



# ESSEX<sup>20</sup><sub>45</sub>



## Essex County Transportation Plan



June 2023





## **DISCLAIMER**

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## EXECUTIVE SUMMARY

Essex County lies at the crossroads of commerce, travel, and activity for New Jersey and the Northeast Corridor. Its makeup – densely populated, regional employment hub, and center of freight and goods movement – creates a substantial demand for the movement of people and goods.

To ensure the transportation network continues to meet these demands, Essex County launched the Essex 2045 planning study to update its county transportation plan. Essex 2045 was funded by the North Jersey Transportation Planning Authority (NJTPA) and included extensive community outreach and technical analysis to develop a plan for future infrastructure investments.

Much of the region's principal infrastructure – rail service, bus lines, Newark International Airport, the Port of Newark and Port Newark Container Terminal, toll roads, and numerous interstate, state, county, and municipal roadways – call Essex County home.

Freight and goods movement are a critical economic engine for the region, and its success is essential for continued prosperity and competitiveness in the global economy.

Essex 2045 proposes 43 candidate intersection and corridor projects, and a wide variety of policies, strategies, and studies, such as updating Complete Streets policies and plans; conducting corridor studies and traffic and roadway safety studies; and implementing Roadway Safety Audit and School Travel Plan improvements.

## Community Engagement

Community input was a critical component of Essex 2