenway while preserving the area's historic, recreational and scenic resources, and leveraging the greenway to enhance local communities. Traveling through six New Jersey counties, the Canal terminates in Phillipsburg. The study developed both short and long-term trail alignments while aiming to develop as much off-road trail as possible. Several trail typologies were developed based on immediate surroundings and land uses. Warren County currently has 13.5 miles of the Morris Canal Greenway developed, all off-road; the most of any county. In Warren County, the plan calls for an additional 21.2 miles, only 5.7 miles of which would be on-road, primarily in the densely settled boroughs of Washington and Phillipsburg.

Warren County Transportation Technical Study Update

The 2018 Warren County Transportation Technical Study represents the first phase of updating the 2004 transportation plan element of Warren County's Master Plan. This phase involved gathering data, defining methodologies, evaluating existing conditions, and establishing goals and priorities. A review of transportation and demographic trends found a significant increase in the non-white, Hispanic, and foreign-born communities, and a need for more robust, accessible, and affordable mobility options. The study concludes with the recommendation of three alternative future scenarios for testing using NJTPA's travel demand model and comparing it to baseline conditions using a 2045 build year in a subsequent study phase (this study).

Freight Rail Industrial Opportunities Corridor Program

The 2019 Freight Rail Industrial Opportunities Corridor Program creates a program fostering collaboration among public and private entities to address physical barriers to freight access of industrial properties along select rail corridors. Seven corridors in New Jersey were selected based on the presence of physical restrictions and requests from businesses to eliminate such barriers. Six weight and two height restrictions were found along the Morris/Warren Corridor extending between Morris and Warren Counties. Eight hundred acres of industrial opportunity space are available along this corridor in Warren County. Between the two counties, upgrades to the rail corridor to allow 286k railcars could lead to more than 9,000 local jobs and \$650 million dollars in tax revenue.

Oxford Township Active Transportation Plan

Oxford Township completed an Active Transportation Plan in 2019. The plan assesses existing biking and walking conditions in Oxford Township and defines a vision for the future of active transportation in the township, providing a framework to guide investment decisions. Several conceptual intersection planning designs and off-road trail alignments are provided in the plan.

White Township Proposed Master Plan Amendment

White Township proposed amending its Master Plan in 2019, maintaining its circulation plan goal to provide a safe, efficient circulation system consistent with the character of the township. Supplementing the master plan amendment was an assessment of potential traffic impacts along Belvidere Rd (CR 519) spurred by residential uses in the Industrial and Light Industrial zoned areas. The traffic model determined the need for substantial infrastructure improvements in the Build Condition, including the addition of travel lanes and three signalized intersections.

Warren County Light Industrial Site Assessment

The Warren County Light Industrial Site Assessment was completed in 2020 to understand the potential long-term impact of warehousing and distribution development in the County. Based on the location of existing clusters of parcels zoned for industrial use, 15 sites were selected for analysis. 2045 no-build and build condition traffic volumes were extrapolated from existing volumes to determine the impact of industrial development on the roadway network. Under build conditions, nearly every intersection analyzed was projected to operate with a Level of Service F. Potential measures that would be necessary to mitigate the impacted intersections were identified, including restriping of lanes at intersections to facilitate turns, installing traffic signals, and pushing back stop bars. To maintain an acceptable level of service under the analyzed build-out condition, CR 519 would also need to be widened to two lanes in each direction. Several transportation demand management approaches were also identified to mitigate traffic impacts, including staggering worker shifts at the industrial sites and increasing the use of freight rail for goods movement where possible to reduce roadway freight volumes.

2050 Freight Industry Level Forecasts Study

The 2050 Freight Industry Level Forecasts, published in 2020 developed estimates of current and projected future freight demand in the NJTPA region to the year 2050. This data will help NJTPA and its member agencies identify the location and type of existing and future goods movements as well as inform which strategic investments should be considered to support economic development and resiliency. Estimates of freight traffic and site locations were gathered from several sources and used to forecast traffic and employment through a Freight Forecasting Tool. Across the region, e-commerce sales are expected to represent 47% of retail sales in 2050, up from 11% in 2019. Despite the increase in e-commerce sales, forecasted employment in freight generating industries is expected to slightly decline. E-commerce packages in Warren County is expected to increase more than 300% between now and 2050, consistent with regionwide trends.

Technical Memorandum 2.2: Equity Assessment

Warren County Transportation Plan

DECEMBER 2020

INTRODUCTION

The purpose of the Equity Assessment is to ensure that all people are treated fairly and are meaningfully involved in the development and implementation of a project regardless of race, color, origin, or income. Concern that a minority and/or low-income population might disproportionately bear potential adverse environmental and health impacts from a project led to the issuance of Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. EO 12898 makes environmental justice a core mission of projects funded by Federal agencies.

The Equity Assessment is focused on the following characteristics:

1. Poverty-measured at household level
2. Racial Minorities-measured at population level
3. Limited English Proficiency-measured at household level
4. National Origin-measured at population level
5. Auto Accessibility-measured at household level
6. Disabilities-measured at population level
7. Age-measured at population level

Several of the variables were also reviewed for Warren County's 2018 Transportation Technical Study. Where applicable, comparisons to the data are made. Data for the 2018 study was gathered from the Environmental Protection Agency's EJ Screening tool, whereas more recent data was gathered from the United States Census' website.

Identifying the location of vulnerable populations will assist with the public outreach process in assuring all communities are reached out to and heard. Additionally, locations with significant populations of vulnerable populations will be more greatly considered while developing recommendations.

Equity Assessment Methodology

Data for each of the variables was gathered from the United States Census' 2018 Five-Year American Community Survey, the most recent five-year dataset available at the census tract level. In addition to elaborating upon the results of the analysis and comparing data at the census tract, county, state and national levels, details of each variable's methodology is provided.

Assessment Summary

As per the Census data, Warren County has a significantly lower portion of the population living in poverty, being a racial minority, having limited English proficiency, having been born outside of the United States, and lacking automobile access than state and national figures and a similar rate of residents with disabilities. Despite lower comparative rates of vulnerable populations, higher proportions of vulnerable populations were mainly found in Hackettstown and Phillipsburg.

1. Poverty

The United States Census counts the number of households living below the federal poverty level. A smaller portion of Warren County households live in poverty compared to state and national figures. Additionally, the poverty rate across all three geographies did not change since the 2018 study was conducted. Several census tracts in the county have a poverty rate above the state or national rates, particularly in the County’s more densely populated communities of Phillipsburg and Hackettstown. Poverty figures are provided in Table 1, and Table 2 and mapped in Figure 1.

Table 1: Poverty Comparisons

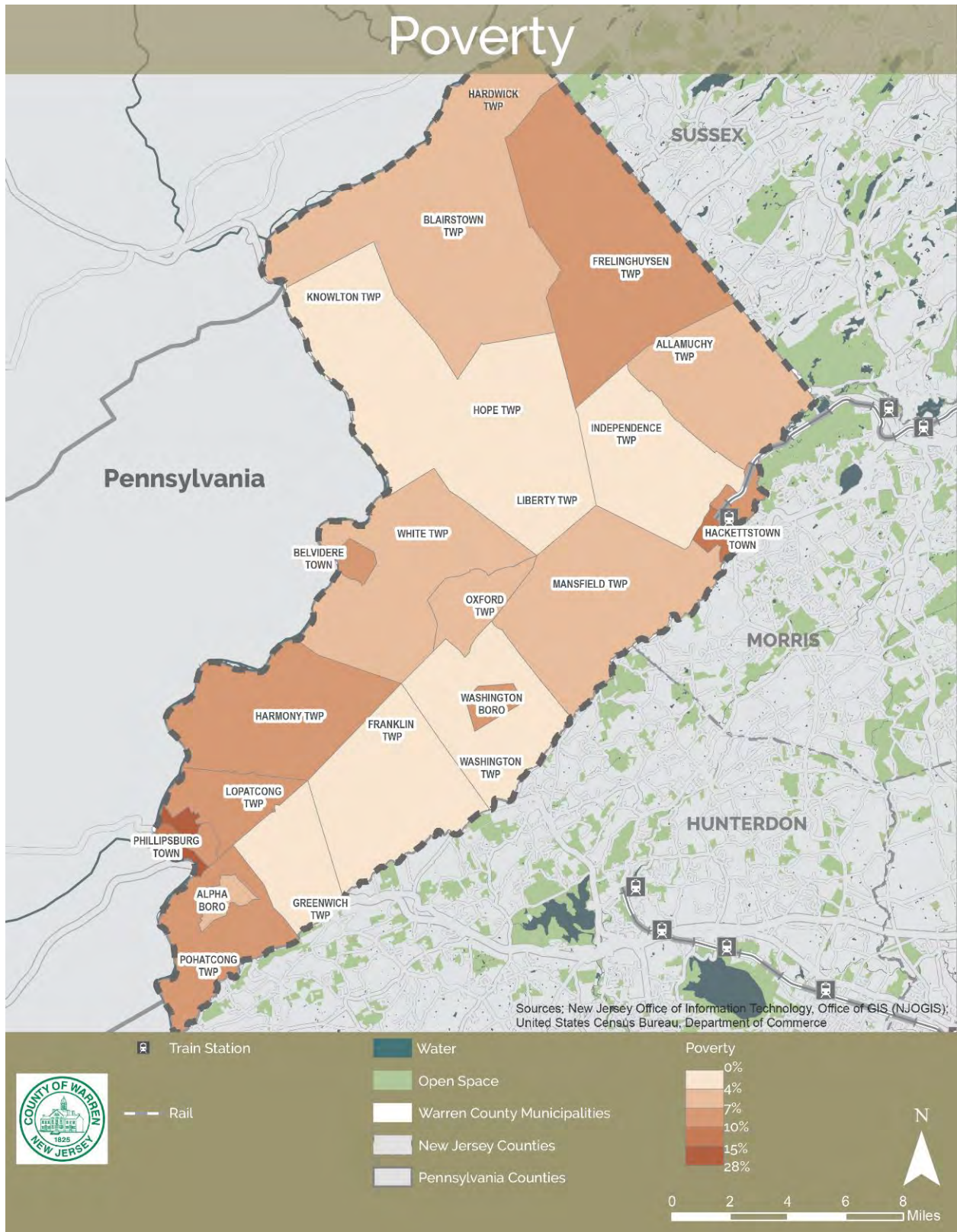
	Warren County	State	USA
2018 Report	8%	14%	10%
2020 Report	8%	14%	10%

Table 2: Poverty at the Census Tract Level

Municipality	Tract	Households Below Poverty Level*
Allamuchy	313.02	5.7%
Alpha	324	5.0%
Belvidere	317	7.9%
Blairstown	311.01	4.9%
Franklin	321.01	3.4%
Frelinghuysen	311.02	8.2%
Greenwich	321.02	2.6%
Hackettstown	314.01	9.8%
Hackettstown	314.02	14.7%
Harmony	318	7.3%
Independence	313.01	3.9%
Knowlton	312	2.8%
Lopatcong	322	9.9%
Mansfield	315	6.4%
Oxford	316.02	5.7%
Phillipsburg	306	20.3%
Phillipsburg	307	14.0%
Phillipsburg	308	8.6%
Phillipsburg	309	27.0%
Pohatcong	323	7.1%
Washington Boro	320	7.4%
Washington Township	319	3.6%
White	316.01	4.7%
Warren County		7.8%

**Values more than 10% greater than the county average are highlighted in red*

Figure 1



2. Racial Minority

Racial minority population is defined as any individual not identifying as “only white.” The percentage of racial minorities in Warren County increased from 2018 to 2020 and remained significantly lower than State and nationwide averages. Several census tracts have racial minority populations significantly greater than the County rate including the densely populated communities of Phillipsburg, Hackettstown and Washington Boro. Racial minority figures are provided in Table 3 and Table 4 and mapped in Figure 2.

Table 3: Racial Minority Comparisons

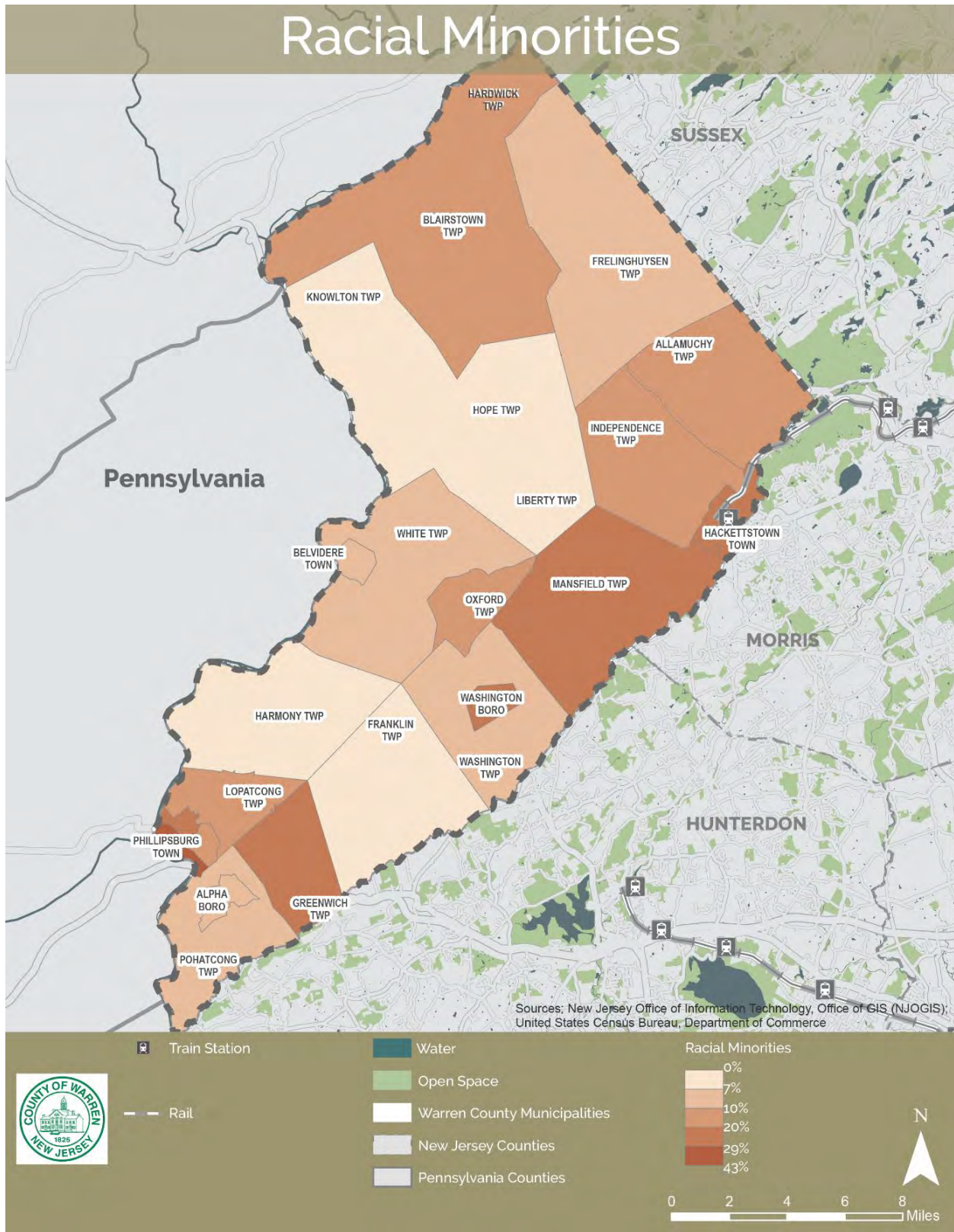
	Warren County	State	USA
2018 Report	16%	42%	37%
2020 Report	21%	44%	39%

Table 4: Racial Minorities at the Census Tract Level

Municipality	Tract	Racial Minorities*
Allamuchy	313.02	12.7%
Alpha	324	10.0%
Belvidere	317	8.1%
Blairstown	311.01	16.8%
Franklin	321.01	5.9%
Frelinghuysen	311.02	9.3%
Greenwich	321.02	21.9%
Hackettstown	314.01	28.6%
Hackettstown	314.02	24.3%
Harmony	318	5.5%
Independence	313.01	16.8%
Knowlton	312	6.6%
Lopatcong	322	19.0%
Mansfield	315	24.1%
Oxford	316.02	12.4%
Phillipsburg	306	27.8%
Phillipsburg	307	33.2%
Phillipsburg	308	20.0%
Phillipsburg	309	42.5%
Pohatcong	323	7.9%
Washington Boro	320	24.5%
Washington Township	319	7.5%
White	316.01	8.0%
Warren County		20.6%

**Values more than 10% greater than the county average are highlighted in red*

Figure 2



3. Limited English Proficiency

Households with limited English proficiency are defined as a household in which all members 14 years and over speak English less than “very well.” The percentage of limited English proficiency households in Warren County remained the same between 2018 and 2020 and is lower than rates across New Jersey and the country. Several census tracts have a rate of limited English proficiency households significantly higher than the County rate including the densely populated communities of Phillipsburg, Hackettstown and Washington Boro. Limited English proficiency figures are provided in Table 5 and Table 6 and mapped in Figure 3.

Table 5: Limited English Proficiency at the Census Tract Level

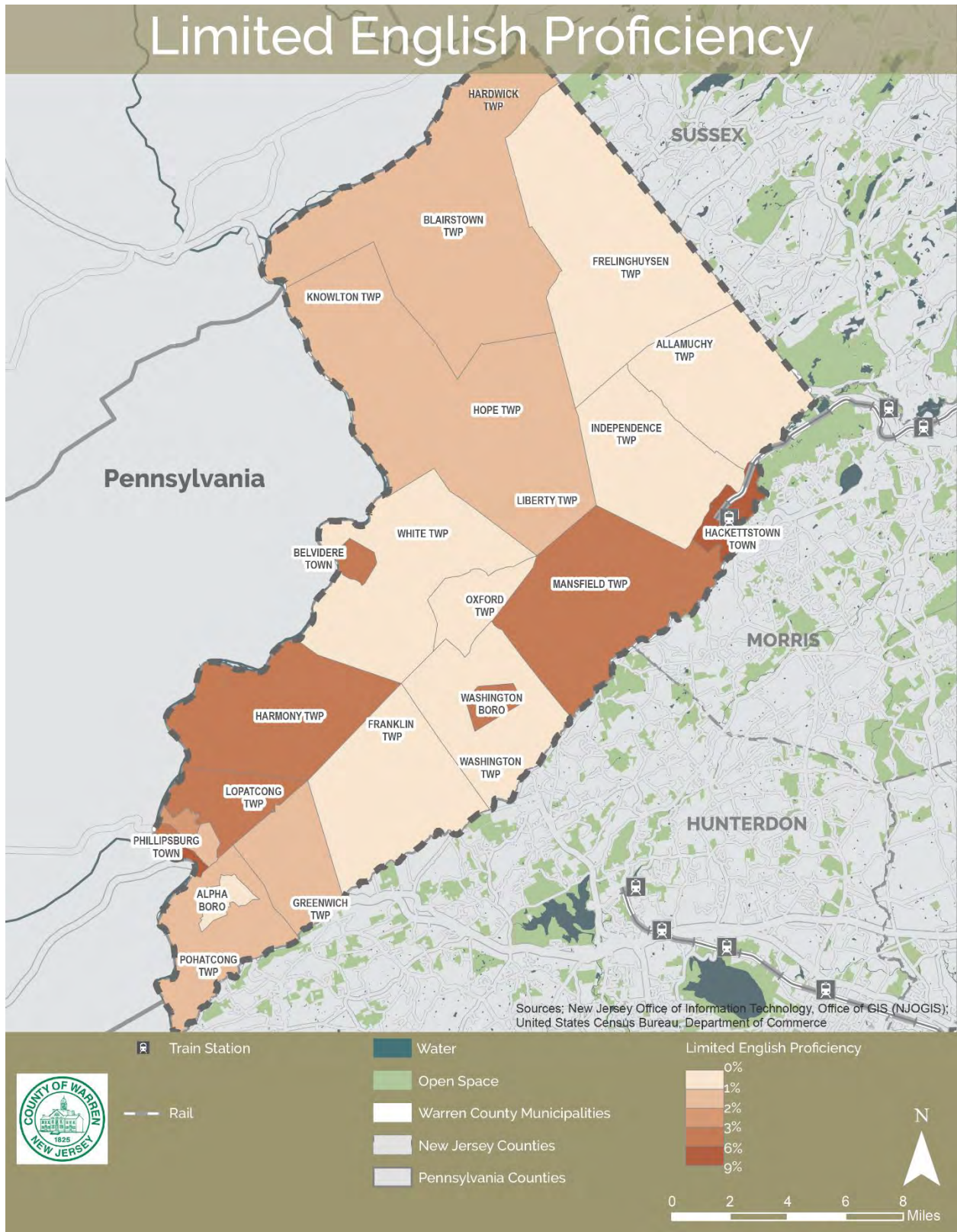
Municipality	Tract	Limited English Proficiency*
Allamuchy	313.02	0.2%
Alpha	324	0.5%
Belvidere	317	3.5%
Blairstown	311.01	1.1%
Franklin	321.01	0.5%
Frelinghuysen	311.02	0.0%
Greenwich	321.02	1.5%
Hackettstown	314.01	7.6%
Hackettstown	314.02	8.1%
Harmony	318	5.2%
Independence	313.01	0.8%
Knowlton	312	1.5%
Lopatcong	322	3.6%
Mansfield	315	4.6%
Oxford	316.02	0.3%
Phillipsburg	306	2.1%
Phillipsburg	307	5.6%
Phillipsburg	308	1.7%
Phillipsburg	309	6.9%
Pohatcong	323	1.3%
Washington Boro	320	3.5%
Washington Township	319	0.0%
White	316.01	0.7%
Warren County		2.6%

**Values more than 10% greater than the county average are highlighted in red*

Table 6: Limited English Proficiency at the Census Tract Level

	Warren County	State	USA
2018 Report	3%	7%	5%
2020 Report	3%	7%	4%

Figure 3



4. Non-Native Born Population

Significantly fewer Warren County residents were born outside of the United States than rates for New Jersey and the United States. Several census tracts have a significantly higher rate of people born outside of the United States than the county and national rates including the densely populated communities of Phillipsburg, and Hackettstown. Non-native born population figures are provided in Table 7 and Table 8 and mapped in Figure 4.

Table 7: Non-Native Born Population at the Census Tract Level

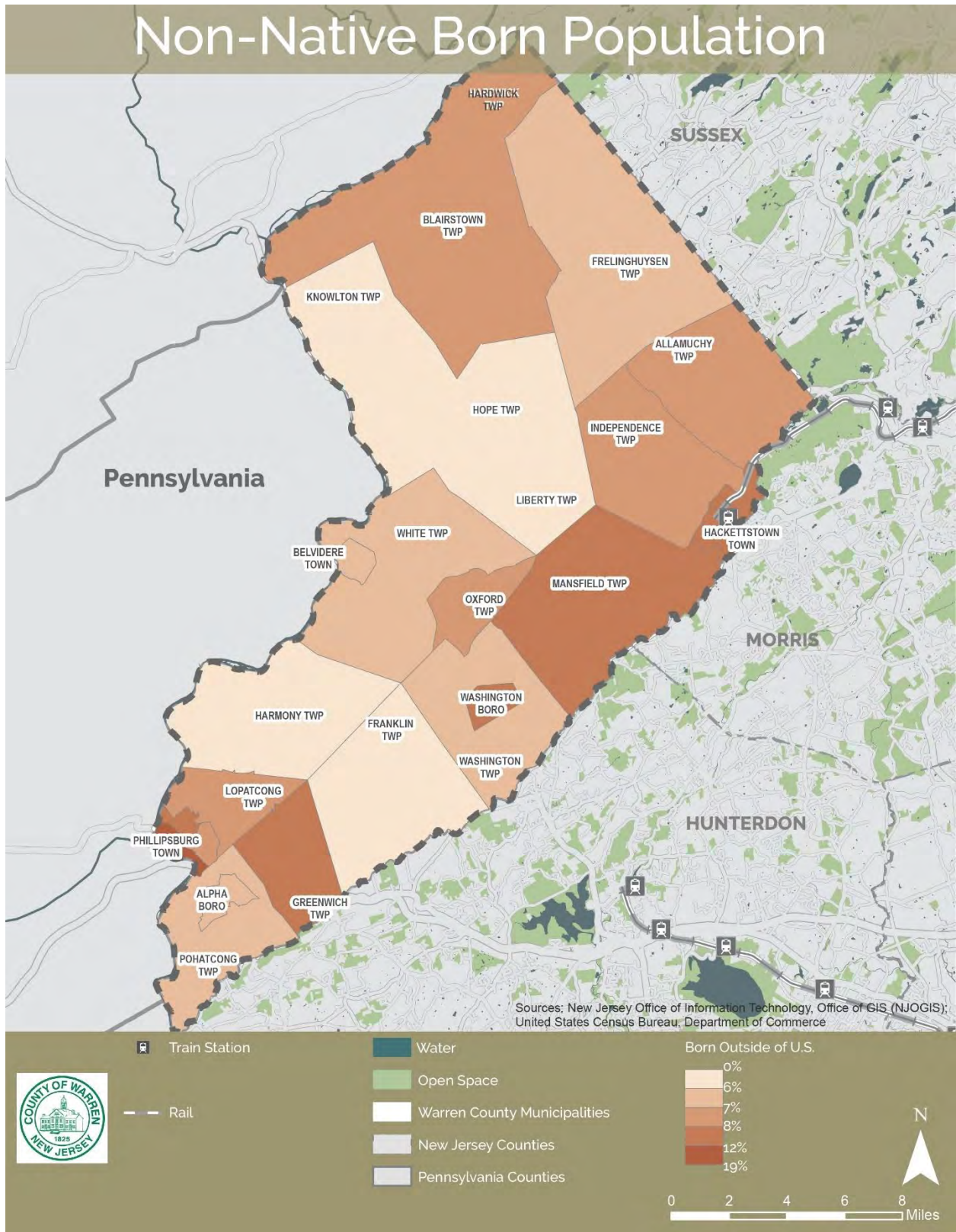
Municipality	Tract	Non-Native Born*
Allamuchy	313.02	5.7%
Alpha	324	5.0%
Belvidere	317	7.9%
Blairstown	311.01	4.9%
Franklin	321.01	3.4%
Frelinghuysen	311.02	8.2%
Greenwich	321.02	2.6%
Hackettstown	314.01	9.8%
Hackettstown	314.02	14.7%
Harmony	318	7.3%
Independence	313.01	3.9%
Knowlton	312	2.8%
Lopatcong	322	9.9%
Mansfield	315	6.4%
Oxford	316.02	5.7%
Phillipsburg	306	11.0%
Phillipsburg	307	7.9%
Phillipsburg	308	8.0%
Phillipsburg	309	27.0%
Pohatcong	323	7.1%
Washington Boro	320	7.4%
Washington Township	319	3.6%
White	316.01	4.7%
Warren County		9.6%

**Values more than 10% greater than the county average are highlighted in red*

Table 8: Non-Native Born Population Comparison

	Warren County	State	USA
2020 Report	10%	22%	14%

Figure 4



5. Automobile Access

The United States Census counts the number of households without access to an automobile. A smaller portion of Warren County households lack access to an automobile than the State and Country. Several census tracts have significantly higher rates of no automobile access than the County average including parts of Hackettstown and Phillipsburg. Automobile access figures are provided in Table 9 and Table 10 and mapped in Figure 5.

Table 9: Auto Accessibility at the Census Tract Level

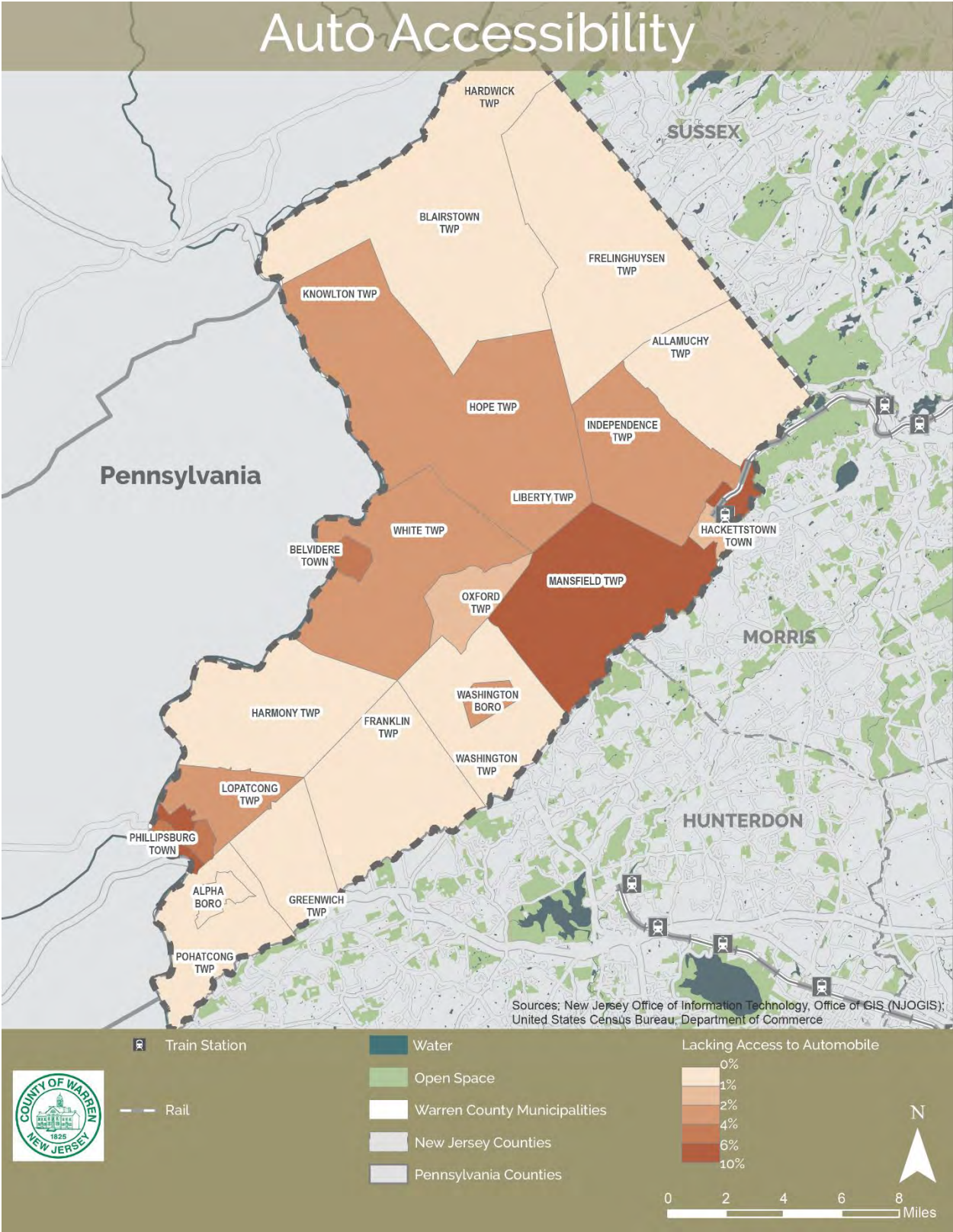
Municipality	Tract	Households without Automobile Access*
Allamuchy	313.02	1.0%
Alpha	324	0.6%
Belvidere	317	4.4%
Blairstown	311.01	0.8%
Franklin	321.01	0.0%
Frelinghuysen	311.02	0.2%
Greenwich	321.02	0.2%
Hackettstown	314.01	9.2%
Hackettstown	314.02	2.0%
Harmony	318	0.0%
Independence	313.01	3.4%
Knowlton	312	3.0%
Lopatcong	322	2.8%
Mansfield	315	6.3%
Oxford	316.02	1.8%
Phillipsburg	306	6.7%
Phillipsburg	307	4.6%
Phillipsburg	308	4.8%
Phillipsburg	309	8.4%
Pohatcong	323	0.0%
Washington Boro	320	3.4%
Washington Township	319	0.8%
White	316.01	4.0%
Warren County		3.1%

*Values more than 10% greater than the county average are highlighted in red

Table 10: Households without Automobile Access Comparisons

	Warren County	State	USA
2020 Report	3%	6%	4%

Figure 5



6. Disabilities

The United States Census counts the number of individuals with a physical or cognitive disability. Warren County has a higher rate of disabled residents than the State and the same rate as the national average. Several census tracts have a higher rate of disabled residents than the County average including most of Phillipsburg, White, Oxford, Belvidere and Alpha. Disability figures are provided in Table 11 and Table 12 and mapped in Figure 6.

Table 11: Disabilities at the Census Tract Level

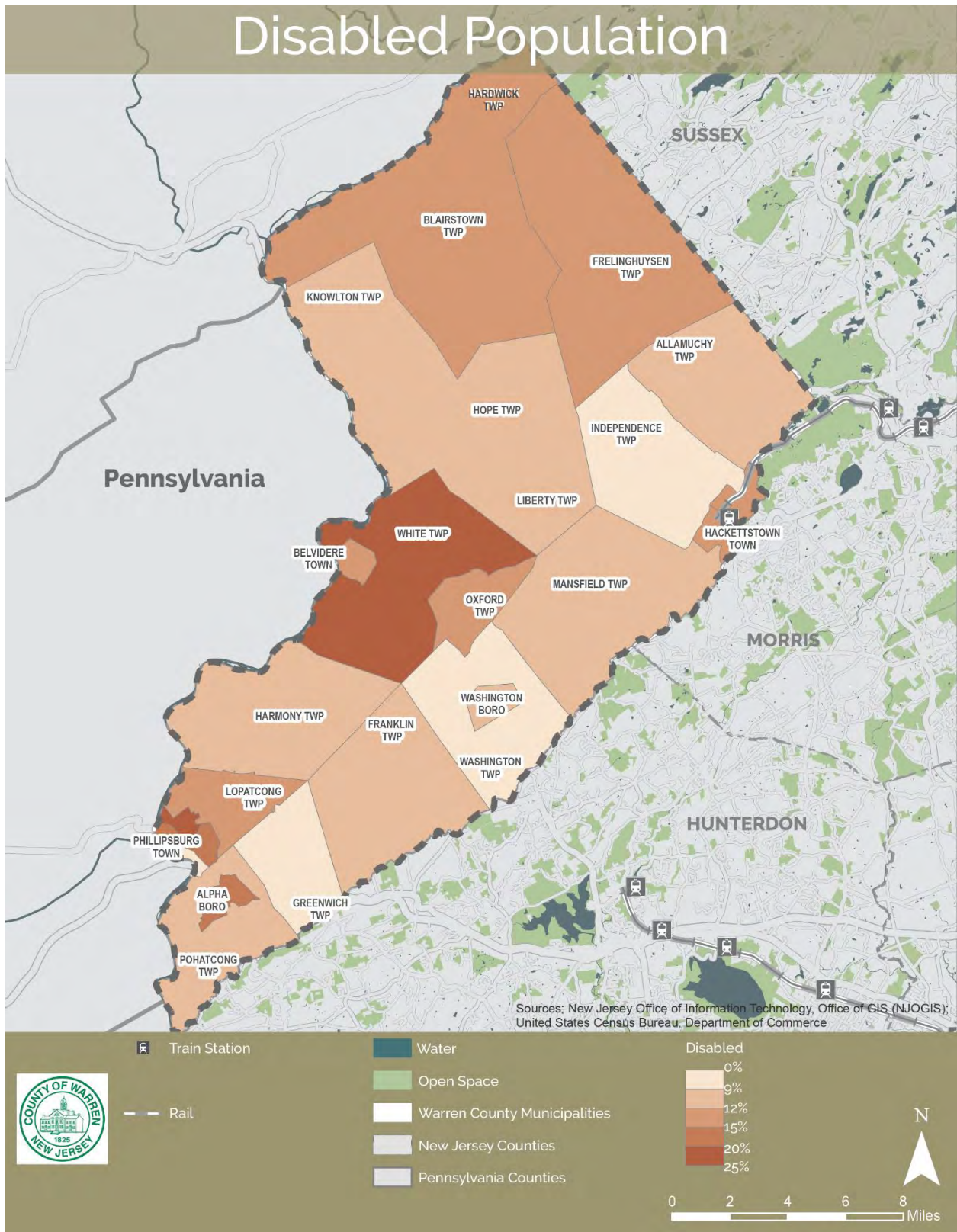
Municipality	Tract	Disabled*
Allamuchy	313.02	9.2%
Alpha	324	17.3%
Belvidere	317	15.0%
Blairstown	311.01	14.1%
Franklin	321.01	11.8%
Frelinghuysen	311.02	13.4%
Greenwich	321.02	7.6%
Hackettstown	314.01	13.1%
Hackettstown	314.02	13.0%
Harmony	318	9.9%
Independence	313.01	6.8%
Knowlton	312	10.5%
Lopatcong	322	14.4%
Mansfield	315	11.0%
Oxford	316.02	15.0%
Phillipsburg	306	21.5%
Phillipsburg	307	19.3%
Phillipsburg	308	17.2%
Phillipsburg	309	8.0%
Pohatcong	323	11.5%
Washington Boro	320	10.7%
Washington Township	319	8.4%
White	316.01	23.2%
Warren County		13.4%

**Values more than 10% greater than the county average are highlighted in red*

Table 12: Disabilities Comparisons

	Warren County	State	USA
2018 Census	13%	10%	13%

Figure 6



7. Age

The United States Census tabulates the age of each person and provides data points for several age ranges, including children and the elderly (defined as 65 years and older). Warren County has a similar rate of the population being under five, five to 17, and over 65 as the State and nationwide averages though there is a wide variation in these figures between census tracts in the County. The more densely populated communities of Belvidere and Phillipsburg have higher rates of the population being under five years old. These two municipalities, in addition to Greenwich, have high rates of the population being between five and 17 years old. Additionally, the less densely populated townships of Allamuchy, Blairstown, and White have high rates of senior residents. Age figures are provided in

Table 13 and Table 14, and each of the three age-related data points are mapped in Figure 7, Figure 8, and Figure 9.

Table 13: Age Comparisons

		Warren County	State	USA
2018 Census	Population Under 5	5%	6%	6%
	Population 5-17	16%	16%	17%
	Elderly Population	17%	16%	15%

Table 14: Age at the Census Tract Level

Municipality	Tract	Population Under 5	Population 5-17	Elderly Population
Allamuchy	313.02	3.7%	13.2%	22.7%
Alpha	324	5.3%	12.3%	20.6%
Belvidere	317	8.3%	18.8%	13.0%
Blairstown	311.01	3.5%	15.6%	23.4%
Franklin	321.01	6.1%	15.5%	15.5%
Frelinghuysen	311.02	5.2%	15.8%	19.4%
Greenwich	321.02	4.7%	20.3%	10.2%
Hackettstown	314.01	5.9%	15.5%	17.2%
Hackettstown	314.02	5.8%	13.6%	16.4%
Harmony	318	3.1%	13.9%	16.5%
Independence	313.01	3.5%	14.2%	13.9%
Knowlton	312	3.9%	15.2%	16.5%
Lopatcong	322	4.2%	16.3%	21.2%
Mansfield	315	6.3%	15.8%	15.5%
Oxford	316.02	2.2%	19.1%	15.0%
Phillipsburg	306	4.9%	13.2%	18.5%
Phillipsburg	307	4.2%	18.4%	11.5%
Phillipsburg	308	7.3%	17.9%	16.0%
Phillipsburg	309	3.9%	25.2%	8.6%

Municipality	Tract	Population Under 5	Population 5-17	Elderly Population
Pohatcong	323	6.1%	15.3%	15.3%
Washington Boro	320	5.5%	15.0%	11.1%
Washington Township	319	2.3%	18.5%	15.1%
White	316.01	2.3%	8.0%	38.2%
Warren County		4.6%	15.8%	17.2%

**Values more than 10% greater than the county average are highlighted in red*

Figure 7

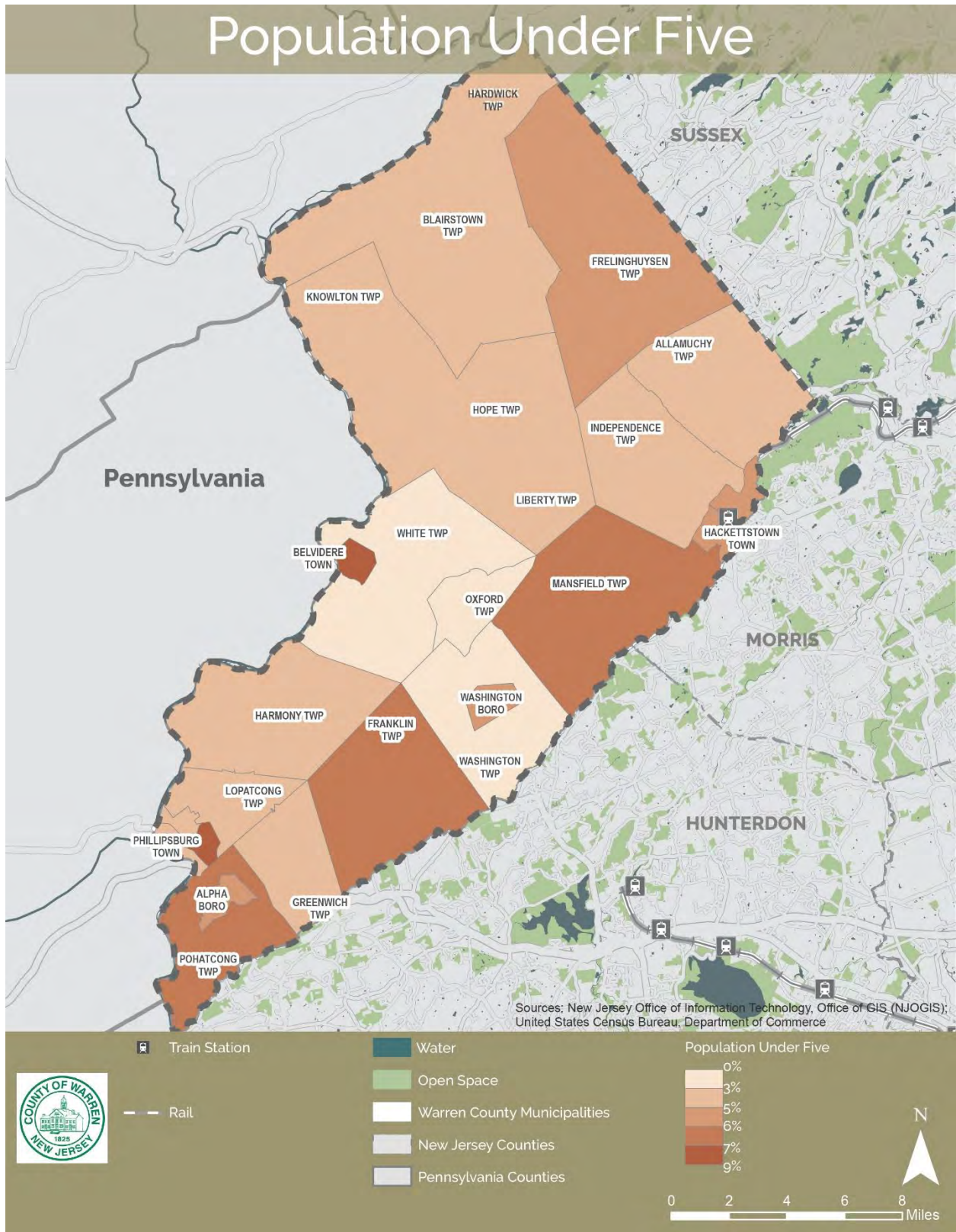


Figure 8

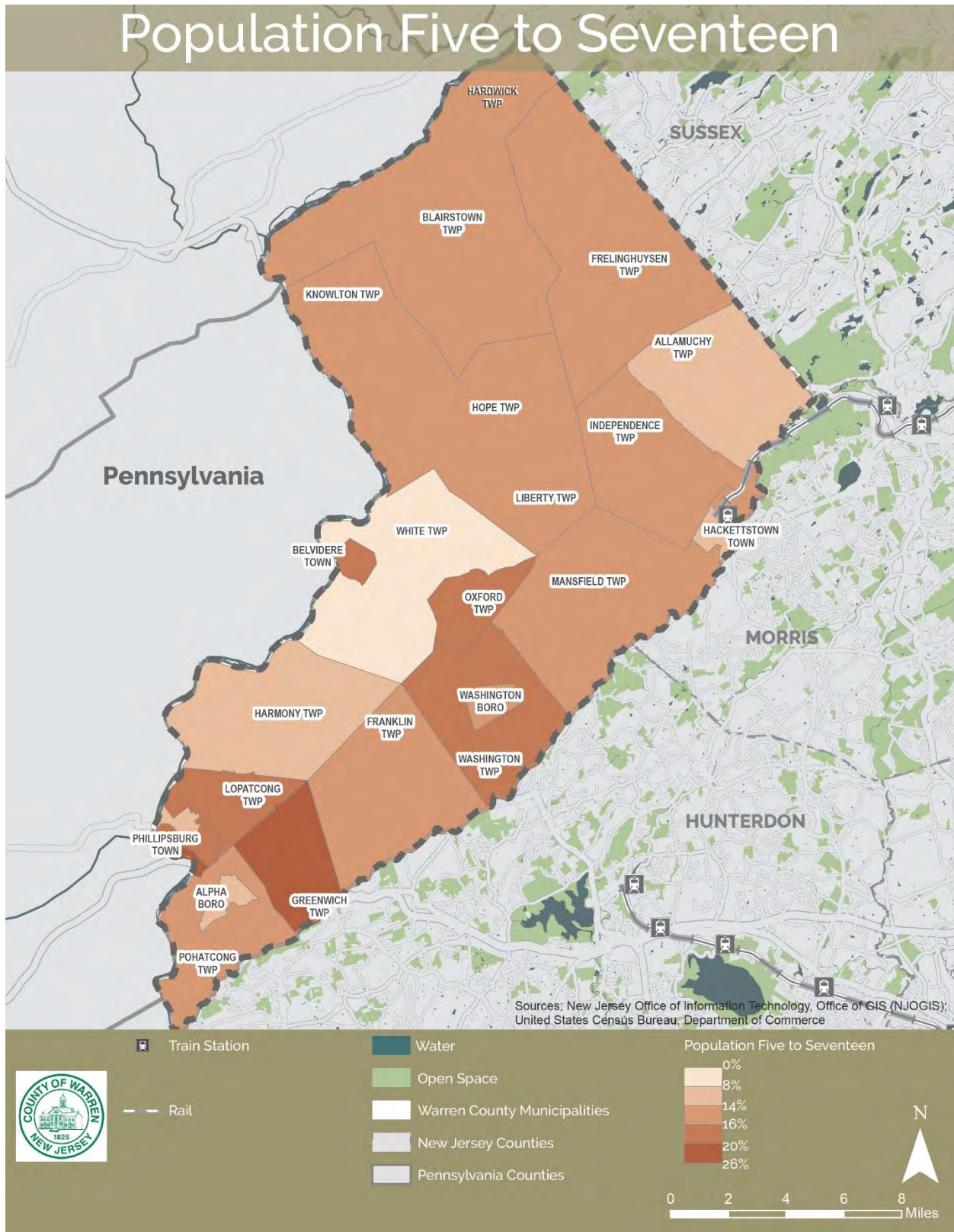
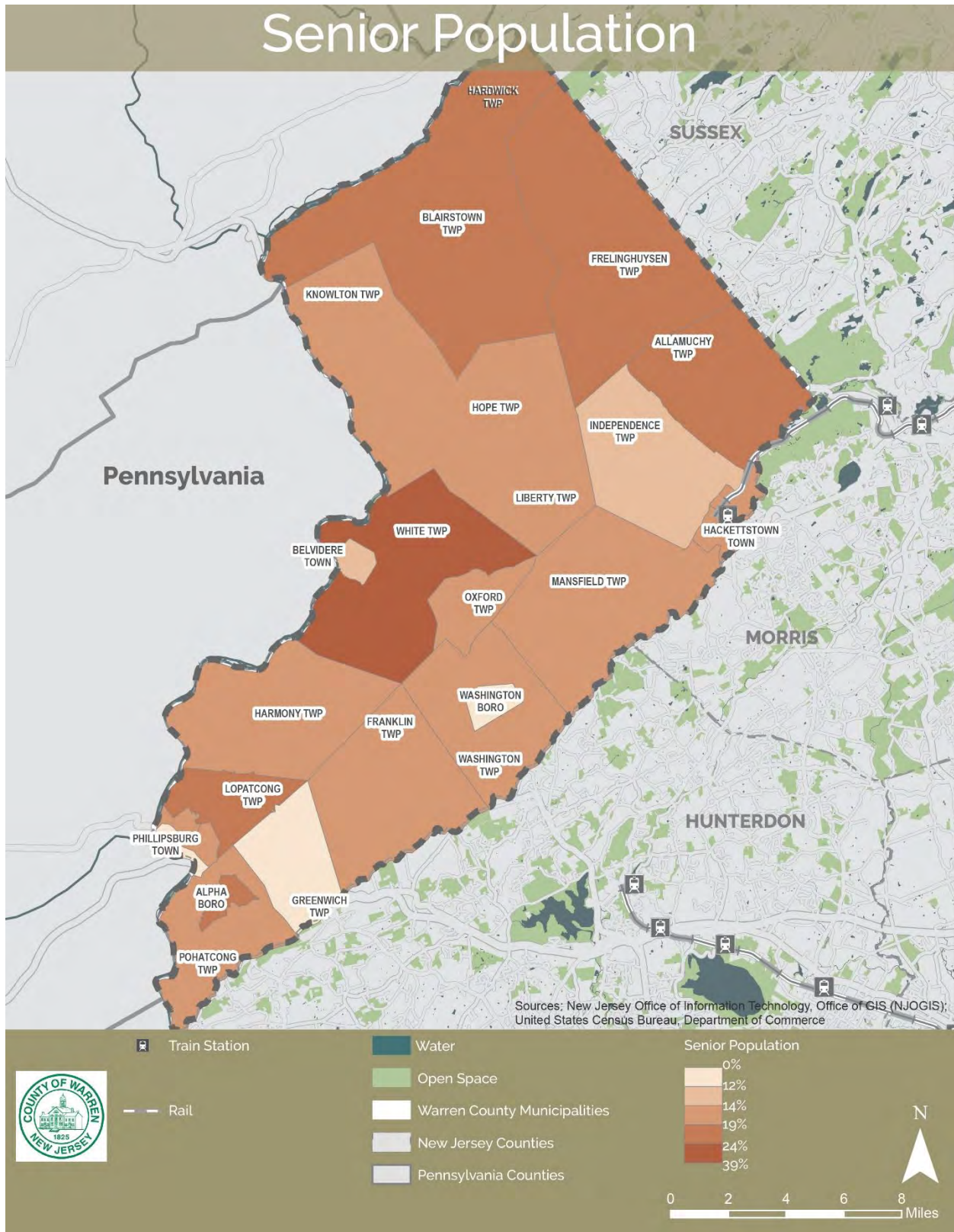


Figure 9



Technical Memorandum 2.3: Wikimap Assessment

Warren County Transportation Plan

DECEMBER 2020

INTRODUCTION

An online interactive map (i.e. Wikimap) was created for the Warren County Transportation Plan to collect place-based comments about transportation in Warren County. The web interface allowed users to mark-up a virtual map of the County by identifying corridors (lines) and spot locations (points) where transportation challenges or opportunities were present. The primary purpose of the mapping tool was to geographically locate and identify problem areas and opportunities based on local knowledge.

The Wikimap was open for public comment between June 22 and August 31, 2020. Users were able to add place-based comments onto the map as well as reply to already provided comments. A total of 192 interactions were recorded on the Wikimap; 164 interactions were “point” comments while 28 were “line” comments.

Categories

Comments were assigned to the following categories with example comments for each provided:

- *Bicycle or Pedestrian (Bike/ped)*-poor access to an existing trail
- *Congestion*-a congested segment of a corridor
- *Historic*-concern about the impact of construction of the structural integrity of nearby historic properties
- *Safety*-difficulty safely entering a roadway due to visibility concerns
- *Speed Concern (Speeding)*-a segment of a corridor with motorists traveling above the speed limit
- *Trucks*-concern about the number of trucks on a roadway
- *I-80 Rockwall project (Wall)*-concern about the proposal to build a retaining wall along the rockface adjacent to I-80
- *Warehouses*-concern about the impact increased truck traffic brought on by warehouse construction would have on roadways
- *Other*-comments concerning other topics such as cut-through traffic, public transit, or right-of-way concerns

Figure 1 below depicts the location of comments with each dot representing a categorized comment. Many comments fall into multiple categories and thus received several dots on the map below. Four hotspot locations with a high concentration of comments have a callout box next to them expressing the number of comments in each category. Nearly half of the 28 “line”, or corridor, comments provided by stakeholders were subsequently converted to “point” comments where applicable to simplify and clarify the visual representation. The width of the “line” comments are proportional to the number of interactions for that line. For example, the red line along County Route 519 is the thickest line because it received the most comments. The legend at the bottom of the map presents the number of “point” comments falling into each category. A total of 297 category assignments are present once multiple category assignments were accounted for.

Table 1 below shows the breakdown in category interactions throughout the County:

Table 1: Warren County Wikimap Comments

Hotspot	Total	Bike/Ped	Congestion	Historic	Safety	Speeding	Trucks	Wall	Warehouse	Other
Number	297	35	16	12	108	17	45	24	14	26
Percentage	100%	12%	5%	4%	36%	6%	15%	8%	5%	9%

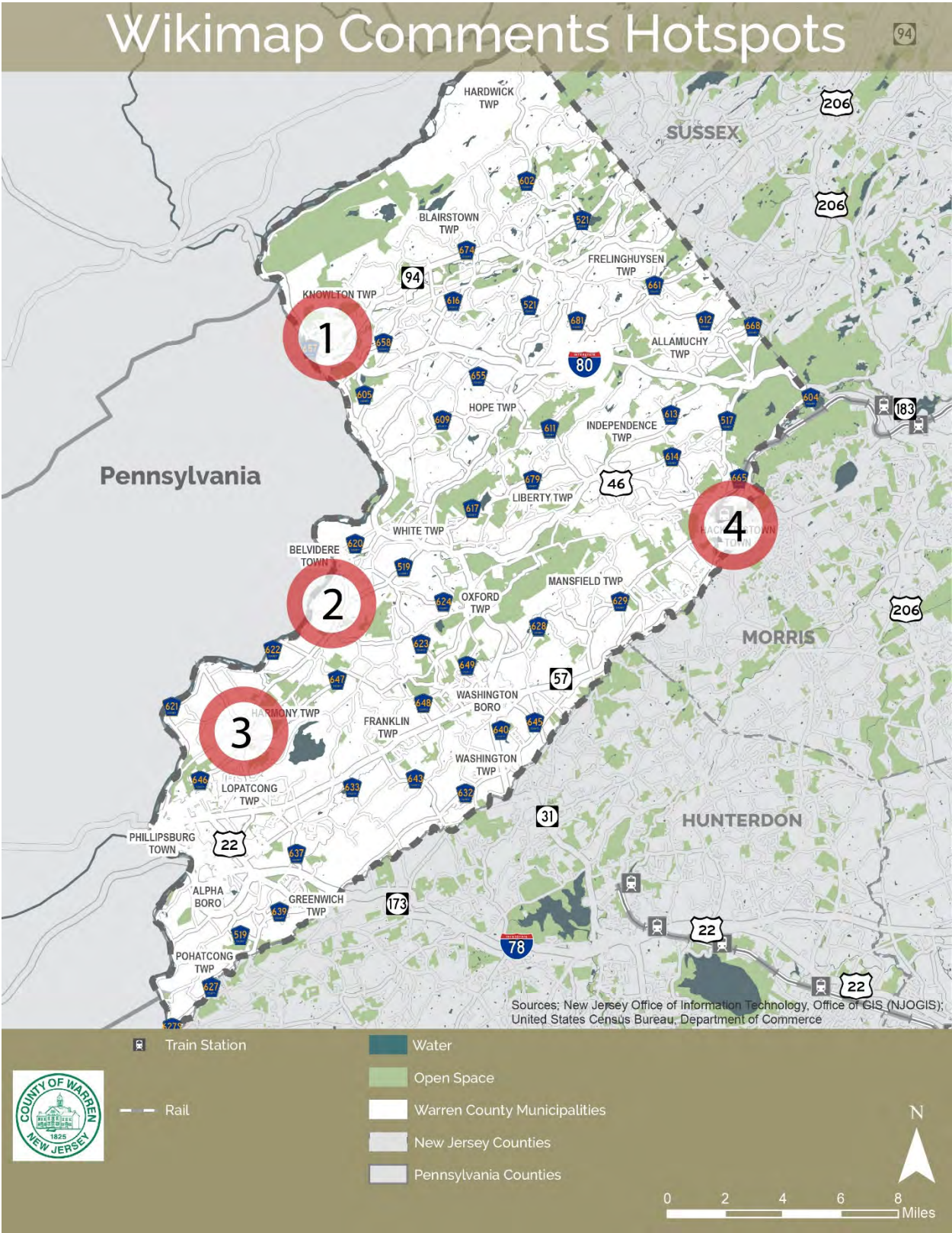
Hotspot Analysis

Four hotspots (locations with a high number of comments) were identified, as shown in **Error! Reference source not found.** These four hotspots correspond to the four locations in Figure 1 with callout boxes. The breakdown of comment categories for each hotspot is shown in Table 2. Several smaller comment areas are subsequently discussed.

Table 2: Wikimap Comments at Hotspots

Hotspot	Total	Bike/Ped	Congestion	Historic	Safety	Speeding	Trucks	Wall	Warehouse	Other
1	145	18	1	-	68	11	15	22	-	10
2	36	-	6	1	16	-	10	-	3	-
3	29	3	1	4	11	3	6	-	-	1
4	18	1	3	4	3	4	-	-	-	3

Figure 2: Wikimap Comment Hotspots



[Hotspot 1 \(Interstate 80 Curve at Dunnfield Creek/Appalachian Trail in Knowlton/Hardwick Twps\)](#)
The most prominent hotspot for Wikimap comments is near the curve of Interstate 80 in Knowlton and Hardwick Townships near the exit for Dunnfield Creek, the Appalachian Trail, and Kittatinny Point Visitor Center. The location is approximately 1.2 miles southeast of the Delaware River and Pennsylvania border. This location is the site of 145 category comments, nearly half of which concern safety. A substantial number of comments also relate to bicycle/pedestrian conditions, trucks, and the proposal to install a retaining wall. The comments generally concern the high traffic volumes and speeds, particularly of trucks, navigating around this “s-curve.” 22 commenters objected to the proposal to install a retaining wall against the adjacent rockface, citing that existing safety concerns are due to the roadway geometry rather than the presence of the rock wall. Bicycle/pedestrian comments relate to the need to preserve local trail access for cyclists and hikers near the curve. Another hotspot appears in Figure 1 to the southeast of Hotspot 1; however, these comments are also regarding the “S-curve” along Interstate 80 therefore these Wikimap interactions were incorporated into Hotspot 1.

[Hotspot 2 \(County Route 519 in White Township\)](#)

Hotspot 2 includes a corridor of CR 519 in White Township roughly bounded by the border with Harmony Township to the south US 46 to the north. This nearly five-mile segment received 36 Wikimap category comments. Congestion-related comments mainly centered on the lack of multiple access points to CR 519 from establishments along the corridor. With high traffic volumes, and sometimes speeds, motorists find it difficult to safely enter the roadway. Truck/warehouse-related comments focused on concern about the possibility of additional warehouses being constructed in the area that would exacerbate existing congestion and safety issues.

[Hotspot 3 \(County Route 519 in Harmony Township\)](#)

Hotspot 3 includes the five-mile segment of CR 519 in Harmony Township. Comments in this hotspot include the potential impact of warehouse construction on nearby historic properties, unsafe biking and walking conditions to nearby schools, as well as visibility issues along the curve of the road exacerbated by high speeds and truck volumes.

[Hotspot 4 \(Hackettstown\)](#)

Comments in Hackettstown included the prevalence of cut-through traffic, the need for new pedestrian infrastructure, and the desire for a bypass. Cut-through traffic was identified traveling along Mitchell Road to reach NJ 57, as well as East Prospect Street and East Baldwin Street to bypass congestion along U.S. 46 and CR 517. Stakeholders commented on the desire for a bypass to combat cut-through traffic and congestion at U.S. 46 and CR 517. The need for marked pedestrian crossings was identified at along CR 604 at Maple Avenue, and Seber Road, the latter of which provides access to Hackettstown Riverfront Park. The need for sidewalk constructions and extensions were identified for CR 517, CR 604, NJ 57, and westbound U.S. 46 west of Canal Road.

[Other Clusters](#)

In addition to the hotspots identified as being the locations of the most comments, several smaller comment clusters were identified by the project team for further analysis, summarized below.

Hope

Comments in Hope Township centered around safety and truck issues along CR 519. The corridor was identified as a problem corridor due to existing truck volumes, expectation for higher truck volumes from warehouse construction, and the difficulty entering/exiting the roadway from adjacent land uses.

Phillipsburg Area

Comments in Phillipsburg and nearby areas include safety concerns involving trucks, prevalent congestion, and improving conditions along existing bicycle facilities. The intersection of NJ 57 and CR 519 in Lopatcong was identified as having safety issues due to the difficulty for trucks to turn left from northbound NJ 57 to CR 519. The signal timing along U.S. 22 was identified as not providing sufficient time for vehicles along the intersecting roads and plazas, specifically at Stryker Road in Lopatcong and the Hillcrest Mall in Phillipsburg. Comments concerning bike facilities included the need for “Trail Crossing Ahead” signs along CR 519 near the Greenwich/Lopatcong border for the Morris Canal Greenway.

NJ 94 (Blairstown/Frelinghuysen)

Comments along and near NJ 94 in Blairstown and Frelinghuysen include the need for passing lanes and the desire for a walking trail. Several hills along NJ 94 in Frelinghuysen were identified as being locations where trucks drastically slow down, causing congestion, potentially unsafe driving conditions, and loud noises for nearby residents. A stakeholder suggested that more segments of widened roadway would allow vehicles to pass these trucks. The prevalence of fast-moving vehicles traveling along the shoulder to pass left-turning vehicles was identified as an issue along the corridor in Blairstown, as well as the need to slow traffic in the commercial area of Blairstown. Lambert Road in Blairstown was identified as catering to significant pedestrian volumes. Multiple stakeholders suggested a pedestrian trail be constructed along Lambert Road between North Warren Regional High School at Noe Road to the commercial plaza and library at NJ 94.

Conclusion

Overall, Wikimap comments received from local stakeholders covered a variety of topics and geographies, but generally concerned the following topics:

- The “s-curve” in Interstate 80 poses a safety hazard
- Stakeholders do not support the retaining wall proposal for I-80
- Bicycle and pedestrian access should be enhanced, particularly along high-speed, high-volume corridors
- Several county corridors cater to high speeds and high volumes, particularly of trucks
- New light industrial warehouses and facilities present the possibility to worsening existing congestion and traffic volumes
- Existing and anticipated truck volumes should be routed away from residential neighborhoods and walkable commercial districts

Technical Memorandum 2.4: Data Assessment

Warren County Transportation Plan

Please note that certain sections of Technical Memo 2.4 as they appear are inconsistent with Chapter 3 of the Transportation Plan and are incorrect. The incorrect sections are : Speed Limits, Roadway Jurisdiction, and Height and Weight Restrictions The corrected sections are shown in Chapter 3 of the Plan.

JANUARY 2021

CONTENTS

Introduction	1
Roadways and Structures	1
Functional Class.....	1
Speed Limits..... <small>see Chapter 3 of Transportation Plan for corrected version</small>	5
Pavement Width.....	8
Roadway Jurisdiction <small>see Chapter 3 of Transportation Plan for corrected version</small>	10
Roadway Volumes	15
Height/Weight Restrictions <small>see Chapter 3 of Transportation Plan for corrected version</small>	17
Truck Network	19
Truck Routes	19
Maintenance	20
Capital Improvement Plan.....	20
County Roadway Right-of-Way Standards	20
Crash Analysis	23
Crash Clusters	23
Crash Clusters on County Roads.....	27
Biking and Walking	31
Bicycle Compatibility Analysis	31
Trails	33
Regional Trail Systems	33
Major Parks and Natural Areas	35
Historic Properties and District and Points of Interest	36
Public Transit	38
Passenger Rail	38
Shuttle Service	38
Existing Transit	38
Current Transit Operations	38
Intra-County Bus Loop Concept.....	39
Airports	40
Freight Rail	42

Introduction

A variety of data sources were gathered, reviewed and analyzed for inclusion into the Warren County Transportation Plan. These sources provide an understanding of the overall transportation and demographic conditions of the County as well as important distinctions between communities. These data sources will be vital and when linked with the public outreach process will result in the identification of key focus sites for which recommendations will be developed.

A description of each data source is provided below. Each section is concluded with a brief summary of takeaways from the data source. The document concludes with two trending issues that impact considerations of the larger circulation system.

The development of this Circulation Plan update was undertaken during the COVID-19 pandemic. As a result, public outreach was conducted mainly via electronic means such as online focus groups. Additionally, while much of the data analysis was conducted prior to the pandemic, some data was gathered during the pandemic when travel demand and patterns were atypical. Where appropriate, the unusual nature of the data is pointed out.

Roadways and Structures

Functional Class

The Federal Highway Administration categorizes all roadways by functional classification. Functional classification is the systematic organization of highways and roadways into separate classes or groups, based upon their intended service function. Efficient and safe operation of the system requires that facilities be designed to serve a specific purpose within the street hierarchy. Municipalities can advocate to change the functional class of a roadway if travel patterns or a community’s needs have changed. Roadway functional classifications applicable to Warren County are defined in Table 1 below.

Table 2 provides a list County and State routes assigned to each functional classification. In addition to these routes, many roadways under local jurisdiction fall into the groups. Several County routes fall under multiple functional classifications, based on the nature and use of the roadway portion.

Table 1: FHWA Functional Classifications¹

Arterials	Interstates	Limited or no access to abutting land uses. Access only from major streets at interchanges. Freeways supplement the capacity of the arterial street system and provide high speed mobility.
	Other Freeways and Expressways	Similar in nature to Interstates, but not operating as an interstate highway.
	Other Principal Arterials	Serving major centers of metropolitan areas and providing a high degree of mobility, these roads can also provide mobility through rural areas. Often provide direct access (via driveways) to land uses.
	Minor Arterials	Interconnects and augments the principal arterial system. Operating speeds and service levels are lower than major

		arterials. Should be excluded from identifiable residential neighborhoods.
Collectors	Major Collectors	Provides service to traffic generators, connecting cities and large towns, serving the most important intra-county travel corridors.
	Minor Collectors	Provide service to developed areas and smaller communities linking locally important traffic generators.
Local	Local Access	Provides land access and can exist in any land use setting. Movement is incidental and involves travel to and from a collector facility.

¹ Summarized from FHWA descriptions

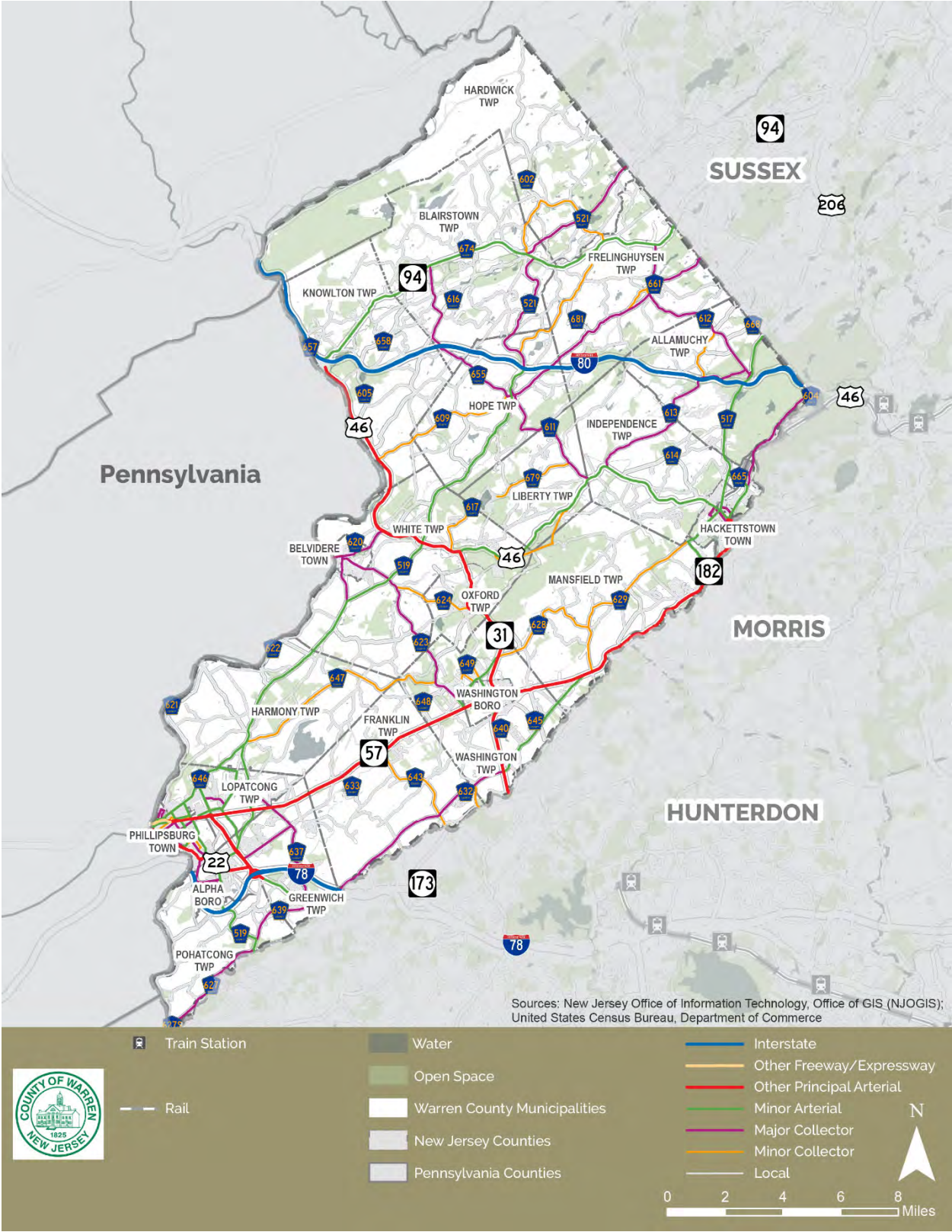
Key Points

A variety of roadway functional classifications are located in Warren County. Interstates 78 and 80 allow high-speed, high-volume thru movement as an easy means of traversing the mainly rural country to reach higher density metropolitan destinations. Principal arterials such as NJ 57 and NJ 31 provide access between distant townships within the County while connecting local retail and commercial centers. Minor arterials such as CR 519 and U.S. 46 east of NJ 31 also provide access to regional centers such as Hackettstown and Phillipsburg, connecting to principal arterials and interstates. Major and minor collectors constituting most of the County roadway system provide additional access between the higher functional classification roadways as well as smaller residential neighborhoods.

Table 2: Functional Classification Designations

Interstates			
Interstate 78		Interstate 80	
Other Freeways/Expressways			
U.S. 22 (west of North Hillcrest Boulevard westbound, west of Morris Street eastbound)			
Other Principal Arterials			
U.S. 22 (east of Warren Street in Phillipsburg to I-78)	U.S. 46 (west of NJ 31)	NJ 31	NJ 57
NJ 122	NJ 182		
Minor Arterial			
U.S. 173 (east of I-78)	U.S. 46 (east of NJ 31)	NJ 94	CR 517
CR 519 (south of CR 521)	CR 521 (south of I-80)	CR 604 (south of CR 665)	CR 623 (small portion north of NJ 57)
CR 628 (west of NJ 31)	CR 632 (east of NJ 31)	CR 646	CR 665
Major Collector			
CR 519 (north of 521)	CR 521 (north of I-80)	CR 601	CR 604 (north of CR 665)
CR 609 (small portion)	CR 611	CR 612 (most)	CR 613
CR 620	CR 621 (only in Phillipsburg)	CR 623 (most)	CR 627
CR 632 (west of NJ 31)	CR 637	CR 638	CR 639
CR 641	CR 642	CR 655	CR 661
CR 667			
Minor Collector			
CR 602	CR 608	CR 609 (most)	CR 612 (small portion in Johnsonburg)
ICR 615	CR 617	CR 624	CR 625 (portion)
CR 628 (east of NJ 31)	CR 629	CR 643	CR 647
CR 649	CR 659	CR 679	
Local Access			
All other roads			

Figure 1: Functional Classifications



Speed Limits

An efficient and effective roadway network provides a variety of road types with varying speed limits to assure the safe movement of vehicles through and within the County. Based on the environment and surrounding land uses of a roadway segment, the speed limit may vary.

Table 3 and Table 4 list the range of speed limits on State and County roadways in Warren County. Figure 2 shows a map of speed limits in the County for State and County-maintained routes. Where applicable, the range of existing speed limits is provided where speed limits along a route varies.

Key Points

Similar to Functional Classification, a variety of speed limits regulate roadways in Warren County. Interstates and roadways with minimal curves cater to higher speed (>50 mph) traffic while much of the County roadways (designated with CR) allow travel speeds of 35-50 mph, traveling through curvy and hilly terrain and connecting to higher speed roadways. Local roadways that provide direct access to residential uses tend to have lower (<35 mph) speed limits.

Table 3: Speed Limits

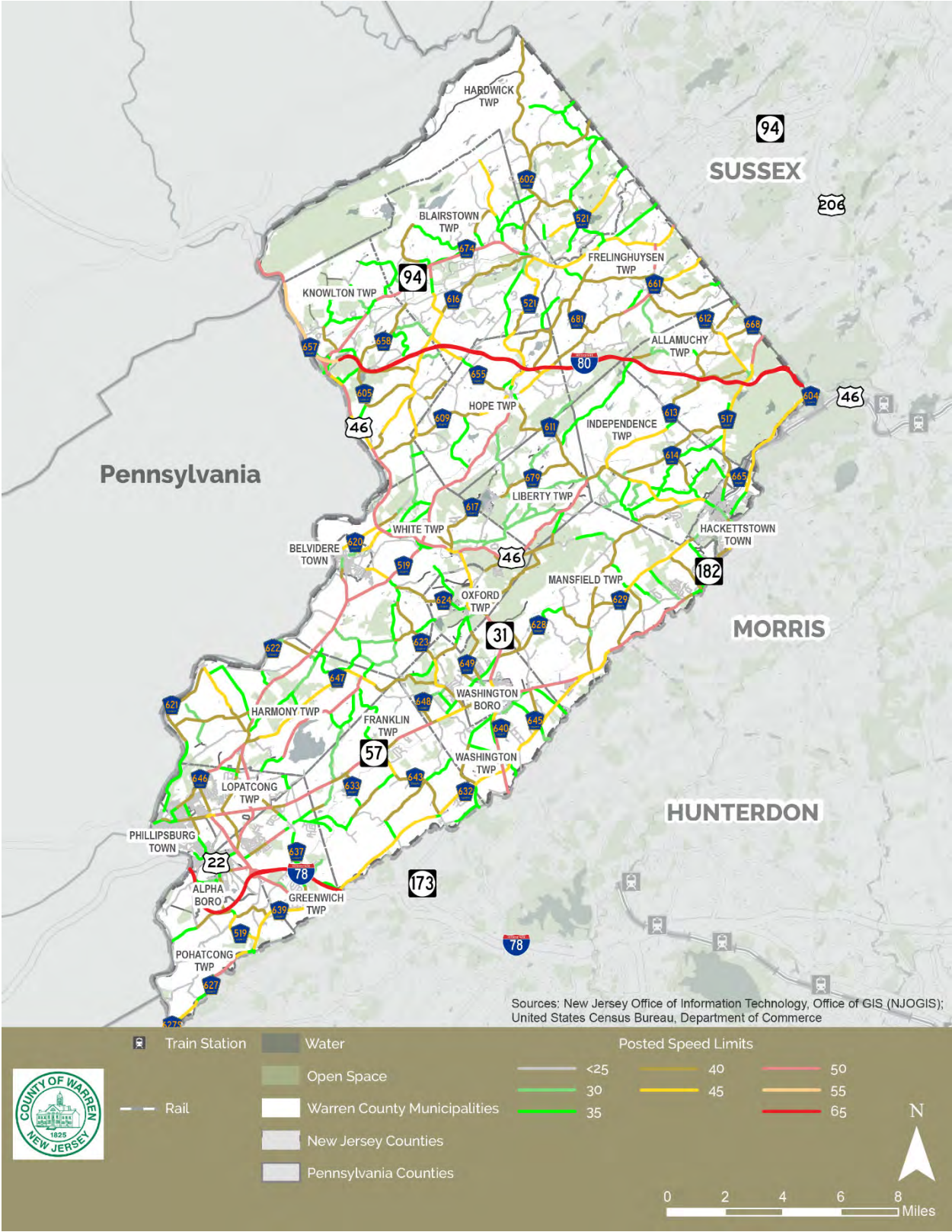
Interstate Routes	U.S. Routes	State Routes
I-78: 65 mph	U.S. 22: 25-50 mph	NJ 31: 35-50 mph
I-80: 50-65 mph	U.S. 46: 35-50 mph	NJ 57: 25-50 mph
	NJ 94: 35-50 mph	
	NJ 122: 25-50 mph	
	NJ 163: 25 mph	
	NJ 173: 40-50 mph	
	NJ 182: 40 mph	

Table 4: Speed Limits on County Routes

see Chapter 3 of Transportation Plan for corrected version

<i>CR 517:</i> 25-50 mph	<i>CR 614:</i> 30-40 mph	<i>CR 628:</i> 35-40 mph	<i>CR 643:</i> 25-45 mph	<i>CR 658:</i> 40 mph
<i>CR 519:</i> 25-50 mph	<i>CR 615:</i> 40 mph	<i>CR 629:</i> 30-45 mph	<i>CR 644:</i> 30 mph	<i>CR 659:</i> 35-40 mph
<i>CR 521:</i> 25-45 mph	<i>CR 616:</i> 40-45 mph	<i>CR 630:</i> 30-35 mph	<i>CR 645:</i> 30-35 mph	<i>CR 661:</i> 25-50 mph
<i>CR 601:</i> 20 mph	<i>CR 617:</i> 40 mph	<i>CR 631:</i> 25 mph	<i>CR 646:</i> 40-50 mph	<i>CR 665:</i> 45 mph
<i>CR 602:</i> 25-40 mph	<i>CR 618:</i> 35 mph	<i>CR 632:</i> 35-45 mph	<i>CR 647:</i> 40-45 mph	<i>CR 667:</i> 30 mph
<i>CR 604:</i> 25-45 mph	<i>CR 619:</i> 35 mph	<i>CR 633:</i> 40-45 mph	<i>CR 648:</i> 30-40 mph	<i>CR 668:</i> 40 mph
<i>CR 605:</i> 25-40 mph	<i>CR 620:</i> 25-50 mph	<i>CR 635:</i> 35-40 mph	<i>CR 649:</i> 30-40 mph	<i>CR 669:</i> 40 mph
<i>CR 607:</i> 30 mph	<i>CR 621:</i> 25-45 mph	<i>CR 636:</i> 40 mph	<i>CR 650:</i> 40 mph	<i>CR 671:</i> 35 mph
<i>CR 608:</i> 40 mph	<i>CR 622:</i> 25-40 mph	<i>CR 637:</i> 25-40 mph	<i>CR 651:</i> 40 mph	<i>CR 672:</i> 35 mph
<i>CR 609:</i> 25-45 mph	<i>CR 623:</i> 35-45 mph	<i>CR 638:</i> 25-40 mph	<i>CR 652:</i> 40 mph	<i>CR 673:</i> 35 mph
<i>CR 610:</i> 35 mph	<i>CR 624:</i> 30-40 mph	<i>CR 639:</i> 45 mph	<i>CR 653:</i> 35 mph	<i>CR 674:</i> 35 mph
<i>CR 611:</i> 25-40 mph	<i>CR 625:</i> 30-40 mph	<i>CR 640:</i> 35 mph	<i>CR 654:</i> 25 mph	<i>CR 676:</i> 25 mph
<i>CR 612:</i> 25-45 mph	<i>CR 626:</i> 30-40 mph	<i>CR 641:</i> 35 mph	<i>CR 655:</i> 35-50 mph	<i>CR 678:</i> 25 mph
<i>CR 613:</i> 35-45 mph	<i>CR 627:</i> 35-50 mph	<i>CR 642:</i> 30-35 mph	<i>CR 656:</i> 25-30 mph	<i>CR 679:</i> 40 mph

Figure 2: Speed Limits



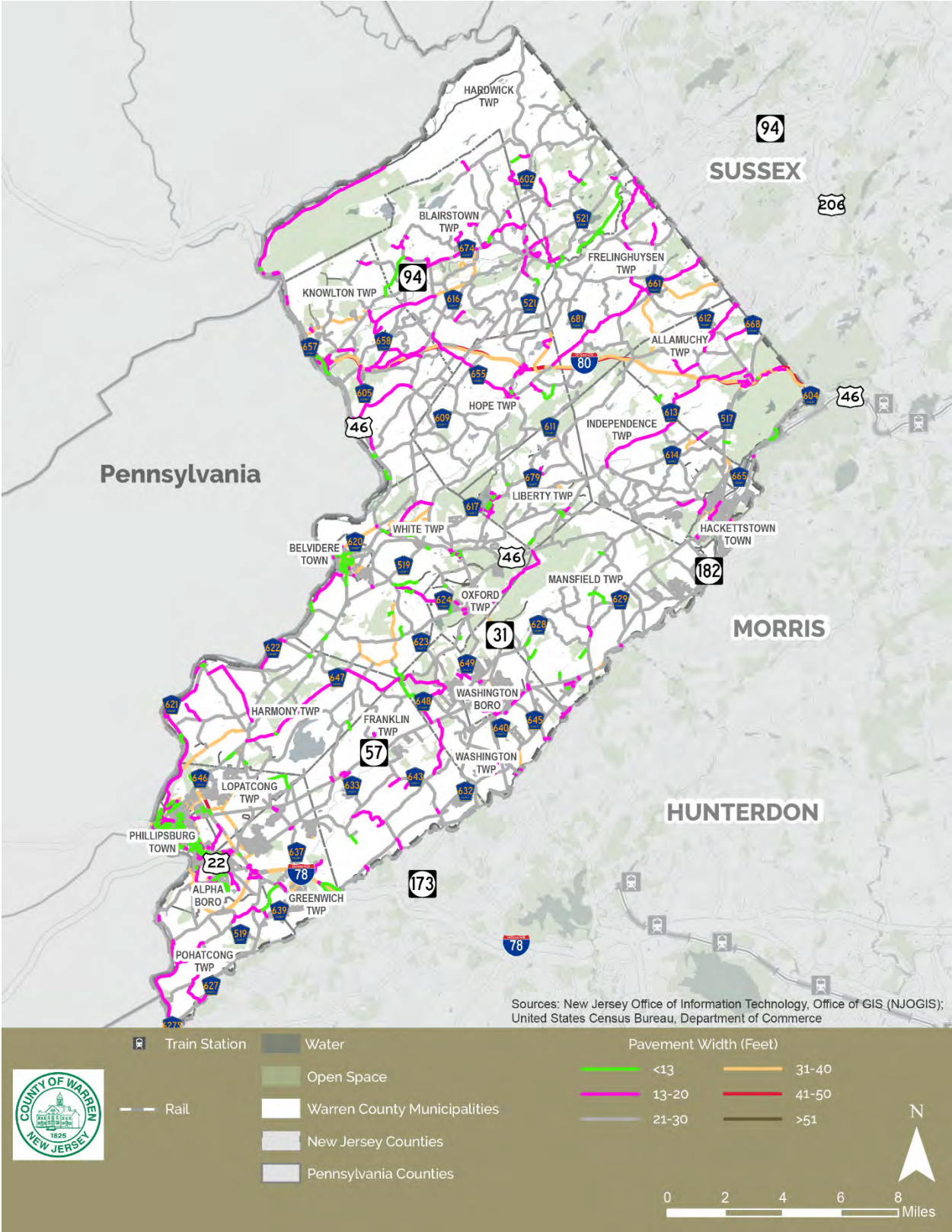
Pavement Width

Most roadways in the County, including the majority of County roadways have a pavement width of 21-30 feet, sufficient for one travel lane in each direction with no on-street parking. Roadways with a pavement width above 40 feet include U.S. 46, NJ 31, NJ 57, and short segments of several municipal roadways. Additionally, many municipal roadways have a pavement width of less than 20 feet. A map of pavement widths throughout the County is shown in Figure 3 and was obtained from NJDOT Straight Line Diagram data.

Key Points

The vast majority of roadways, including most County roadways present a pavement width of 21-30 feet, sufficient for one lane of travel in either direction with no on-street parking. Several roadways in the more densely developed communities of Phillipsburg, Alpha, Washington Boro and Hackettstown present roadway widths ranging from 31-50 feet.

Figure 3: Pavement Width



Roadway Jurisdiction see Chapter 3 of Transportation Plan for corrected version

Public roadways are under the jurisdiction of either the State, County or municipality which determines the entity required to lead any changes to the roadway. Table 6 presents the mileage of roadways falling under each jurisdiction, and Figure 4 presents a map of the existing jurisdiction of each roadway in the County, highlighting all changes to roadway's jurisdiction since Warren County's previous circulation plan was published in 1982. The 1982 Warren County Transportation Plan provided an orderly and timely plan for coordinated development of different transportation modes and identified deficiencies in present modes. Through the plan, the County Planning Board adopted 11 high-level goals and objectives (each with several sub-goals) for maintaining existing infrastructure and expanding network opportunities where feasible. These goals are elaborated upon in Technical Memo 2.1 focusing on previous studies. Roadway jurisdiction changes highlighted in Figure 4 shows the existing roadway jurisdiction while Figure 5 shows changes to the roadway jurisdiction since the County's 1982 Transportation Plan. In that figure, additions and deletions that were recommended in the 1982 Plan are indicated as being FROM the 1982 Plan, and the additions and deletions that were not recommendation from the 1982 Plan are indicated as being SINCE the 1982 plan. Data concerning existing roadway jurisdiction was obtained from NJDOT Straight Line Diagrams.

Additions to the County roadway network from the 1982 plan include the following:

- CR 665 (Bilby Road): CR 517 to CR 604 in Hackettstown
- CR 679: Lakeside Drive North to CR 611 in Liberty
- CR 659: CR 602 to CR 521 in Hardwick
- CR 521: NJ 94 in Blairstown to Hardwick border
- CR 661 (Dark Moon Road): CR 661 in Frelinghuysen to Sussex County border
- CR 519 (Johnsonburg Bypass): CR 661 to CR 661 in Frelinghuysen
- CR 602 (Franklin Grove Road): from Millbrook Flatbrook Road to Newman Road in Hardwick
- CR 632: NJ 57 in Mansfield to CR 651 in Washington Township
- CR 629: CR 652 to CR 628 in Mansfield
- CR 621: North Main Street in Phillipsburg to Lopatcong border
- CR 628: CR 649 to CR 649 in Washington Township

Roadways removed from the County roadway network from the 1982 plan include the following:

- CR 606 (River Road): Old Mine Road from I-80 to Delaware River National Recreation Area, formerly Pahaquarry Township merged into Hardwick Township
- CR 621 Spur: Railroad Avenue to CR 621 in Harmony
- Roaring Rock Road: west of CR 623 in Washington
- Old Belvidere Road: from CR 646 to CR 646 in Harmony
- Belview Road: CR 519 in Lopatcong to Strykers Road in Harmony
- Penwell Road : NJ 57 in Mansfield to Hunterdon County border
- Mellicks Woods Road: CR 519 to CR 519 in Pohatcong
- CR 677 (Morris Street): Raymond Street to U.S. 22 in Phillipsburg
- Bridge Street: CR 660 to NJ 94 in Blairstown
- CR 661: CR 519 to CR 519 in Frelinghuysen

Additions to the County roadway network not recommended in the 1982 Transportation Plan include the following:

- CR 658 (Polkville Road): CR 658 Vail Road in Knowlton to CR 655 (Mount Hermon Road) in Blairstown
- CR 683 (Ryan Road and Cat Swamp Road): CR 614 Petersburg Road in Independence to Allamuchy Township border
- CR 680 (Mt. Pisgah Road): Jensen Drive to the County landfill

Roadways removed from the County roadway network not recommended in the 1982 Transportation Plan include the following:

- CR 601 (Blair Place): CR 660 (Main Street) to CR 602 (Bridge Street)
- CR 665 (Bilby Road): CR 517 to Independence/Hackettstown border

All roadways added to the County roadway network were previously under municipal jurisdiction, and all roadways removed from the County roadway network moved to the jurisdiction of the municipality. Additions and deletions from the County roadway network not recommended in the 1982 Transportation Plan are detailed in Table 5.

Table 5: Roadway Jurisdiction Changes Not Recommended in 1982 Plan

Municipality	Road Name	Cross Street A	Cross Street B	Mileage	
				Added	Deleted
Knowlton/ Blairstown	CR 658 (Polkville Road)	CR 658 (Vail Road)	CR 655 (Mount Hermon Road)	1.07	
Independence/ Allamuchy	CR 683 (Ryan Road and Cat Swamp Road)	CR 614 (Petersburg Road)	Allamuchy Township border	1.14	
White/ Oxford	CR 680 (Mt. Pisgah Road)	Jensen Drive	County Landfill	0.6	
Blairstown	CR 601 (Blair Place)	CR 660 (Main Street)	CR 602 (Bridge Street)		<0.1
Independence/ Hackettstown	CR 665 (Bilby Road)	CR 517	Independence/Hackettstown border		0.5

Key Points

Most (63 percent) of the roadway mileage in the County falls under municipal jurisdiction. Smaller percentages of the overall roadway network fall under County, State and Interstate jurisdiction though these roadways cater to far higher traffic volumes than the municipal roads. Interstate roadways include Interstate 78, Interstate 80, and U.S. 22. Except for small pockets of the County with little to no development and large open areas including Hardwick, Blairstown, and Franklin, the County is well-served by County roadways.

Table 6: Roadway Jurisdiction

Jurisdiction	Distance	Percent
Interstate*	67 miles	6%
State	84 miles	7%
County	259 miles	23%
Municipal	716 miles	63%
Private	13 miles	1%

**Includes "Interstate" and "U.S." routes
Source – NJ Office of Technology, Office of GIS*

Figure 4: Roadway Jurisdiction

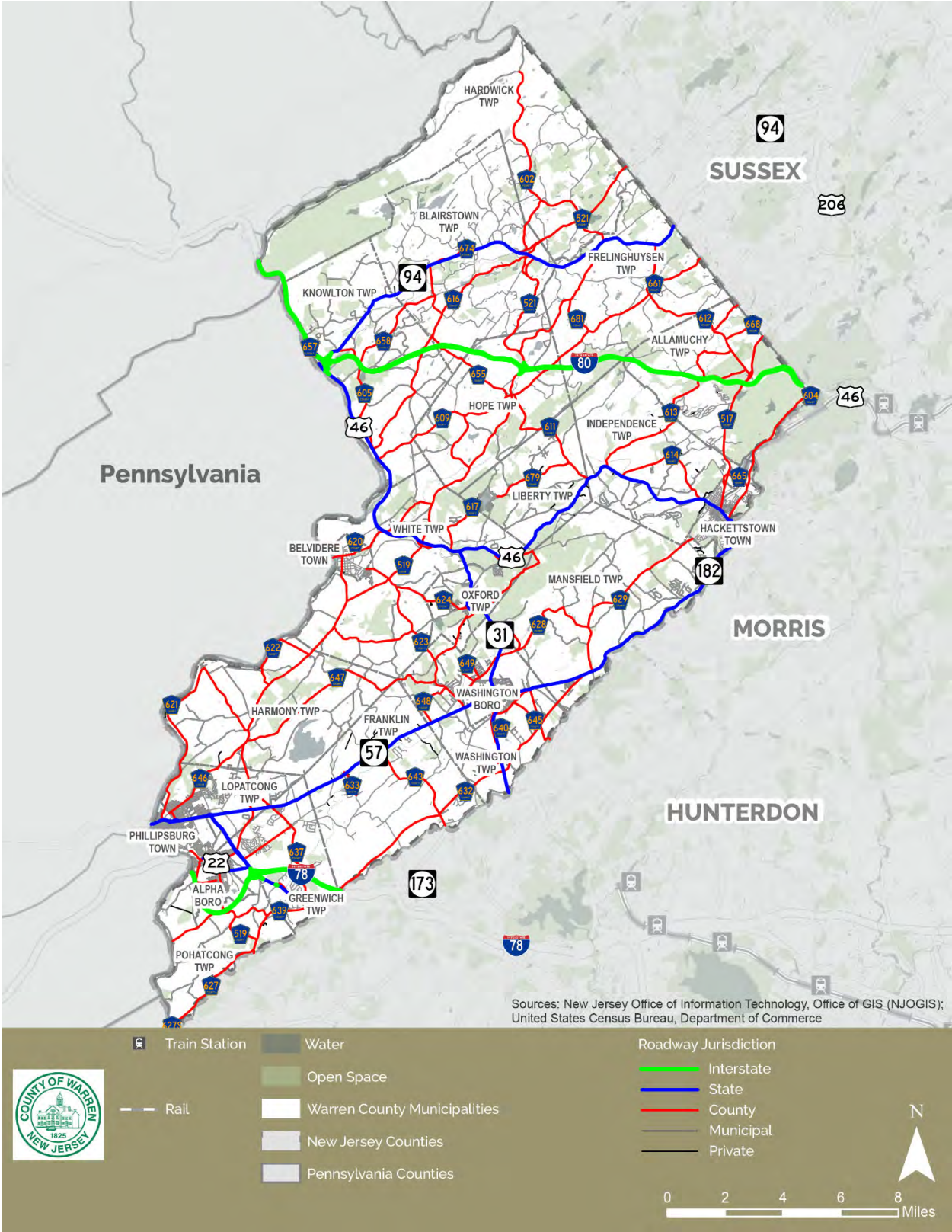
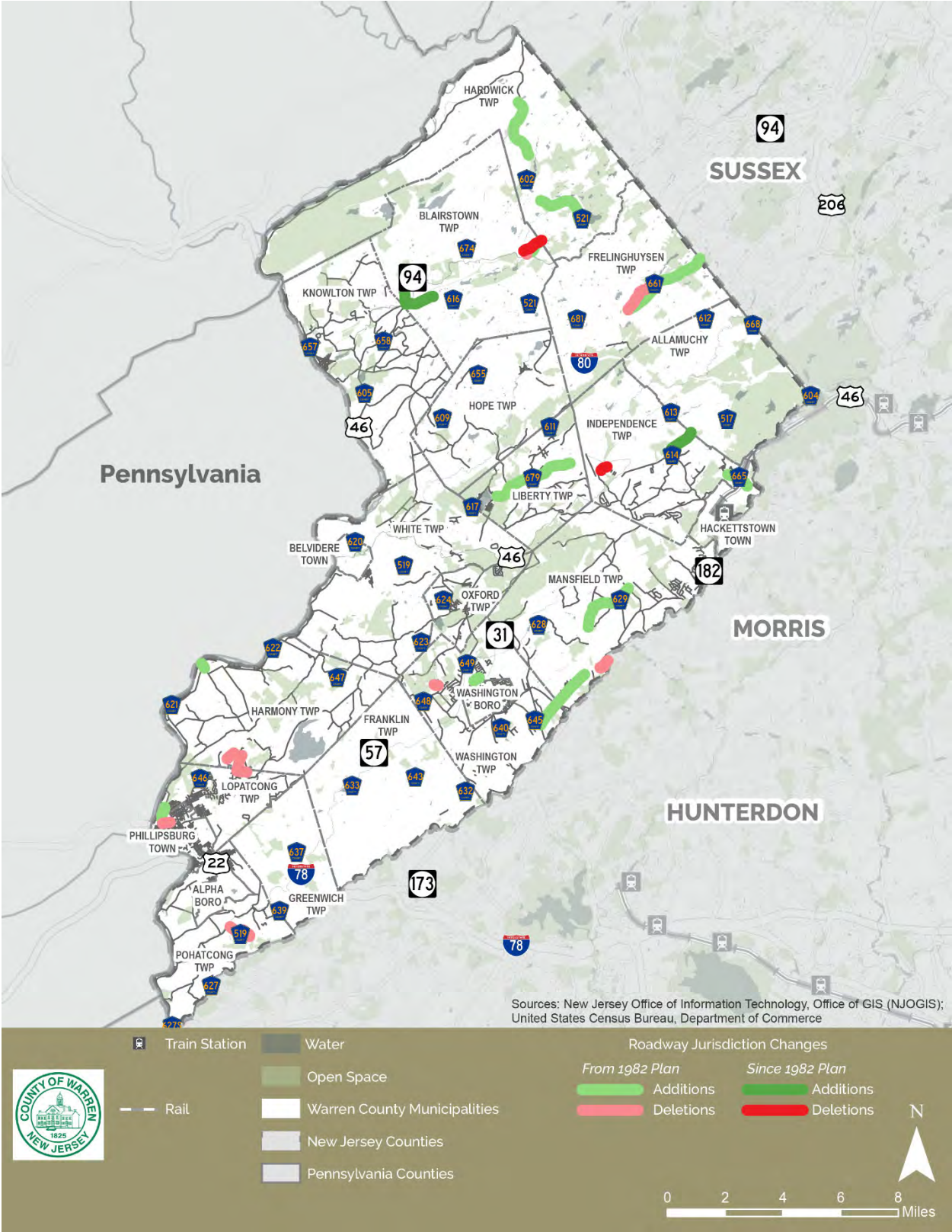


Figure 5: Roadway Jurisdiction Changes



Roadway Volumes

Traffic counts from the New Jersey Department of Transportation (NJDOT) were obtained from NJDOT’s Traffic Monitoring System.

Traffic counts on Warren County roadways conducted between 2016 and 2020 were downloaded, and data within each report transcribed into a database which was joined with an existing GIS file of traffic monitoring stations throughout the state. The data includes station ID, data, and volumes. Multiple types of traffic counts were collected including simple volume counts utilizing automatic traffic recorders and more complex classification counts with breakdowns of vehicle types. Summary data points include average annual daily traffic volume, the number of trucks, and the number of single and combination trucks traveling on each direction of a roadway.

Traffic count data will be used throughout the further development of the Circulation Plan to determine traffic patterns and identify specific locations for potential improvements.

Table 7 presents a list of corridors where average annual daily traffic (AADT) is greater than 10,000. Where volumes along a corridor vary, the upper and lower limits are shown. Ranges can vary highly due to the differing context of the corridor throughout the County. Traffic volumes are mapped in Figure 6.

Key Points

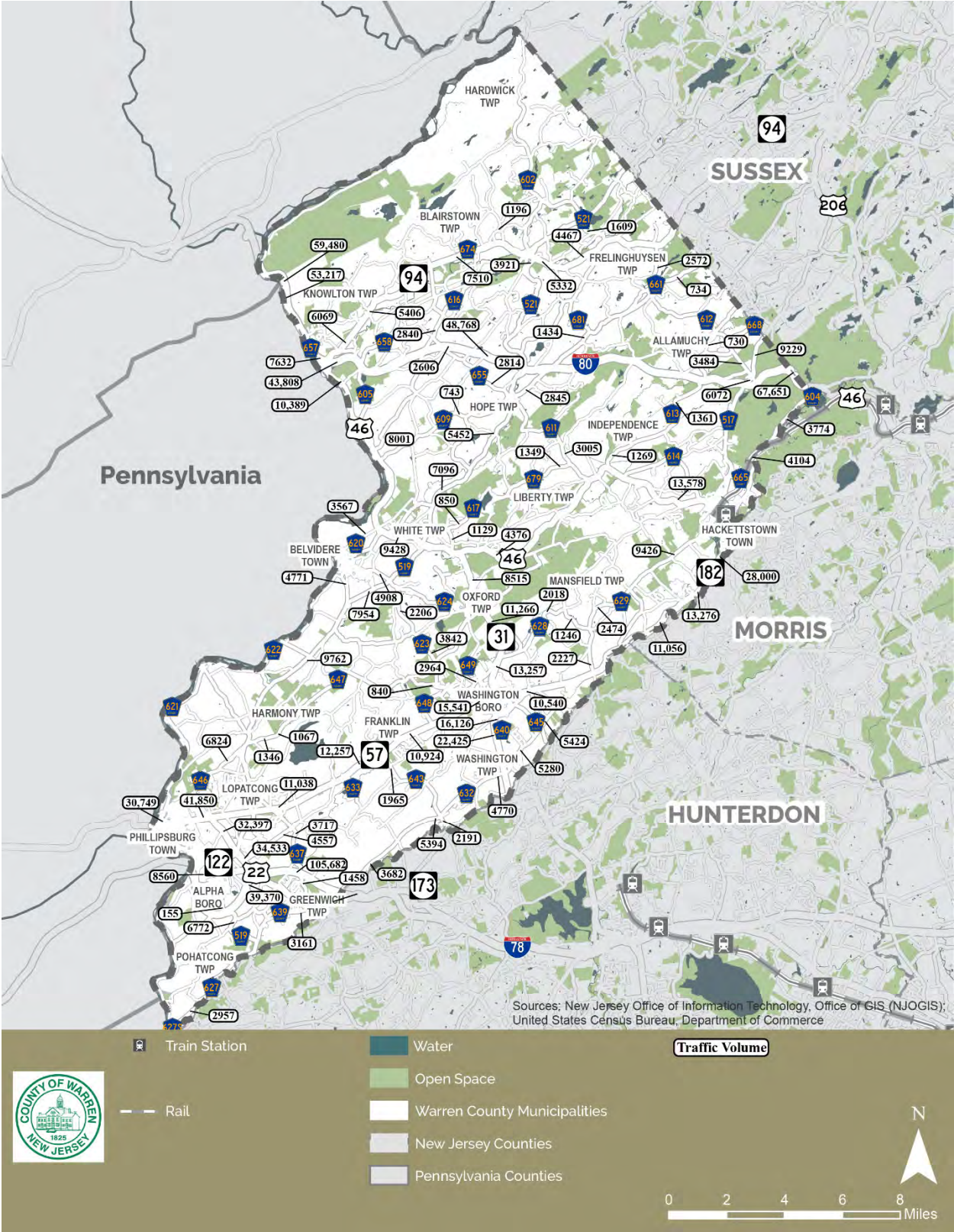
Traffic counts are highest on interstate roadways, with the highest being 105,000 AADT on Interstate 78, followed by 60,000 on Interstate 80. U.S. 22 and NJ 31 each have an AADT above 30,000. Several County roadways have an AADT above 10,000. Most traffic counts were conducted on high-volume roadways including the two-interstates as well as in the more developed areas of Hackettstown, Washington Boro, Phillipsburg, and Alpha.

Table 7: Roadway Traffic Volumes Over 10,000 (AADT)

Roadway	AADT
I-78	106,000
I-80	40,000-60,000
U.S. 22	30,000-43,000
NJ 182	16,000-28,000
CR 517	13,000-18,000
NJ 173	13,000
NJ 31	11,000-24,000
NJ 57	10,000-16,000
U.S. 46	10,000-14,000
CR 519	11,000-13,000
CR 638	11,000-13,000
NJ 122	11,000-12,000

*Traffic counts were conducted between 2016 and 2020. Corridors with a volume range include counts taken at multiple locations along the corridor

Figure 6: Traffic Volumes



Height/Weight Restrictions see Chapter 3 of Transportation Plan for corrected version

Numerous bridges and roadways in Warren County have weight or height restrictions that preclude the use of a roadway by trucks exceeding those limits, making travel through the County and between major roadways more difficult. The design or condition of these bridges and roadways do not permit usage by certain vehicles. Height is measured from the roadbed to the highest point on the vehicle or load it is carrying. Weight includes the weight of the vehicle plus the weight of the load that is being carried.

While necessary for physical and safety reasons, height and weight restrictions can create secondary impacts. Restrictions can limit transportation accessibility for local businesses, impact local economic viability, increase vehicle miles traveled, and divert traffic through residential neighborhoods. Eleven County routes have height restrictions and seven County routes have weight restrictions.

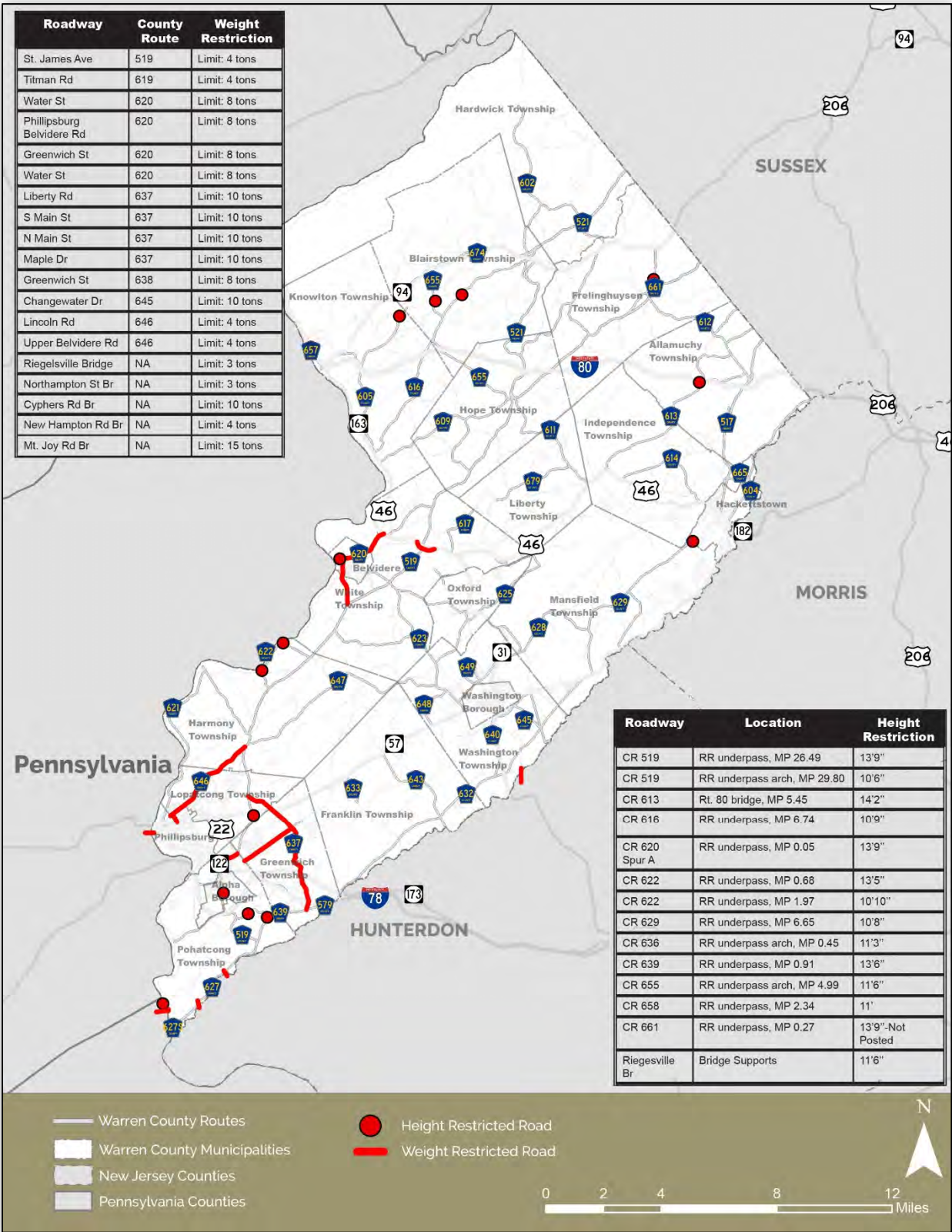
Key Points

County roads with height and weight restrictions tend to be around the border of Warren County, with few restrictions in the County's interior. In Pohatcong, both CR 636 and CR 639 have height restrictions of 11'3", and 13'6", respectively. Additionally, CR 519 in Alpha has a 13'9" height restriction and a 10'6" height restriction in Lopatcong. These restrictions present fewer opportunities for trucks entering from the southeast. In the north, height restrictions are present along CR 658 in Knowlton, and CR 616 and CR 655 in Blairstown. Near the Delaware River, two height restrictions are present on CR 622 in Harmony, west of CR 519. To the north of this, CR 620 Spur A in Belvidere has a 13'9" height restriction.

Seven County roads have weight restrictions, mostly in the southern portion of the County. CR 519 in Pohatcong has a four-ton limit and in Greenwich it has an eight-ton limit. CR 637 in Lopatcong and Greenwich has a 10-ton limit. CR 646 in Philipsburg, Lopatcong, and Harmony has a four-ton limit. CR 620 has an eight-ton limit in White and Belvidere, and the short extent of CR 519 in Pohatcong has a four-ton limit.

The location of height and weight restricted County routes are presented in Figure 7.

Figure 7: Height and Weight Restrictions see Chapter 3 of Transportation Plan for corrected version



Truck Network

Warren County provides access to high volumes of truck traffic on its network of County, State and Interstate routes. The plethora of County routes provide connections to major roadways and local access to industrial, warehousing, and manufacturing establishments located throughout the County. Routes under state jurisdiction including NJ 31, NJ 57, U.S. 46, and U.S. 22 provide freight access across the region. Annual truck ton flows along Interstates 80 and 78 are among the highest of any corridor in the state. These corridors serve truck traffic both stopping in and passing through Warren County to reach transportation assets and distribution centers in north Jersey and eastern Pennsylvania. Together, this network of roadways is essential to the continuation of efficiently providing goods throughout the region.

Truck Routes

Truck routes are identified as “New Jersey Access Network” or “National Highway System” or “Trucks Not Permitted.” These routes are consistent with NJDOT’s Truck Network Map, which identifies the New Jersey Access Network (N.J. Admin Code § 16:32-1.1), a series of routes where double-trailer truck combinations or 102-inch wide trucks are permitted, the National Highway System (23 U.S. Code § 103), the Federally designated system of major intra- and interstate roadways, and New Jersey’s “Blue Routes,” a series of roadways where trucks are permitted only when making local deliveries (defined in N.J. Admin Code § 16:32).

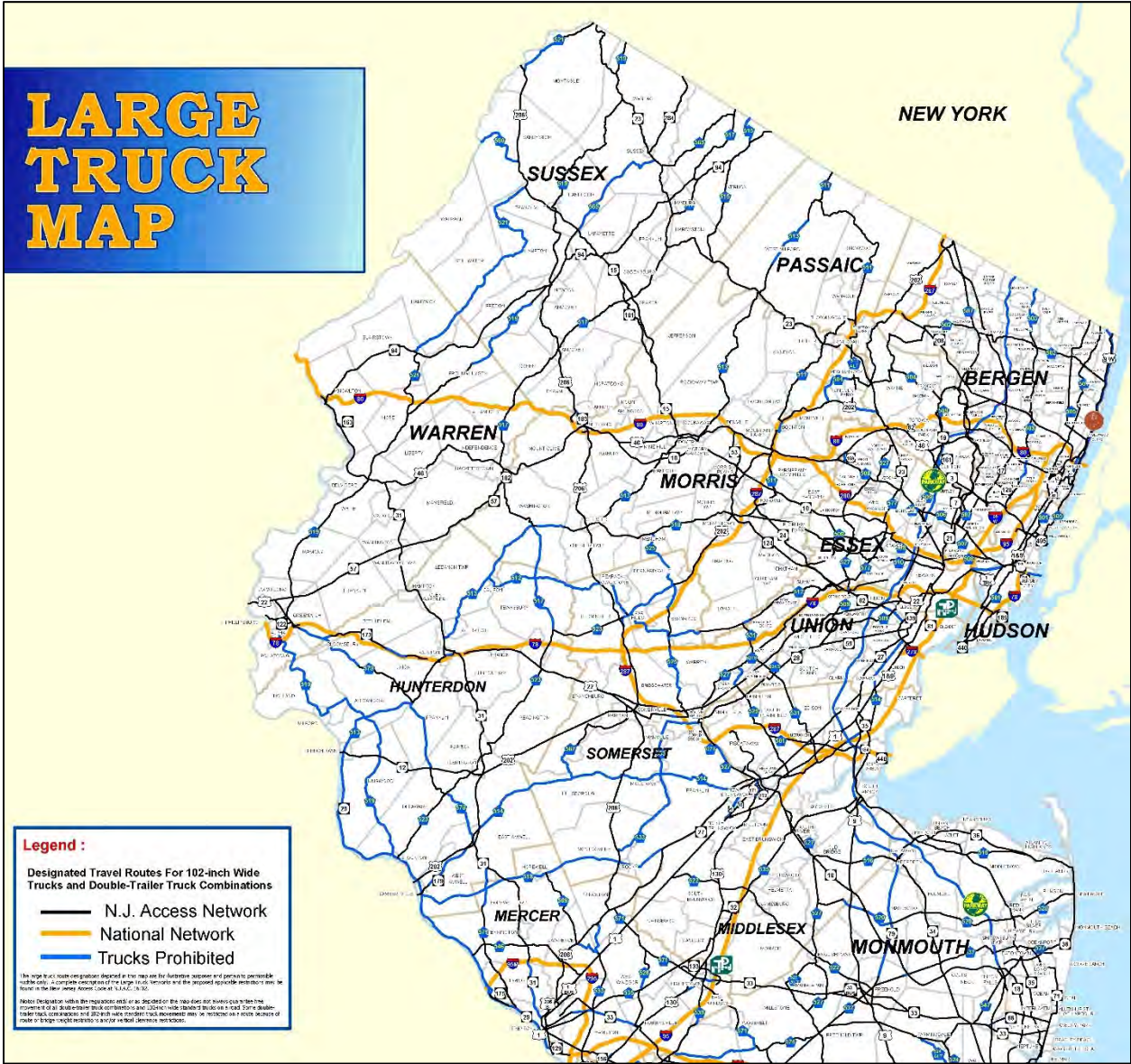
Roads within Warren County that are part of the National Highway System include Interstate 78 and Interstate 80, as well as NJ 31, NJ 57 and NJ 173. Additionally, U.S. 22, U.S. 46, NJ 94, and NJ 122 are part of the New Jersey Access Network. Roadways within the County on which trucks are prohibited include CR 521 (north of NJ 94), CR 519 (north of central Frelinghuysen), CR 579, and CR 519 (south of Alpha Borough).

Truck routes in Warren County and surrounding counties are shown in Figure 8.

Key Points

Freight is an important means of transport throughout the Country, State and County. Several state-funded projects are proposed or underway to continue improving the ability for safe and efficient freight movement within the County and between non-adjacent parts of the State and region. Freight will continue to be an important issue within Warren County due to the prevalence of truck routes located within.

Figure 8: Truck Routes



Maintenance

As per the 1982 Plan, the County reconstructs surface treated pavements (such as oil and chip roads) every 3 to 4 years, and resurfaces bituminous concrete surfaced roadways every 12 to 15 years.

Capital Improvement Plan

County Roadway Right-of-Way Standards

The Warren County Engineering Department has designed standard cross-sections for each roadway classification category. These standards are used in implementing the County subdivision and site plan regulations as well as the general implementation of the Circulation Plan. Warren County's 1982 Transportation Plan presented the following two cross-sections:

Figure 9: Minor Arterial Cross-Section (1982 Plan)

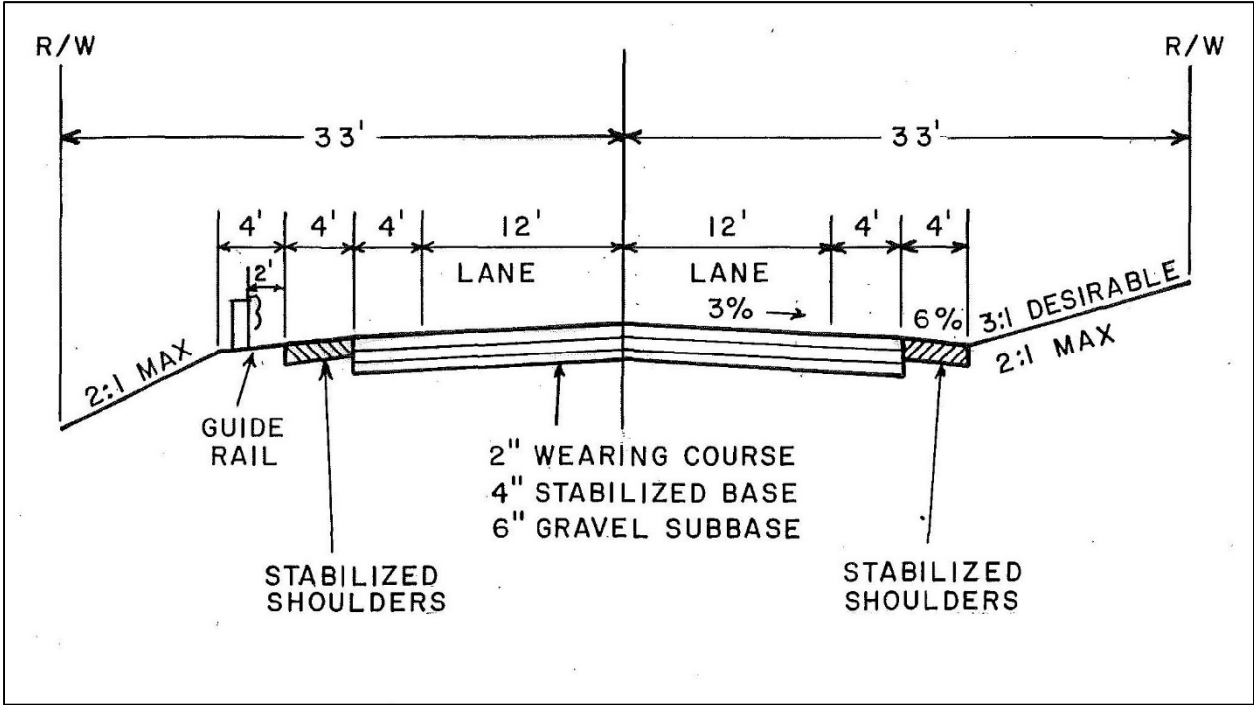
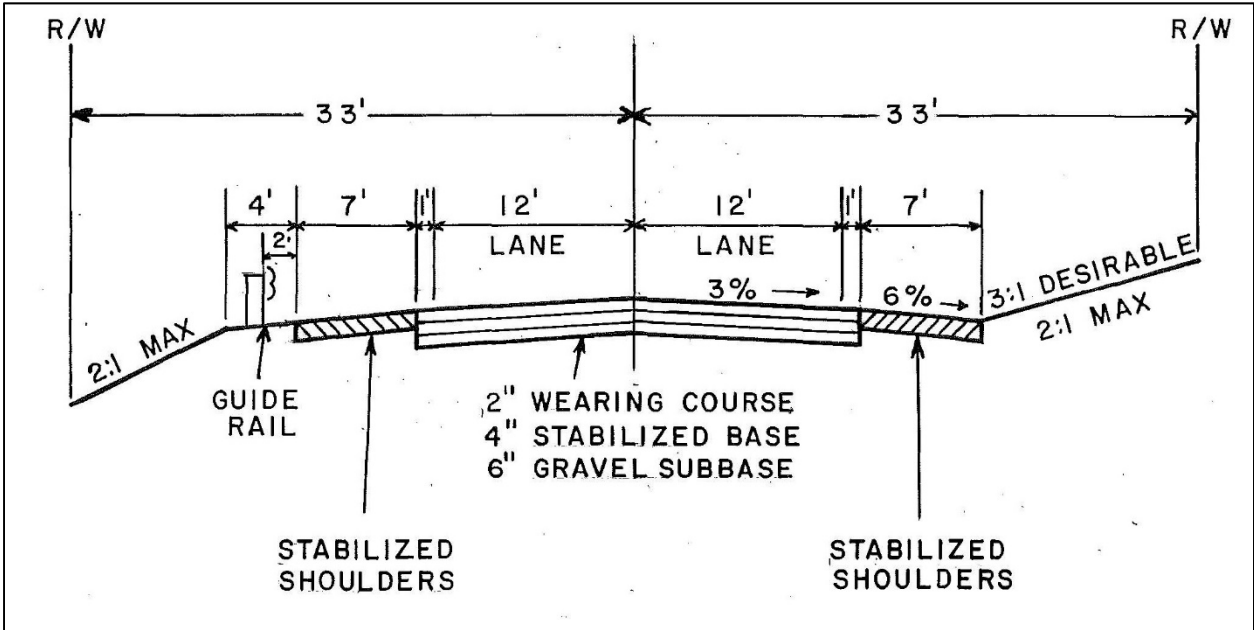


Figure 10: Major and Minor Collector Cross-Section (1982 Plan)



The following drawings present updated minimal desirable typical cross-sections.

Figure 11: Minor Arterial Cross-Section (Updated)

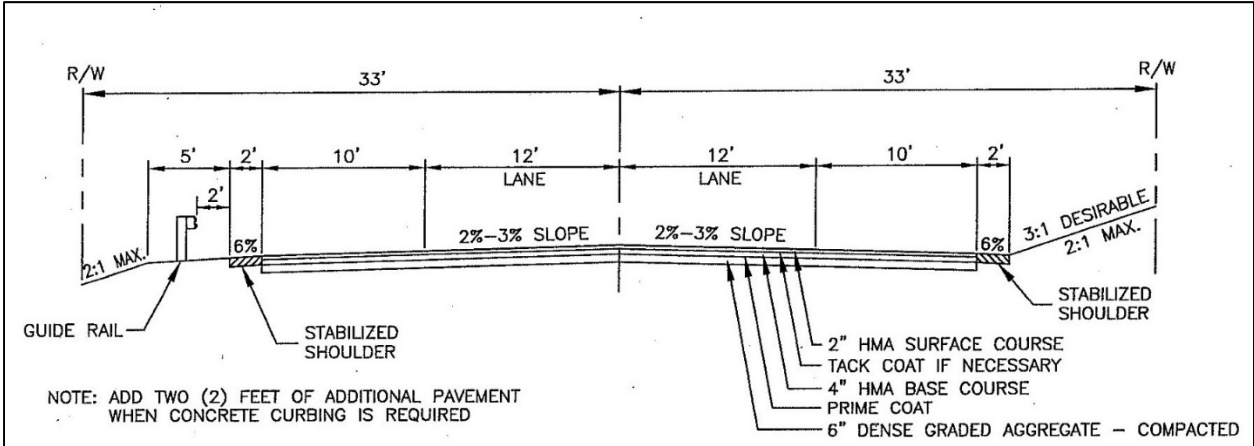


Figure 12: Major Collector Cross-Section (Updated)

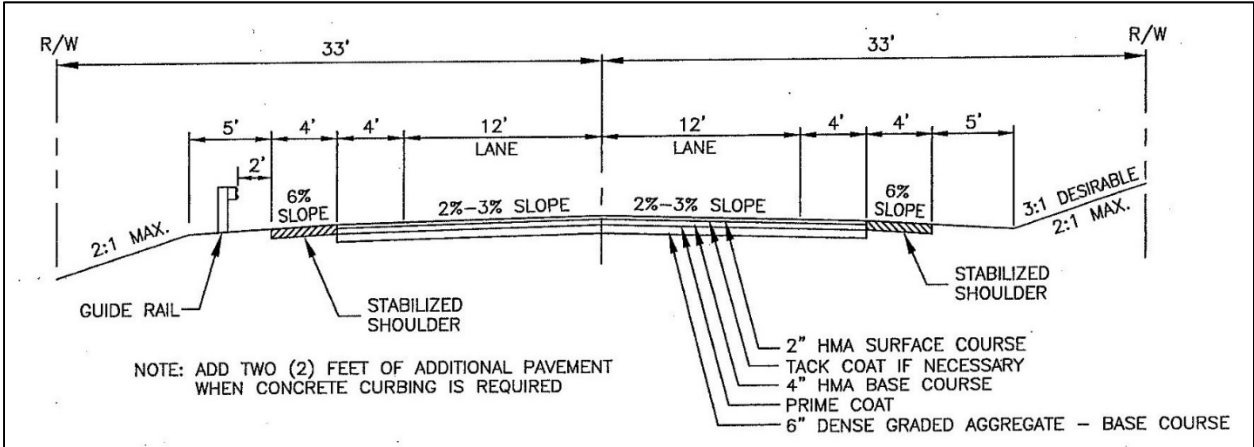
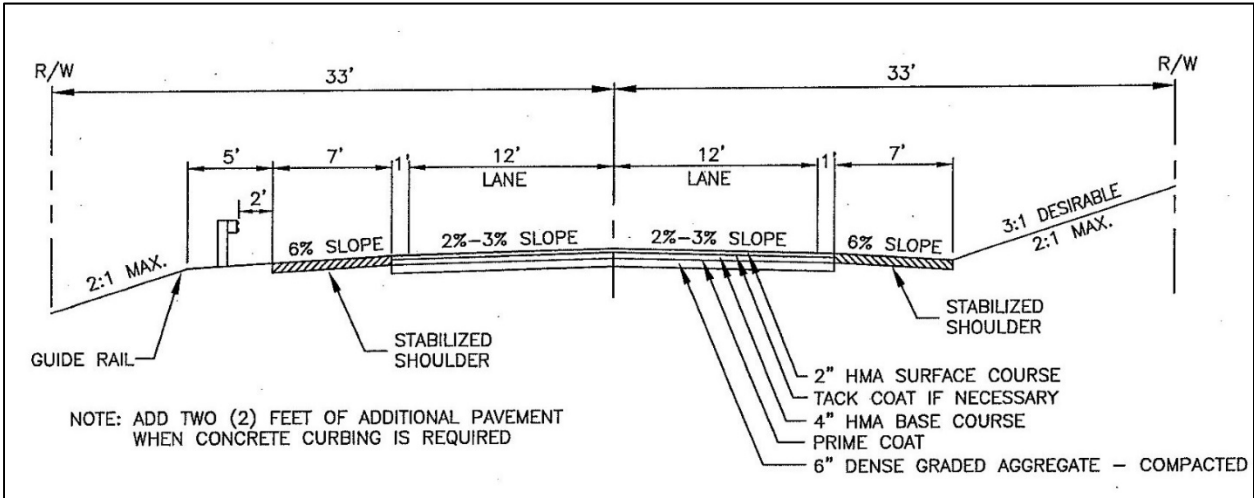


Figure 13: Minor Collector Cross-Section (Updated)



Key Points

The following changes were made between cross-sections in the 1982 plan and current County guidance:

Minor Arterial

- 2' stabilized shoulders instead of 4'
- 10' separation between travel lane and stabilized shoulder instead of 4'
- 3' provided to the outside of the guide rail instead of 2'
- 2-3% slope of roadway instead of 3%

Major Collector

- 4' stabilized shoulders instead of 7'
- 4' separation between travel lane and stabilized shoulder instead of 1'
- 3' provided to the outside of the guide rail instead of 2'
- 2-3% slope of roadway instead of 3%

Minor Collector

- 3' provided to the outside of the guide rail instead of 2'
- 2-3% slope of roadway instead of 3%

Crash Analysis

Crash records for 2016-2018 were collected and mapped for all roads in Warren County from the New Jersey Department of Transportation's (NJDOT) Safety Voyager system (Figure 14). This analysis was performed for two different crash subsets. The first subset included all crashes within the database (10,041 records). This analysis aimed to identify the overarching crash clusters in the County. The second subset analyzed only crash incidents along County roadways and within a 50-foot radius. The purpose of this second analysis was to identify crash clusters at the intersection/corridor level along County roadways.

Figure 15 and Figure 16 provide more detailed inset maps of the two hotspots with the most crashes, accompanied by brief summary tables.

The following descriptions of identified crash clusters indicate which types of crashes were prevalent at the location and an overview of surrounding land uses.

Crash Clusters

All Roadways

Four hotspots were identified, as shown in Figure 14.

- U.S. 22 (Phillipsburg): 1,208 crashes
- U.S. 46 at NJ 182/CR 517/CR 604 (Hackettstown): 599 crashes
- U.S. 22 at CR 638/CR 519 (Greenwich Township and Pohatcong Township): 400 crashes
- NJ 31 at NJ 57 (Washington Boro): 217 crashes

For all roads in Warren County, the identified hotspots and their overrepresented crash types are:

- US 22 in Phillipsburg – Crashes occurring at rates significantly higher than the statewide average include right angle (17% hotspot vs 10% statewide), fixed object (12% vs 9%), struck parked vehicle (16% vs 1%), and backing (4% vs 1%). This cluster has a high density of commercial destinations in a suburban setting including stores and restaurants with frequent intersections into residential neighborhoods.
- US 46 at NJ 182/CR 517/CR 604 - Crashes occurring at rates significantly higher than the statewide average include right angle (24% hotspot vs 10% statewide), struck parked vehicle (11% vs 1%), and backing (3% vs 1%). This cluster includes downtown Hackettstown and its high density of walkable retail locations, as well as frequent intersections into residential neighborhoods.
- U.S. 22 at CR 638/CR 519 – Crashes occurring at rates significantly higher than the statewide average include same direction rear-ends (60% hotspot vs 25% statewide), and same direction sideswipes (20% vs 12%). This clusters includes large shopping centers along U.S. 22 and vehicles entering/exiting Interstate 78 at high speeds.
- NJ 31 at NJ 57 – Crashes occurring at rates significantly higher than the statewide average include same direction rear-ends (34% hotspot vs. 25% statewide), and same direction sideswipes (20% vs 12%). This cluster includes downtown Washington Boro and its high density of retail locations and residential neighborhoods.

Figure 14: Crash Clusters (All Roadways)

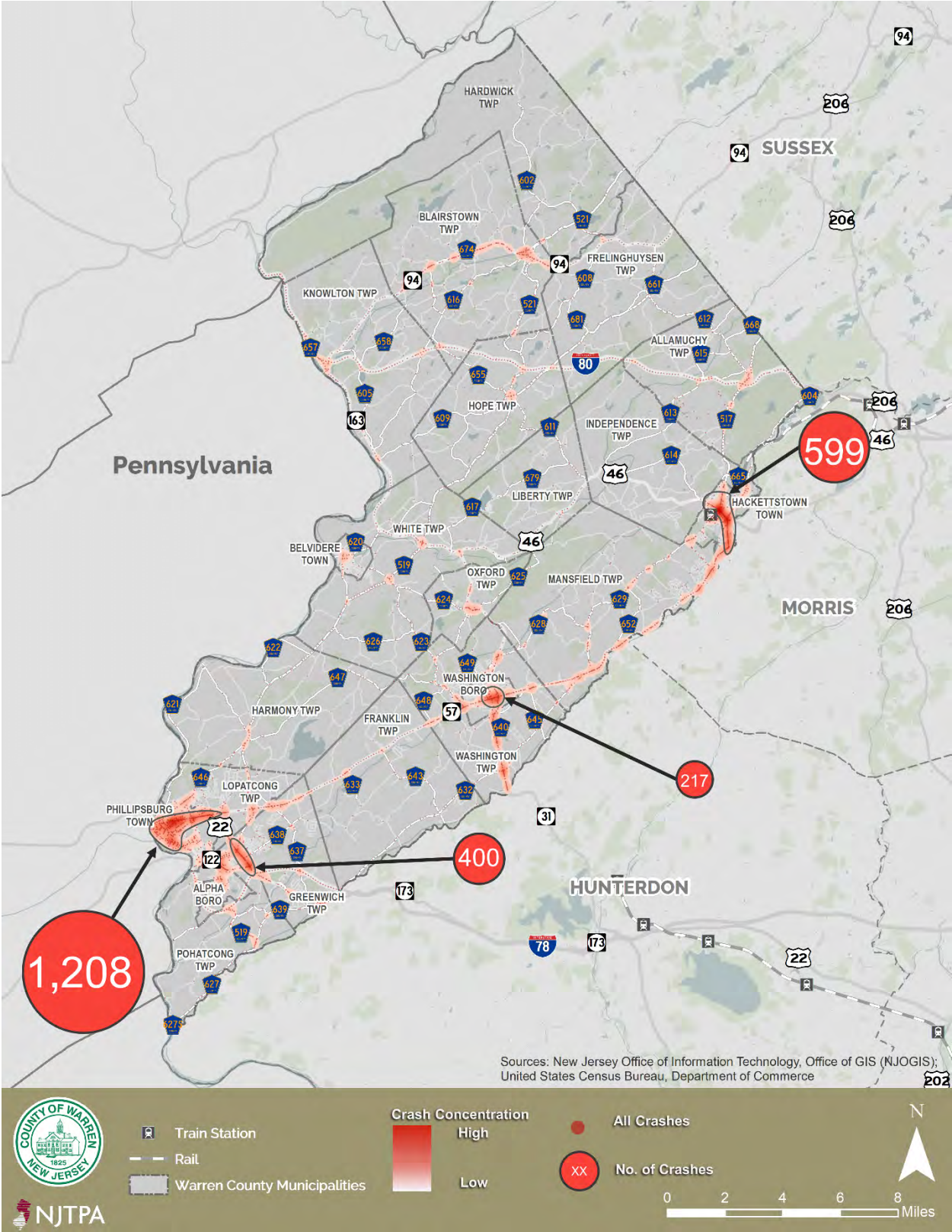
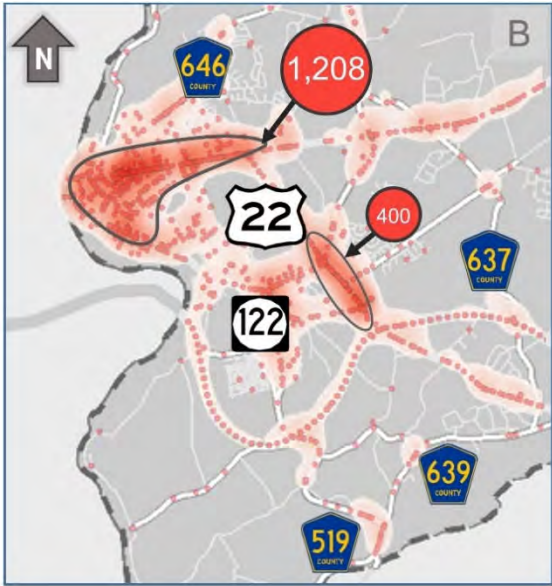
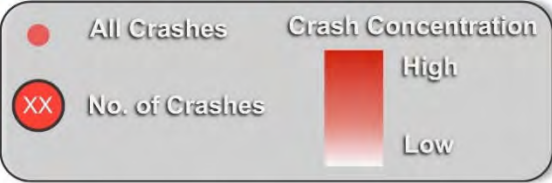


Figure 15: U.S. 22/Phillipsburg

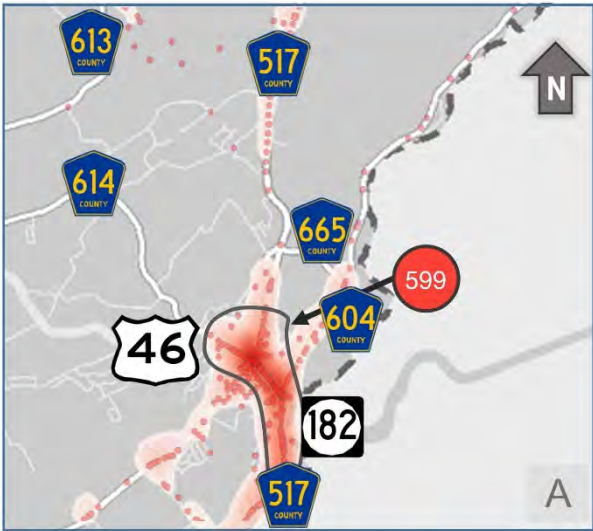


US 22, Phillipsburg		Statewide
	Right Angle	17%
	Struck Parked Vehicle	16%
	Wet Surface	20%
	Daylight	74%
	Heavy Vehicles	9%
Crashes		1,208

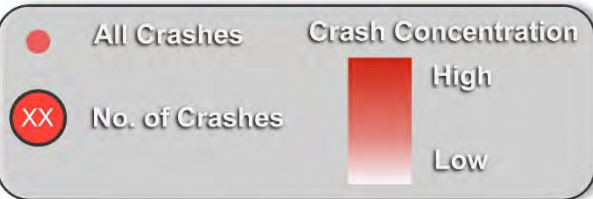


Source: 2016-2018 NJDOT Safety Voyager / Warren County

Figure 16: US 46, NJ 182, CR 517 & CR 604



US 46, NJ 182, CR 517, & CR 604		Statewide
	Right Angle	24%
	Struck Parked Vehicle	11%
	Dry Surface	80%
	Daylight	78%
	Heavy Vehicles	8%
Crashes		599



Source: 2016-2018 NJDOT Safety Voyager / Warren County

Crash Clusters on County Roads

The second hotspot analysis was completed to determine hotspots from crashes that occurred on County Routes (Figure 17). Figure 18: US 22 at CR 519 and Figure 19 provide more detailed inset maps of the two hotspots with the most crashes occurring on County Routes, accompanied by brief summary tables.

The following descriptions of identified crash clusters indicate which types of crashes were prevalent at the location and an overview of surrounding land uses.

Eight hotspots were identified, as shown in Figure 17.

- U.S. 22 at CR 519 (Pohatcong Township and Greenwich Township): 92 crashes
- U.S. 46 at CR 517 (Hackettstown): 61 crashes
- I-80 at CR 517 (Allamuchy Township): 48 crashes
- U.S. 46 and CR 519 (White Township): 44 crashes
- U.S. 22 at CR 646/Morris Street (Phillipsburg): 39 crashes
- CR 630 at CR 640 (Washington Township): 39 crashes
- NJ 94 at CR 521/CR 602/CR 616/CR 607 (Blairstown Township): 27 crashes
- NJ 57 and CR 519 (Lopatcong Township): 21 crashes

For all County Roads in Warren County, the identified hotspots and their overrepresented crash types are:

- US 22 at CR 519/CR 646 (Figure 18) – Crash types occurring at rates significantly higher than the statewide average include rear end (55% hotspot vs 48% statewide), backing (4% vs 1%), and other (6% vs 2%). Three percent involved heavy vehicles. Land use along this part of the CR 519 corridor include a more rural setting to the north near NJ 57, large retail centers along U.S. 22, and higher density residential land uses in Alpha Borough.
- US 46 at CR 517 (Figure 19)– Crash types occurring at rates significantly higher than the statewide average include right angle (16% hotspot vs 10% statewide), fixed object (23% vs 19%), backing (4% vs 1%), pedestrian (3% vs 1%) and other (8% vs 2%). Seven percent involved heavy vehicles. Land use along this segment of CR 517 is primarily medium density residential with small retail locations closer to US 46 and downtown Hackettstown.
- I-80 at CR 517 – Crash types occurring at rates significantly higher than the statewide average include left turn/U-turn (8% hotspot vs 2% statewide), head on (4% vs 2%), overturned (2% vs 1%), backing (6% vs 1%), animal (6% vs 4%), pedestrian (4% vs 1%) and other (4% vs 2%). Ten percent involved heavy vehicles. CR 517 north of I-80 presents a rural land use context with several auto-related businesses and a small residential neighborhood.
- U.S. 46 and CR 519 – Crash types occurring at rates significantly higher than the statewide average include right angle crashes (34% hotspot vs. 10% statewide). 11 percent involved heavy vehicles. Small commercial establishments are located at the intersection with low density commercial development along either corridor.
- US 22 at CR 646/Morris Street- Crash types occurring at rates significantly higher than the statewide average include rear end (59% hotspot vs 48% statewide), fixed object (13% vs 9%),

parked vehicle (10% vs 1%), and backing (3% vs 1%). Five percent involved heavy vehicles. The area around this intersection is highly developed with higher density single-family residential units south of US 22 and retail establishments along US 22.

- CR 630 at CR 640 – Crash types occurring at rates significantly higher than the statewide average include rear end (59% hotspot vs 48% statewide), fixed object (13% vs 9%), head on (5% vs 2%), and overturned (3% vs 1%). Three percent involved heavy vehicles. Land use in this area includes low density residential uses to the north and a more rural context to the south. Several higher speed roads meet near this intersection, including NJ 57.
- NJ 94 at CR 521/CR 602/CR 616/CR 607 – Crash types occurring at rates significantly higher than the statewide average include fixed object (11% hotspot vs 9% statewide), struck parked vehicle (26% vs 1%), left turn/U-turn (4% vs 2%), head on (4% vs 2%), and backing (19% vs 1%). Seven percent involved heavy vehicles. This cluster is within Blairstown’s business district. North of NJ 94 lies several retail establishments and a small residential neighborhood. A more rural, low density context is present along either direction of NJ 94.
- NJ 57 and CR 519 - Crash types occurring at rates significantly higher than the statewide average include left turn/U-turn (14% vs. 2%), and right angle (14% vs. 10%) crashes. Ten percent involved heavy vehicles. Each corridor provides a mainly rural context with higher density residential developments to the west in Phillipsburg.

Key Points

Crashes mainly occur on higher-speed and higher-volume State and County roadways within Warren County. Corridor studies and spot improvements should be investigated to further analyze the reasons for higher concentrations of crashes along specific corridors and improve visibility along hilly and windy roadways. This will be particularly important in areas experiencing increased traffic volumes due to development.

Figure 17: Crash Hotspots, County Roadways

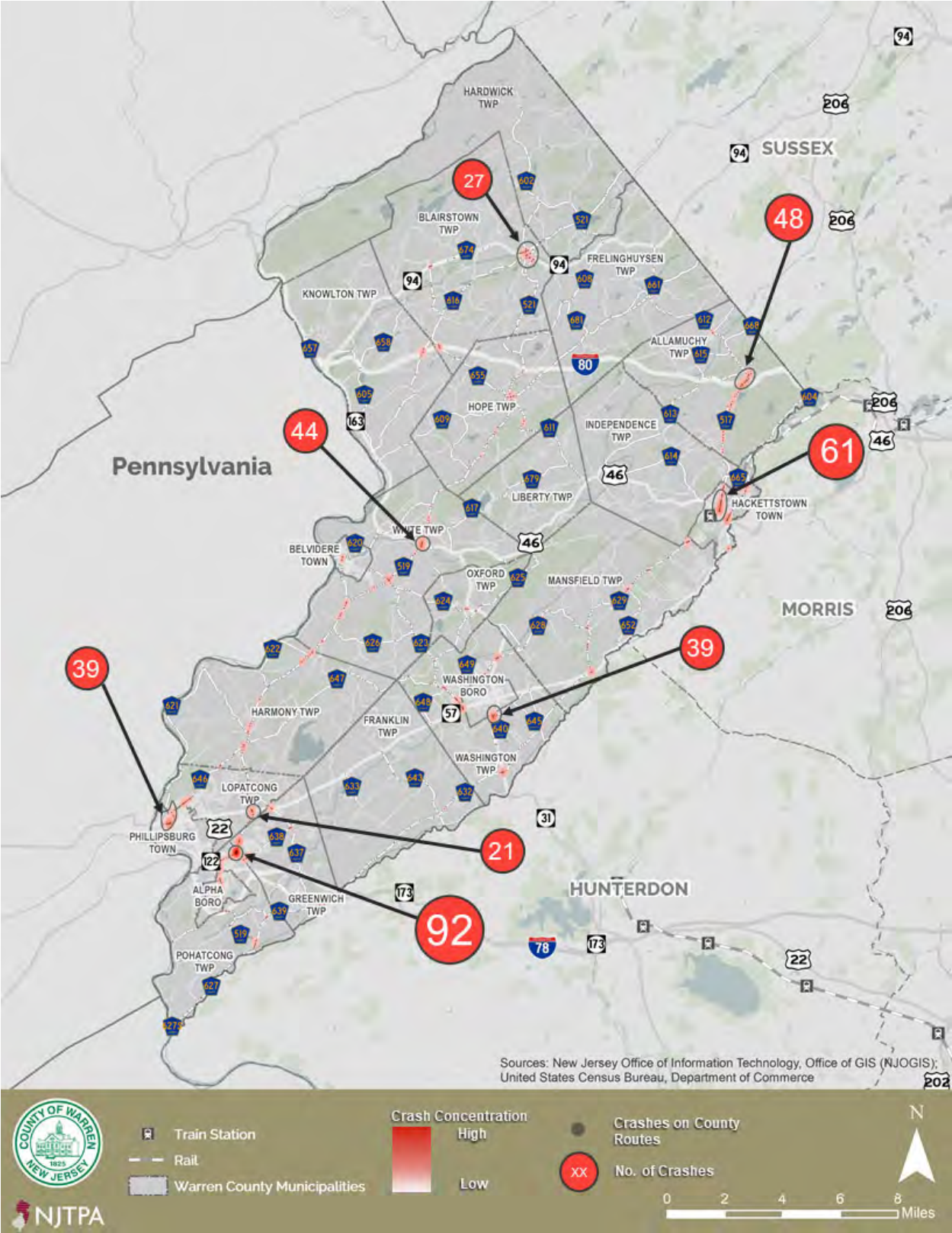
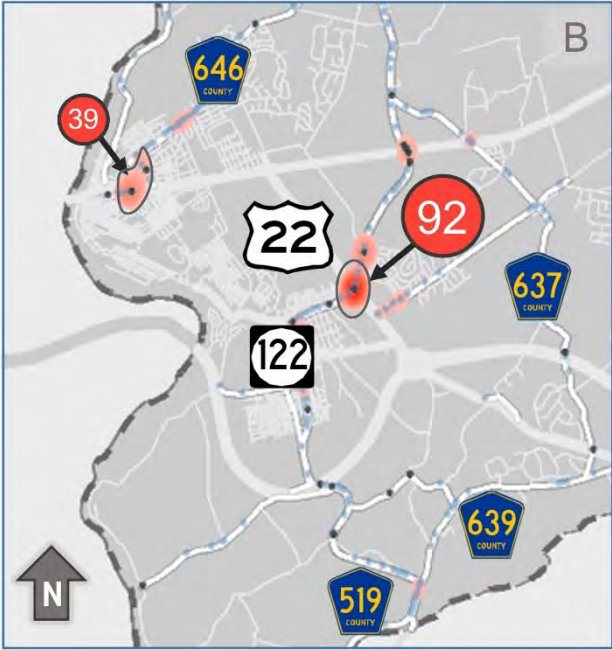


Figure 18: US 22 at CR 519/CR 646 Crashes



US 22 @ CR 519		Statewide
	Right Angle	14%
	Same Direction Sideswipe	23%
	Backing	4%
	Daylight	78%
	Heavy Vehicles	3%
Crashes		92

- Truck Crashes
- Crashes on County Routes
- No. of Crashes

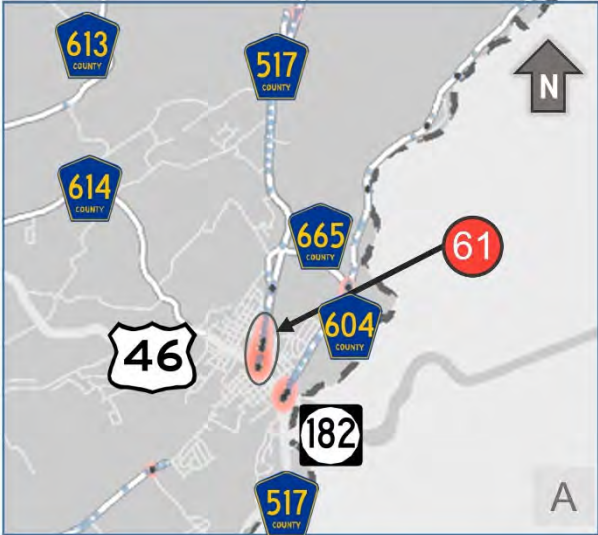
Crash Concentration

High

Low

Source: 2016-2018 NJDOT Safety Voyager / Warren County

Figure 19: US 46 at NJ 182/CR 517 Crashes



US 46 @ NJ 182 & CR 517		Statewide
	Right Angle	16%
	Pedestrian	3%
	Wet Surface	22%
	Dusk	5%
	Heavy Vehicles	7%
Crashes		61

- Truck Crashes
- Crashes on County Routes
- No. of Crashes

Crash Concentration

High

Low

Source: 2016-2018 NJDOT Safety Voyager / Warren County

Biking and Walking

Biking and walking are integral parts of Warren County's transportation network, providing an alternative means to single-occupant motor vehicle use. Existing biking and walking conditions and facilities are detailed below.

Bicycle Compatibility Analysis

Warren County completed bicycle compatibility analysis based on the bicycle level of traffic stress (LTS). LTS measures a cyclist's expected comfort of a given roadway based on roadway conditions. Each bicyclist has different tolerances for stress created by the volume, speed, and proximity of automobile traffic. In general, lower stress facilities have increased horizontal and/or vertical separation between cyclists and motor vehicles and/or lower speeds and traffic volumes. Higher stress environments generally involve cyclists riding in close proximity to traffic, multi-lane roadways, and higher speeds or traffic volumes, a condition undesirable for most cyclists. Based on an analysis of the criteria, the LTS for a given roadway segment is classified into one of four categories. The four categories build upon another, so all LTS 4 cyclists would tolerate LTS 1-4 roadways, LTS 3 cyclists would tolerate LTS 1-3 roadways, etc.

The four levels of traffic stress are:

LTS 1: comfortable for most users

LTS 2: comfortable for most adults

LTS 3: comfortable for experienced and confident riders who might still prefer dedicated space

LTS 4: uncomfortable for most cyclists, tolerated by only the most experienced riders

A map of LTS designations within the County is shown on Figure 20.

Key Points

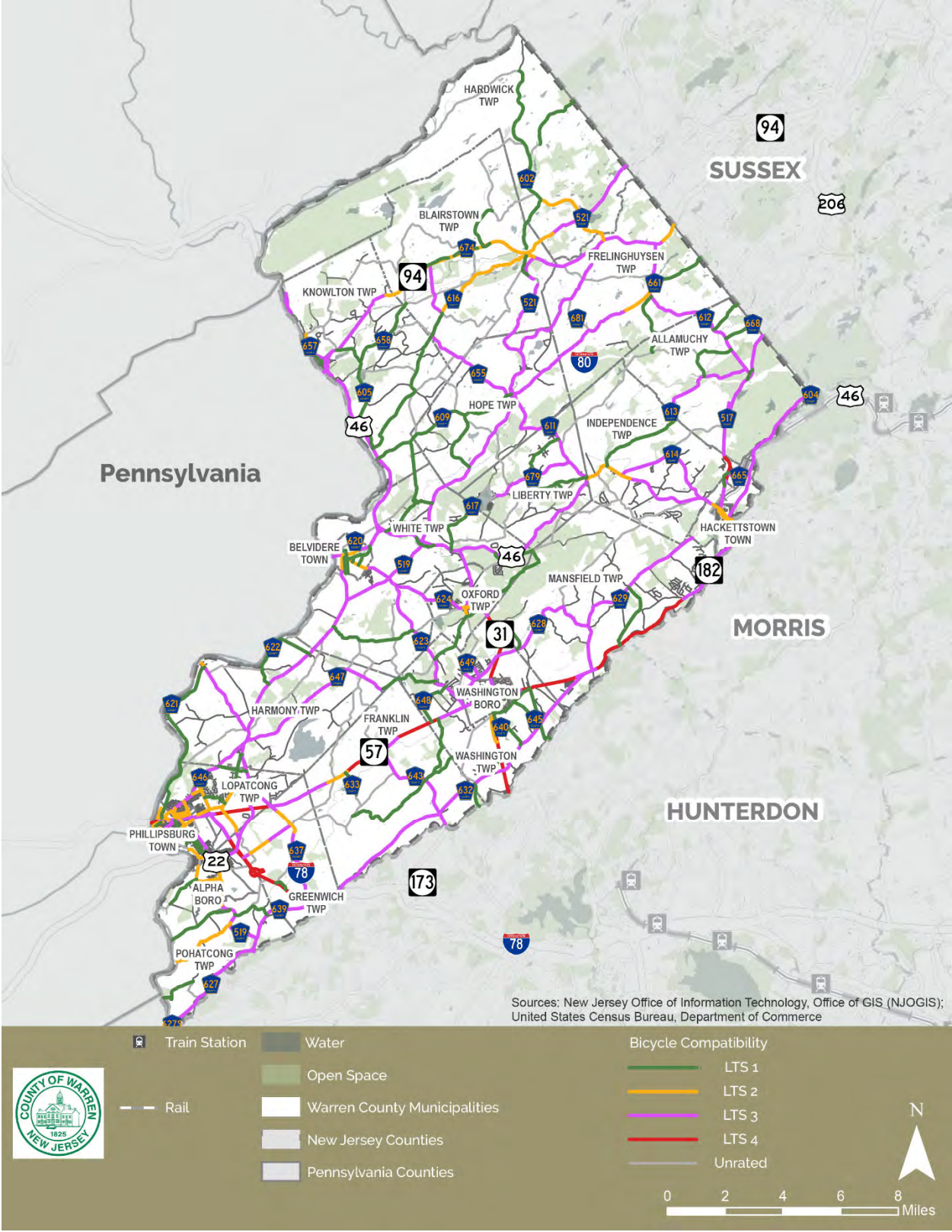
Of the 62 municipal roadways included in the LTS assessment, the majority were designated LTS 1 or 2.

Data provided by the County was separated by roadway jurisdiction into State, County, and Municipal roadways. No State roadways were designated LTS 1. LTS 2 roadways include segments of U.S. 46 and NJ 94. LTS 3 roadways include significant segments of NJ 31, NJ 57, NJ 94, and U.S. 46. LTS 4 roadways include significant segments of several roadways, mainly in the southern part of the County, including NJ 31, NJ 57, and U.S. 22.

County roadways designated LTS 1 include several mile portions of CR 602, CR 609, CR 616, CR 621, and CR 625. County roadways designated LTS 2 include several mile portions of CR 616 and CR 659. LTS 3, the most common designation for County roadways, include several mile portions of CR 519, CR 611, CR 632, and CR 647. The only LTS 4 County roadways is a one-mile portion of CR 517 in Independence and Allamuchy.

Overall, only a limited number of roadways, mainly catering to low-speed traffic in residential areas provide biking facilities comfortable for all road users. High-volume, high-speed roads create barriers to biking between residential areas and commercial centers.

Figure 20: Bicycle Compatibility Analysis



Trails

Warren County possesses a network of hiking and biking trails on municipal, county, state, federal, and private land, many of which provide linkages to the regional system of trails that are already complete or in the process of being completed. These independent trails tend to traverse mountaintops and mountainsides, abandoned railroad and river corridors, lakesides, and the historic Morris Canal.

Table 8 shows that there are just over 180 miles of trails in Warren County under Federal, State, County, municipal and private/non-profit jurisdiction. The table also indicates if any segment of a site's trail system is part of a regional trail system as discussed below and in more detail in the County's Open Space Plan. Figure 21 shows the location of the major regional trails and major open space parks and wildlife management areas.

Table 8: Trails

Trail Name	Part of Regional Trail	Length Miles
Allamuchy Mountain State Park Trails	Warren-Highlands/Morris Canal	23.02
Appalachian Trail	Appalachian Trail	14.56
Bread Lock Park Trails	Morris Canal	2.10
Florence Kuipers Park Trails	Morris Canal	2.43
Jenny Jump Trails	Warren Highlands	13.64
Lehigh Hudson Trail	LH Trail/Pequest Valley	10.80
Merrill Creek Trails	Warren Highlands	12.60
Marble Hill Trails	Warren Highlands	4.86
Mt. Rascal Trail	Morris Canal	1.04
Delaware Water Gap National Recreation Area and Worthington State Forest Trails	Appalachian Trail	40.29
Paulinskill Valley Trail	Liberty Water Gap/911 Trail	12.70
Phillipsburg Riverfront Heritage Trail	Morris Canal	6.91
Port Murray Preserve Trail	Morris Canal	1.75
Port Warren Trail	Morris Canal	1.06
Ridge and Valley Trails	Ridge and Valley Trails	18.37
Washington Township Park Trails	Morris Canal	6.95
East Oxford Mountain Trail	Warren Highlands	0.56
West Oxford Trails	Warren Highlands	2.77
White Lake Trail	Ridge and Valley Trails	4.06
Total Trail System		180.56

Regional Trail Systems

Appalachian Trail

The Appalachian Trail is a more than 2,180 mile long public footpath traversing the scenic, wooded, pastoral, wild, and culturally resonant lands of the Appalachian Mountains from Maine to Georgia.

Morris Canal Greenway

The Morris Canal Greenway is envisioned as a 111-mile continuous west-east pedestrian and bicycle trail connecting six counties in northern New Jersey. Once completed it will extend from the Delaware River in Phillipsburg to the Hudson River in Jersey City.

The acquisition of the historic Morris Canal has been a high priority of the county for years. The Morris Canal was listed on the National and State Registers of Historic Places in 1974. The Morris Canal Greenway Trail uses a mix of public open spaces/parks and public roadways as the route in several areas as the roadways provide the needed connection between one Morris Canal site to another. The total existing walking length of the Morris Canal Greenway in Warren County is approximately 36 miles.

The Morris Canal Greenway is comprised of the following local trail systems

- Bread Lock Park Trails, Franklin Township (2.10 miles)
- Florence Kuipers Park Trails, Hackettstown (2.43 miles)
- Mt. Rascal Trail, Independence (1.04 miles)
- Riverfront Heritage Trail, Phillipsburg (6.91 miles)
- Port Murray Preserve Trail, Mansfield (1.75 miles)
- Port Warren Trail, Greenwich, Lopatcong (1.06 miles)
- Meadowbreeze Park, Washington Township (6.95 miles)

Warren - Highlands Trail/Greenway

The Warren Highlands Trail is a spur of the main Highlands Trail extending over 150 miles from Storm King Mountain on the Hudson River in New York south to Riegelsville, New Jersey, on the Delaware River. One section of the main trail is in Warren County and traverses Allamuchy Mountain and Stephens State Parks. The Warren Highlands trail spur travels 52.4 miles from the Delaware River in Phillipsburg to the Morris Canal Greenway Trail in Allamuchy. The trail travels through the municipalities of Phillipsburg, Lopatcong, Harmony, Washington Township, Oxford, White, Hope, Liberty, Frelinghuysen, Independence, and Allamuchy. The trail passes through 22,700 acres of preserved natural area including Merrill Creek Reservoir, Jenny Jump Mountain, Pequest River Wildlife Management Area, Allamuchy Mountain State Park and travels near several historic sites including Shippen Manor, Van Nest Hoff Vannatta Farmstead, and Rutherford Hall. The Warren-Highlands Trail connects with the main trail in Allamuchy Mountain State Park.

Local trail systems along the Warren Highlands Trail include:

- Allamuchy Mountain State Park Trails (23.02 miles)
- Jenny Jump Trails (13.64 miles)
- Merrill Creek Trails (12.60 miles)
- Marble Hill Trails (4.86 miles)
- East and West Oxford Mountain Trails (3.33 miles)

Paulinskill Valley Trail

The Paulinskill trail travels 12 miles in Warren County from Brugler Road in Knowlton paralleling the Paulinskill, to Frelinghuysen Township and into Sussex County where it then connects with the Sussex Branch Trail.

The Paulinskill Trail traverses over what was once the route of the New York Susquehanna and Western Railroad. The trail is a link in the larger Liberty-Water Gap Trail, and the 911 Memorial Trail. The trail is

conducive to multiple uses including hiking, horseback riding, cross-country skiing, and bicycling. It also provides access for fishing, canoeing, and individuals in wheelchairs.

Ridge and Valley Trail

Portions of the trail have been completed near White Lake in Hardwick Township, and offers a unique opportunity for the weekend hikers. This trail will connect the Paulinskill Trail with the Appalachian Trail, traversing the White Lake Natural Resource Area, various Ridge and Valley Conservancy properties and finally connecting near the Appalachian Trail at the Ralph Mason YMCA camp. Heading south the trail is planned to connect with the Warren-Highlands Trail.

Railroad Corridors

Abandoned or inactive railroad corridors offer trail users an excellent way of enjoying open space without having to purchase large blocks of land. Several railroads in Warren County are inactive and cross some of the county's most scenic regions. Since railroad corridors are flat, they are ideal for many uses, such as bicycling, walking, jogging, horseback riding, cross-country skiing, and wheelchair recreation. Preserving these corridors also creates agricultural and wildlife habitat buffers.

Warren Railroad Trail

This abandoned railroad enters Warren County by crossing the Musconetcong River at Changewater and travels in a northwesterly direction through Washington Township, Washington Borough, Oxford, White and Knowlton Townships for 20.13 miles. It could continue by crossing the Delaware River to Pennsylvania at the Village of Delaware in Knowlton Township. Portions of the right of way are in public ownership, most are in private ownership and a portion of the track is still used in Washington Borough. A portion of the Warren Railroad right-of-way is paved and is now the Oxford Bike Trail. Completion of the Warren Railroad trail would complement the other greenway trails because the Warren Railroad trail will intersect with the Morris Canal Trail, the Warren-Highlands Trail, and the Lehigh Hudson Trail.

Lehigh Hudson Trail/Pequest Valley Trail

The proposed Pequest Valley Trail would be a 30-mile trail across Warren and part of Sussex County and would follow the historic route of the former Lehigh and Hudson River Railroad as closely as possible. It would make connections with other area trails such as the Warren Highlands Trail and the Warren Railroad Trail, and the Sussex Branch Trail in Sussex County. Some sections can be walked now through the Pequest River Wildlife Management Area and other miscellaneous acquisitions by the State and municipalities through Independence and Allamuchy Townships. When completed the trail would pass through Belvidere, White, Liberty, Mansfield, Independence and Allamuchy.

Major Parks and Natural Areas

Worthington State Forest is in Hardwick, Blairstown and Knowlton Townships. The forest covers 6,584 acres and is within the Delaware Water Gap National Recreation Area. It has 26 miles of trails including 7 miles of the Appalachian Trail. It contains picnic areas, playgrounds, overlook/viewing points, boating/boat launch, fishing, hiking, camping.

Allamuchy Mountain State Park in Allamuchy includes 14 miles of marked trails and 20 miles of unmarked trails for hiking, mountain biking, and horseback riding, 3,390 acres are located in Allamuchy Township. Allowable activities include boating, hunting, fishing, hiking, biking, mountain biking, horseback riding trails, nature trails, birding, cross-country skiing, rock climbing area. The park includes the historic Waterloo Village and Saxton Falls, with remnants of the Morris Canal.

Stephens State Park in Hackettstown contains 327 acres and extends into Morris County. The total size of the park is 805 acres. Allowable activities and features include picnicking, playgrounds, fishing, boating/kayaking, hiking, biking, mountain biking, horseback riding, nature trails, birding, camping, cross-country skiing, and seasonal nature programs. The wild and scenic Musconetcong River flows through the park.

Jenny Jump State Forest has 4,343 acres in Frelinghuysen, Independence, Hope, Liberty, and White. Allowable activities and features include picnic areas, playgrounds, overlook/viewing points, fishing, boating, hiking, mountain biking, nature trails, and camping.

Pequest Wildlife Management Area is 4,609 acres in Liberty, Mansfield and White Townships. The Pequest Fish Hatchery is located within the WMA and offers programs about raising trout and the importance of natural resources.

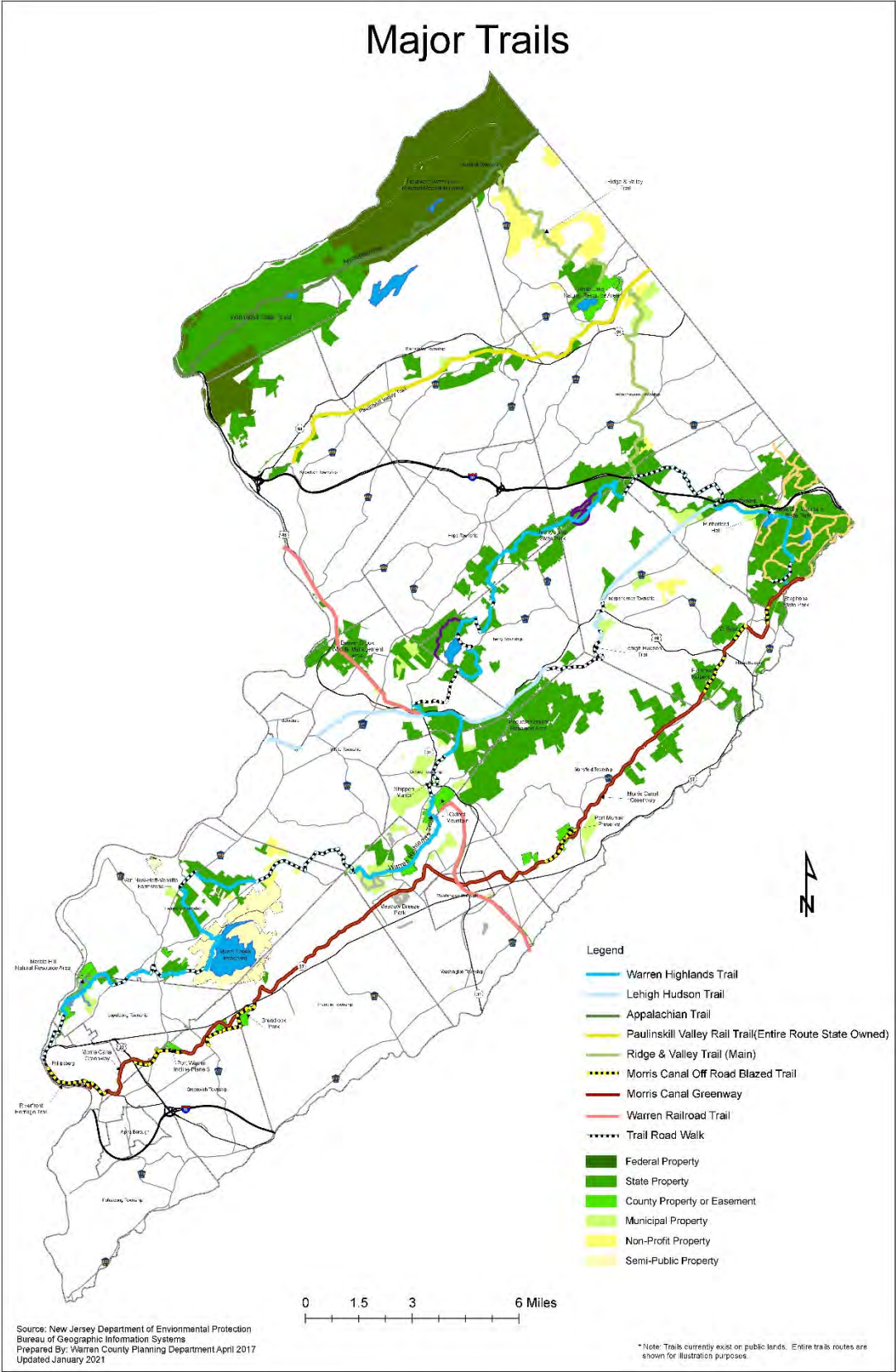
The Merrill Creek Reservoir encompasses 2,600 acres in Harmony and Franklin, including a 650-acre reservoir located atop Scotts Mountain in Harmony Township. Boating, fishing, nature study, and hiking are permitted on the 290-acre wildlife preserve. The visitors' center includes displays on area history, mammals, birds and fish found in the area, and offers educational programs. The Warren-Highlands Trail will use a portion of the perimeter trail and the Merrill Creek properties.

Historic Properties and District and Points of Interest

Major trails are shown in Figure 21. Twenty-nine properties in Warren County are listed as an individual historic property, in addition to 1,601 properties as part of 22 historic districts. Notable points of interest and historic districts in the County include:

- Morris Canal, includes Port Warren (Inclined Plane 9 west) Bread Lock Park (Lock 7) Saxton Falls, Allamuchy Mountain State Park
- Oxford Industrial Historic District includes Shippen Manor and Oxford Furnace
- Old Mine Road Historic District
- Blair Presbyterian Academy
- Asbury Historic District
- Delaware River Water Gap/Mount Tammany, Delaware River Water Gap National Recreation Area
- White Lake, Hardwick Township
- Centenary University, Hackettstown
- Merrill Creek Reservoir
- Van Nest Farmstead
- Belvidere Historic District
- Great Meadows
- Hackettstown Business District
- Warren County Farmers Fair and Fairgrounds

Figure 21:Major Trails



Public Transit

Multiple public transit providers present mobility options within Warren County including a County shuttle system and one New Jersey Transit (NJT) train station. This section elaborates upon transit proposals made in the 1982 County transportation plan as well as present conditions of existing public transit.

Passenger Rail

The County's only New Jersey Transit rail station is in Hackettstown, south of US 46. This station is the western termini of NJT's Morristown Line (part of the Morris & Essex Line) and Montclair-Boonton Line. Under the existing timetable during COVID, weekend service is not provided at Hackettstown. The nearest station with weekend rail service is Dover. The existing schedule operates seven trains to/from Hackettstown each weekday. Passengers traveling to/from Penn Station in New York City must transfer at either Dover or Newark Broad Street (depending on the connecting service). Depending on which train is taken, travel between Hackettstown and New York City takes between two hours and two hours and thirty minutes.

Shuttle Service

Existing Transit

The 1982 Warren County Transportation Plan proposed a series of transit service initiatives to address inter- and intra-county travel needs and offer modal opportunities other than single occupant vehicles. The intra-county system envisioned a series of five bus loops, each operating on two days of the week to provide coverage to a broad area of the County. At the time of the plan's development, much of the service was expected to remain a long-term initiative, with immediate implementation infeasible due to low population density and available funding.

The purpose of this assessment is to understand trends and potential opportunities related to bus services, focused on the intra-county loop concepts. Demand response paratransit and human services transportation are not included in this discussion.

Current Transit Operations

Operated by Easton Coach Company, the Route 57 Shuttle operates two routes in the County.

The Phillipsburg-Washington service operates between St. Luke's Warren Campus to Abilities in Washington. Service is provided each hour from 6:00 AM to 6:00 PM Monday to Friday. Saturday service operates on Saturdays between 9:00 AM and 4:00 PM with four runs to Washington and three to Phillipsburg. Service operates mainly along NJ 57 with stops including Warren County Community College in Washington Township, Shop Rite near CR 519 and US 22 in Phillipsburg, and along South Main Street at US 22 in Phillipsburg.

The Hackettstown-Washington service operates between Abilities in Washington and Lowe's in Hackettstown. Service is provided each hour from 8:00 AM to 4:30 PM. Service operates mainly along NJ 57 with stops including Shop Rite and Warren Hills Family Clinic along NJ 31 in Washington Township, and Shop Rite and Weis' near Allen Road and Newburgh Road in Hackettstown.

The suggested fare for each route is \$1.00 with no change able to be returned.

2019 ridership for the Route 57 Shuttle totaled 94,263 trips, a decline from peak ridership of 121,638 trips in 2017. Service in 2020 operated with much lower usage due to the COVID-19 pandemic which results in the mandated closing of many non-essential businesses and social distancing by residents. Shuttle service continued to operate for essential trips.

A 31Ride Shuttle operated from the Oxford Municipal Building to the Clinton Park & Ride from June 2016 to December 2018. The service was funded through the Section 5311 Innovation Grant.

Table 9: Fixed Route Bus Operating Costs: 2016-2020

Year	Route 57 Shuttle	31Ride Shuttle*	Operating Cost/Hour
2016	\$386,560.08	\$91,263.60	\$45.18
2017	\$391,828.91	\$160,556.77	\$46.31
2018	\$395,804.86	\$161,777.76	\$47.47
2019	\$423,551.20	\$0	\$49.90
2020 (Jan-Mar) pre-COVID	\$109,935.20	\$0	\$52.40
2020 (Apr-Sept) COVID	\$148,030.00	\$0	\$52.40

*Innovation Grant funding terminated at the end of December 2018

Source: Warren County

Table 10: Fixed Route Annual Bus Ridership: 2016-2020

Year	Route 57 Shuttle	31Ride Shuttle*
2016	115,800	1,102
2017	121,638	1,833
2018	107,446	1,948
2019	94,263	No service
2020 (Jan-Mar) pre-COVID	18,989	No service
2020 (Apr-Sept) COVID	11,643	No service

Source: Warren County

Intra-County Bus Loop Concept

In addition to the present Route 57 Shuttle service, several other proposed and terminated shuttle services have operated in the County

The 1982 intra-county loop system plan outlined five potential routes in an effort to provide service coverage throughout the County:

- System 1-A along the Route 57 corridor, connecting Phillipsburg, Washington Boro, and Hackettstown, with out-of-county connections to Netcong (Morris County) and Easton, PA
- System 1-B in northern Warren County, connecting Knowlton Township, Blairstown Township, Hardwick Township, and Frelinghuysen Township with Newton (Sussex County) and Stroudsburg, PA

These two routes were envisioned as the starting point, with additional intra-county services to be added as system expansion:

- System 2 in southern Warren County, connecting Phillipsburg, Washington Boro, Oxford Township, and Belvidere
- System 3 in east central Warren County, connecting Hackettstown, Oxford Township, and Washington Township

- System 4 in northwestern Warren County, connecting Blirstown Township, Columbia, and Hope Township
- System 5 in northeastern Warren County, Hackettstown, Panther Valley, Blirstown Township, and Hope Township

These loops included various interchange points, theoretically allowing for transfers on days when service availability aligned. System 1-A was emphasized for near-term implementation, and it formed the basis for the existing Route 57 corridor shuttles.

Key Points

Due to low population density spread throughout the County, a limited number of transit options are provided for Warren County residents.

Airports

The two public-use airports in the County are Hackettstown Airport and Blirstown Airport, both of which are primarily used for recreational purposes. The 1982 Transportation Plan stresses the need to keep these airports operational and functioning.

The New Jersey Department of Transportation's 2007 State Airport System Plan identified Hackettstown Airport as a Core Candidate Airport. Core airports house approximately 90 percent of the system's based aircraft and are essential to the future aviation system in New Jersey. Approximately ten percent of system aircraft are based at core candidate airports. If improved, core candidate airports could provide needed landside storage capacity and reduce capacity constraints at core airports. Hackettstown Airport provides aviation services such as fuel, hangars, tie downs and flight instruction.

The New Jersey Department of Transportation's 2007 State Airport System Plan identified Blirstown Airport as a Core General Service Airport. General Service airports are intended to support smaller corporate aircraft, such as twin-engine aircraft, and the operation of general aviation aircraft for business and pleasure. General Service airports provide the majority of the system's operational and storage capacity for single and multi-engine piston aircraft. Blirstown Airport provides flight trainings and, rental and scenic air tours.

Figure 22: Hackettstown Airport



Figure 23: Blairstown Airport



Freight Rail

Three freight railroads operate in Warren County.

Norfolk Southern operates two lines entering the County in Phillipsburg. Norfolk Southern's principal line from Allentown to North Jersey and New York City is the Lehigh Line. 30 trains per day use this line which passes through Alpha before crossing into Hunterdon County. This line does not serve any local Warren County customers. Norfolk Southern's Portland secondary line passes through Phillipsburg and runs north along the Delaware River to Brainards where it crosses to Martin's Creek, PA. The Belvidere Industrial Track continues along the east bank of the Delaware River to Belvidere, with a second branch crossing the river to Martin's Creek Power Plant.

The Dover and Delaware River Railroad is a short line railroad operating between Phillipsburg and Hackettstown over the former Norfolk Southern Washington Secondary. The line connects to Norfolk Southern's Lehigh Line and runs northeast past the Bridgepoint 78 Industrial park to Washington, Port Murray, Rockport and Hackettstown. This railroad has trackage rights beyond Hackettstown over New Jersey Transit as far as Newark. The route serves local customers in Morris and Warren Counties.

The Belvidere & Delaware River Railway is a short line railroad affiliated with the Dover and Delaware River Railroad. The railway connects with Norfolk Southern's Lehigh Line in Phillipsburg and runs south along the Delaware River passing into Hunterdon County at Riegelsville. The railway serves Builder's First Source and Baer Aggregates in Warren County. In addition to freight use, the railway is a partner with the New York Susquehanna and Western Railway Technical and Historic Society in providing tourist passenger train service to 75,000 visitors in Phillipsburg annually.

All rail lines in Warren County are cleared for Plate F railcars and can handle railcars up to 286,000 lbs. The Norfolk Southern Lehigh Line is cleared for double-stack intermodal trains. To improve the suitability of rail service in Warren County, the Hackettstown drainage bridge is being studied for possible improvements to its structure or replacement as the bridge cannot withstand the weight of Plate F rail cars. The drain runs under the railroad track at Third Avenue and Moore Street in Hackettstown and is essential to allow stormwater to flow underneath the track. The preferred alternative is for full replacement of the slab with precast slab panels.

Remaining projects to make Warren County railroads suitable for larger rail service:

The Hackettstown drainage bridge is being studied as it currently is in need of structural repair or replacement it cannot withstand the weight of the larger Plate F rail car. The drain runs under the railroad track at 3rd avenue and Moore street in Hackettstown and is essential to allow storm water to flow underneath the railroad track. The Preferred alternative is a full replacement of the slab with precast slab panels.

Key Points

Several freight railways are provided in Warren County. This infrastructure is essential to the continued efficient movement of goods throughout the County and beyond. Several projects are underway to improve freight rail movement within the County.

Technical Memorandum 3: Scenario Modeling and Assessment

Warren County Transportation Plan

MAY 2021

SCENARIO PLANNING OVERVIEW

A scenario planning exercise was conducted to help understand and prepare for anticipated changes and growth, using a comprehensive community-based planning process to gather and evaluate comments and concerns from the wide variety of Warren County stakeholders. Scenario planning is an analytical tool that can help decision makers and stakeholders understand and prepare for what lies ahead. Scenario-based methodologies provide a platform for evaluating a range of potential outcomes, visions and investment scenarios by testing a mix of infrastructure, demographic, land use and/or policy changes.

This process actively involves the public, the business community, and elected officials on a broad scale, educating them about growth trends and trade-offs, and incorporating their values and feedback into future planning initiatives.

This type of inclusive collaborative process is essential to identifying the issues, interests, needs, and priorities unique to those who live, work, and conduct business in Warren County, and helps shape its future.

The scenario planning exercise draws upon the existing conditions analysis, assessment of trends and changes, and collaboration with stakeholders. This scenario planning exercise evaluated several development patterns to determine how each impacts the roadway network. Based on the modeling scenarios, the county, stakeholders and local businesses can contribute to actions to mitigate projected negative traffic impacts. Although the county does not have control over many aspects of land use development, there are steps the county and its municipalities can take to shape how communities develop and grow.

Travel Demand Modeling

A series of alternative scenarios for Warren County were developed and tested using the North Jersey Regional Transportation Model- Enhanced (NJRTM-E). NJRTM-E is the official travel demand model for northern New Jersey, and facilitates testing of potential projects, land use changes, economic variables, and demographic trends.

NJTPA's approved forecasts of population, households, and employment are critical inputs to the NJRTM-E to help ensure the process is consistent with the region's transportation planning and investment decision-making processes, and the model includes NJTPA's approved program of transportation improvement projects.

In consultation with Warren County and NJTPA, the study team established a uniform set of performance measures and metrics, consistent with planning studies of this type conducted at the county and regional level, including the number of trips made on the average day, average speed and trip length, and various measures of travel, delay, and congestion. Detailed model statistics and data, and display plots of traffic volumes, speeds, and volume-to-capacity ratios were also examined. These data were reviewed by Warren County, the project Steering Committee and municipal partners, and presented to the public for comment and discussion.

Scenario Planning Tool

This model is a conventional four step transportation model consisting of trip generation, trip distribution, mode choice, and trip assignment. There are over 2,900 Traffic Analysis Zones (TAZ) included in this model, covering all of northern New Jersey, portions of southern New Jersey, New York City and Long Island, southern New York State, and northeastern Pennsylvania, as displayed in Figure 1.

Figure 1 - NJRTM-E Model Coverage



Source: NJRTM-E Model Development Manual, NJTPA, 2018

Within the NJTPA region, the highway network includes most arterial roadways (major and minor classification) and most 500 level and 600 level county roads. Most collector or local roads are not included. Outside the NJTPA region, the highway network is more schematic, generally representing major regional roadways in the National Highway System (NHS).

Figure 2 - NJRTM-E Highway Network



Source: NJRTM-E Model, NJTPA.

The model covers nine trip purposes ranging from home-based work, shopping, and work-based other to non-home-non-work-based trips as well as airport trips, university trips made by students to and from regional colleges and universities, and truck trip purposes (i.e. heavy, medium, and commercial). Six modes of travel are considered for most trip purposes covering a range of automotive modes such as single occupancy vehicles to increasing degree of high occupancy vehicles, public transit-walk access, public transit-drive access, and trucks. The public transportation network includes NJ TRANSIT rail and bus systems, some private bus lines, and ferry services.

Modeled forecasts are generated for four different time periods covering the daily twenty-four-hour journey. The 24-hour model is composed of four separate periods: AM Peak (6:00am to 9:00am), Midday (9:00am to 3:00pm), PM Peak (3:00pm to 6:00pm), and Night (6:00pm to 6:00am).

Planning Tool Refinement

To better evaluate the impacts of proposed light industry development in Warren County, modifications were made to the base traffic analysis zone system and the highway network. These changes were made primarily to include fifteen additional TAZ zones, each representing the location of the potential industrial development sites as shown in Figure 3 and listed in Table 1. One of the 14 sites was determined to be unbuildable and thus removed from consideration and further analysis.

Figure 3 - Identified Industrial Sites and NJRTM-E Traffic Analysis Zones

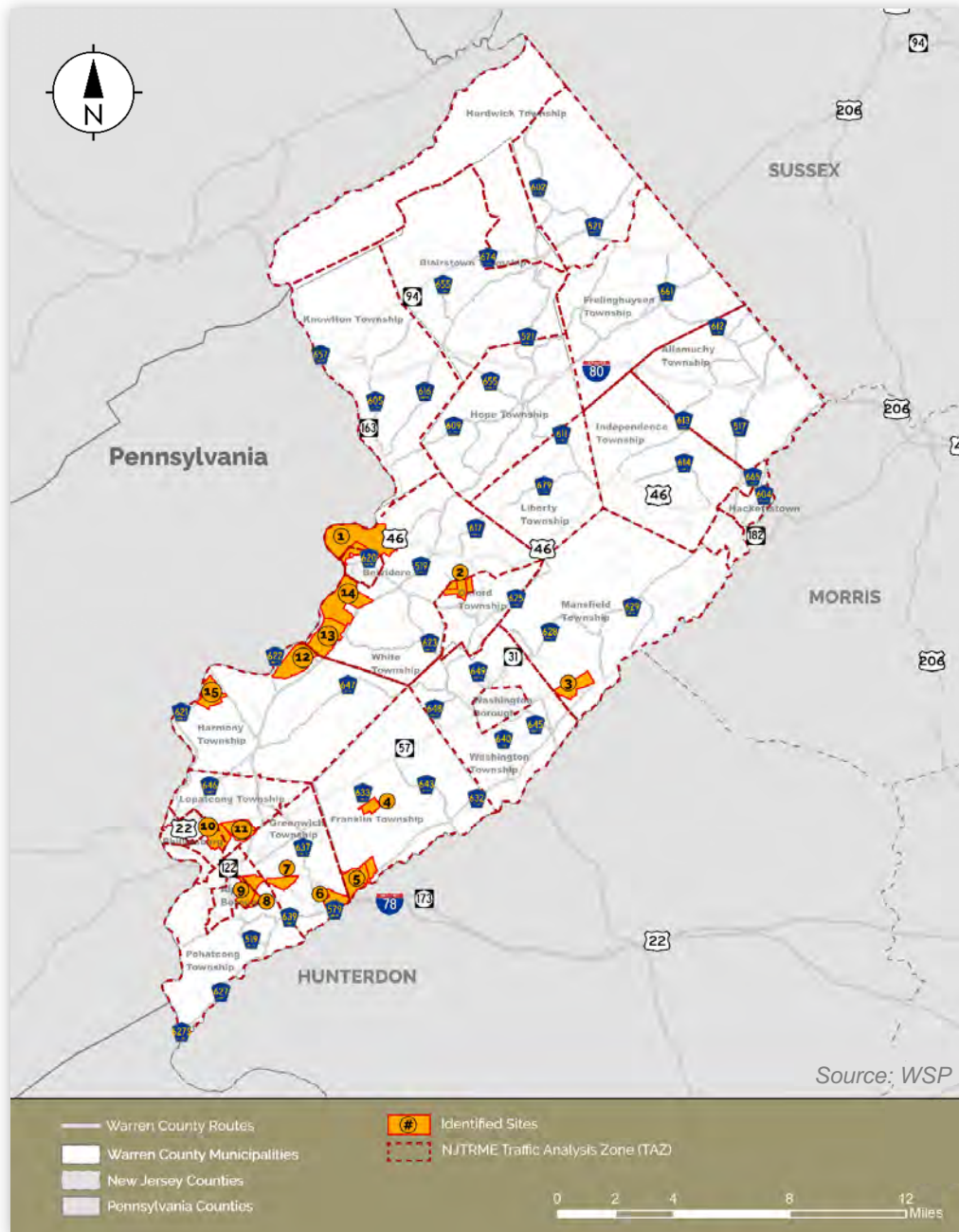


Table 1 - Identified Industrial Sites

Site ID	Municipality	Zoning	Total Area (Acres)	Potential (1,000 Sq. Ft.)	Modeled (1,000 Sq. Ft.)
1	Belvidere	LM - Light Manufacturing	283.2	8,174	500
	White	I - Industrial	1260.7		
2	Oxford	I - Industrial	49.0	1,332	100
	Oxford	I - Industrial, O & LI - Office and Light Industrial	66.6		
	Oxford	I - Industrial, LI - Light Industrial	186.2		
3	Mansfield	I - Industrial	356.0	962	100
4	Franklin	I - Industrial	141.3	968	0
5	Franklin	I - Industrial, IP-A - Industrial Park	89.8	3,413	1,700
	Franklin	I - Industrial, IP-A - Industrial Park	444.7		
6	Greenwich	ROM - Research, Office & Manufacturing	246.9	980	1,000
7	Greenwich	RO - Research, Office	199.7	658	650
8	Alpha	I - Industrial	71.6	694	175
9	Pohatcong	I - Industrial	146.0	1,123	1,863
	Alpha	I - Industrial	239.0		
10	Phillipsburg	I - Industrial, Phillipsburg Commerce Park Redevelopment Area	384.6	5,672	4,300
11	Lopatcong	ROM -Research, Office & Manufacturing	376.2	1,648	1,100
12	Harmony	I - Industrial	623.9	5,066	500
13	White	LDI -Low Density Industrial	622.8	4,877	2,600
14	White	I - Industrial	943.3	5,750	575
15	Harmony	I - Industrial	369.0	4,073	400
TOTAL			6817.3	37,216	15,063

Source: Warren County

Demographic and Economic Trends

As presented in the 2018 Transportation Technical Study, the demographic projections developed for the 2005 Warren County Strategic Growth Plan anticipated a continuation of the county's historic population growth rate of approximately one percent per year. The forecast predicted that Warren County would maintain this robust population growth rate through at least 2030. Based on official U.S. Census data, from 1830 to 2000 the Warren County population grew at an average rate of 1.01% per year.

The resulting land use and traffic forecasts based on this historic annual average growth rate included significant levels of new development, population, and employment growth over the Plan's 30-year time frame, and the travel demand models developed using these forecasts projected a severe worsening in traffic congestion and mobility. This finding led to the recommendation of a comprehensive centers-based program of smart growth land use strategies and transportation demand measures to mitigate the projected worsening of traffic congestion, based on the anticipated continuation of the 1.01% per year historic population growth rate.

What happened instead was a significant and unanticipated slowing of population growth in the mid-2000's, followed by a small decline in total county population which has persisted through to the current 2020 U.S. Census estimates.

Therefore, in contrast to 2005 Strategic Growth Plan projections, the post-2005 U.S. Census and approved NJTPA projections present a remarkably different and much more restrained assessment of current and future growth in Warren County.

According to these more recent data and projections, Warren County population actually grew at a much slower rate, from 102,437 in 2000 to 108,692 in 2010 (approximately 6.1% overall, or 0.59% per year) - and the current 2020 U.S. Census estimate is 107,099, a small decrease of 1.5% compared to 2010), or about -0.15 percent per year for the decade.

Compared to the 1.01% per year historic population growth rate, the 2000-2020 period experienced an annual growth rate of only 0.22% per year. Census population data by municipality is show in Table 2.

Table 2 - Warren County Population

Municipality	1990	2000	2010	2020*
Allamuchy	3,484	3,877	4,323	4,523
Alpha	2,530	2,482	2,369	2,249
Belvidere	2,669	2,771	2,681	2,621
Blairstown	5,331	5,747	5,967	5,818
Franklin	2,404	2,768	3,176	3,104
Frelinghuysen	1,779	2,083	2,230	2,356
Greenwich	1,899	4,365	5,712	5,567
Hackettstown	8,120	10,403	9,724	9,585
Hardwick	1,255	1,464	1,696	1,575
Harmony	2,653	2,729	2,667	2,559
Hope	1,719	1,891	1,952	1,870
Independence	3,940	5,603	5,662	5,545
Knowlton	2,543	2,977	3,055	2,977
Liberty	2,493	2,765	2,942	2,868
Lopatcong	5,052	5,765	8,014	8,255
Mansfield	7,154	6,653	7,725	7,516
Oxford	1,790	2,307	2,514	2,522
Phillipsburg	15,757	15,166	14,950	14,570
Pohatcong	3,591	3,416	3,339	3,254
Washington Borough	6,474	6,712	6,461	6,489
Washington Twp	5,367	6,248	6,651	6,500
White	3,603	4,245	4,882	4,776
TOTAL	91,607	102,437	108,692	107,099

Source: U.S. Census, *Estimate

Additionally, since completion of the Transportation Technical Study (2018), an unanticipated series of light industry development projects have been proposed in Warren County (including conventional warehousing and e-commerce uses of various sizes and types), with several currently advancing to construction. As a precursor to the WCTP, the *Warren County Light Industrial Site Assessment* was undertaken and completed in September 2020 to evaluate and determine the impact of this influx of new development and the new jobs, residents, and auto and truck trips they would generate if built out to the maximum extent considering environmental and zoning constraints.

These contrasting trends of a much lower population growth rate and a much higher than anticipated growth in employment frame the development and assessment of the scenario planning process for the WCTP.

WCTP Scenarios

Introduction

Based on the data review, demographic assumptions and evaluation of light industrial sites detailed in the Warren County Light Industrial Site Assessment, several scenario alternatives were developed. If developed, these potential light industrial sites could have a significant impact on Warren County's future and the WCTP scenario planning process sought to describe and understand what may happen, the potential impacts and benefits, and how Warren County can prepare through specific planning and policy initiatives, and multimodal transportation improvements.

Warren County's location in the region and proximity to Interstates 78 and 80 position the county as a desirable center for warehouse development and the related need for freight and goods movement by truck. According to the Warren County Light Industrial Site Assessment, 14 sites with the potential for industrial development were identified, with the potential for over 4,000 acres and over 45 million square feet of gross floor area. These sites are in Alpha, Belvidere, Franklin, Greenwich, Harmony, Lopatcong, Mansfield, Oxford, Phillipsburg, Pohatcong, and White.

Based on zoning, site constraints, accessibility, proximity to regional interstate highways, and other factors including those sites already formally proposed or under construction, about one-third of this total was projected for the purposes of the WCTP and scenario planning process, for a total of 15.563 million square feet. Site 4 was determined to be not viable, leaving the remaining 14 eligible light industrial sites, with most at a much lower scale of buildout than the initially estimated full potential. The WCTP scenario planning process is therefore based on an assumption of 15.563 million square feet of light industrial development compared to the initial estimate for 45 million square feet included in the Warren County Light Industrial Site Assessment. Table 3 lists the municipality, zoning, and assumed total of 15.563 million SF 2045 buildout potential.

Table 3 - Identified Light Industry Sites

Site ID	Municipality (Location)	Zoning	Available (1,000 Sq. Ft.)	Modeled (1,000 Sq. Ft.)
1	Belvidere and White Township / White	LM	8,175	500
2	Oxford	I	1,332	100
3	Mansfield	I	962	100
4	Franklin	I	968	0
5	Franklin 632 Asbury / Anderson Road	I	3,413	1,700
6	Greenwich	ROM	980	1,000
7	Greenwich	RO	658	650
8	Alpha	I	694	175
9	Pohatcong- I-78/22/122	I	1,123	1,863
10	Phillipsburg- I 78 Logistics Park	I	5,672	4,300
11	Lopatcong- Strykers Road	ROM	1,648	1,100
12	Harmony	I	5,066	500
13	White	LDI	4,877	2,600
15	Harmony / River Rd	I	4,073	400
14	White	I	5,750	575
TOTAL			45,391	15,563

*I - Industrial, LM - Light Manufacturing, IP - Industrial Park, LDI - Low Density Industrial
RO Research Office, ROM - Research, Office & Manufacturing*

Four WCTP future scenarios alternatives for the 2045 projection year were developed and tested based on buildout potential; anticipated demographic changes, and related travel demand and congestion impacts:

- 2045 Baseline
- Logistics Hub
- Centers-Based
- Warren County Blend

Furthermore, the Centers-Based and Warren County Blend scenarios were also modeled under additional build conditions, elaborated upon toward the end of this technical memo. Each of the three non-baseline future scenarios, as well as the two build scenarios assumed a 2045 population of 126,881 in 52,636 households, and 46,670 jobs.

For the purposes of the scenario planning, new light industrial jobs are anticipated to be filled by three population groups:

- Existing residents, which would not add new population or households to Warren County
- Residents from neighboring counties and regions including Pennsylvania’s Lehigh Valley, which would not add new population or households to Warren County
- New resident (and households) moving to Warren County to fill newly generated jobs

This study assumes a 50-50 split, with half of the jobs being filled by existing residents and the other half by new residents (and households) moving to Warren County.

The NJTPA projections for employment, population, and households for 2045 indicate that Warren County features a slightly smaller household size (2.41 per household in Warren County versus 2.66 for

the NJTPA region) and generates fewer new jobs per resident (0.34 jobs per resident versus 0.46) than the NJTPA region as a whole.

The National Association for Industrial and Office Parks (NAIOP) and Institute of Traffic Engineers (ITE) include trip generation estimates based on industry experience with recent and historical development projects and actual counts of new jobs and trips generated. The potential Warren County development sites listed in **Error! Reference source not found.** are anticipated to include a mix of conventional warehousing and e-commerce fulfillment centers.

In consultation with the NJTPA and Warren County, a mix of 60 percent conventional, 40 percent fulfillment was agreed to; based on this development mix and NAIOP and ITE trip generation data, an estimate of one new job per 2,220 square feet was used. Based on these data and estimates, the projected 15.563 million square feet of new light industrial development is anticipated to generate 7,010 new jobs, 8,716 new residents, and 3,616 new households in Warren County through 2045. Fulfillment industrial sites include those receiving, packaging and shipping goods but do not manufacture goods on-site.

Furthermore, the Centers-Based and Warren County Blend scenarios were also modeled under additional build conditions, elaborated upon toward the end of this chapter.

The following sections provide the assumptions, performance measure results and conclusions for each of the scenarios. A summary table of the results of each is included at the end of this technical memo.

2020 Existing Scenario

Scenario planning for the WCTP begins with the 2020 Existing scenario which represents the reference point for comparison with all future scenario alternatives. The analysis looks at what happens to travel conditions as population grows and new jobs are created and how travel demand grows over time. It will also consider whether traffic congestion spreads to new corridors and intersections and what mix of improvement projects is recommended to maintain system performance through the year 2045. The 2020 Existing scenario includes 44,426 households, 110,763 people and 37,163 jobs.

2045 Baseline Scenario

The 2045 Baseline Scenario represents one reference point for comparison with all future scenario alternatives, indicating what would happen to travel conditions in the region if no new plans, policies, programs, or projects are introduced beyond what has already been approved and adopted within the 2045 timeframe.

The 2045 Baseline scenario is based on the following assumptions

- Current trend line of population growth and development patterns for both Warren County and the overall NJTPA region
- Official NJTPA demographic projections for population, households, and employment
- Includes only the approved NJTPA Transportation Improvement Program (TIP) and Plan roadway and transit improvements (see Table 4)
- Includes the three new light industrial projects currently under construction and/or approved within the 2045 timeframe (Alpha Industrial Ave/Edge Rd; Phillipsburg I-78 Logistics Park; Lopatcong-Strykers Road)

- These new jobs are allocated to the municipalities where the three proposed Baseline light industry sites are located, and the new population and households are allocated proportionately to each Warren County municipality, based on each municipality’s current share of the overall County population

Based on these data and estimates, the Warren County Baseline scenario includes a projected total of 3.99 million SF of new light industry development with 1,801 new jobs, 2,239 new residents, and 929 new households. These are part of the projected 120,404 population, 49,949 households and 41,461 jobs.

Table 4: Programmed NJTPA TIP and LRP Projects

Project Name	Project Type
Route 31, Bridge over Furnace Brook	Bridge Replacement
Route 31, Franklin Road (CR 634) to Route 46	Resurfacing
Route 46, Route 80 to Walnut Road	Pavement Reconstruction
Route 57, Bridge over Branch Lopatcong Creek	Bridge Replacement
Route 57 & CR 519	Intersection Improvement
Route 78, Route 22 to Drift Road/Dale Road	Intelligent Transportation Systems
Route 80, WB Rockfall Mitigation	Stabilize Rock Outcrop
Route 94, Bridge over Jacksonburg Creek	Bridge Replacement
ADA Central, Contract 3	Disabled Accommodations
ADA North, Contract 1	Disabled Accommodations
Lackawanna Cutoff MOS Project	Service Extension Study

2045 Baseline versus 2020 Existing Performance

The travel demand model performance measures for the 2045 Baseline reflect additional travel demand and traffic congestion commensurate with the projected increase in demographic inputs (population, households, and employment) based on the NJTPA demographic projections and the three light industrial projects currently under construction, yielding an 8.7 percent increase in population, 12.4 percent increase in households, and 11.6 percent increase in employment compared with 2020 demographics.

Compared to the 2020 Existing Scenario, the 2045 Baseline experiences small decreases in average speed and average trip length; increases of 15.5 percent and 18.2 percent in total vehicle miles traveled (VMT) and total vehicle hours traveled (VHT); with VMT and VHT per capita projected to increase moderately by 6.2 percent and 8.8 percent, respectively.

Table 5 - 2020 Existing versus 2045 Baseline

Population	Auto Daily Person Trips (Includes Trucks)	Non-Motorized Trips	Average Speed (mph)	Average Trip Length (miles)	Vehicle Miles of Travel (VMT)	VMT per Capita	Vehicle Hours of Travel (VHT)	VHT per Capita
2020 Existing								
110,763	7,201,511	910.4	22.0	9.5	3,883,819	35.1	100,627	0.91
2045 Baseline								
120,404	7,300,406	979.4	21.7	9.2	4,485,471	37.3	118,906	0.99
Percent Change								
8.7%	1.4%	7.6%	-1.4%	-2.4%	15.5%	6.2%	18.2%	8.7%

The NJTPA travel demand models also forecast an increasing impact to Warren County’s state, county, and local roadways through 2045. The share of VMT on freeways and expressways drops by a small amount from 59 percent in 2020 existing to 58 percent for 2045 baseline, the beginnings of a shift in travel from higher to lower functional classification roadways. A similar pattern of diversion in travel and congestion has also been observed in regional and county-wide planning studies for other NJTPA counties. As demand and congestion on higher functional classification roadways grow, some travel migrates down to lower functional classification roadways, as travelers seek less congested travel routes, which could result in impact to smaller towns and communities.

Overall, the 2045 Baseline forecasts that Warren County residents and workers will be traveling more miles and more hours, taking longer trips at slightly lower speeds, and traveling more on lower functional classification roadways than they do today (Table 6).

The data shows that the potential benefits of newly projected reduced population growth rate and resulting changes in travel are counterbalanced by the higher than anticipated growth in employment. These trends have similar consequences for travel demand and congestion, projecting a smaller increase in congestion than forecast by the 2018 Transportation Technical Study.

Table 6 - 2020 Existing versus 2045 Baseline VMT

Vehicle Miles of Travel (VMT)	VMT per Capita	Freeways + Expressways	Principal Arterials	Major Arterials	Minor Arterials / Collectors / Locals
2020 Existing					
3,883,819	35.1	2,275,242 59%	673,925 17%	390,093 10%	544,558 14%
2045 Baseline					
4,485,471	37.3	2,614,286 58%	798,312 18%	444,380 10%	628,493 14%
Percent Change					
15.5%	6.2%	14.9%	18.5%	13.9%	15.4%

2045 Logistics Hub Scenario

The Logistics Hub Scenario assumes the projection of the 14 eligible sites from the emerging trend of light industry development proposed in areas of Warren County with available land and or/compatible zoning, compared to the three sites for the 2045 Baseline, as documented in Table 13 above. The Logistics Hub Scenario balances the benefits of opportunity — new jobs and economic development — with the traffic and congestions impacts of more workers, large trucks and delivery vehicles on the county’s transportation network.

The 2045 Logistics Hub Scenario is derived from similar assumptions as the 2045 Baseline but includes all 14 of the potential sites. This scenario assumes:

- Current trend line of growth and development patterns for both Warren County and the overall NJTPA region
- NJTPA demographic projections for population, households, and employment
- Includes only transit and road improvements in the NJTPA TIP and Plan 2045
- Includes the 14 potential light industrial sites
- Similar to the Baseline, these new jobs are allocated to the municipalities where the proposed light industry sites are located, and the new population and households are allocated proportionately to each Warren County municipality, based on their current share of the overall County population.

Based on these data and estimates, the Warren County Logistics Hub Scenario projects 15.563 million square feet of new light industrial development with 7,010 new jobs, 8,716 new residents, and 3,616 new households

2045 Logistics-Hub Performance

The travel demand model performance measures for the 2045 Logistics Hub reflect additional travel demand and traffic congestion commensurate with the projected increase in demographic inputs (population, households, and employment) based on the official NJTPA demographic projections and the total of 14 light industry projects currently assumed to be built within the 2045 timeframe, yielding a 14.6 percent increase in population, 18.5 percent increase in households, and 25.6 percent increase in employment versus 2020 demographics.

The 2045 Logistics Hub (Table 7) experiences similar changes in performance compared to 2020 as the 2045 Baseline scenario: small decreases in average speed and average trip length (-1.4 percent and -2.6 percent, respectively); increases of 14.5 percent and 18.7 percent in total VMT and total VHT; with per capita almost unchanged (-0.1 Percent decrease), and a moderate increase in VHT per capita (3.7 percent).

Table 7 - 2045 Baseline versus 2045 Logistics

Population	Auto Daily Person Trips (Includes Trucks)	Non-Motorized Trips	Average Speed (mph)	Average Trip Length (miles)	Vehicle Miles of Travel (VMT)	VMT per Capita	Vehicle Hours of Travel (VHT)	VHT per Capita
2045 Baseline								
120,404	7,300,406	979.4	21.7	9.2	4,485,471	37.3	118,906	0.99
2045 Logistics								
126,881	7,241,178	938.0	21.7	9.2	4,445,990	35.0	119,488	0.94
Percent Change versus 2045 Baseline								
5.4%	-0.8%	0.4%	0.0%	-0.1%	-0.9%	-5.9%	0.5%	-4.6%
Percent Change versus 2020 Existing								
14.6%	0.6%	8.0%	-1.4%	-2.6%	14.5%	-0.1%	18.7%	3.7%

The NJTPA travel demand models for the Logistics Hub forecast a more substantial impact than the Baseline to Warren County’s state, county, and local roadways through 2045. The share of VMT on freeways and expressways drops from 58.6 percent in 2020 Existing to 58.1 percent for 2045 Baseline to 56.3 percent for 2045 Logistics (

Table 8), a change in excess of two percentage points. As demand and congestion on higher functional classification roadways grow, increasing levels of travel are forecast to migrate down to lower functional classification roadways, as travelers seek less congested travel routes, which could result in adverse impacts to Warren County’s smaller towns and communities. The additional demand created by fourteen versus three light industry sites for the Logistics Hub and the associated population growth have a much greater net effect than the Baseline, impacting local communities with additional traffic, and pushing a measurable share of travel down to the lower classification roadways.

Table 8 - 2045 Baseline versus 2045 Logistics VMT

Vehicle Miles of Travel (VMT)	VMT per Capita	Freeways + Expressways	Principal Arterials	Major Arterials	Minor Arterials / Collectors / Locals
2045 Baseline					
4,485,471	37.3	2,614,286 58%	798,312 18%	444,380 10%	628,493 14%
2045 Logistics Hub					
4,445,990	35.0	2,501,305 56%	805,980 18%	461,457 10%	677,249 15%
Percent Change versus 2045 Baseline					
-0.9%	-5.9%	-4.3%	1.0%	3.8%	7.8%

Overall, the 2045 Logistics Hub forecasts that Warren County residents and workers will be traveling more miles and more hours at lower speeds and traveling significantly more on lower functional classification roadways than they do today.

Any potential benefits of the newly projected reduced population growth rate are forecast to be overtaken by the higher than anticipated employment growth, creating new population and households, and causing measurable impacts regarding travel demand, congestion, and travel burden on lower functional classification roadways by 2045.

2045 Centers-Based Scenario

The Centers-Based Scenario examines the potential of targeting new population and households to existing centers rather than continuing patterns of decentralization across lower density areas — such as farmlands or other undeveloped lands — lacking adequate infrastructure.

The Centers-Based Scenario is derived from similar assumptions as the Logistics Hub, and also includes the 14 potential light industrial sites. This scenario assumes:

- Current trend line of growth and development patterns for both Warren County and the overall NJTPA region
- NJTPA demographic projections for population, households, and employment
- Includes only the road and transit improvements in the NJTPA TIP and Plan 2045.
- Includes the 14 potential light industrial sites
- In contrast to the Baseline and Logistics Hub, however, these new jobs are allocated to the municipalities with the greatest potential to benefit from sustainable smart growth development and housing principles, rather than on a proportional basis. These include Belvidere, White Township, Greenwich, Washington Township, Washington Borough, Phillipsburg, Hackettstown, Lopatcong, Pohatcong, Alpha Borough, Oxford Borough

Based on these data and estimates, the Warren County Centers-Based scenario includes the same projected totals as the Logistics Hub: 15.563 million square feet of new light industrial development, 7,010 new jobs, 8,716 new residents, and 3,616 new households.

This scenario also recognizes that many of the new jobs created by light industrial development are lower- or moderate-wage jobs, and therefore most likely to attract workers from a relatively short commute area, as opposed to higher paying jobs which may be more likely to attract longer-commuting workers.

Rather than the proportional allocation pattern of the Baseline and Logistics Hub scenarios, new population and households are instead allocated primarily to municipalities with:

Rather than the proportional allocation pattern of the Baseline and Logistics Hub scenarios, new population and households are instead allocated primarily to municipalizes with:

- Existing centers or walkable downtowns
- Potential to reduce new vehicular travel and use multimodal networks
- Attract employees from a relatively nearby commute area, with proximity to one or more of the proposed 14 light industrial sites

2045 Centers-Based Performance

Similar to the 2045 Logistics Hub, the travel demand model performance measures for the Centers-Based Scenario reflect additional travel demand commensurate with the projected increase in demographic inputs (population, households, and employment). Based on the NJTPA demographic projections and 14 light industrial projects, this scenario yields a 14.6 percent increase in population, 18.5 percent increase in households, and 25.6 percent increase in employment compared to 2020 (Table 9).

However, in contrast to the 2045 Logistics Hub performance, the Centers-Based Scenario demonstrates the benefits of smart growth land use strategies through targeting new population and households to existing centers rather than continued decentralization across lower density areas. Changes in performance include higher average speeds and more non-motorized trips than Logistics Hub.

Table 9 - 2045 Baseline versus 2045 Centers Based

Population	Auto Daily Person Trips (Includes Trucks)	Non-Motorized Trips	Average Speed (mph)	Average Trip Length (miles)	Vehicle Miles of Travel (VMT)	VMT per Capita	Vehicle Hours of Travel (VHT)	VHT per Capita
<i>2045 Baseline</i>								
120,404	7,300,406	979.4	21.7	9.2	4,485,471	37.3	118,906	0.99
<i>2045 Centers-Based</i>								
126,881	7,463,225	1,002.8	21.8	9.3	4,585,634	36.1	122,109	0.96
<i>Percent Change versus 2045 Baseline</i>								
5.4%	2.2%	2.4%	0.4%	0.2%	2.2%	-3.0%	2.7%	-2.5%
<i>Percent Change versus 2020 Existing</i>								
14.6%	3.6%	10.2%	-1.0%	-2.2%	18.1%	3.1%	21.3%	5.9%

The NJTPA travel demand models for the Centers-Based Scenario also project significantly less impact to Warren County’s state, county, and local roadways than the Logistics Hub, cutting in half the shift in VMT from freeways and expressways to lower functional classification arterials, collectors, and local streets (Table 10). Much less VMT is forecast to migrate down to lower functional classification roadways, due to the benefits of targeted population growth being located closer to new employment opportunities.

Table 10 - 2045 Baseline versus 2045 Centers Based VMT

Vehicle Miles of Travel (VMT)	VMT per Capita	Freeways + Expressways	Principal Arterials	Major Arterials	Minor Arterials / Collectors / Locals
<i>2045 Baseline</i>					
4,485,471	37.3	2,614,286	798,312	444,380	628,943
		58%	18%	10%	14%
<i>2045 Centers-Based</i>					
4,585,634	36.1	2,624,144	822,415	460,861	678,214
		57%	18%	10%	15%
<i>Percent Change versus 2045 Baseline</i>					
2.2%	-3.0%	0.4%	3.0%	3.7%	7.9%

Although the newly projected reduced population growth rate is forecast to be overtaken by the higher than anticipated growth in employment, concentrating population growth in more densely populated centers can help mitigated increases in congestion and shifts to lower functional classification roadways.

2045 Warren County Blend Scenario

The Blend Scenario is a blend of the most beneficial elements of the Logistics Hub and the Centers-Based scenarios. It includes the anticipated growth in Warren County's light industry sector and targets the associated growth in population and households to a small group of just six municipalities (compared to 11 targeted municipalities for Centers-Based) that are both closer to these new jobs and that afford the greatest potential to benefit from center-based development and multimodal travel networks that provide the opportunity to mitigate new travel demand and congestion.

The 2045 Blend scenario is derived from a similar but more targeted approach to the Logistics Hub and the Centers-Based scenarios

- Current trend line of growth and development patterns for both Warren County and the overall NJTPA region
- NJTPA demographic projections for population, households, and employment
- Includes only road and transit improvements included in the NJTPA TIP and Plan 2045.
- Includes all 14 of the proposed light industry projects
- Targets the new population and households generated by the growth in the light industry sector to the six most viable centers-based municipalities (Belvidere and White; Pohatcong; Alpha; Washington Borough; and Phillipsburg)

2045 Warren County Blend Performance

Similar to the 2045 Logistics Hub and Centers-Based, the travel demand model performance measures for the 2045 Warren County Blend reflect additional travel demand commensurate with the projected increase in demographic inputs (population, households, and employment) based on the official NJTPA demographic projections and the total of 14 light industry projects currently assumed as most viable within the 2045 timeframe, yielding a 14.6 percent increase in population, 18.5 percent increase in households, and 25.6 percent increase in employment versus 2020 demographics (Table 11).

The Blend realizes some but not all the potential benefits of smart growth land use strategies through targeting new population and households to existing centers rather than continued decentralization across lower density areas. The Blend recoups some of the degradation in performance experienced from 2020 to 2045 due to new population, household, and employment growth, and features the best overall 2045 performance for average speed. The Blend also generates fewer daily auto person trips and more non-motorized trips than the Centers-Based.

Table 11 - 2045 Baseline versus 2045 Blend

Population	Auto Daily Person Trips (Includes Trucks)	Non-Motorized Trips	Average Speed (mph)	Average Trip Length (miles)	Vehicle Miles of Travel (VMT)	VMT per Capita	Vehicle Hours of Travel (VHT)	VHT per Capita
2045 Baseline								
120,404	7,300,406	979.4	21.7	9.2	4,485,471	37.3	118.906	0.99
2045 Blend								
126,881	7,377,829	1,030.93	21.8	9.3	4,515,147	35.6	120.681	0.95
Percent Change versus 2045 Baseline								
5.4%	1.1%	5.3%	0.5%	0.5%	0.7%	-4.5%	1.5%	-3.7%
Percent Change versus 2020 Existing								
14.6%	2.4%	13.2%	-0.9%	-2.0%	16.3%	1.5%	19.9%	4.7%

However, the benefit to lower functional classification roadways in Warren County is not as fully realized as the Centers-Based Scenario, with some degradation to the lower classification roadways (Table 12).

Additional land use, multimodal, and transit enhancement would be required to fully realize the benefits of the Blend Scenario. In the absence of these, travel demand models indicate that the Centers-Based, with a more diverse targeting of new population and households across a greater number of existing centers, yields better performance and recoups more of the degradation in performance over the 25-year analysis timeframe than any of the other 2045 scenario alternatives.

A similar pattern of growing travel demand and congestion was observed in long range planning studies in other New Jersey counties, which demonstrated that increased density alone could not adequately realize the desired benefits of reduced trip-making, congestion mitigation, travel mode shifts, and reduced VMT impact to lower-classification roadways. Rather density changes and centers-based development patterns must be paired with enhanced mode choice and improved multimodal networks to achieve long term benefits and mitigate costly roadway widenings, new bridges, and large-scale construction projects.

Table 12 - 2045 Baseline versus 2045 Blend VMT

Vehicle Miles of Travel (VMT)	VMT per Capita	Freeways + Expressways	Principal Arterials	Major Arterials	Minor Arterials / Collectors / Locals
2045 Baseline					
4,485,471	37.3	2,614,286 58%	798,312 18%	444,380 10%	628,493 14%
2045 Blend					
4,515,147	35.6	2,542,615 56%	823,774 18%	465,023 10%	683,735 15%
Percent Change versus 2045 Baseline					
0.7%	1.5%	-2.7%	3.2%	4.6%	8.8%

Build Scenarios

Two “build versions” of 2045 scenarios were developed to test potential additional highway and multimodal improvement projects and evaluate their potential to mitigate the degradation in performance experienced under the 2045 scenario alternatives. These include:

- Centers-Based Build Version, and
- Warren County Blend Build Version

The Build scenarios include a series of transportation improvement projects, also included in the previously discussed Logistics, Centers-Based and Blended scenarios. These proposed projects were developed based on a combination of factors, including:

- Consensus Goals and Vision (Tech Memo 1)
- Multimodal system performance assessment (Tech Memo 2)
- Comments, concerns, and suggestions from the WCTP community engagement and outreach
- Previous plans and studies
- Warren County Light Industrial Site Assessment
- Collaboration with Warren County and Steering Advisory Committee

Based on these variables, as well as the results from the 2045 scenarios, two further substantial potential improvements were incorporated into the model (detailed below) to determine their impact on the larger transportation network:

- Widening of Belvidere Road from two to four lanes
- Implementation of a shuttle/jitney service via CR 519 and CR 632

NJRTM-E data indicate a worsening of congestion on three segments of Belvidere Road; all located adjacent to several of the new light industry sites. In the model, the widening of Belvidere Road occurred along three contiguous roadway segments:

- CR 646 Belvidere Rd – Roseberry Street, Phillipsburg to CR 519

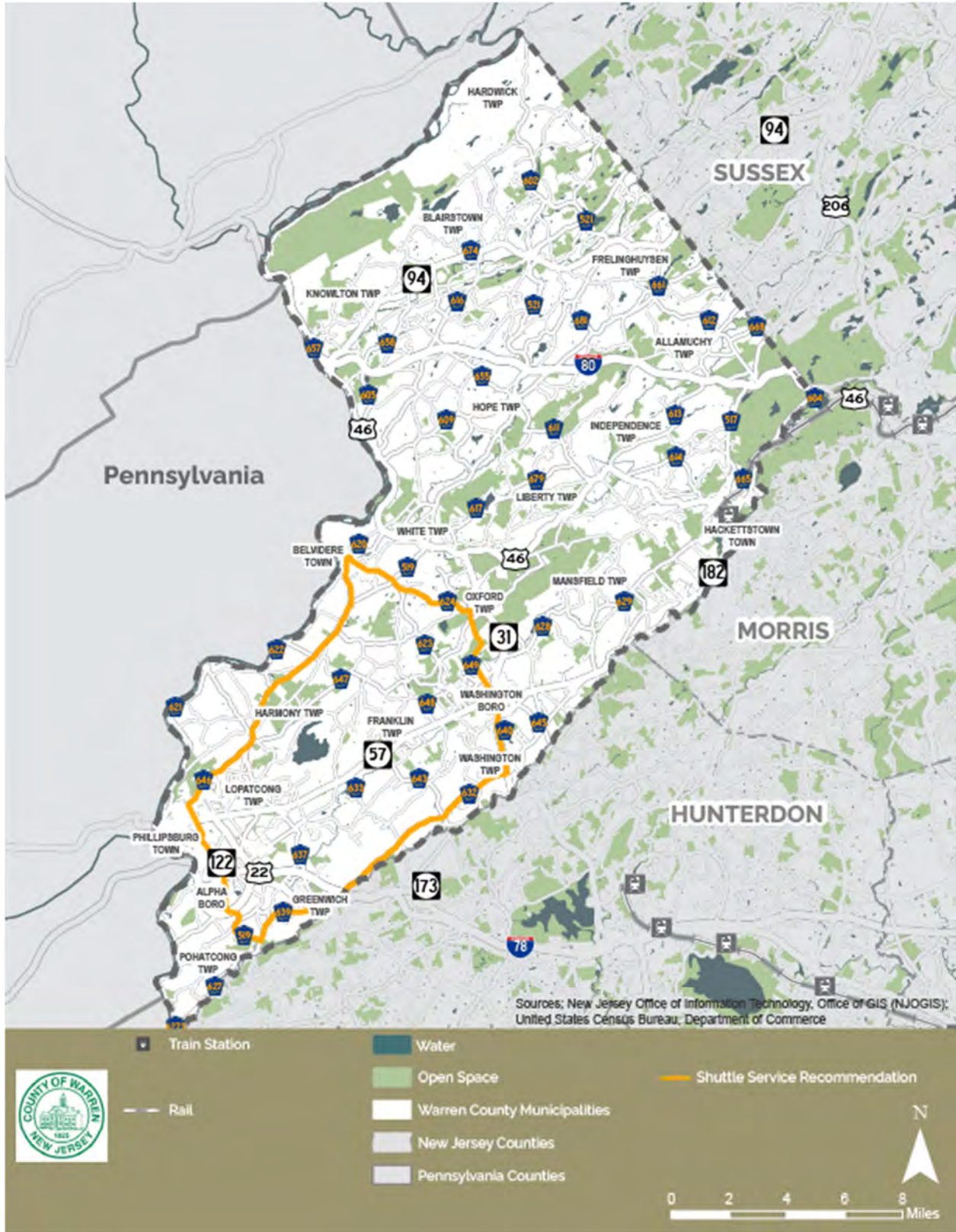
- CR 519 Belvidere Rd – CR 646 Belvidere Rd to CR 620
- CR 620 Belvidere Rd – CR 519 to Belvidere municipal boundary/Greenwich Street

Results from the 2045 Centers-Based and Blend scenarios indicate that a more extensive local and regional bus/transit system in the County might be necessary in order to realize the full benefits of smart growth land use strategies. Although the new population is targeted to centers and municipalities with new light industry employment, these new employment generators are still dispersed from the population centers and therefore diminish some of the potential trip reduction and congestion mitigation benefits. Rather than being located adjacent to new population or within walking distance, new sites are located along state and county roadways and thus generate more VMT on these roadways.

Two new improvements in transit service were developed, as depicted in Figure 4:

- Belvidere to Alpha – via CR 519
- Phillipsburg – Pohatcong – Alpha to Washington / Oxford via CR 632

Figure 4: Build Condition Transit Service



2045 Centers-Based Build Scenario

The Centers-Based Build scenario is derived from the same assumptions as the non-build 2045 Centers-Based scenario by targeting new population and households to existing centers rather than continued patterns of decentralization across lower density areas and is designed to evaluate the potential benefits of targeted highway and transit improvements. Assumptions include:

- Current trend line of growth and development patterns
- Official NJTPA demographic projections for population, households, and employment
- Includes only road and transit improvements included in the TIP and Plan 2045
- Includes all 14 of the potential light industrial sites
- The new jobs are allocated to eleven municipalities with the greatest potential to benefit from smart sustainable growth development and housing principles, rather than on a proportional basis. These include Belvidere, White, Greenwich, Washington Township, Washington Borough, Phillipsburg, Hackettstown, Lopatcong, Pohatcong, Alpha, Oxford

In addition to these, the Centers-Based Build includes the three proposed highway improvements and two transit service improvements.

2045 Centers-Based Build Performance

The Centers-Based Build scenario yields improved performance compared to the (non-build) Centers-Based scenario, including:

- Significant increase in non-motorized trips
- Fewer auto-person trips
- Less VMT and VHT
- Substantially lower shift of VMT from freeways and expressways to arterials, collectors, and local streets than Logistics Hub

Centers-Based Build improves access and utility of multimodal trips choices, resulting in a similar VMT along minor arterials, collectors and local roads as the Centers-based non-build scenario while facilitating a higher number of non-auto trips (Table 13 and Table 14).

Table 13 - 2045 Baseline versus 2045 Centers-Based Build

Population	Auto Daily Person Trips (Includes Trucks)	Non-Motorized Trips	Average Speed (mph)	Average Trip Length (miles)	Vehicle Miles of Travel (VMT)	VMT per Capita	Vehicle Hours of Travel (VHT)	VHT per Capita
2045 Baseline								
120,404	7,300,406	979.41	21.73	9.25	4,485,471	37.25	118,906	0.99
2045 Centers-Based Build								
126,881	7,266,212	1,189.78	21.32	9.26	4,456,043	35.12	118,960	0.94
Percent Change versus Baseline								
5.4%	-0.5%	21.5%	-1.9%	0.1%	-0.7%	-5.7%	0.0%	-5.1%

Table 14 - 2045 Baseline versus 2045 Centers-Based Build VMT

Vehicle Miles of Travel (VMT)	VMT per Capita	Freeways + Expressways	Principal Arterials	Major Arterials	Minor Arterials / Collectors / Locals
2045 Baseline					
4,485,471	0.99	2,614,286	798,312	444,380	628,493
		58%	18%	10%	14%
2045 Centers-Based Build					
4,456,043	0.94	2,494,750	812,868	470,436	677,989
		56%	18%	11%	15%
Percent Change versus Baseline					
-0.7%	-5.1%	-4.6%	1.8%	5.9%	7.9%

2045 Warren County Blend Build Scenario

The Warren County Blend Build scenario is also derived from the same assumptions as the 2045 Blend by targeting new population and households to just six existing centers rather than continued patterns of decentralization across lower density areas and is designed to evaluate the potential benefits of targeted highway and transit improvements. Assumptions include:

- Current trend line of growth and development patterns
- Official NJTPA demographic projections for population, households, and employment
- Includes only road and transit improvements in the NJTPA TIP and Plan 2045
- Includes all 14 of the potential light industrial sites
- The new jobs are allocated to eleven municipalities with the greatest potential to benefit from smart sustainable growth development and housing principles, rather than on a proportional basis. These

include . These include Belvidere, White Township, Greenwich, Washington Township, Washington Borough, Phillipsburg, Hackettstown, Lopatcong, Pohatcong, Alpha Borough, Oxford Township

In addition to these, the Centers-Based Build scenario includes the three proposed highway improvements and two transit service improvements.

2045 Blend: Build Performance

The Blend Build scenario yields the best overall performance of any 2045 scenario:

- Lowest auto person trips of all 2045 scenarios
- Highest non-motorized trips
- Lowest VMT and VHT
- Lowest VMT and VHT per-capita

Blend Build realizes the potential of smart growth strategies by showing that density alone is not enough, but rather must be paired with targeting new population to existing centers that are proximate to new jobs, and providing both enhanced mode choice and improved multimodal networks (Table 15 and Table 16). Trips can only shift to alternate travel modes if adequate multimodal networks and service capacity are a viable and accessible option. The Blend Build scenario indicates that investments in improved in walk-bike-transit networks and connectivity that connect people to jobs can help to mitigate future congestion and traffic impact to Warren County communities.

Table 15 - 2045 Baseline versus 2045 Blend Build

Population	Auto Daily Person Trips (Includes Trucks)	Non-Motorized Trips	Average Speed (mph)	Average Trip Length (miles)	Vehicle Miles of Travel (VMT)	VMT per Capita	Vehicle Hours of Travel (VHT)	VHT per Capita
2045 Baseline								
120,404	7,300,406	979.41	21.73	9.25	4,485,471	37.25	118,906	0.99
2045 Blend Build								
126,881	7,162,883	1,226.62	21.35	9.32	4,379,859	34.52	117,796	0.93
Percent Change versus Baseline								
5.4%	-1.9%	25.2%	-1.8%	0.8%	-2.4%	-7.3%	-0.9%	-6.0%

Table 16 - 2045 Baseline versus 2045 Blend Build VMT

Vehicle Miles of Travel (VMT)	VMT per Capita	Freeways + Expressways	Principal Arterials	Major Arterials	Minor Arterials / Collectors / Locals
2045 Baseline					
4,485,471	0.99	2,614,286 58%	798,312 18%	444,380 10%	628,493 14%
2045 Blend Build					
4,379,859	0.93	2,413,673 56%	808,771 18%	474,311 10%	683,105 15%
Percent Change versus Baseline					
-0.66%	-5.06%	-7.7%	1.3%	6.7%	8.7%

Warren County Blend Build also provides implications for municipal zoning, land use, and affordable housing. Municipalities may welcome the new jobs but must also recognize the traffic impacts they can bring and evaluate the extent to which light industry zoning is utilized. They must also recognize that the siting of affordable housing is a critical factor in mobility and access to work opportunities. Affordable housing should be accessible to adequate multimodal transportation options and networks.

Conclusion

- 2045 Logistics Hub – more auto trips at similar speeds and distances, with more vehicle hours of travel
- 2045 Centers-Based – more auto trips at slightly higher speeds, slightly longer trips, significant increases in VMT, VHT, and non-motorized trips
- 2045 Blend – significant increase in auto trips, speed, trip length, non-motorized trips and VHT, with a slight increase in VMT
- 2045 Centers-Based Build – significantly more non-motorized trips, and slightly more auto trips at lower speeds with similar trip lengths, VMT and VHT
- 2045 Blend Build – significantly more non-motorized trips, and slightly fewer auto trips at lower speeds with longer trips, and minimal change in VMT and VHT

It's important to also compare the 2045 scenarios because other than the 2045 Baseline, they include the 14 logistics sites. The 2045 Logistics Hub scenario represents the likely direction of growth in the county based on current zoning and land uses. When compared against one another, the subsequent scenarios show the following changes:

- 2045 Centers-Based – increased speed, VMT and VHT; more non-motorized trips as compared to 2045 Logistics Hub
- 2045 Blend – increased speed, VMT and VHT but at a lower level than Centers-Based; more non-motorized trips than Logistics or Centers-Based; more person-trips than logistics but fewer than Centers-Based. This falls short of potential benefits of smart growth and centers-based

development patterns because it does not improve the multi-modal network and people lack bus/transit options and would have to drive to new jobs

- 2045 Centers-Based Build – significant increase in non-motorized trips, decrease in person trips, VMT and VHT compared to the 2045 Centers-Based Scenario. Compared to 2045 Logistics Hub, there are improvements in non-motorized trips and VHT, but increased VMT, person trips, and slower travel speeds.
- 2045 Blend Build – results in fewer person trips, more non-motorized trips, and lower VMT and VHT than any other scenario. Speeds are slightly lower and trip length is slightly higher, but overall it shows the best performance of any 2045 scenario.

With significant employment growth expected and slow but steady population growth, it is anticipated that the county will cater to more trips. The 2045 Blend Build scenario most successfully minimizes the negative impacts of these additional trips by catering to fewer auto daily person trips and more non-motorized trips than all other scenarios. This scenario also results in only minimal changes to speed (-1.4%), trip length (+1.1%), VMT (+2.4%), and VHT (+0.9%) compared to the 2045 baseline. This centers-based scenario also supports the Vision laid out on page **Error! Bookmark not defined.** “supporting multimodal transportation choices” by encouraging development in established centers while preserving the “scenic rural landscapes, prized farmlands, natural and historic assets, and desirable quality of life.”

The scenario planning results indicate that density alone will not achieve desired improvement in performance and congestion. Enhanced mode choice, improved multimodal networks, and targeting new population to existing centers close to new jobs are needed for the best performance outcome.

A summary of the results of the preceding scenarios is shown in Table 17 below.

Table 17: Scenario Summary Results

Population	Households	Employment	Auto Daily Person Trips (includes Trucks)	Non-Motorized Trips	Average Speed (mph)	Average Trip Length (miles)	Vehicle Miles Traveled (VMT)	Vehicle Hours of Travel (VHT)
2020 Existing								
110,763	44,426	37,163	7,201,511	910.37	22.04	9.48	3,883,819	100,627
2045 Baseline								
120,404	49,949	41,461	7,201,511	980.86	21.65	9.21	4,485,471	116,736
2045 Logistics Hub								
126,881	52,636	46,670	7,241,178	983.00	21.73	9.23	4,445,990	119,488
2045 Centers-Based								
126,881	52,636	46,670	7,463,225	1,002.78	21.81	9.27	4,585,634	122,109
2045 Warren County Blend								
126,881	52,636	46,670	7,377,829	1,030.93	21.83	9.29	4,515,147	120,681
2045 Centers Build								
126,881	52,636	46,670	7,266,212	1,189.79	21.30	9.26	4,456,043	118,960
2045 Warren County Blend Build								
126,881	52,636	46,670	7,162,883	1,226.62	21.35	9.32	4,379,859	117,796

In addition to systemwide conclusions, some corridor-specific conclusions can be drawn concerning where congestion is expected to improve or worsen. Due to the gradual change in population and employment spread throughout the County, traffic impacts are expected to also occur gradually though certain corridor segments are anticipated to face worse conditions than others. Corridors expected to experience worsened congestion during any of the scenarios are listed in Table 18.

Table 18: Roadways with Worsening Congestion

Corridor	Segment	Direction	Scenario	Period
CR 519	I-80 to CR 609/High St (Hope Twp.) to	SB	2045 Baseline	AM/PM
CR 623	NJ 57 to CR 519	NB	2045 Baseline	AM
CR 646	US 22 to Uniontown Rd/CR 519	NB	2045 Baseline	AM
CR 519	CR 610/Swayze Mill Rd to CR 623/Brass Castle Rd	SB	2045 Baseline	PM
CR 623	CR 624/Hazen Oxford to CR 519	NB	2045 Baseline	PM
CR 623	NJ 57 to Buckhorn Dr	NB	2045 Baseline	PM
CR 646	Red School Ln to US 22	SB	2045 Baseline	PM
US 22	NJ 57/US 22 to CR 646/Lincoln Rd	WB	2045 Baseline	PM
NJ 57	NJ 31 to US 22	WB	2045 Baseline	PM
NJ 122	Center St to US 22	WB	2045 Baseline	PM
CR 517	Bilby Rd to Bald Eagle Rd	NB	2045 Baseline	PM
CR 519	US 46 to CR 609/ High St	NB	2045 Centers	AM
CR 623	Buckhorn Rd to CR 626/Summerfield Rd	SB	2045 Centers	AM
CR 623	CR 647/ Harmony Brass Castle Rd to NJ 57	SB	2045 Centers	AM
CR 623	CR 626/Summerfield Rd CR 647/Harmony Brass Castle Rd	SB	2045 Centers Build	AM
NJ 122	CR 519 to US 22	WB	2045 Centers Build	PM
CR 623	5th St (Belvidere) to CR 519	SB	2045 Blend	AM
CR 623	CR 626/Summerfield Rd to Harmony Brass Castle Rd	SB	2045 Blend	AM
CR 519	CR 610/Swayze Mill Rd to US 46	SB	2045 Blend Build	PM

Technical Memorandum 4: Recommendations

Warren County Transportation Plan

MAY 2021

RECOMMENDATIONS

Roadway and Bridges

Warren County's network of roadways and bridges are essential for continued safe and efficient movement of people and goods. In addition to analysis conducted as part of this Warren County Transportation Plan, several roadway recommendations were proposed in the 2020 Warren County Light Industrial Site Assessment. The following safety improvements were recommended based on crash data. It is recommended that these recommendations continue to be studied and pursued.

- US 22 Phillipsburg
 - Consider consolidating driveways
- US 46/NJ 182/CR 517/CR 604
 - Consider realigning US 46 westbound approach closer to perpendicular and curbing the reclaimed area
- US 22/CR 638/CR 519
 - Consider extending acceleration lanes and adjusting signal timing
- US 22/CR 646
 - Consider improving signage from US 22 to signify the transition into a residential neighborhood and tightening the curve from US 22 westbound on CR 646 northbound
- Public and stakeholder feedback indicated a need to study the interchange of I-78/US 22/NJ 173

Further priority intersections were listed in the Warren County Transportation Technical Study based on congestion, pavement, bridge, and crash data. Priority intersections at County roadways included:

- U.S. 22 at CR 638 in Greenwich
- U.S. 22 at CR 519 in Pohatcong/Greenwich
- NJ 57 at CR 629 in Mansfield
- U.S. 46 at CR 519 in White

Additionally, the safety analysis conducted as part of this study and provided in Technical Memo 2.4 of Appendix B should be utilized to assist with targeting additional intersection and corridor improvements. The details of crash incidents, including their type (sideswipe, rear-end, etc.) time of day, and proximal lighting conditions can assist with the development of proper recommendations.

Bridge Maintenance

The 2018 *Warren County Transportation Technical Study* identified 24 structurally deficient and 58 functionally obsolete bridges on state, county and municipal roadways. Each of these structures should be studied for maintenance improvements, rehabilitation, or replacement, as necessary. The 24 structurally deficient bridges are listed on pages 19-20 of Technical Memo 3.2 of the 2018 Warren County Transportation Technical Study. Most of these structures carry a relatively low volume of traffic and carry a combination of U.S, state, county and municipal roadways.

Height and Weight-Restricted Structures

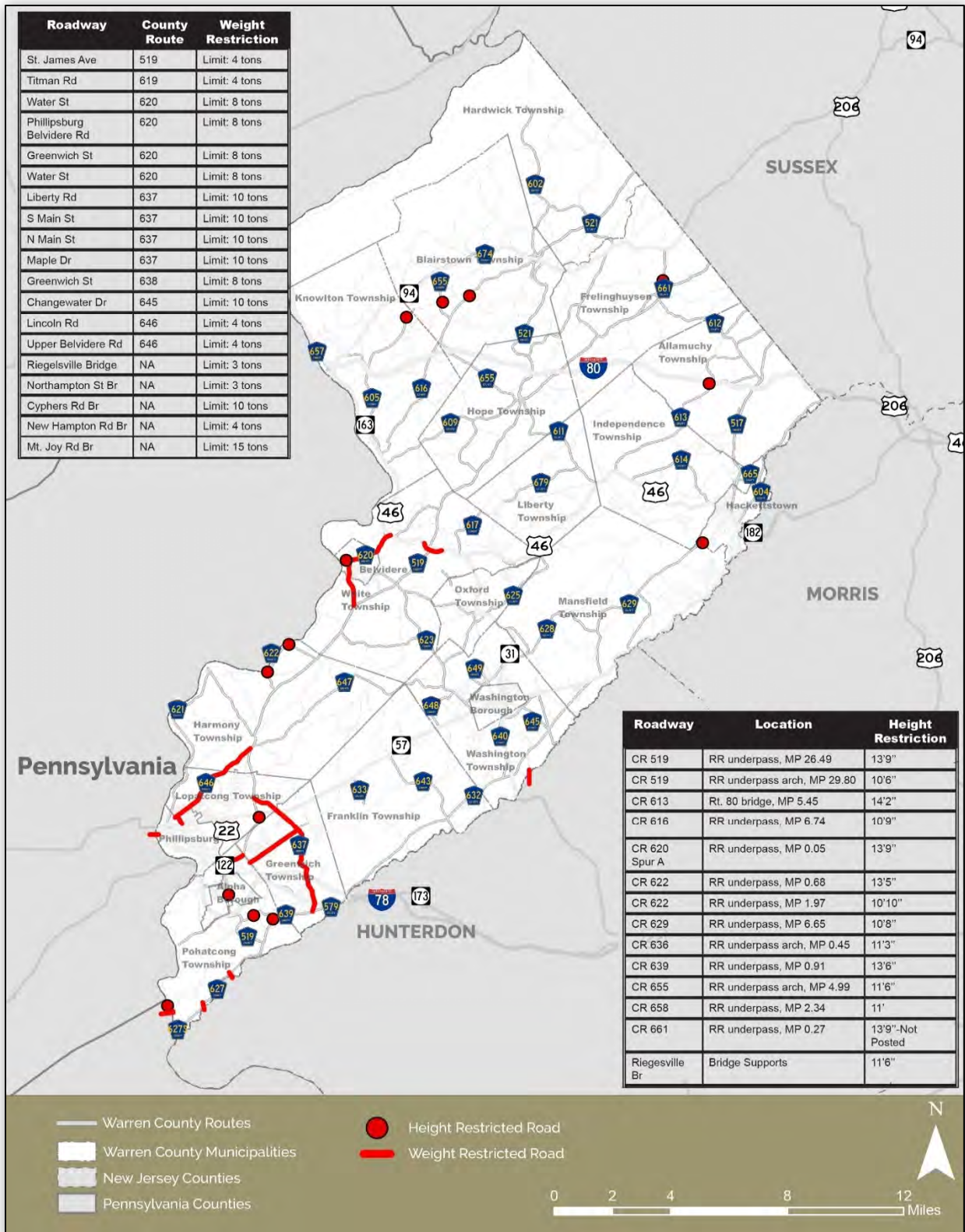
County roadways present 11 height-restricted structures and seven weight-restricted structures. These restrictions can limit transportation accessibility for local businesses, impact local economic viability,

increase vehicle miles traveled, and divert traffic through residential neighborhoods. Height restrictions along railways can be costly and difficult to mend. Therefore, it may be prudent to remedy weight-restricted roadways first. Though further analysis could reveal engineering and structural constraint and variables for prioritizing these improvements, an initial list of priority height and weight restrictions is provided in Table 1. These sites were selected based on proximity to light industrial sites selected as part of the *Warren County Light Industrial Site Assessment* and detailed in Technical Memo 3. All height and weight restricted structures on County roadways are mapped and listed in Figure 1.

Table 1: Priority Height and Weight Restrictions

Restriction Type	Roadway	Municipality	Restriction	Location
Height	CR 519	Alpha	13'9"	RR underpass, MP 26.49
Height	CR 519	Lopatcong	10'0"	RR underpass arch, MP 29.80
Height	CR 622	Harmony	13'5"	RR underpass, MP 0.68
Height	CR 622	Harmony	10'10"	RR underpass, MP 1.97
Height	CR 636	Pohatcong	11'3"	RR underpass arch, MP 0.45
Height	CR 639	Pohatcong	13'6"	RR underpass, MP 0.91
Weight	CR 519	Pohatcong	4 tons	
Weight	CR 637	Lopatcong/Greenwich	10 tons	
Weight	CR 638	Greenwich	8-10 tons	
Weight	CR 646	Greenwich/ Phillipsburg/ Lopatcong	4 tons	

Figure 1: Height and Weight Restrictions



Walking, Biking and Trails

Walking and biking infrastructure represent vital pieces of Warren County's transportation system. Sidewalks are necessary elements in the County's more densely settled areas and provide a safe refuge for travel. The County's network of trails offers a recreational opportunity to witness Warren County's scenic landscape from a variety of angles. Some cyclists also ride comfortably along roadways though dedicated facilities for cyclists would entice more users. Efforts at improving conditions for cyclists and pedestrians in the County can take many forms, as described below.

Sidewalks

Properly constructed and maintained sidewalks promote walking in communities and provide accommodations for those with mobility impairments or who are unable, or uninterested in driving. In a rural county such as Warren County, sidewalks are not warranted on every roadway. Rather, sidewalks should be constructed in the more densely populated portions of the County, near public transit stops/stations, between existing sidewalks to fill gaps, and near particular points of interests that tend to facilitate walking (schools, parks, houses of worship, government facilities, certain retail locations, etc.).

A county-wide sidewalk inventory is recommended to develop a plan to assure sidewalks are provided where they are most needed. It is recommended that Warren County conduct such a study for its own roadways as well as provide resources and collaboration for municipalities to do the same.

Community walkability workshops are also recommended for site-specific reviews of walkability conditions including sidewalks, crosswalks, traffic signal timing, and location-specific walking impediments. Similar to a community walkability workshop, senior mobility workshops can provide a similar benefit in areas with many seniors. As reviewed in the Previous Studies review in Technical Memo 2.1 of Appendix B, Phillipsburg conducted a walkable community workshop in 2010 for the intersection of Roseberry Street and U.S. 22. In addition to developing potential solutions to walkability issues, these focused workshops help stakeholders consider walkability in their day-to-day lives and instill an interest in walkability that is beneficial for future studies and projects. Figure 2 provides an example of a sidewalk and crosswalk inventory map completed as part of the 2019 Oxford Township Active Transportation Plan.

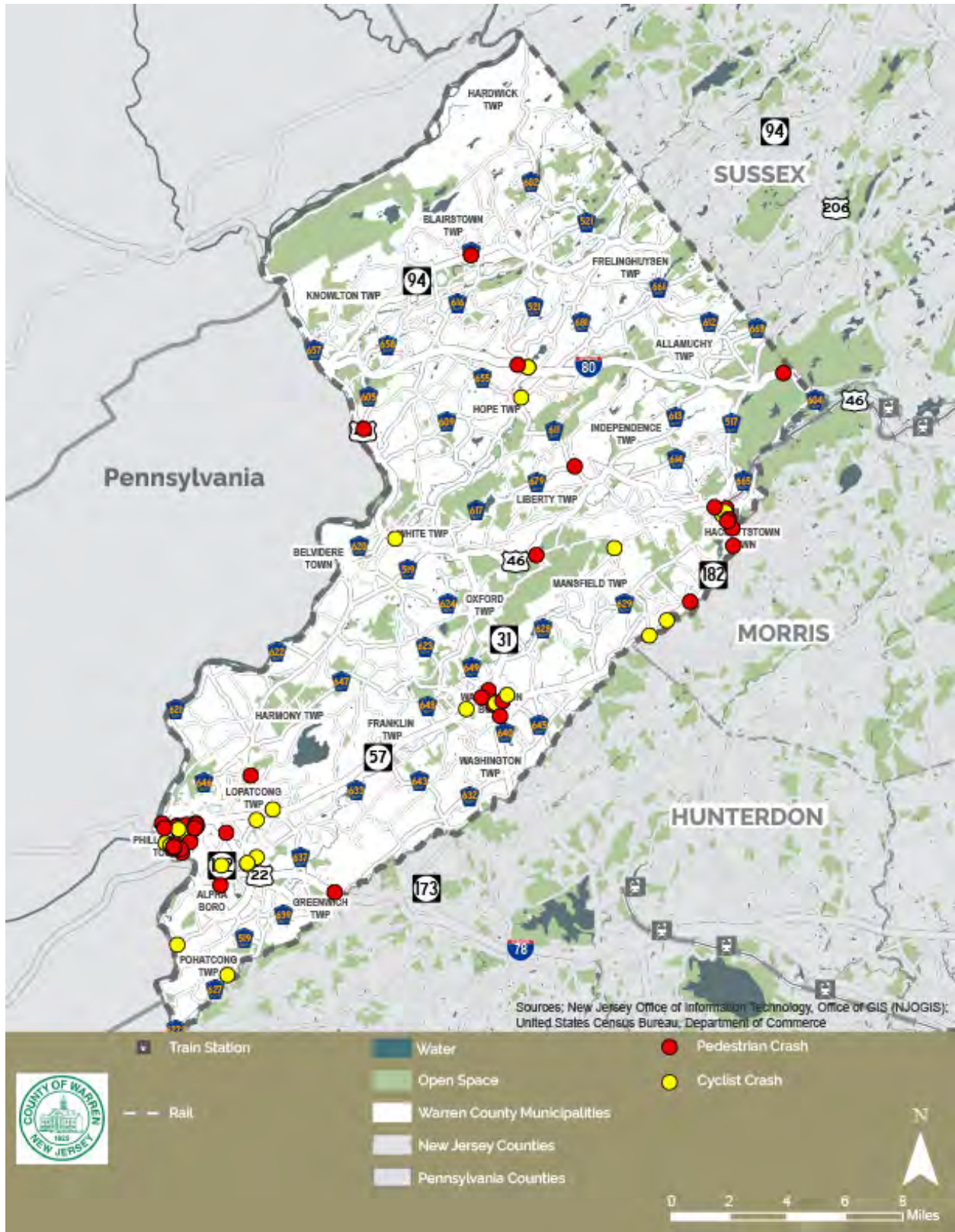
Figure 2: Oxford Township Sidewalk and Crosswalk Inventory



Safety Analysis

Though a safety analysis of crash incidents on County roadways was conducted to determine crash hotspots, a thorough analysis of specifically bicycle and pedestrian crashes was not conducted as part of this Transportation Plan. Despite this, a review of the location of bicycle and pedestrian crashes in the County reveal that two thirds of crashes (59 of 89) involving cyclists or pedestrians occurred in one of three municipalities; Phillipsburg, Hackettstown and Washington Borough. These three municipalities account for only 2.4% of the County's area but an overwhelming number of bicycle and pedestrian crashes. Most of these crashes occurred on State or municipally maintained roadways. The County should encourage and collaborate with these three municipalities to address safety concerns for cyclists and pedestrians. Additionally, the bicycle and pedestrian safety analysis trends listed on page **Error! Bookmark not defined.** indicate the need for complete streets and traffic calming measures to slow traffic on municipal roadways with a 25 mph speed limit to ensure motorists are traveling at a safe speed in the county's more densely developed communities. A walkable community workshop, Road Safety Audit, or similar intervention would be helpful for addressing these concerns. Warren County should collaborate with local and regional organizations, including TransOptions to educate particularly vulnerable populations, such as school-age children, about how to walk, bike and cross streets safely. A map presenting bicycle and pedestrian crashes is shown in Figure 3.

Figure 3: Bicycle and Pedestrian Crash Incidents



Scenic Byways, Trails and Points of Interest

The broad array of scenic byways, trails and points of interest necessitate further study and analysis to determine how Warren County can continue to provide connections to and benefit from these sites. Several findings from Warren County's 2018 Transportation Technical Study can work in tandem with such efforts, including the "County-wide need for traffic calming and gateways to preserve traditional villages, small town quality of life, and safety" and the associated theme of "balancing the strongly-expressed interest in preservation vs. the need for, and impact of, future growth and development." Further study should inventory and analyze the location and characteristics of scenic byways, trails and points of interest, including agritourism sites which will better allow the County to develop a comprehensive and concerted effort to present these cultural and tourism assets to residents and visitors. Such a study should also make recommendations for additional biking, walking and recreational infrastructure.

Complete Streets

Warren County should develop and adopt a Complete Streets policy. As defined by the National Complete Streets Coalition, Complete Streets:

"Are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists and transit riders of all ages and abilities must be able to safely move along and across a complete street."

NJDOT adopted its nationally recognized Complete Streets policy in 2009 with the purpose of "[providing] safe access for all users by designing an operating a comprehensive, integrated, connected multi-modal network of transportation options." A critical component in the design of a Complete Street is that its accommodations be provided with the same level of detail and attention that has been historically afforded to the movement of automobiles. Though not included in either of these definitions, the needs of freight vehicles should be also considered as part of Complete Streets. In 2019, NJDOT published Complete Streets for All: Model Complete Streets Policy and Guide which is a one-stop resource to implement Complete Streets. A complete list of county and municipal Complete Streets policies in New Jersey can be found through the New Jersey Bicycle & Pedestrian Resource Center here: <http://njbikeped.org/complete-streets-2/>

Though one may think a Complete Streets policy is not necessary for a rural county such as Warren, such a policy can be tailored to Warren County's needs and specify in what locations and what kind of roadways Complete Streets measures (sidewalks, bike-compatible shoulders, dedicated bike facilities, etc.) are required. The County should also work with NJDOT to encourage and provide resources for municipalities to adopt their own Complete Streets policies. Several of the more densely populated communities would also benefit from developing a bicycle and pedestrian master plan, particularly Phillipsburg, Hackettstown, and Washington Borough.

One piece of further study (and potentially working in tandem with any study on trails) could be a comprehensive trails/pedestrian plan (similar to those conducted in Somerset County and for the Greater Mercer Transportation Management Association) that develops a cohesive guide and map to maximize the public's awareness and understanding of the County's vast trail system. It would also be beneficial for such a study to inventory pedestrian facilities (sidewalks, crosswalks, ADA-accessible curb ramps), review pedestrian crashes, and formulate recommendations for improving walking conditions in the County's town centers, a means of establishing gateways into communities.

Bicycle Facilities

Warren County completed a bicycle compatibility analysis of all county roadways. The bicycle compatibility analysis indicates expected comfort of biking on a given roadway and is calculated based on a variety of variables including speed limit, traffic volumes, and pavement width. Using these same variables, and the bicycle compatibility analysis scores, the project team developed a set of bike facility recommendations for county roadways. Though a variety of bicycle facility types exist and are used throughout New Jersey, only those types recommended on the county's existing roadway network are detailed below. Additionally, changes to vehicular speeds and volumes that may result from the actions taken in response to scenario planning may increase opportunities for bicycle facility recommendations.

Many Warren County roadways were found to be too narrow to accommodate dedicated bicycle facilities, and many roads also lack adequate sidewalks. Sidepaths may be particularly useful and warrant further study along busy county roads due to the narrow width and high prevailing travel speeds. Design standards for county and municipal roads should be updated to better accommodate safe biking and walking throughout Warren County. Regardless of whether road standards are updated, the implementing agency or jurisdiction faces no legal liability concerns as long as bike facilities are properly designed and maintained. Proper bicycle facility design guidance can be found on page 89-107 of NJDOT's Complete Streets Design Guide.

Sample locations are provided for each of the pertinent facility types other than sidepaths. These recommended bike facilities are intended to introduce biking infrastructure to many places in the county and form the foundation for further study and improvements. As noted earlier, a more thorough countywide trails and biking plan is recommended to further evaluate these recommendations.

Four types of facilities are recommended as most applicable Warren County; sidepaths, bicycle boulevards, shared-lane markings, and bike lanes.

Sidepaths

A sidepath is a path next to the road, generally separated by a buffer and wider than a sidewalk, that is designated for bicycle or pedestrian use. They function similarly to a multi-use path or paved trail though trails are often found in recreation areas and multi-use paths need not be immediately adjacent to a roadway. Sidepaths are intended to minimize conflicts between all users and provide access to destinations (commuting or recreation). Along high-speed, high-volume roads, sidepaths may be more desirable than sidewalks or bike lanes. Sidepaths provide dedicated opportunities for those who wish to ride a bicycle or walk and may increase the use of non-motorized modes. Sidepaths can be one-way or two-way; the selection of the appropriate configuration requires an assessment of many factors including safety, connectivity, available right of way, and intersection navigation. Sidepaths should be signed to discourage or prevent unauthorized motorized access.

Due to limited width along existing cross-sections of county roadways, no sidepaths are recommended under current conditions though sidepaths should be considered under all roadway widenings including recommended widenings of CR 519 and CR 620 detailed beginning on page **Error! Bookmark not defined.** CR 638 in Greenwich Township currently has a sidepath, as shown below.

Bicycle Boulevard

Bicycle boulevards, also referred to as neighborhood greenways or quiet streets, are traffic calmed streets that prioritize bicycle travel, creating a more comfortable bicycling environment. While bicyclists share the street with motor vehicles, the low-speed and low-volume character of a bicycle boulevard creates a low-stress facility for bicyclists of all ages and abilities.

Many neighborhood residential streets provide the basic components of a bicycle boulevard. These streets can be enhanced to create a bicycle boulevard through a variety of design treatments deterring high vehicle speeds and discouraging through-trips by motor vehicles. Many of these treatments benefit not only bicyclists but by creating a safe and quiet environment, benefit pedestrians and motorists.

Where constraints prevent bicycle improvements on arterial roadways, utilizing parallel neighborhood streets as bicycle boulevards provide convenient, attractive alternative routes for cyclists.

Key elements of a bicycle boulevard include:

Reduced Speed Limits: the preferred speed limit of a bicycle boulevard is 20 mph, five miles per hour slower than typical residential streets

Signage and Markings: pavement markings and wayfinding signage highlight the corridor as a priority route for bicyclists and the intention for the roadway as a shared, slow street

Speed Management: traffic calming elements appropriate for the context, such as curb extensions, speed cushions, chicanes or mini-roundabouts, should be used to reinforce the low speed limit and discourage cut-through traffic

Access Management: depending on the context, elements such as diverters or medians can be used to deter or prevent vehicular through-traffic, while still accommodating local access and prioritizing bicycle through-trips

Intersection Crossings: appropriate intersection treatments, particularly at crossings with major streets, are crucial to minimize bicyclist delay and ensure a safe, comfortable street for bicyclists of all ages and abilities

Bike boulevards are recommended for further study for portions of several corridors including CR 519 in Greenwich, CR 620 in Belvidere, CR 631 in Oxford, and CR 642 in Alpha.

Shared Lane Markings

On roadways that cannot accommodate dedicated bicycle facilities, shared-lane markings may be used to indicate a shared environment for bicycles and automobiles. Shared lane markings can provide several benefits:

- Assert the legitimacy of bicyclists on the roadway
- Provide directional and wayfinding guidance
- Direct bicyclists to ride in the most appropriate location on the roadway
- Provide motorists with visual cues to anticipate the presence of bicyclists

Shared lane markings can be used to provide connections to major destinations where there is limited cartway width or other constraints limiting implementation of other bicycle facilities.

Shared lane markings are typically applied on streets with a speed limit of 25 mph or less. The markings typically consist of a bicycle and chevron symbol, with or without a green background. Shared lane markings should also be paired with traffic calming treatments to reinforce the low speed limit and support a more comfortable environment conducive to sharing the roadway with multiple types of road users. Shared lane marking treatments can include “Share the Road” signage as is currently implemented along Southtown Road in Frelinghuysen Township.

To increase the visibility and effectiveness of the marking, the marking can be applied on a green background. This “enhanced” or “green back” shared lane marking is particularly useful on streets with higher traffic volumes and more activity, which benefit from improved visibility.

Shared lane markings are recommended for low speed sections of roadways throughout the county including CR 602 in Hardwick, CR 616 in Blairstown, CR 609 in Hope, CR 625 in Oxford, CR 621 in Harmony and CR 626 in White, among other locations. Bike Lane

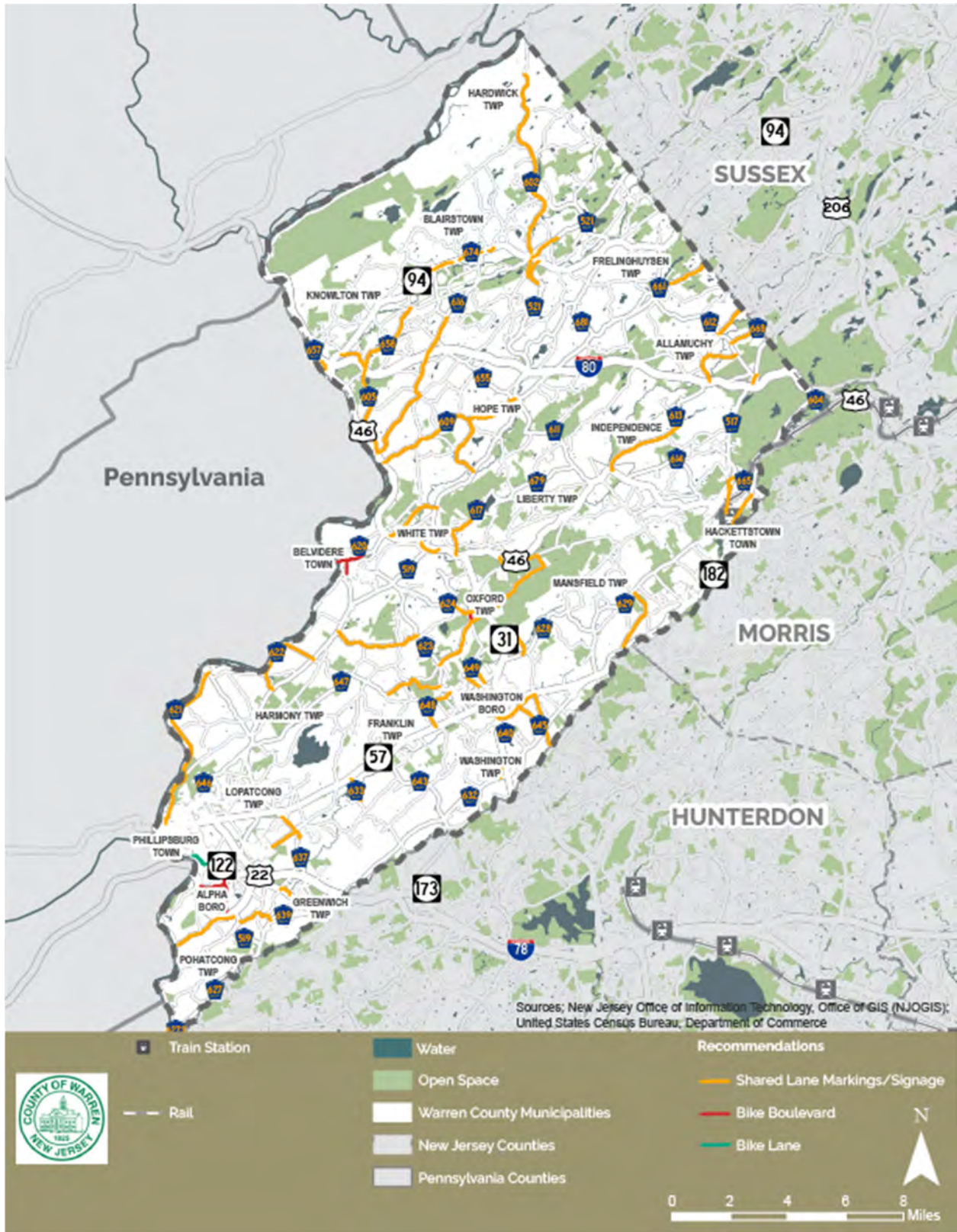
Standard or conventional bicycle lanes provide an exclusive space for bicyclists through the use of pavement markings and signage. They enable bicyclists to ride at their preferred speed, free from interference from motorists, and help facilitate predictable behavior and interaction between bicyclists and motorists. Bicyclists may leave the bicycle lane to pass other bicyclists, make turns, or avoid obstacles and conflicts. Motorists may pass through the bicycle lane to access parking or make other turning movements, but they cannot stand or park in the lane. Standard bike lanes provide dedicated space for cyclists, but no vertical or horizontal separation from moving traffic.

For example, based on factors such as local context, roadway width, speed, traffic volume and network connectivity, a bike lane is recommended for CR 678 in Phillipsburg. The existing network of county roadways is limited in bike compatibility due to width constraints, but if changes to cross sections occur in the future, a bike network can be expanded to other roads.

Recommendations Summary

These recommended bicycle facilities are intended to serve as a basis for future bike infrastructure in the county. A more thorough planning, traffic and engineering analysis is required before these facilities are implemented. Recommended bicycle facilities are mapped in Figure 4.

Figure 4: Recommended Bicycle Facilities



Public Transportation

The full 1982 transit plan from the County's transportation plan published in the same year did not achieve the funding or institutional support necessary for implementation; however, its intent to move people within and outside the county should not be discounted. New technologies and methods of service delivery offer opportunities to explore mobility solutions that may, or may not, rely on fixed route bus service. The desire to reduce greenhouse gas emissions from single-occupant vehicles is of particular concern and a reason to enhance public transportation.

Although overall performance and service levels for Warren County Transit have declined in recent years, a fresh look at opportunities to modernize and revisit key corridors and the 1982 plan are warranted.

The following elements should be included in considering public transit improvements:

- Build on successful elements of the Route 57 Shuttle
- Create user-friendly services, with consistent and clearly communicated routes/schedules
- Embrace new technology while remaining accessible to all users
- Explore opportunities to enhance demand-response services and seek integration with general public mobility (funding sources must be considered)
- Coordinate with regional services to maximize utility of local transit
- Provide regular (at least every hour, ideally at least every half hour) service throughout the day to maximize use of service. Rural shuttle services are often focused on facilitating travel during peak commute times or to make connections to more intensive transit uses (higher-capacity buses or trains) but such methods limit the ability for people to take advantage of and trust the service.

Several public transit related recommendations were made in the 2018 Warren County Transportation Plan including:

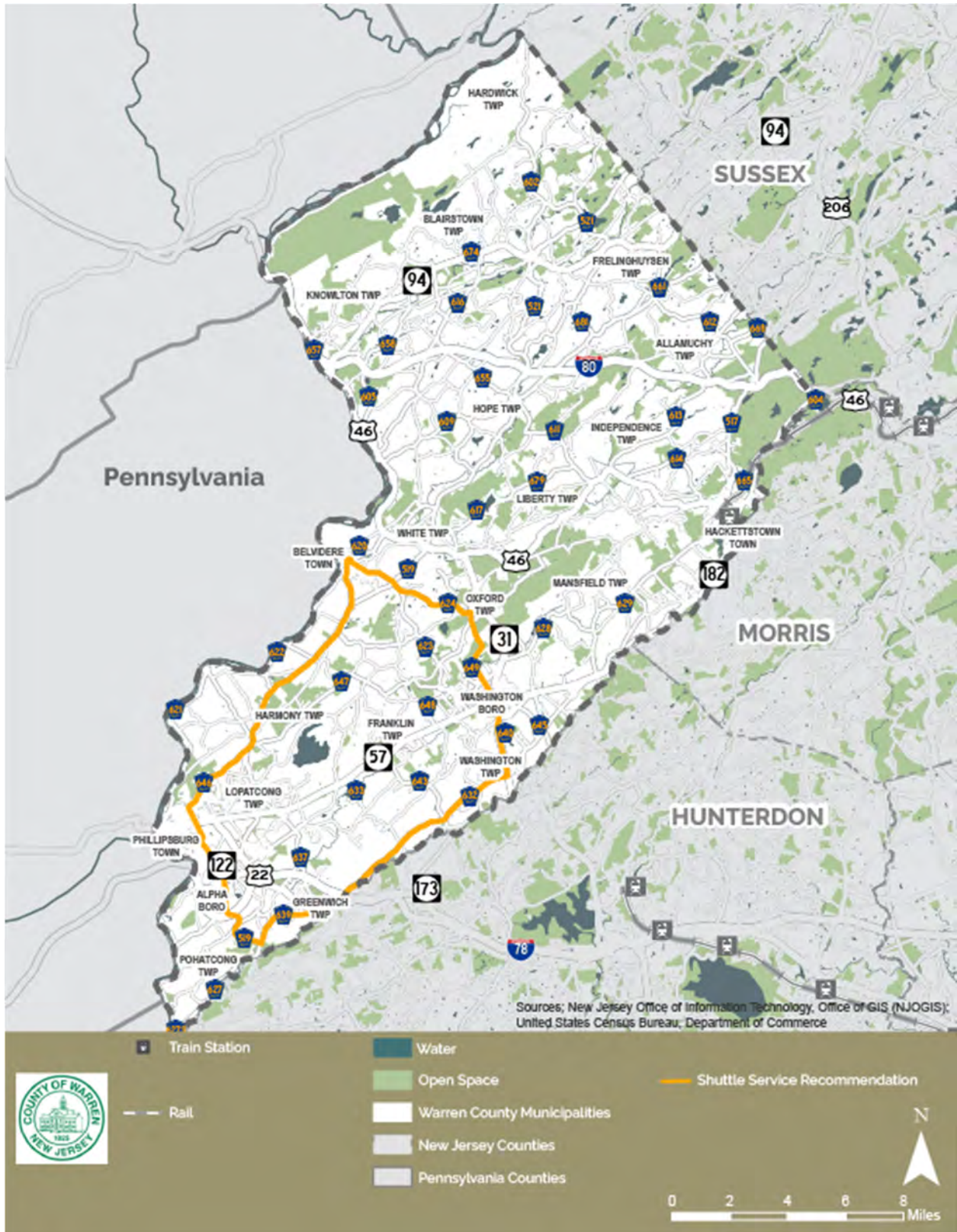
- Improving access to key destinations such as Warren County Community College, schools and vocational high schools, Veterans Affairs New Jersey Health Care System, hospitals, grocery stores, and employment centers
- Include extended and non-peak transit service for shift work, evenings, and weekends
- Provide information on transit service and schedules in various languages, as needed by County residents
- Mitigate capacity limitations at the Clinton Park & Ride

Additional recommendations were included in the plan and previous proposed in a 2004 study, including:

- Restoring passenger rail service in northern Warren County along the Lackawanna Cut-off
- Restoring passenger rail service between Hackettstown and Phillipsburg along the Washington Secondary
- Extending passenger rail service to Phillipsburg along the Raritan Valley rail line from High Bridge (Hunterdon County)

Warren County should complete a detailed examination based on the public transit improvements included in the 2045 build scenarios elaborated upon in Technical Memo 3 to potentially provide new service along CR 519 and CR 632, connecting the expected future employment centers with the regional centers of Alpha, Belvidere, Oxford and Washington Borough, as well as possible service to Easton, PA, with social, economic and geographic ties to Phillipsburg. A graphic illustrating the routes is shown in Figure 5.

Figure 5: Recommended Shuttle Service



Goods Movement

Freight is becoming an increasingly important part of our daily lives, as demand for next-day and home deliveries increases. With this demand comes higher truck volumes on local and County roadways, many of which were not designed with trucks in mind. Warren County is particularly impacted by this trend as it experiences not only increased demand for local shipments but also greater demand for warehousing sites necessary to facilitate greater demand. The 2020 Warren County Light Industrial Site Assessment established 15 sites encompassing more than 4,000 acres which could potentially be developed for industrial uses such as warehousing or e-commerce. If developed, these sites would generate a significant amount of traffic from both trucks and automobiles, as increased employment and goods movement would be generated to and from these sites. A capacity analysis was conducted as part of the Light Industrial Site Assessment under existing 2020, no-build 2045 and build 2045 conditions. No-build 2045 conditions assumed the 15 identified sites would not be built and all trends in the County would continue at their current rate. The build 2045 scenario assumes all 15 sites were built-out. This traffic model was run using NJTPA's NJTRM-E model scenario, also used in the Warren County Transportation Plan modeling exercises. To accommodate the expected increase in traffic that would result from the development of the 15 industrial sites and provide an acceptable level of service, a combination of improvements including additional turning lanes and intersection alignments, traffic signal timing adjustments, and travel demand management strategies were explored. The potential increase in cars and trucks can be better accommodated at intersections through a variety of potential improvements ranging from low cost solutions such as optimizing stop bars to higher cost investments such as roadway widening. Other physical improvements to mitigate roadway impacts, such as roundabouts, should be explored in the future as sites are developed. Several sites were identified as requiring mitigation strategies.

Corridor Treatments

As studied under the build scenarios detailed in Technical Memo 3, CR 519's existing one lane of traffic in either direction is not expected to be sufficient to handle future traffic demands as per the 2045 build conditions. A more thorough analysis of potentially widening the corridor to two travel lanes in either direction from CR 646/Uniontown Road in Harmony Township to CR 620 in Belvidere is recommended. Dependent on further study, intersections treatments may also be beneficial in addition to or in lieu of a corridor widening. Intersection treatments can be implemented at what are expected to be the busiest intersections to reduce bottlenecks by expanding intersection approaches to include dedicated turning lanes. Other site-specific improvements can include a short passing lane or truck climbing lane along a hill. Additionally, any study of the CR 519 corridor should consider the need for bicycle and pedestrian improvements and connectivity. Traveling north-south through the entirety of Warren County, CR 519 also continues south into Hunterdon County and north into Sussex County for a total of 89 miles, New Jersey's longest county route. This length presents an opportunity to improve biking and walking connections between these Counties and communities. Depending on specific site conditions, available right-of-way and topography, a sidepath along the corridor may be feasible.

Additionally, it is recommended to widen a segment of CR 620 between Belvidere and CR 519 from one to two lanes in either direction to accommodate the anticipated auto traffic expected to be generated due to site developments. This widening should be carried through each intersection along the corridor.

Phased or partial implementation is recommended for roadway widenings and intersection improvements as light industrial sites are approved and constructed. When possible, the municipalities should require that developers contribute a fair share towards needed improvements directly related to site development.

Intersection Treatments

While corridor-widenings are recommended for two corridors, treatments at specific intersections can result in similarly beneficial impacts to traffic by targeting the locations expected to present the worst traffic conditions. Intersection treatments can include marking a new turn lane, signaling a currently stop-controlled intersection, optimizing signal timing, or altering the location of stop bars to better allow turning movements by oversized vehicles.

The following treatments are recommended for the respective intersections. More detailed analysis and graphics of each of the recommendations can be found in the Warren County Light Industrial Site Assessment.

- US 46/CR 519
 - Optimize signal timing
 - Pull back stop bars
 - Widen approaches to add turn lanes
- CR 519/CR 623
 - Signalize intersection
 - Widen all approaches to add turn lanes
- CR 519/CR 620
 - Signalize the intersection
 - Widen all approaches to add turn lanes
- CR 519/Foul Rift Road
 - Signalize intersection
 - Widen approaches to add turn lanes
 - Consider adjusting turning radii to accommodate trucks
- CR 519/CR 626
 - Signalize intersection
 - Widen all approaches to add turn lanes
- CR 519/CR 622 (Roxburg Station Road)
 - Signalize intersection
 - Widen all approaches to add turn lanes
 - Consider adjusting turning radii to accommodate trucks
- CR 519/CR 621 (Brainards Road)
 - Signalize intersection
 - Widen all approaches to add turn lanes
 - Pull back stop bars
- CR 519/CR 647
 - Widen approaches to add turn lanes
- CR 519/CR 646
 - Signalize intersection
 - Widen all approaches to add turn lanes
 - Pull back stop bars
- CR 519/NJ 57

- Widen all approaches to add turn lanes
- CR 519/Strykers Road
 - Signalize intersection
- I-78/CR 632
 - Signalize intersection
 - Consider adjusting turning radii to accommodate trucks
- NJ 31/CR 632
 - Pull back stop bars

Truck Parking

An important piece of the infrastructure necessary for freight movement is a place for trucks to park overnight or during inclement weather conditions. The public outreach process and discussions with County and municipal staff revealed a long-term concern for increased truck parking. Presently, trucks often park on the side of roadways not intended for such use. Warren County should conduct a study specific to the need for truck parking, preferably in reference to the two most widely used truck routes in the County, I-78 and I-80. These studies would ideally include cooperation with the other New Jersey counties home to these interstates including Hunterdon, Somerset, Union, Essex and Hudson counties for I-78 and Sussex, Morris, Essex, Passaic and Bergen counties for I-80. Based on the anticipated increase in freight-focused warehousing and light industrial use, the County can also work with developers of large industrial parcels to provide truck parking and amenities on-site or find adequate space nearby to assure sufficient truck parking is available for truck drivers while mitigating any negative impacts of truck parking on local residents.

Transportation Demand Management (TDM) Strategies

The Warren County Light Industrial Site Assessment proposed an array of freight-focused TDM recommendations. TDM provides solutions focusing on creating a more efficient transportation network through targeted policies and strategies focused on demand. These strategies are optimal in locations where existing constraints limit physical improvements or where funding for capital improvements is not available or feasible. Strategies include promoting non-peak trips and creating a county-wide freight transportation advisory group. These and the other included recommendations should be considered in future industrial developments. While the Light Industrial Site Assessment framed TDM in terms of freight, TDM strategies can be used for mitigating other congestion sources as well.

Gateways

The County and its municipalities should pursue gateway treatments for several communities, including, but not limited to Belvidere, Hackettstown, Oxford, and Washington Borough. As detailed on page 114 of the NJDOT Complete Streets Design Guide, gateway treatments incorporate visual cues to alert users of a change in street typology or context. Such treatments are particularly helpful on higher-speed County or State roadways that enter a more densely populated area. Gateway treatments can also help a location serve as a de facto entrance to a downtown, historic district or public square. By alerting users of the change in character and context of the roadway, gateway treatments are intended to trigger and enforce a change in user behavior, such as for drivers to reduce speed or be aware of a higher level of pedestrian and bicyclist activity. Gateway treatments can also facilitate tourism, place-making and improve an area's economic vitality.

There are a variety of potential gateway treatments, many of which overlap with general Complete Streets tools. Specific improvements should be based on local context, but treatments can include:

- Specialty light fixtures
- Public art installations
- Radar speed signs to highlight a change in speed limit
- Raised crosswalks or intersections
- Wayfinding kiosks, signage or map displays
- High-visibility crosswalk striping or a unique crosswalk striping design distinctive of the district or neighborhood
- Curb extensions to narrow the intersection

An example of a potential gateway treatment for Jersey City is provided in Figure 6.

Figure 6: Gateway Treatment Example



POLICY RECOMMENDATIONS

One purpose of this update to Warren County’s Transportation Plan is to direct how resources and attention should be allocated going forward. Several transportation issues in the County warrant further study, review, analysis, and consideration including those detailed below. These recommendations are intended to complement recommendations made in previous plans, including the 2018 Transportation Technical Study and 1982 Transportation Plan.

Land Use & Zoning Updates

The scenario planning exercise and resultant recommendations made in this document assume land uses will remain the same, other than those light industrial sites specifically mentioned in the scenario planning analysis. Other changes made to municipal land use and zoning regulations have the potential to mitigate traffic impacts from those discussed in the scenario planning, and thus potentially require fewer mitigations. Municipalities should work with the County and consider future land use and traffic scenario planning to best determine necessary traffic measures to assure an efficient roadway network.

Climate Resiliency

Expected light industrial development and any corresponding residential development will have an impact on the environmental integrity of Warren County, including runoff and stormwater issues. This is in addition to larger climate trends bringing about more extreme weather conditions. While these changes will not occur overnight, Warren County should be aware of these ongoing concerns when planning for and implementing transportation improvements. Climate change hazards can also impact the proper functioning of the County’s transportation assets, including roadways, public transit and airports. The County should consider “weather hardening” the most critical assets, such as bridges. Additionally, resiliency and stormwater measures should be utilized in municipal zoning codes, assuring that new developments and construction consider stormwater and resiliency needs. This is particularly important for parcels that are critical for development in these communities, including those to be used for affordable housing.

Several resources are available to become more aware of and incorporate climate change issues into the planning process including:

- The State of New Jersey Hazard Mitigation Plan (2014)
- NJTPA’s Plan 2040 (2013)
- Climate Change Vulnerability and Risk Assessment of New Jersey’s Transportation Infrastructure (2012)
- New Jersey Climate Change Trends and Projections Summary (2013)
- NJDOT’s Complete & Green Streets For All Model Complete Streets Policy & Guide (2019)

Though Warren County is not as prone to some of same climate hazards as other New Jersey communities (flooding along the Shore), the County is not immune to climate issues. Warren County should consider resiliency and stormwater issues when planning for transportation and should consider developing a hazard mitigation plan.

Stakeholder Coordination

Any and all future planning development should actively engage stakeholders. Depending on the location, scale and type of project, stakeholders can include residents, individuals employed in Warren County, tourists/visitors, freight carriers, or those merely traveling through Warren County to reach their destinations. If social distancing restrictions continue to be mandated or recommended, innovative public outreach techniques should be utilized to encourage on-line and virtual participation. Particular attention should be paid to those stakeholders identified in the Equity Assessment/Environmental Justice analysis as these communities have been traditionally and historically underrepresented in planning matters and may have more difficulty having their voices heard. Though updated demographic and equity data will be made available each year through the United States Census, the equity assessment conducted as part of this study and included in Technical Memo 2.2 of Appendix B should serve as a resource for the County to target stakeholder input from these historically under presented communities. Accommodations should also be considered for these communities, including where, when and how public meetings are conducted.

Funding and Support

Warren County and its municipalities should work with NJTPA, as appropriate, to receive planning support through NJTPA's Complete Streets Technical Assistance program. NJTPA connects approximately ten communities each year with Sustainable Jersey and the Alan M. Voorhees Transportation Center to assist with Complete Streets training, program marketing, public education, technical assistance, and assistance with applying for grants. Eligible projects include walkable community workshops, bicycle corridor and network plans, demonstration project guidance, conceptual renderings and Crime Prevention Through Environmental Design (CPTED). Additional funding opportunities for regional and subregional studies recommended earlier in this document may also be available from NJTPA.

NJDOT's Local Aid Resource Center helps connect counties and municipalities with consultants to provide guidance in grant applications, project planning, and project delivery. Guidance for both federal funding and state funding is available, including municipal aid, transit village, bikeways and walkways., local bridges and local freight impact funds, safe routes to school, and other transportation funding sources.

IMPLEMENTATION MATRIX

The below implementation matrix (Table 2) is intended to help Warren County prioritize and track improvements. The following table includes only those improvements recommended in this 2021 Warren County Transportation Plan, both initially recommended here as well as those originally recommended elsewhere and reiterated here. Additional recommendations incorporated in this document include those originally proposed in the 2018 Warren County Transportation Plan Technical Transportation Study and the 2020 Warren County Light Industrial Site Assessment. Hundreds more recommendations have been proposed in the many studies conducted over the preceding decades throughout the County and are summarized and listed in Technical Memo 2.4 of Appendix B. For each recommendation listed in Table 2, information is provided for the general type, lead agency, and general cost estimate (on a scale of 1 to 3, with 3 being the most expensive). The “type” of improvement is intended to provide broad categorization of the recommendations though there can be substantial overlap between these types (for example, freight and roadway).

Table 2: Implementation Matrix

Improvement	Type	Lead Agency	Cost
U.S. 22 Phillipsburg - Consolidate driveways	Roadway and Bridges	NJDOT	\$\$
U.S. 46/NJ 182/CR 517/CR 604 – Realign U.S. 46 westbound approach closer to perpendicular and curbing the reclaimed area	Roadway and Bridges	NJDOT	\$\$
U.S. 22/CR 638/CR 519 – Extend acceleration lanes and adjusting signal timing	Roadway and Bridges	NJDOT	\$
U.S. 22/CR 646 – Improve signage from U.S. 22 to signify the transition into a residential neighborhood and tightening the curve from U.S. 22 westbound on CR 646 northbound	Roadway and Bridges	NJDOT	\$
U.S. 22/CR 638 – Intersection safety improvements	Roadway and Bridges	NJDOT	\$\$
U.S. 22/CR 519 – Intersection safety improvements	Roadway and Bridges	NJDOT	\$\$
NJ 57/CR 629 – Intersection safety improvements	Roadway and Bridges	NJDOT	\$\$
U.S. 46/CR 519 – Intersection safety improvements	Roadway and Bridges	NJDOT	\$\$
I-78/U.S. 22/NJ 173 – intersection improvements	Roadways and Bridges	NJDOT	\$\$

Investigate feasibility of removing height restrictions from bridges	Roadway and Bridges	County, NJTPA	\$\$\$
Study feasibility of maintenance improvements, rehabilitation or replacement of the structurally deficient and functionally obsolete bridges in the County	Roadway and Bridges	County, NJTPA	\$\$\$
Conduct county-wide sidewalk inventory	Walking, Biking and Trails	County, NJTPA	\$
Provide resources for municipalities to conduct community walkability workshops and/or senior mobility workshops	Walking, Biking and Trails	County, NJTPA	\$
Encourage and collaborate with municipalities to address safety concerns, particularly bike/ped crashes in Phillipsburg, Hackettstown and Washington Borough	Walking, Biking and Trails	County, Municipalities	\$
Conduct a study to inventory and analyze the location and characteristics of scenic byways, trails and points of interest, including agritourism sites; making biking, walking and recreational infrastructure recommendations	Walking, Biking and Trails	County, NJTPA	\$
Adopt a County-wide Complete Streets Policy	Walking, Biking and Trails	County	\$
Encourage and provide resources for municipalities to adopt their own Complete Streets policies	Walking, Biking and Trails	County, Municipalities, NJTPA	\$
Encourage and provide resources for municipalities to develop bicycle and pedestrian master plans, particularly Phillipsburg, Hackettstown and Washington Borough including working with NJTPA, as appropriate, to receive planning support through Complete Streets Technical Assistance Program	Walking, Biking and Trails	County, Municipalities, NJTPA	\$
Conduct comprehensive trails/pedestrian plan	Walking, Biking and Trails	County, NJTPA	\$
Utilize the bicycle compatibility recommendations included in the Bicycle Facilities section	Walking, Biking and Trails	County	\$\$

Investigate improving public transit access to key destinations such as Warren County Community College, schools and vocational high schools, Veterans Affairs New Jersey Health Care System, hospitals, grocery stores, and employment centers	Public Transportation	County, NJTPA	\$\$
Investigate offering extended and non-peak transit service for shift work, evenings and weekends	Public Transportation	County	\$\$
Work with NJ TRANSIT to provide information on transit service and schedules in various languages, as needed by County residents	Public Transportation	County	\$\$
Warren County should work with Hunterdon County and NJ TRANSIT to identify ways to mitigate capacity limitations at the Clinton Park & Ride	Public Transportation	County	\$\$
Investigate feasibility of restoring passenger rail service in northern part of County along the Lackawanna Cut-off	Public Transportation	NJ TRANSIT	\$\$\$
Investigate feasibility of restoring passenger rail service between Hackettstown and Phillipsburg along the Washington Secondary	Public Transportation	NJ TRANSIT	\$\$\$
Investigate feasibility of restoring passenger rail service to Phillipsburg along the Raritan Valley rail line from High Bridge (Hunterdon County)	Public Transportation	NJ TRANSIT	\$\$\$
Consider providing shuttle service along CR 519 and CR 632, connecting Alpha, Belvidere, Oxford and Washington Borough. Provide at least hourly and on weekends to maximize use of service	Public Transportation	County	\$\$\$
Conduct analysis of potentially widening CR 519 to two travel lanes in either direction and/or implementing intersection capacity improvements; also consider biking and walking infrastructure along corridor	Goods Movement	County	\$\$\$
Conduct analysis of widening segment of CR 620 between Belvidere and CR 519 from one to two travel lanes in either direction to accommodate the anticipated auto traffic expected to be generated due to site developments	Goods Movement	County	\$\$\$
U.S. 46/CR 519 – optimize signal timing, pull back stop bars and widen approaches to add turn lanes	Goods Movement	NJDOT	\$\$
CR 519/CR 623 – signalize intersection and widen all approaches to add turn lanes	Goods Movement	County	\$\$
CR 519/CR 620 – signalize intersection and widen all approaches to add turn lanes	Goods Movement	County	\$\$
CR 519/Foul Rift Road – signalize intersection, widen approaches to add turn lanes and consider adjusting turning radii to accommodate trucks	Goods Movement	County	\$\$

CR 519/CR 626 – signalize intersection and widen all approaches to add turn lanes	Goods Movement	County	\$\$
CR 519/CR 622 (Roxburg Station Road) – signalize intersection, widen all approaches to add turn lanes and consider adjusting turning radii to accommodate trucks	Goods Movement	County	\$\$
CR 519/CR 621 (Brainards Road) – signalize intersection, widen all approaches to add turn lanes and pull back stop bars	Goods Movement	County	\$\$
CR 519/CR 647 – widen all approaches to add turn lanes	Goods Movement	County	\$\$
CR 519/CR 646 – signalize intersection, widen all approaches to add turn lanes and pull back stop bars	Goods Movement	County	\$\$
CR 519/NJ 57 – widen all approaches to add turn lanes	Goods Movement	County	\$\$
CR 519/Strykers Road – signalize intersection	Goods Movement	County	\$
I-78/CR 632 – signalize intersection and consider adjusting turning radii to accommodate trucks	Goods Movement	NJDOT	\$\$
NJ 31/CR 632 – pull back stop bars	Goods Movement	NJDOT	\$
Conduct study specific to the need for truck parking, particularly for I-78 and I-80; consider cooperation and collaboration with other New Jersey counties with these routes	Goods Movement	County, NJDOT, NJTPA	\$
Consider use of Transportation Demand Management strategies	Goods Movement	County, NJTPA	\$
Pursue gateway treatments into Belvidere, Hackettstown, Oxford and Washington Borough	Gateway	County, Municipalities	\$\$
Make any necessary and/or desirable changes to municipal land use and zoning updates to mitigate negative impact of future development	Policy	Municipalities, County	\$
Implement “weather hardening” at the most critical transportation assets, such as bridges	Policy	County	\$\$\$
Utilize resiliency and stormwater measures in municipal zoning codes, assuring that new developments and construction consider stormwater and resiliency needs	Policy	County	\$
Consider developing a County Hazard Mitigation Plan	Policy	County	\$

Appendix C

Public Involvement

Introduction

As part of the North Jersey Transportation Planning Authority (NJTPA)'s subregional studies program, Warren County has initiated the process to prepare a new Warren County Transportation Plan. The Warren County Transportation Plan, adopted in 1982, needs a refresh to address a shift in subregional and regional transportation needs. The Warren County Transportation Plan's public engagement strategies are guided by its Public Involvement Plan (PIP).

Public Involvement Plan

The Warren County Transportation Plan Public Involvement Plan (PIP) served as a living document that outlined how the WSP Team will inform and seek effective community input from the key stakeholder agencies and organizations, local businesses, community members, property owners, and a broad range of stakeholders.

Due to the uncertainty surrounding the Covid-19 pandemic and social distancing policy, the public outreach plan was shifted to a virtual format. The PIP includes specific procedures and strategies for meeting the desired goals and outcomes of the public involvement process. In addition to maximizing public involvement in the planning process, Warren County seeks to remove language-related barriers to public involvement by identifying and engaging Limited English Proficiency (LEP) stakeholders throughout Warren County.

In developing the PIP, the Warren County Transportation Plan Team identified three desired goals for its public involvement activities:

- **Engage people in every way possible.** Warren County residents were most likely to support a plan they helped shape from the start. Stakeholders in Warren County had various opportunities to provide their input and work with the Warren County Transportation Plan Team to develop a plan with relevant and attainable goals per the study's scope.
- **Seeing is believing.** The public outreach approach offered many opportunities for input from, and dialogue with, the community. The Warren County Transportation Plan Team actively listened to comments, suggestions, and feedback to ensure all stakeholders had a voice.
- **Reach as much of the community as possible.** Through interacting with County wide interest groups, the Warren County Transportation Plan Team was able to reach as many stakeholders as possible and incorporate their comments and suggestions into the final plan recommendations.

Key Audiences

The Warren County Transportation Plan has been developed in part through a public involvement effort that has engaged various constituencies and key audiences in Warren County. Input has been gathered from the general public, community-based advocacy groups, LEP groups and other stakeholders, including municipal representatives.

Engagement of communities traditionally underserved, including Environmental Justice (EJ) (i.e. minority or low-income) and Limited English Proficiency (LEP) populations, was emphasized broadly for the Warren County Transportation Plan outreach efforts. Publicity materials were translated into Spanish to promote accessibility and comply Americans with Disabilities Act and federal Limited English Proficiency guidelines.

The Warren County Transportation Plan Team also maintained a contact list including, but not limited to, government agencies and organizations, local elected officials, neighborhood groups, interested individuals, special interest groups, civic organizations, private transportation providers, environmental justice organizations, and community service groups. The contact list was employed to notify interested stakeholders about opportunities to get involved in the Warren County Transportation Plan outreach process.

Methods and Tools

The Warren County Transportation Plan Team implemented a comprehensive program of public engagement in the development of the Warren County Transportation Plan. The techniques used in this outreach program are outlined below.

1. BRAND LOGO

Modifying the brand logo established for the Warren County Technical Study conducted in 2018 allowed for a familiar branding scheme to remind the public of previous planning efforts and create the recognition that Warren County was also the project leader for the Warren County Transportation Plan update. The style guide for branding can be found in the appendix attachment page 1.

2. WARREN COUNTY TRANSPORTATION PLAN WEBSITE (WCTransportationPlan.com)

The Warren County Transportation Plan Team employed an interactive website as a conduit for disseminating and gathering information during the Plan's development. The website provided the following information:

- Home page with a video overview of the Warren County Transportation Plan planning process
- Listening session information with access to event information
- Interactive Exercises page with active links to the Wiki map and pre-recorded interactive video presentation

- Library page with access to related outreach materials and resources from previous studies
- Contact information for Warren County Transportation Plan staff for any inquiries about the plan via email comment form and telephone.

A screen capture of the website can be found in the appendix attachment pages 2-6.

3. STEERING ADVISORY COMMITTEE (SAC)

The SAC provided invaluable guidance for the overall direction and development of the Warren County Transportation Plan. Warren County identified SAC members including a mix of local, state, and regional stakeholders as well as community and advocacy groups. Three virtual SAC meetings were held in June and December 2020, and May 2020. The SAC was able to provide input through the plan development by identifying key areas of concern and providing comments on plan recommendations. For meeting summaries see appendix attachment pages 6-58 for SAC Meeting 1 and pages 59-102 for SAC Meeting 2.

4. VIRTUAL FOCUS GROUPS

Warren County Transportation Plan outreach included three virtually convened focus groups conducted during June and July 2020. The facilitated focus groups were conducted via a virtual platform which allowed each recruit to participate using their own video screen, including the moderator(s). The Warren County Transportation Plan focus groups held were focused on freight, public transit, and bicycle and pedestrian use. Participants were selected by Warren County staff and included a diverse group of stakeholders including operators, residents, people with disabilities, non-profit organizations, and County and Municipal representatives. For focus group summaries see appendix attachment pages 102-105 for the Bicycle and Pedestrian Focus Group, pages 106-108 for the Public Transit Focus Group, and pages 109-111 for the Freight Mobility Focus Group.

5. MUNICIPAL MEETING

In August 2020, a meeting with Warren County municipal leaders was held. This meeting introduced municipal officials to the transportation plan process and obtained initial feedback from them in terms of areas of concern, and where improvements are needed, in roads, public transportation, and bicycle and pedestrians. The municipal group identified 10 intersections and corridors with safety and congestion concerns. To view a summary of this municipal meeting, see appendix attachment pages 112-114.

6. INTERACTIVE EXERCISES – WIKI MAP ONLINE

From June 22nd to August 31, 2020, the Warren County Transportation Plan Team launched an interactive mapping tool using an online mapping tool, “Wiki Map”, to gather feedback on transportation areas of concern within Warren County. Participants were able to add place-based comments onto the map as well as reply to already provided comments. Participants could zoom in and out of the map to place pins (for areas) or lines (for corridors) to point out specific transportation concerns within Warren County. This interactive exercise was designed to engage diverse groups of people throughout the metropolitan area. Over 360 comments were collected from this interactive activity. For a review of public input collected, view appendix attachment page 115.

7. INTERACTIVE EXERCISE - PRE-RECORDED VIRTUAL PUBLIC WORKSHOPS

The Warren County Transportation Plan Team held a pre-recorded interactive virtual workshop from February 17 to March 19, 2021. An on-demand video presentation was developed to allow participants to participate at their own pace during any time of day. This interactive meeting consisted of a 20 minute narrated presentation with pauses in-between the presentation recording. During these pauses, interactive activities prompted participants to share comments and provide input on what has been viewed. Participants were able to visit the WCTransportationPlan.com website to participate. Over 60 participants viewed and responded to the interactive exercises. See appendix attachment pages 116-156 for the meeting recording and pages 157-168 for the summary of results.

8. LISTENING SESSION

After the pre-recorded presentation was made available for two weeks, a one-hour listening session on March 9, 2021 was held. This allowed members of the public to interact with the Warren County Transportation Plan Team. The Warren County Transportation Plan Team provided a short presentation based on the pre-recorded presentation found on the plan website. The purpose of this presentation served as a refresher for participants who had seen the pre-recorded presentation and as a teaser for participants who have not seen the pre-recorded presentation. After the presentation concluded the Warren County Transportation Plan Team answered questions and listened to comments provided by attendees. Members of the public were able to join the meeting via phone and computer. See appendix attachment pages 169-171 for the meeting summary and pages 172-190.

9. OUTREACH TO COMMUNITY-BASED PARTNER ORGANIZATIONS

The Warren County Transportation Plan Team collaborated with community-based partner organizations within Warren County. Warren County identified organizations

dedicated to community interaction and cooperation such as Non-Governmental Organizations (NGO's), community organizations, and economic development corporations. Via phone calls and follow-up emails, messaging explained that the transportation plan was underway and the importance of getting involved to have their organization members hear about the planning process from community leaders they trust and have a voice in the process. Follow-up outreach to these organizations informed them of upcoming listening sessions and provided publicity for those events.

10. PUBLICITY MATERIALS

In order to publicize the available resources to the general public for their input into the Warren County Transportation Plan the following tools to maximize participation:

- Advertisements in local newspapers. See appendix pages 191-193.
- Press Releases. See appendix page 197.
- Social Media through established Warren County channels. See appendix pages 194-195.
- Email e-blast announcements in coordination with other transportation focused agencies. See appendix pages 196.
- Video - a three-minute introductory video of the Warren County Transportation Plan planning process was promoted. Follow this [link](#) to view the project video.

Warren County Transportation Plan

Watch the Project Video!



About the Project



The Warren County Transportation Plan update will define a comprehensive program of recommendations and implementation phases to address multimodal transportation needs. Find out more on the project in the about section.

[More info](#)

How to Get Involved



Outreach efforts will seek effective community input from key stakeholders including local agencies and organizations, local businesses, community members, property owners, and the general public. Find out more in this section.

[More info](#)

Resource Library



In an effort to provide the public with access to project related content, Warren County is maintaining a library of project related documents, and a gallery of photos for the Warren County Transportation Plan on this website. Find out more in this section.

[More info](#)

About

Project Overview

Warren County is conducting this study with funding from the North Jersey Transportation Planning Authority's Subregional Studies Program. It will update the Warren County Transportation Plan, adopted in 1982, to address a shift in subregional and regional transportation needs. The updated Warren County Transportation Plan will define a comprehensive program of recommendations and include implementation phases to address multimodal transportation needs, overcome existing constraints and deficiencies, and leverage opportunities across a broad range of projects, policies, and strategies.

Goals

The plan is guided by overarching goals with supporting objectives – originally within the 1982 Transportation Plan and refined by the Warren County Transportation Plan Update Steering Advisory Committee – to address the need for improvements to transportation within Warren County. The goals are:

- Provide transportation infrastructure that is consistent with Warren County's rural character
- Focus growth and infrastructure in existing centers
- Minimize and mitigate environmental and stormwater impacts of transportation infrastructure
- Maintain and improve the existing transportation system
- Provide multimodal transportation choices that improve safety, mobility, and equity
- Improve the resiliency of Warren County's transportation infrastructure
- Improve access to education and employment opportunities
- Promote cooperation and participation to advance mutual interests
- Encourage state enabling legislation to provide municipalities and counties more authority over the impacts of traffic impacting their roadways from new development
- Monitor and incorporate technological trends and innovations in transportation projects and strategies



Tell us what you think!

Get in touch to share your questions, comments and thoughts.

Email
info@WCtransportationplan.com



Timeline

Project began April 2020, and will conclude June 2021

- Steering Advisory Committee Meeting 1 - June 2nd, 2020
- Public Outreach Round 1: Public Virtual Event - June 22nd to July 29th, 2020
- Focus Groups: June/July 2020
 - Bicycle and Pedestrian
 - Public Transportation
 - Business and Freight
 - Municipal Officials
- Steering Advisory Committee Meeting 2 - October 2020
- Public Outreach Round 2 - Spring 2021
- Public Meeting - Spring 2021
- Steering Advisory Committee Meeting 3- March 2021
- Draft plan for review- March/April 2021
- Final Plan delivery- June 2021

Get Involved

Outreach Events

The Warren County Planning Department is committed to ensuring that all stakeholders have ample opportunity to learn about and understand the program elements, to comment on the program as it progresses, and to have their concerns and ideas heard. Engagement of Limited English Proficiency (LEP) stakeholders will be considered throughout the Warren County Transportation Plan process. Tools to engage broader LEP populations will include translation of relevant materials (**posted in the resources section**), and interpretation services at public events in identified foreign languages including Spanish. Look below to find out ways you can get involved and to view past public outreach events.

PAST - Virtual Event | February 17, 2021 to March 19, 2021

Learn more about the Warren County Transportation Plan, and provide feedback. This interactive event is a 25 minute pre-recorded presentation that pauses throughout to give you the opportunity to share your thoughts. Activities include opportunities to indicate transportation priorities, identify locations that are areas of concern, and provide information to help the County develop the transportation plan. Participate at your own pace by clicking the button below!

PAST - Virtual Listening Event | March 9, 2021

Join us at a virtual listening session on March 9, 2021 from 7 - 8pm! You will be able to voice your transportation concerns directly to the County by using the meeting access information below:

Webinar Link:

[Click Here](#)

Meeting Phone Number:

1-224-501-3412 Local

Meeting Access Code:

555-901-805

PAST - Virtual Event | June 22 to July 29th, 2020

The Warren County Transportation Plan will host a virtual pop-up event from June 22 to July 29th, 2020. Participate at your own pace by:

Viewing our project informational video and,



Clicking on the interactive map image below to share your transportation concerns and input on the future of transportation in Warren County.



Tell us what you think!

Get in touch to share your questions, comments and thoughts.

Email

info@WCtransportationplan.com

Resource Library

Meeting Summary

[Steering Committee Meeting Presentation - December 9, 2020](#)

[Municipal Meeting 1 - August 11, 2020](#)

[Freight Mobility Focus Group - July 29, 2020](#)

[Public Transit Focus Group - July 14, 2020](#)

[Bicycle & Pedestrian Focus Group - June 30, 2020](#)

[Steering Committee Meeting Minutes and Presentation - June 2, 2020](#)

Tell us what you think!

Get in touch to share your questions, comments and thoughts.

Email

info@WCtransportationplan.com

Relevant Links

[2020 Warren County Transportation Plan - Technical Needs Assessment](#)

[2018 Warren County Transportation Technical Study](#)

[2017 NJTPA Transportation Plan 2045](#)

[2013 Warren County Morris Canal 25 Year Action Plan](#)

[2005 Warren County Strategic Growth Plan](#)

[The 2004 Transportation Technical Study](#)

[1982 Warren County Transportation Plan](#)

Contact Us

Contact Us

Sign-up for the project mailing list to receive project updates on public outreach opportunities below.

Name *

<input type="text"/>	<input type="text"/>
----------------------	----------------------

First Name Last Name

Email *

Subject *

Message *

Put me on the project mailing list *

- Yes
- No

Submit

Tell us what you think!

Get in touch to share your questions, comments and thoughts.

Email
info@WCtransportationplan.com

Steering Advisory Committee Meeting Minutes

Project: Warren County Transportation Plan – Steering Advisory Committee Meeting 1

Date and Time of Meeting: June 2, 2020, 10:00 AM

Attendees

Participant Name	Organization	Email
Dave Dech	Warren County Planning	ddech@co.warren.nj.us
Brian Appezzato	Warren County Planning	bappezzato@co.warren.nj.us
Valarie Discafani	Warren County Planning	vdiscafani@co.warren.nj.us
Desiree Dunn	Warren County Planning Board	dldunn04@gmail.com
Adam Baker	Warren County Planning Board	a07843@gmail.com
Blythe Eaman	NJTPA	beaman@njtpa.org
Charles Doyle	LVPC	cdoyle@lvpc.org
Dan Callas	TransOptions	dcallas@tansoptions.org
Carol Cook	Warren County Shuttle	cookcats8@gmail.com
Jan McDyer	Warren County Shuttle	Jmcdyer@co.warren.nj.us
Brian Leckie	NJDOT Planning	Brian.Leckie@dot.nj.gov
Linda Empson	Easton Coach	lempson@eastoncoach.com
Lou Milan	NJTransit Planning Department	lmilan@njtransit.com
Brian Miguel	NJTransit Planning Department	BMiguel@njtransit.com
Maryjude Haddock- Weiler	NJ Highland Council	Maryjude.Haddock-Weiler@highlands.nj.gov
Scott Clark	Trans-Bridge Lines	
Mark Ertel	Trans-Bridge Lines	mertel@transbridgelines.com
Mike Taylor	Eastern Coach	mtaylor@eastoncoach.com

The purpose of this meeting was to introduce the Warren County Transportation Plan update to the Steering Advisory Committee (SAC) and obtain feedback on the study goals through an interactive polling software. To view a recording of the meeting, please follow this link: <https://www.youtube.com/watch?v=nisePAOWkKg&t=7s>.

I. Introductions (Debbie Hartman, WSP)

- A project introduction with a brief overview of the presentation, and ground rules were provided.
- An ice breaker asking participants “What would you like to see as the result of the Warren County Transportation Plan?” was facilitated.

II. Study Overview (Debbie Hartman, WSP)

- This study is an update of the Warren County 2018 Transportation Technical Study that revisits and updates the goals, supporting data, technical resources, and methodologies to

a time horizon of 2045, and incorporates the findings and recommendations from related transportation studies and plans.

III. Outreach and Partnerships (Jessica Ortiz, FHI)

- Round 1 will consist of virtual and in-person pop-up events including an online Wikimap and the Warren County Farmer's Fair, which is currently tentative due to social distancing protocols.
- Round 2 is currently consists of two, in-person pop-up outreach events. This round will focus on collecting input on initial draft recommendations. The dates are still to be determined.
- There will also be a county-wide open house public meeting for feedback on the draft final report.

IV. Visioning and Goals Exercise (Pete Kremer, Baker)

- Goals from the 1982 Warren County Transportation Plan and 2018 Transportation Technical Study were compared to identify changes and gaps.
- Each newly created goal should be unique to transportation to reflect current and historic priorities and needs, emerging issues and challenges, and equity, safety, access to opportunities.
- Indicators would then be developed to add detail and track progress toward attaining goals.
- PolLEV was used as the mechanism for SAC members to vote on each goal and choose between keeping the goal, rewording the goal, and removing the goal. Below are the results:
 - Goal 1: Preserve and enhance the County's rural character.
 - Majority vote to keep the goal.
 - Goal 2: Focus growth in existing centers.
 - Majority vote to reword the goal.
 - Potential rewording: Focus growth and infrastructure in existing centers.
 - Goal 3: Protect and enhance water quality and quantity.
 - Majority vote to reword the goal.
 - Potential rewording: Minimize and mitigate environmental and stormwater impacts of transportation infrastructure.
 - Goal 4: Maintain and improve the existing transportation system.
 - Majority vote to keep the goal.
 - Goal 5: Provide transportation choices that increase mobility and improve safety.
 - Majority vote to keep the goal.
 - Goal 6: Increase the resiliency of the County's infrastructure.
 - Majority vote to reword the goal.
 - Potential rewording: Improve the resiliency of transportation infrastructure.
 - Goal 7: Provide a mix of housing types.
 - Majority vote to remove goal.
 - Goal 8: Increase educational and employment opportunities.
 - Majority vote to reword the goal.
 - Potential rewording: Improve access to education and employment opportunities.
 - Goal 9: Promote cooperation to advance mutual interests.
 - Majority vote to reword the goal.

- Potential rewording: Promote cooperation and participation to advance mutual interests.
 - Goal 10: Encourage state legislation to provide more local control over growth.
 - Majority vote to reword the goal.
 - Project team requested potential rewording from SAC members.
 - Goal 11: Seek equitable outcomes for residents, landowners, and businesses.
 - Majority vote to reword the goal.
 - Potential rewording: Provide multimodal transportation choices that improve safety, mobility, and equity.
 - Goal 12: Monitor technological and economic trends.
 - Majority vote to reword the goal.
 - Monitor and incorporate technological trends and innovations in transportation projects and strategies.
- One member of the Steering Advisory Committee noted “preservation” was missing from the goals and visioning exercise.

V. Open for Discussion

- Regarding Goal 4, Carol Cook voiced concerns regarding the possible negative impacts on rural counties.
- Regarding Goal 9, Carol Cook noted difficulties of disseminating information without a county wide newspaper.
- Dave Dech and Carol Cook shared similar sentiments about modifying Goal 10to give counties and municipalities the ability to review projects that are outside of the current scope of the Municipal Land Use Law and County Planning Act that may have impacts on their transportation facilities.
- Carol Cook noted that neighbors are functioning quite well with technology.

VI. Questions/Discussion

- ACTION ITEM: Jessica noted that the Poll Everywhere polling was a live link but the poll will be sent out with a recording of the session.
- Debbie noted that any future comments can be sent to the contact information on the next slide.
- Debbie responded to a question regarding the availability of the WikiMap by stating that it will be up before June 15th and stay up after June 21st, which is the week it is being publicized for.
- ACTION ITEM: Dave Dech will circulate information among committee members and aggregate information collected from the polling conducted.



MEETING NOTES

PROJECT NAME	Warren County Transportation Plan
PROJECT NUMBER	30900091.001
DATE	30 June 2020
TIME	04:00 PM (Eastern Time)
VENUE	GotoMeeting
SUBJECT	Bike/Ped Focus Group Discussion Summary
CLIENT	Warren County

Bicycle and Pedestrian Focus Group

This focus group session brought together a group representing a variety of interests centering on bicycle and pedestrian matters. Focus group participants included experts and stakeholders with a mix of state and local knowledge and experience. Following a welcome, brief overview of the study goals and timeline, and sharing of guidelines specific to the online format of the discussion, study team members (from WSP and FHI) led a discussion among the participants:

- Aaron Hyndman – NJ Bike & Walk Coalition
- Lisa Cintron: Voorhees Transportation Center
- Elise Bremer-Nei: New Jersey Department of Transportation
- Ryan Scacci: Warren County Community College
- JanMarie McDyer: Warren County Transportation Coordinator

Others present included:

- Dave Dech: Warren County
- Brian Appezzato: Warren County
- Valerie Discafani: Warren County
- Blythe Eaman: North Jersey Transportation Planning Authority
- Pete Kremer: Michael Baker International
- Jessica Ortiz: FHI
- Debbie Hartman: WSP USA
- Charlie Romanow: WSP USA

During the discussion, participants were asked a number of open-ended introductory and follow-up questions to spur conversation.

MEETING NOTES

The following issues were raised and discussed among the participants and study team. Comments and concerns are separated into three categories: Challenges, Strengths, and Opportunities

Challenges

- Most roads are designed solely for cars
- Warren County does not have a Complete Streets Policy
- Warren County roads lack proper bicycle and pedestrian infrastructure; limiting demand and use
- Much of the County is hilly; makes biking difficult
- Much of County lacks bicycle and pedestrian facilities
 - Few sharrows or “Share the Road” signage
- Intersection on east side of bridge in Phillipsburg to Easton is a challenge
- Poor motorist behavior
 - Motor vehicles don't look for pedestrians when turning in Belvidere
- Biking between Washington Boro and Belvidere feels very unsafe; narrow roads; dedicated bike facility would be preferred
- Riding to Washington Boro over Brass Castle Ridge is challenging for all levels of riders
- Every year traffic gets worse; particularly in Hackettstown
- Mountain Avenue is a death trap
- Sidewalk connectivity is challenge, depending on who's responsible for maintenance

Strengths

- Greater demand for biking and walking facilities in boroughs
- Recent work in constructing sidewalks and making intersections ADA compliant
- Marty's Cycle Shop in Hackettstown runs many group bike rides; there are serious bike enthusiasts in County
 - Marty's also teaches children to safely bike and walk to school
- TransAction oversees Safe Routes to Schools, works with many local schools

Opportunities

- Encourage installation of dedicated bike lanes
- Encourage installation of all-way crosswalks (also known as Barnes Dance, pedestrian scramble, or all-pedestrian phasing)
 - Particularly on either side of free bridge between Phillipsburg and Easton, PA
 - Demand for walking between Phillipsburg and Easton along bridge
- Warren County could adopt a Complete Streets policy
- Consider addition of off-road trails, particularly along rail line right-of-way
 - Can pave towpath
 - Can build off Morris Canal Greenway to connect townships
 - Would offer an alternative to commuting by car, remove cars from road
- GoHunterdon in Hunterdon County has been successful with biking/walking programs in small towns; can build off their programs
 - Walk to School Day

MEETING NOTES

- Golden Sneaker contest
- Award for class with most walkers/bikers
- Voorhees Transportation Center does walk audits
- County should develop bike and pedestrian master plan
 - Can also develop joint plan for Hackettstown and Mansfield
 - Main Street in Hackettstown would be good place for separated two-way cycle track; good for business; Hackettstown has lots of off-street parking
- Demand for biking and walking in Belvidere
- NJDOT is doing a study of Main St and Grand Ave in Hackettstown; looking to make more pedestrian friendly
- Many people walk to Warren County Library, but no sidewalk is present
 - A paved bike/ped lane exists to Belvidere pool, can do something similar for library



MEETING NOTES

PROJECT NAME	Warren County Transportation Plan
PROJECT NUMBER	30900091.001
DATE	14 July 2020
TIME	04:00 PM (Eastern Time)
VENUE	GotoMeeting
SUBJECT	Public Transit Focus Group Summary
CLIENT	Warren County

Public Transit Focus Group

This focus group session brought together a group representing a variety of interests centering on public transit in Warren County. Focus group participants included experts and stakeholders with a mix of state and local knowledge and experience. Following a welcome, brief overview of the study goals and timeline, and sharing of guidelines specific to the online format of the discussion, study team members (from WSP and FHI) led a discussion among the participants:

- Debbie Martin: Abilities of Northwest Jersey
- Brian Miguel: New Jersey Transit (Grant Administrator for Community Transportation)
- Louis Milan: New Jersey Transit (Capital Planning)
- Chris Sandiford: New Jersey Transit
- Carla Mae Weimer: Seniors of Hackettstown & Students at Warren County Community College
- Carmela Slivinski: Executive Director for Dawn Center for Independent Living
- Dan Callas: President of TransOptions TMA
- Heidi Herrick-Lynn: Director of Rehabilitation Services at Family Guidance Center of Warren County
- Carol Cook: Warren County Transportation Advisory Committee
- JanMarie McDyer: Warren County Transportation Coordinator
- Mike Taylor: Easton Coach
- Linda Empson: Easton Coach
- Scott Clark: Transbridge Lines
- Mark Ertel: Director of Operations Transbridge Lines
- Jan Michener: Hackettstown Town Council
- Gina Marie Williams: Public Stakeholder
- GJ Atwood-Waller: Warren County Transportation Advisory Committee
- Lisa LAST NAME: Public Stakeholder

MEETING NOTES

Others present included:

- Dave Dech: Warren County
- Valarie Discafani: Warren County
- Blythe Eaman: North Jersey Transportation Planning Authority
- Jessica Ortiz: FHI
- Debbie Hartman: WSP USA
- Charlie Romanow: WSP USA

During the discussion, participants were asked a number of open-ended introductory and follow-up questions to spur conversation.

The following issues were raised and discussed among the participants and study team. Comments and concerns are separated into three categories: Challenges, Strengths, and Opportunities

Challenges

- COVID-19
 - Safe/CleanFacilities
 - Ensuring transit drivers are safe during the COVID-19 pandemic
 - Ensuring there is sufficient personal protective equipment for everyone
 - Ensuring vehicles are kept clean for passengers and drivers
 - County Transit
 - Warren County did not stop its public transit services but did reduce its hours
 - Are only transporting up to five passengers per vehicle at a time
 - Still providing trips for essential needs (dialysis, groceries), but other trips are halted
- Funding
 - Funding is primary challenge for improving public transit in County; farebox recovery covers very little; no funding for nighttime service
 - Reduced state funds from casinos pose a challenge
 - Many passengers don't pay the suggested fare
 - Advertising can bring in small amount, but minimized by cost of purchasing advertising wrap
 - Suggested that funding should not only be allocated based on population, but on lack of other available resources. A stable funding source would improve service
- Other
 - Can do more to improve public transit access to church, restaurants, etc.
 - Challenge of connecting transit service with services outside of County; some people go to doctor's appointments outside of Warren County
 - Narrow streets can preclude public transit service
 - Demand for more service to locations with several medical offices
 - Demand for service to community college at night
 - Bus service can be physically very shaky and uncomfortable on certain hilly roads
 - Suggestion made that each town have its own jitney provider/route
 - Hackettstown/Mansfield shuttle service ended ten years ago; County transit hasn't been able to pick up those trips

MEETING NOTES

- AccessLink website is very difficult to use

Strengths

- Many believe the County is doing the best it can with the resources provided
- Good public transit services to colleges during the day
- Good public transit connections to Phillipsburg service

Opportunities

- Existing shuttle service into Hackettstown is good, but would like to see more service, particularly to downtown Hackettstown
- TransOptions TMA provides some resources; helpful to expand opportunities and utilize techniques from other TMA's and agencies



MEETING NOTES

PROJECT NAME	Warren County Transportation Plan
PROJECT NUMBER	30900091.001
DATE	29 July 2020
TIME	04:00 PM (Eastern Time)
VENUE	GotoMeeting
SUBJECT	Freight Mobility Focus Group Discussion Summary
CLIENT	Warren County

Freight Mobility Focus Group

This session brought together a group representing a variety of interests centering on freight, particularly freight movement via truck. Focus group participants included advocates for freight mobility, public sector freight professionals, and property developers and owners of businesses utilizing freight in Warren County. Participants entered with a mix of state and local knowledge and experience. Following a welcome, brief overview of the study goals and timeline, and sharing of guidelines specific to the online format of the discussion, study team members (from WSP and FHI) led a discussion among the participants:

- Gail Toth-New Jersey Motor Association
- Tom Roy-Wakefern Shop Rite
- Joe Nichols-Wakefern Shop Rite
- Robert Byra-Interstate 78 Logistics Park
- John Porcek-Interstate 78 Logistics Park
- Andrew Ludasi-New Jersey Department of Transportation, Freight group
- Louis Millan-New Jersey Transit, Planning group
- Brian Miguel-New Jersey Transit

Members of the study team present included:

- Dave Dech: Warren County Planning
- Brian Appezzato: Warren County Planning
- Valerie Discafani: Warren County Planning
- Linda Read-Warren County Engineering
- Jarod Parker-Warren County Engineering
- Joao D'Souza-Warren County Engineering

MEETING NOTES

- Blythe Eaman: North Jersey Transportation Planning Authority
- Pete Kremer: Michael Baker International
- Jessica Ortiz: FHI
- Debbie Hartman: WSP USA
- Charlie Romanow: WSP USA

During the discussion, participants were asked a number of open-ended introductory and follow-up questions to spur conversation.

The following issues were raised and discussed among the participants and study team. Comments and concerns are separated into three categories: Challenges, Strengths, and Opportunities

Challenges

- Truck parking
 - Lack of truck parking in Warren County, New Jersey and northeastern states
 - Drivers are forced to park on side of road despite dangers of doing so (often on U.S. 22 or I-78)
 - Demand for truck parking throughout day
 - Many drivers drive overnight from New England back to Lehigh Valley, looking for place to take break between Exits 13 and 1 on I-78
 - I-78 west of NJ 31 is overwhelmed with trucks
 - Existing truck stops are crowded/full; expensive to use land for new truck stops
- Future (30+year) freight needs
 - Industry expanding closer to Pennsylvania border with industrial parks on U.S. 22; requires improved infrastructure for truck traffic
- Traffic is slow at NJ 57 and U.S. 46 in Hackettstown; backs up during rush hour

Strengths

- Existing conditions are adequate getting between freight facilities
- Employees have no issue getting to work
- Some infrastructure is/has been built in anticipation of new freight
 - Signal on U.S. 22 for I-78 Logistics Park

Opportunities

- I-78 has some truck stops but needs more
- Proximity of freight producers to walkable/transit friendly areas (such as Phillipsburg) allows for improved commuting options; can also shuttle and work with public transit to provide service
- With more people ordering goods for home delivery during social distancing, are fewer personal vehicles on the road; trend likely to continue
- Some demand for increase in small warehouses; interest in keeping more goods closer to final destinations; can get ahead of development to work with developers on mitigating freight impact
- County has some rail freight capacity; demand depends on tenant needs

MEETING NOTES

- Possibility of large landowner in northwest New Jersey (outside of Warren County) with land willing to develop for truck parking facility; NJDOT is working with landowner on obtaining funding
- Suggestion to incentivize developers to make truck parking available to offset increased demand for freight
- Suggestion to change federal law to allow commercialization of Interstate property for additional rest stops and amenities



MEETING NOTES

PROJECT NAME	Warren County Transportation Plan
PROJECT NUMBER	30900091.001
DATE	11 August 2020
TIME	04:00 PM (Eastern Time)
VENUE	GotoMeeting
SUBJECT	Municipal Meeting #1
CLIENT	Warren County

Municipal Meeting #1

This online meeting of municipal representatives began with a presentation by the study team introducing the project's scale and scope, the public outreach process, and work that has already been completed or begun as part of the effort. The study team then facilitated a discussion surrounding the location and types of existing and anticipated transportation issues.

The following municipal representatives were in attendance:

- Paul Sterbenz: Maser Consulting, Engineer for Allamuchy Twp, Frelinghuysen Twp, White Twp, Belvidere Twp, and Lopatcong Twp
- Dena Hrebenak: Mansfield Twp, Municipal Clerk
- Joe Farino: Mansfield Twp
- Joan Schreibner: White Township, Planning Board Member
- Jim Kern: Warren County Freeholder

Others present included:

- Blythe Eaman: North Jersey Transportation Planning Authority, Project Manager
- Dave Dech: Warren County
- Brian Appezzato: Warren County Planning
- Jessica Ortiz: FHI
- Debbie Hartman: WSP, Project Manager

After attendees introduced themselves, Ms. Hartman led a brief presentation introducing the project. The presentation began with an overview of the work plan, building off of the 2018 Warren County Transportation Technical Study, and the schedule, culminating in a final report in June 2021.

MEETING NOTES

Ms. Hartman provided an overview of the public outreach process which includes three completed focus groups, three Study Advisory Committee meetings, an interactive Wikimap, and several pop-up events. A brief summary of the topics discussed in each of the three focus groups was provided, separated into strengths, challenges, and opportunities.

Work from previous and ongoing County studies was presented, including the progression of goals and vision statements between various Warren County plans, an overview of an ongoing Light Industrial Site Assessment, and the results of a 2018 municipal survey. The survey results indicate a desire to improve roadways and bridges, promote traffic safety, encourage economic development, and enhance bus and rail connections beyond the County. Ten goals were established based on previous County studies and collaboration with the Study Advisory Committee. These goals are intended to be meaningful, measurable and obtainable.

The formal presentation portion of the meeting concluded with establishing the project's current status and next steps, namely conducting pop-up events in the fall, and completing the data assessment.

The discussion portion of the meeting began with attendees identifying specific problem corridors and intersections. The following roadways were identified:

- CR 519 from Greenwich to Hope
- CR 519/NJ 57 in Lopatcong
- CR 519/US 22 in Greenwich
- CR 519/CR 620 in White Township
- CR 519/US 46 in White Township
- US 46/NJ 182 in Hackettstown
- CR 517 near Cat Swamp Road and Ridge Road in Allamuchy
- Exit 19 on Interstate 80 in Allamuchy
- CR 519/Ramsey Rd in Frelinghuysen
- NJ 57/Watters Rd in Port Murray

Issues on these roadways include high traffic volumes, congestion, high truck volumes, speeding, dangerous intersection designs, and a lack of bicycle and pedestrian facilities. Several of these corridors are also expected to cater to increased traffic volumes once proposed and potential industrial development occurs. Trucks are especially problematic in Belvidere and Hope, due to either narrow streets to height restrictions.

Stemming from discussion surrounding the high truck volumes throughout the County, attendees discussed the shortage of truck parking in the area, forcing trucks to illegally park on local streets overnight (particularly near the M&M/Mars headquarters in Hackettstown).

The conversation then turned to public transit. The County lacks New Jersey Transit bus service. One attendee stated there is minimal demand for NJT service in the County due to low population density, and that retail centers are located near medium-density residential developments. The need for more sidewalks and trails was also discussed, particularly in newly developed residential neighborhoods lacking historic links with commercial areas. Walking in areas such as CR 519 and CR

MEETING NOTES

517 was viewed as dangerous with no safe areas for transit pick up/drop off, citing high vehicle speeds, inattentive and texting drivers, quarry traffic, and inadequate shoulders.

Although there are no wide-scale plans for sidewalk construction, there are pockets that would benefit from new sidewalk, such as connections to downtown area of Hackettstown, and a large residential neighborhood at Willow Grove Street off CR 604. Old railway in Allamuchy has been purchased and offers an opportunity for a rail trail from Rt 46 area in Independence to Sussex County. Panther Valley planned community (2,000 residences) lacks sidewalks from that community to commercial area on CR 517.

The meeting concluded with a discussion of the need to better foster collaboration between counties and municipalities, particularly referencing the lack of such communication with the County's 2004 Master Plan update. One attendee proposed distributing a questionnaire to representatives of each municipality within the County to elicit more targeted feedback.

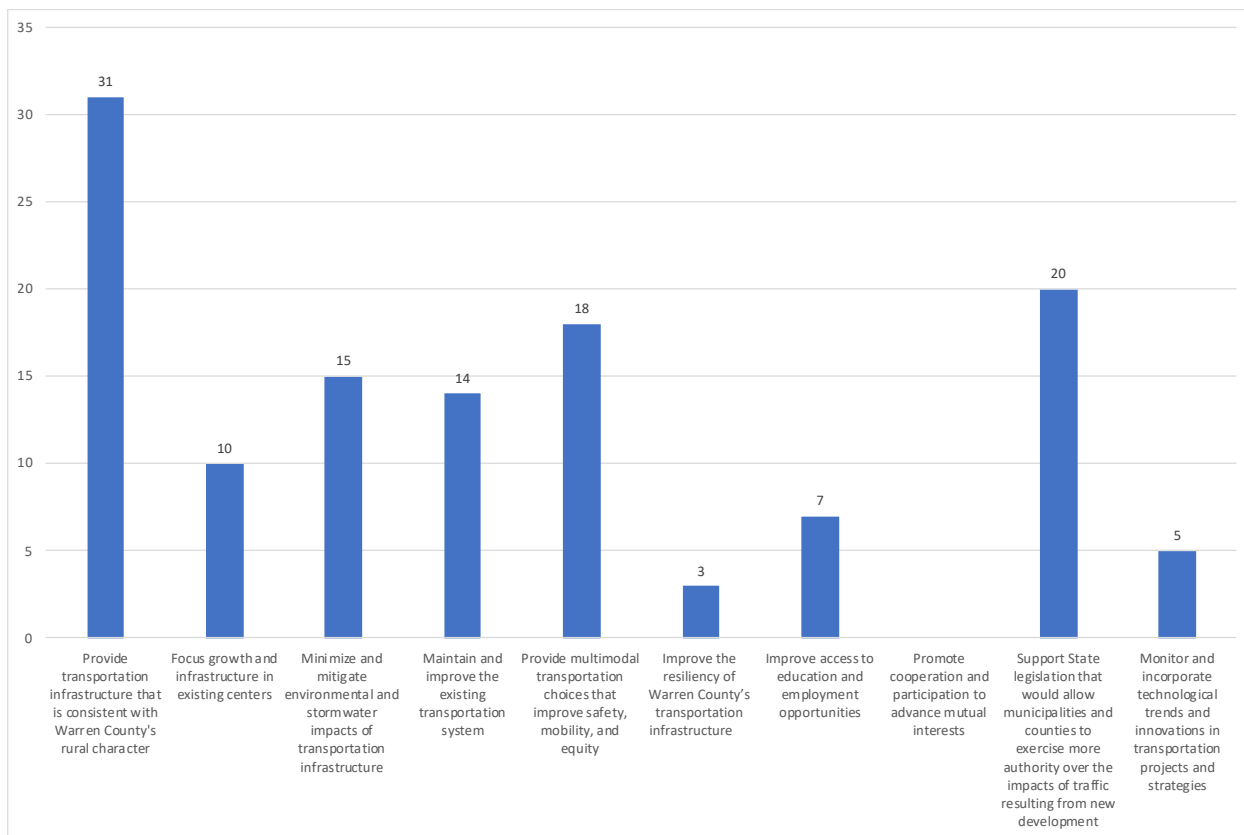
Project: Warren County Transportation Plan

Subject: Interactive Survey Results from Pre-recorded Presentation

From February 17, 2021 to March 19, 2021 the Warren County Transportation Plan Team held an interactive pre-recorded meeting. This event attracted over 64 participants who watch and participated in the eight (8) interactive questions. The responses to those questions are below.

Question 1: Please indicate your highest priority transportation strategy for the Warren County Transportation Plan (select up to 3)

Results: 123 responses collected



Question 2: Do you have any goals in mind that you feel we have missed?

Results: 25 comments received

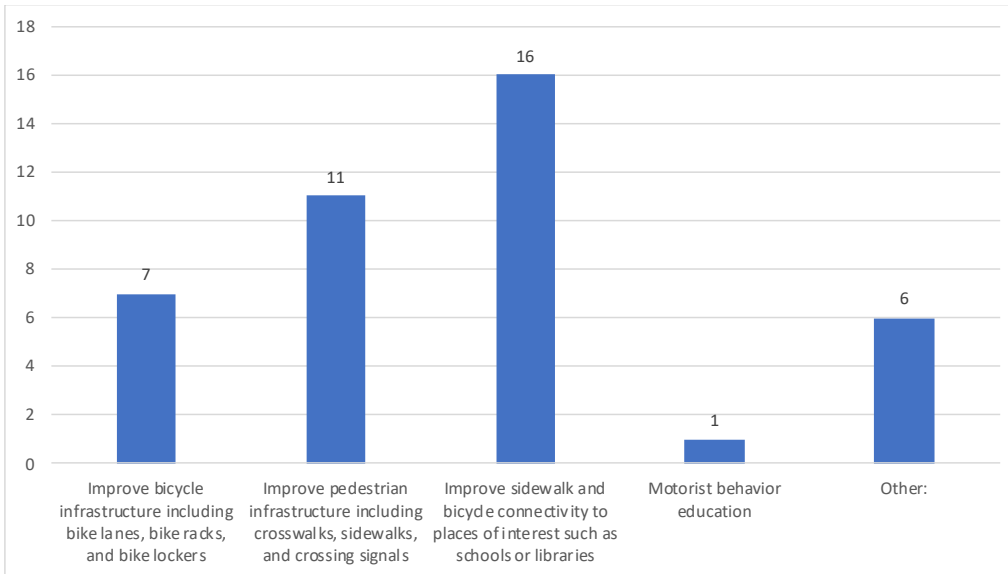
- Warren County in general would benefit from increased eco-tourism funding and promotion to downtowns such as Blainstown, Hackettstown, Stewartville, Columbia and Belvidere - creating opportunities for sustainable businesses catering to these needs as well.

- We need transportation that helps our Seniors in Warren County to take them to the mall once a week so they can get out of the house. As I lived in the city and they have buses that arrive every 15 mins.
- Consider the slightly handicapped and disabled. Ensure that they have access to use the buses. Indicating slightly as a fully disabled person would have specific transportation needs.
- The commuter train system should be opened up again. It currently reaches Hackettstown and stops there. In the past a commuter train reached all the way to Easton, PA and one should be opened up again since the population of Warren County is increasingly
- Way too much vehicle traffic on Route 31. Route 31 cannot handle the commuters from PA and the increasing residential communities being built along route 31.
- Increase availability of rail service within the county.
- Rideshare and shared services for transportation/park and rides.
- Making Sure not use Prime Farmland for Business Growth.
- Warren county has a railroad system that should be used to relieve the roads of truck traffic.
- Our railroad network can be seen here:
[http://www.chesapeakeanddelaware.com/images/Sub Sections/Maps/SubMap.jpg](http://www.chesapeakeanddelaware.com/images/Sub%20Sections/Maps/SubMap.jpg)
- Focus on the whole county and lack of transportation available from one end of the county to the other.
- I don't see anything so far that addresses the addition of warehouses well off of main highways that will lead to tractor trailer traffic on back roads and county roads that are not suitable for this type and/or volume of traffic.
- It is imperative to maintain the rural settings Warren County provides in its small towns. We moved here for that reason and the development and traffic being created by this development is destroying it.
- The truck traffic on 519 is bad now. People accessing their driveways will bring trucks to a stop, their acceleration is very slow which causes long lines of traffic. Feel it's too dangerous to knowingly increase truck traffic on single lane roads.
- Protect County Roads from heavy tractor trailer traffic. They are not designed for it. No residential county road should be turned into a dangerous highway and block the passage of bears and other wildlife that need to cross 519 to get to the river.
- For assistance for the elderly in need to the bus.

- Collaborate with neighboring communities. Too often, municipalities attempt to put high-traffic industrial zones at the edges of their communities, thus throwing neighboring municipalities "under the bus" so-to-speak. The planning should be as regional as
- Maybe insert the word "unique" - Warren County's Unique Rural Character. our group' agenda of stopping the current I80 Rockfall Mitigation Plan, helping NJDOT make the I80 S-Curve more safe, and doing both in a way the preserves the Delaware Water Gap i
- Prioritize remediating existing transportation problems.
- Are you taking tourism and local economy needs into consideration?
- Yes! 1) LSV Low Speed Vehicle HUBS... These would be RESIDENTIAL, flexible vehicles that meet shuttles, commuters
- Warehouse truck Traffic on our back roads is a safety hazard, destructive to homes foundations. Need Size / weight limits On truck traffic. Provide county bus services in Blirstown there are poor students and seniors that need it.
- I would like to see a stop light at the hope intersection of town and at the Hazen light. With the future of Rt. 519 a traffi light will be a must.
- Prioritizing current residential users in their efforts to commute to the highways.
- Keep truck traffic off our roads

Question 3: Which bicycle and pedestrian objective do you feel should be prioritized for the Warren County Transportation Plan? (Select 1)

Results: 41 responses collected

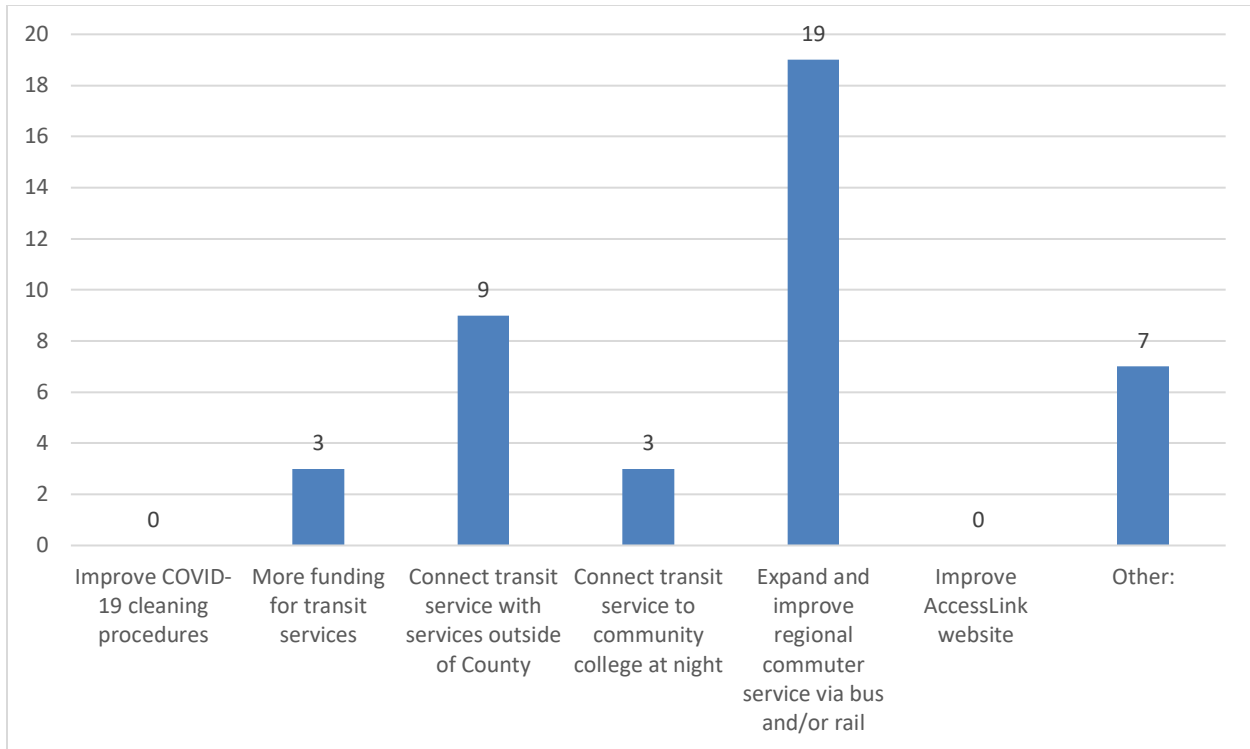


Other comments received for question 3:

- Promotion of cycling as safe, desirable transportation modality in conjunction with education and improvement to existing safety concerns such as high-speed rural county roads and congested area infrastructure- vs - a fringe, daredevil athletic activity.
- Things are fine the way they are.
- All the above has to be done. Increased rail activity will also be a nuisance to residents
- WC let's begin w/ LSV Low Speed Vehicle hubs, roadways
- Most development is to spread out to take advantage of this option.

Question 4: Which Public Transit and Mobility objective do you feel should be prioritized for the Warren County Transportation Plan? (Select 1)

Results: 41 responses collected

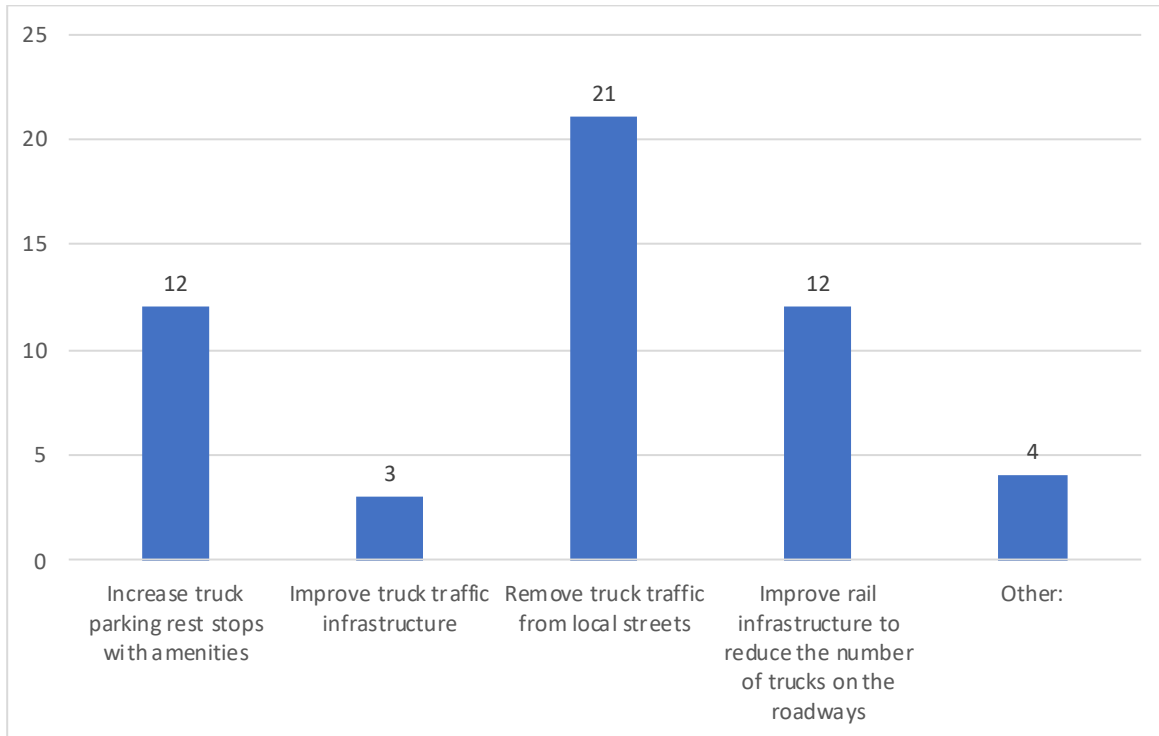


Other comments received for question 4:

- Nothing needs to be done.
- Nothing. You should expand the size of the roads. 1 lane in each direction of traffic does not provide adequate traffic flow.
- Public transportation does not need to be a priority in rural areas of the county.
- Establish mass transit in Warren County. Currently there is nothing available in rural areas and outside normal business hours.
- We have On Demand.
- The county needs to provide services to more of the county. At this time the focus is always on Phillipsburg please try and expand services to Blairstown, Hardwick, Hope, Columbia. Our children travel 45 minutes to the college, where are bus services.

Question 5: Which Trucking, Goods Movement, and Business objective do you feel should be prioritized for the Warren County Transportation Plan? (Select 1)

Results: 52 responses collected

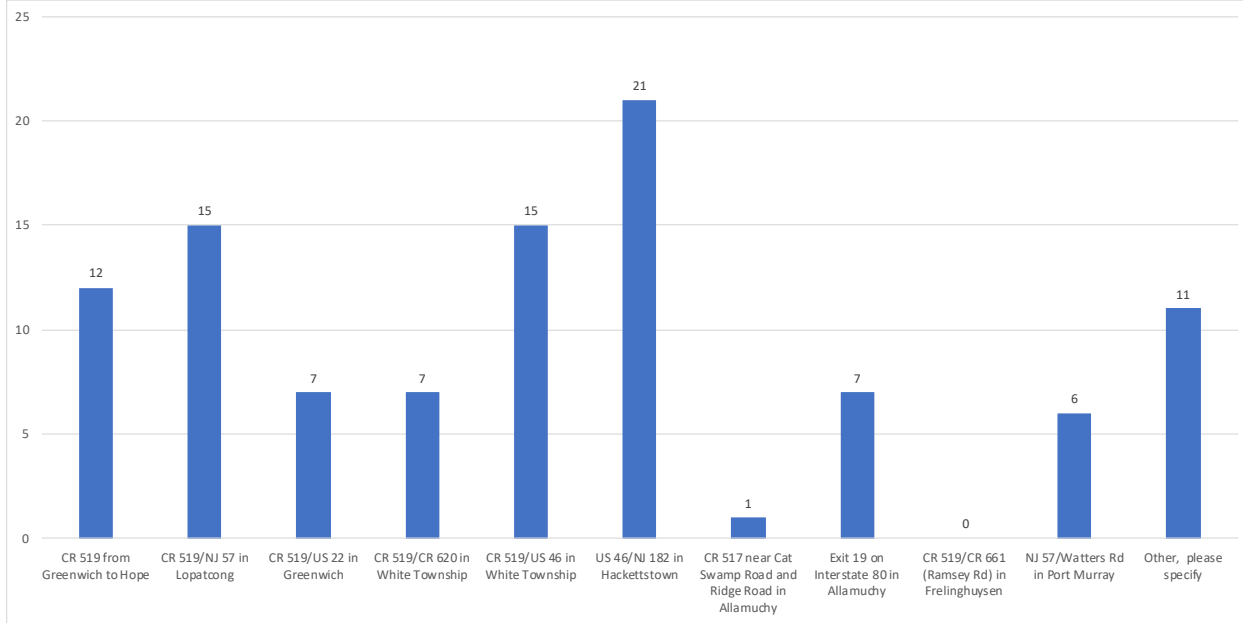


Other comments received for question 5:

- Nothing needs to be done
- All the above should be planned at the sametime. Come up with a total cost to implement, costs to maintain changes, who will be responsible to cover these costs, total revenue/taxes collected make it profitable for all townships involved? Noway a cost
- Warehouses need to BUILD roads betwn new facilities that reach the Interstates! If that's not possible then build in diff locations. Ex Pburg Mall CONVERT into Transit Depot, connect roads in rear for buses
- Remove large truck traffic and improve rail system

Question 6: From the list of intersections and corridors, which three should be prioritized? (Select 3)

Results: 102 responses collected



Other comments received for question 6:

- No problem exists
- US22
- 519-627. Excessive speeding and truck traffic
- 519 and Belvidere Rd in Harmony township; Harmony Station Road and 519; Harmony Municipal Fields and 519; Brainard road and 519. Why Harmony is not listed? Will not be able to get on 519 safely without 4 way stop signs or lights.
- Route 173/Bloomsbury Road - in Greenwich - the planned ingress/egress point for multiple warehouse projects in Franklin Township planned for pristine farmland. These projects will destroy the bucolic nature of the area and pose serious environmental risks
- I80 Exit 4 to DWG
- I-78 Exit 3, Rtes 22, 122,
- SR31N at DQ/Broad NO LEFT TURN onto Broad St MOVE TURNS to a) ShopRight Light
- Route 31 corridor from Route 57 down to Hunterdon County Interstate 78
- I80 s curve

Question 7: Which areas of Warren County are of concern to you and what are your concerns?

Results: 44 comments received

- Phillipsburg area and new warehouses adding to truck traffic. 519 intersections, like the one

with 57 that does not allow for turning lanes.

- Rural areas like Hardwick and Knowlton with low traffic roads becoming overburdened with more development- ALL areas affected by warehousing and online shopping fulfillment frenzy, also taking away from our downtown commerce. Lack of mobility for underserved area.
- Lack of sidewalks/connectivity across and around Rt. 94 specifically in Blairstown.
- Not aware of all areas within the county. Phillipsburg is my main focus. The town is historic but does not have an inviting persona with good roadways, good streets, inviting storefronts or stores and restaurants. Transportation is severely limited.
- Phillipsburg needs a commuter train service and business service from Easton, PA to Hackettstown to lower the number of commuter cars and trucks traveling through Rt. 57.
- RT 31 needs to be 4 lanes from RT78 to RT46
- Route 31 and route 57 expansion to multiple lanes. Trucks should not be allowed.
- I'm extremely concerned about the increase of truck traffic on cr519. These areas were developed as rural farm and residential areas. The roadways are not suitable for heavy truck traffic. It is a disservice to the community to allow further development.
- Phillipsburg and overflow traffic from Lopatcong and Greenwich. Primarily traffic from I-78, onto Route 22 which is constant with the 2 warehouses that have opened. Keeping trucks on main highways should be a priority, not on single lane roads or side streets.
- I am concerned about the proposed warehouses in White Township. This area is not suitable for this type of development and increase in truck traffic. The county has an obligation to protect the quality of life for the residents along the 519 corridor.
- Living in White Township. My biggest concern is Route 519, With the Applications for Mega Warehousing. We'll see a huge amount of Truck Traffic. Something Route 519 can't handle and shouldn't handle. We're known for being Farmlands and if warehousing starts coming in that will be overtaken.
- Phillipsburg, access via rail and bus from NYC.
- "Public transportation and rail at station in Hackettstown needs to be expanded.
- Warehouse development proposed on Rt 519 in White/Harmony.
- Trucks cutting through Belvidere and getting stuck at free bridge.
- Rural Areas with a high population of Elderly who no longer have the ability to drive.

- City Populations that do not have availability to use the existing transit to get to important locations (county seat, shopping districts) Monday- Friday.
- Stable transportation
- Truck traffic (specifically tractor trailers) in Belvidere as well as those that travel through the center of Hope on 519.
- My concerns are Rt 519 from Hope to Harmony. This is primarily a residential road with historic sites, homes, churches, cemeteries and small businesses. To destroy this landscape and disrupt peoples lives for the sake of building warehouses benefits no
 1. Costs to implement transportation plan? Who is funding?
 2. Benefit to residents having this nuisance added
 3. Survey was NOT advertised as stated. Did not see flyer in any of the local stores I visit between Harmony and Blairstown.
- Any location that is either being overpopulated with warehouses or is building warehouses that is not within very short range of an interstate highway.
- Recently a building in Washington Borough collapsed and debris fell onto the sidewalk and road. Towns should pay attention to buildings that are neglected by landlords and present danger to pedestrians and vehicles nearby.
- Warren county roads cannot handle the traffic from all of the proposed warehouses.
- Franklin Township - Bloomsbury Road. The local planning board has made it blatantly obvious that they intend to force in warehousing projects that their own residents don't want - and further, that they intend to push as much of the resulting traffic onto
- I80 S-Curve safety - Stopping the current I80 Rockfall Plan - incorporate all the safety issues in the S-Curve into one comprehensive project.
- Continued warehouse development when more than one developed vacant lot have and/or abandon not in use warehouse.
- Pohatcong Township: existing traffic patterns at I-78, Route 22, Route 122 and Route 173 intersection insufficient for current high volume. Trucks serving currently existing and planned warehouses will exacerbate problem. Warren County ignored study of th
- Intersection at 519 and route 22 in Pohatcong township.
- Traffic volume on I-80; the rock face and "S-curve" along the Delaware River; lack of public transport from shopping "deserts" in NW Warren Co. communities, requiring residents to drive themselves/others to shopping facilities.

- Truck traffic from new warehouses in White Township passing through historic Hope Township.
- I would like to see safer conditions for pedestrians/cyclists in Warren County. This would include creating education programs in our local schools, limiting commercial truck traffic on certain roads, safety campaigns to "share the road", building and mai
- Local roads in boroughs are a disgrace; Major roads in county not pedestrian or bike friendly; truck traffic; rush-hour traffic on Route 31 corridor
- As a Gig
- Rt 519 from from White Twp, rt 46 to Lopatcong rt 22, I drove my son to the bus for 4 years, from fall of 2015 to spring of 2019, traffic increased 4 fold, especially Dump Trucks.... I was very glad when he graduated.... 519 is dangerous from 6-9am.
- Phillipsburg, Asbury and Washington. The increase in truck traffic on local roads and commuter corridors.
- I80 rock fall mitigation plan does not address the actual safety hazard which is the s curve. Not rockfall. Use the money to fix the correct problem.
- The intersection of Route 519 and Route 57.
- Increased truck traffic on CR 519
- Failure to enforce speed limits throughout the county and on I-80.
- Lack of accessibility to public transportation hubs/routes outside of Warren County. While I absolutely want to preserve the rural nature of Warren County

Question 8: What other comments or suggestions do you have regarding transportation in Warren County?

Results: 32 comments received

- No other. I think you have covered fantastic topics like the lack of sidewalks and bike lanes which greatly diminishes a perfectly viable transportation option. Many of my residents see doctors in Hunterdon county or even over in Easton and PA, so connect
- State funding needed for existing rail trail maintenance and creation/extension of greenways. No-nonsense overrides of zoning nightmares. Protecting quality of life in infrastructure decisions, while prioritizing equity and diversity.
- More dynamic signage wayfinding, integrated better with our rural features, would be great. Particularly in regard to natural resources, trails, parks, etc.

- What happens after the model draft is submitted? Will something actually be done and enhancements and improvements be put in place or will this become another exercise in futility money spender?
- Open the commuter train rail again from Easton, PA to Hackettstown. And advertise the Warren County Shuttle better to reach out to the local Hispanic community which is growing in the Phillipsburg, Washington and Hackettstown areas.
- Improve RT 31 by expanding to 4 lanes RT 78 to RT 46.
- Widen the roads, limit the trucks
- Extend passenger/commuter rail service to Blirstown.
- Any increase in traffic improvements should fall solely on the development in the area and not the citizens.
- We need more bus services in Phillipsburg to get to safely get to areas with access to food shopping, food shelter pickups and from the hi-rise apartments to bus services uptown. Many are walking, but the sidewalks are inadequate on a walking route.
- Any plans for transportation changes in the county should consider preserving the quality of rural life, eco-tourism and preservation of the rural character of the county.
- I feel Warren County roadways are built to be scenic and I feel that if we start building industrial hubs or we don't think about the Seniors/Disabled/Children and just the health and welfare of the locals citizens, we need to be thoughtful when planning.
- As i stated earlier, the county has a reginal rail system and I hope that we can work together to take trucks off the highway and onto rail! <http://www.chesapeakeanddelaware.com/>
- Important to re-utilize commuter rail service through Hackettstown, Belvidere, phillipsburg, etc. The tracks are there. Refurbishment should be a priority. Thank you.
- "Unless you are able to provide your own transportation, there is practically no way to get around from one side of the county to the other. In my locations there is no bus service. I needed to get to Belvidere to file paperwork I would be unable to.
- Please look at the county as a whole, not just the pieces with the main traffic. I used to live on Route 57 and moved 15 years ago due to the increase in truck traffic and it's only gotten worse since then so prior planning doesn't seem to have done that.
- Contain the large tractor trailer truck traffic to already established highways and interstates. Signage on these roads needs to be clear and easily understood as to where the trucks can go and can't go. Change the weight limits on county routes.
- It's all about cost benefit analysis for the residents.

- Do not see any benefits and only increased costs pushed down to the residents. See more businesses setting up shop once infrastructure changes are done. Look at the whole picture and impact to us "
- County needs to have a way to enforce traffic laws. For example if Hope is to not allow tractor trailers who is going to enforce it being they don't have a police department? NJ State Troopers have a skeletal existence despite how close their barracks
- On smaller roads or at difficult access points we could have smaller shuttles that would bring people to larger buses. Also it would be nice to have more frequent stops at each bus stop.
- none - very nice!
- Include study of traffic and accident statistics of the intersection at Route 22, 122(New Brunswick St) 173 and Interstate 78 Exit 3. Ignoring this is incomprehensible. The eastbound exit of Route 22 intersecting 122 as well as the jug handle for 173/22
- I'm concerned that tourism and recreation involving visitors from outside Warren County does not seem to have been taken into account in this study. Local organizations are trying to come up with ideas for events which will attract interest tourist.
- I am happy to see the county government taking a proactive approach to address the transportation situation in Warren County. I'd like to see physically active and safer communities, I think the county is headed in the right direction.
- I grew up in a town with public transportation. The bus line ran all day long all over but Warren County is still very rural and I don't know that it would be profitable to have a bus company. The county bus needs to be promoted more.
- I think we need to 1) EXPAND TRANSPORTATION to also INCLUDE internet highways as we are experiencing during the year long COVID pandemic; physical transit, commuting and transit patterns are shifting due to covid; as well as accessibility to internet.
- Bicycle traffic is mostly for pleasure and packs of cyclist riding out in the road in blind corners is a safety hazard. I think there should be fines for the obstruction of traffic, at the same time children on bicycles in the Hackettstown and surrounding areas.
- There are numerous projects on the local level in various stages of approval that affect the everyday quality of life in the county. Some of these projects will have a major impact on traffic and congestion of local residents.
- Thank you teaching our to the community. I hope you set the value in the responses you receive.
- The parts of the county have to be better connected and the senior communities in White Township (Brookfield and Country View) need particular focus.

Date: March 9, 2021

Project: Warren County Transportation Plan Update

Subject: Meeting Minutes from Warren County Transportation Plan Listening Session

Presentation Summary

- The last Warren County Transportation Plan was adopted in 1982, there have been a number of transportation studies focused in various areas throughout the County.
- Recommendations from previous studies will be reviewed and incorporated into the transportation plan update.
- The steering Committee developed the project vision and goals for the transportation plan update.
- Outreach includes the steering advisory committee meetings, focus groups, meeting with municipal officials, and a public outreach exercise.
- There were three focus groups including the bicycle/pedestrian focus group, public transit and mobility, and trucking, goods movement and business.
- One meeting with municipal stakeholders was held where 10 intersections and corridors were identified as safety or congestion concerns.
- Public outreach activities were conducted virtually via an interactive mapping activity for two months.
- 360 comments were received through this activity.
- Four areas with the most comments include I-80, Belvidere, Route 519, and Hackettstown.
- Two technical memos were generated, a technical needs assessment outlined the existing infrastructure, and an equity assessment identified areas where vulnerable populations were located throughout the County.
- Next steps will be to conduct a transportation modeling effort that looks out into the year 2045.
- Four scenarios will be modeled including a Baseline Trend model, Multimodal & Centers-Based, Logistics Hub, and Warren County Blend.
- The draft transportation plan is anticipated in late April.

Question and Answer Portion

- Question 1: How will a significant increase of trucks on winding county roads impact the rural community and the future of the agricultural area?
 - Warren County Project Team: At the moment we do not have any answers for you, we will look into this.
- Question 2: Your study indicated that county roads with heavy traffic may require heavy construction, what will be the cost? How much would the taxpayer have to pay?
 - Warren County Project Team: At the moment we do not have any answers for you, we will look into this.
- Question 3: How would the overall environment be impacted?

- Warren County Project Team: At the moment we do not have any answers for you, we will look into this.
- Question 4: Are there any plans to reintroduce the shuttle between Oxford and Clinton Park and Ride?
 - Warren County Project Team: This free shuttle was run for two years, the funding available through NJ Transit ran out. The use of the shuttle did not justify the service. At this time there are no plans to reintroduce the shuttle.
- Question 5: Does the transportation plan give any indication to the cost of supporting warehouse development particularly if a PILOT is granted?
 - Warren County Project Team: The transportation plan will not estimate cost of improvements.
- Question 6: Will the transportation plan address overnight parking in warehouse areas?
 - Warren County Project Team: At the Freight Focus Group there was a mention of having warehouses provide overnight parking for truckers, we will include that as a potential recommendation.
- Question 7: Trucks use GPS units that take them on roads and bridges with weight limits, will the transportation plan address these hotspots and request police presence at these locations?
 - Warren County Project Team: This can be included as a recommendation in the transportation plan.
- Question 8: Will the plan look at how the rail service connects? Could the rail service go to Hackettstown to visit the state parks in the area?
 - Warren County Project Team: Answer was not provided.
- Question 9: How much influence does this plan have on individual municipalities?
 - Warren County Project Team: The transportation plan is at the County level it will provide a guide for municipalities to follow, and use the plan to guide their master plan decisions.
- Question 10: Is there any kind of regional planning in terms of transportation planning?
 - Warren County Project Team: NJTPA develops a long-range plan for the northern 13 counties in New Jersey.
- Question 11: Will the transportation plan address flooding and runoff concerns?
 - Warren County Project Team: The environmental issues are in the background, but are not a major influence in the plan.
- Question 12: How will the plan take into consideration the NJDOT project on Route 80? What is County doing to prepare for this?
 - Warren County Project Team: There were a number of comments related to the Route 80 Rockfall Project on our interactive mapping tool. The County is passing a resolution at our Commissioner's meeting to oppose the Rockfall project as it stands and requests DOT bring it back to concept develop to consider S turns on Route 80, and to lower the cost of the overall project. Legislators on both sides of the river oppose the project as it currently stands.
- Question 13: Has there been a county wide analysis of tourism locations for the transportation plan?
 - Warren County Project Team: There has not been a specific analysis. We have looked at tourism using secondary data in terms of impact on the transportation system and the economy.
- Question 14: What are we doing about new warehouse development?

- Warren County Project Team: Proposed developments will need to be evaluated with regards to the traffic impact according to state, local, and county levels. Recommendations will then be made such as intersection improvements and road widenings to address these concerns.
- Questions 15: Have you considered working with the Post Office to switch mailbox locations, so residents do not need to cross busy County roads to retrieve their mail?
 - Warren County Project Team: We will take your comment and look into mailbox placement.
- Question 14: Will the survey be open until March 19th or later?
 - Warren County Project Team: The survey will be open until March 19, so we can incorporate comments into the final plan.
- Question 15: Are you able to limit truck traffic on local roadways?
 - Warren County Project Team: An engineering study needs to occur to justify a weight restriction on local roads. The County has passed a resolution to impose a weight restriction on portions of County Route 519. After that municipal resolutions need to adopt the County resolution.
- Question 16: How are the transportation plan findings reported to the municipalities?
 - Warren County Project Team: The report will be available on the website for review, there will be another meeting with municipalities to go over the plan.
- Question 17: When is your plan being submitted? When will it be available for review?
 - Warren County Project Team: The plan needs to be completed on June 30th, and will be made available on the project website WCTransportatonPlan.com
- Question 18: Would the engineering study precede the municipalities solutions?
 - Warren County Project Team: The engineering study would need to occur to create justification and alternate routes. It also allows the identification of municipalities that will be impacted.
- Question 19: Why has the Pohatcong interchange not been addressed?
 - Warren County Project Team: The scenario model will allow us to identify if the Pohatcong interchange needs to be studied further.
- Question 20: Will this plan be able to address new issues as they pop-up?
 - Warren County Project Team: The plan can be amended as needed in the future.
- Question 21: What are your thoughts on warehouse development in Warren County?
 - Warren County Project Team: There are a number of proposals we will treat them fairly as they come up for review.

Comments

- Munuscong Water Association: How can we ensure there is equitable access to public lands and recreation. The organization believes it is important to have routes for cyclist. There is a lot of cycling tourism during the summer. The plan should look at connections and funding for trails such as the Morris Canal Greenway.
- We need to help the trucking industry and federal government with regulations. Trucks along Route 80 are going at high speeds and could crush a vehicle. There are back roads on Route 519, but back roads along Route 80 will become burdened with high traffic if people start taking them more often.

The top of the page features a scenic landscape of rolling green hills and yellow wildflowers. Overlaid on this is a green silhouette of Warren County. The text "Warren County" is written in a large, white, serif font, and "transportation study" is written below it in a smaller, white, sans-serif font.

Warren County

transportation study

Warren County, in partnership with the NJTPA, wants your help developing a transportation plan to provide a vision for the future of the County's transportation network through 2045. The plan will identify recommendations and implementation phases to address transportation needs, overcome challenges, and leverage opportunities across a broad range of projects, policies, and strategies.

Get Involved!
We want to hear from you!

Visit the project website to share your transportation concerns or thoughts about mobility in Warren County on our interactive mapping tool! Participate in our virtual event from June 22nd to August 31st!

WCTransportationPlan.com

Questions?

Contact Brian Appezzato, Project Manager
bappezzato@co.warren.nj.us
908-475-6532



The logo features a green silhouette of Warren County overlaid on a background image of a rural landscape with rolling green hills and a field of yellow wildflowers.

Warren County transportation study

What's your vision for the future of transportation in Warren County? We want to hear from you!

Warren County, in partnership with the NJTPA, is developing a transportation plan that will extend out until 2045. The plan will identify recommendations and implementation phases to address transportation needs, overcome challenges, and leverage opportunities across a broad range of projects, policies, and strategies.

Take Part in Our Virtual Event!

Warren County is hosting an interactive online event from February 17, 2021 to March 10, 2021. Visit our website to learn more about the project and provide feedback. Activities include opportunities to indicate transportation priorities, identify locations that are areas of concern, and provide information to help the County develop the transportation plan.

Speak to the County in person about the Plan!

Join us at a virtual listening session on March 9, 2021 from 7- 8pm! You will be able to voice your transportation concerns directly to the County. To find out meeting information, visit the project website.

WCTransportationPlan.com

Comments or Questions? Call or Email Us!

Contact Jessica Ortiz, Community Engagement at (908) 509-4701 and info@WCTransportationplan.com.



The logo for the Warren County transportation study is a green silhouette of the county's shape, positioned behind the text. The background of the top section is a scenic photograph of rolling green hills and a field of yellow wildflowers.

Warren County

transportation study

El Condado de Warren, en asociación con el NJTPA, quiere su ayuda para desarrollar un plan de transporte para proporcionar una visión para el futuro de la red de transporte del Condado hasta 2045. El plan identificará recomendaciones y fases de implementación para abordar las necesidades de transporte, superar los desafíos y aprovechar las oportunidades en una amplia gama de proyectos, políticas y estrategias.

¡Participa!
¡Queremos saber de usted!

¡Visite el sitio web del proyecto para compartir sus pensamientos sobre transporte en el condado de Warren en nuestra herramienta de mapeo interactivo! ¡Participa en nuestro evento virtual del 22 de junio al 31 de agosto!

WCTransportationPlan.com

¡Preguntas?



Contactar Brian Appezato, Director del Proyecto
bappezzato@co.warren.nj.us

908-475-6532



NJTPA

Warren County Transportation Plan Social Media Posts

Social Media Post Text	Image
<p>Tell us what you think! Warren County is hosting an interactive online event for the Warren County Transportation Plan update. Participate at your own pace, any time from February 17, 2021 to March 10, 2021.</p> <p>Speak to the County in person about the plan at our listening session event on March 9, 2020 from 7-8pm. Visit the project website to find out more.</p> <p>Activities include opportunities to indicate transportation priorities, identify locations that are areas of concern, and provide additional information to help the County develop the transportation plan.</p> <p>Visit the project website at WCTransportationPlan.com to find out more!</p>	
<p>Warren County, in partnership with the NJTPA, is developing a transportation plan that will extend out until 2045. To get your feedback the County is hosting an online event. Participate at your own pace, any time from February 17, 2021 to March 10, 2021.</p> <p>Speak to the County in person about the plan at our listening session event on March 9, 2020 from 7-8pm. Visit the project website to find out more.</p> <p>Visit the project website at WCTransportationPlan.com to find out more!</p>	
<p>Warren County is updating the countywide transportation plan! Help us identify transportation needs in your area by</p>	

participating at your own pace, any time from February 17, 2021 to March 10, 2021.

Speak to the County in person about the plan at our listening session event on March 9, 2020 from 7-8pm. Visit the project website to find out more.

Visit the project website at WCTransportationPlan.com to find out more!



What's your vision for transportation in Warren County? We want to know! The County is hosting an online event to get your feedback. Participate at your own pace, any time from February 17, 2021 to March 10, 2021.

Speak to the County in person about the plan at our listening session event on March 9, 2020 from 7-8pm. Visit the project website to find out more.

Visit the project website at WCTransportationPlan.com to find out more!



We need your help with developing the next Transportation Plan for Warren County!

Warren County, in partnership with the NJTPA, is developing a long-range transportation plan to provide a vision for the future of the County's transportation network through 2045.

The Warren County Transportation Plan will include:

- Critical roadway, intersection, and bridge projects
- Rail and multimodal improvements to provide safe access for pedestrians, cyclists, and transit riders
- Strategies to support and enhance the local and regional economy

Get Involved!
We want to hear from you!

Visit the project website to share your transportation concerns or thoughts about mobility in Warren County on our interactive mapping tool! Participate in our virtual event from June 22nd to July 29th!

WCTransportationPlan.com



CONTACT INFORMATION
Warren County Department of Planning
Brian Appezzato, Project Manager
908-475-6532
bappezzato@co.warren.nj.us

FOR IMMEDIATE RELEASE
Date

Long- Range Transportation Plan for Warren County

Warren County – Warren County, in partnership with the North Jersey Transportation Planning Authority (NJTPA), is developing a long-range transportation plan to provide a vision for the future of Warren County’s transportation network through 2045. The Warren County Transportation Plan Project Team is soliciting feedback from members of the public through an interactive mapping tool located on the project website, WCTransportationPlan.com.

A crossroads of the region, Warren County is composed of a complex array of urban, suburban, and rural communities that are frequently changing in new and unforeseen ways, with significant impacts on mobility and travel needs. The Warren County Transportation Plan aims to improve safety for all transportation users including people who walk and ride bikes by identifying within the plan critical roadway, intersection and bridge projects, recommending rail and multimodal improvements to provide safe access for pedestrians, cyclists and transit riders, and supporting strategies that enhance the local and regional economy.

Outreach efforts will seek effective community input from key stakeholders including local agencies and organizations, local businesses, community members, property owners, and the general public.

Currently, the Warren County Transportation Plan is hosting a virtual event with an interactive mapping tool on the plan website (WCTransportationPlan.com) from June 22, 2020 to August 31, 2020. This tool will document feedback received from members of the public regarding transportation concerns within Warren County. Comments received from the interactive mapping tool will assist with identifying recommendations and a phased implementation plan to address transportation needs, overcome challenges, and leverage opportunities across a broad range of projects, policies, and strategies.

Please visit the project website WCTransportationPlan.com for more information.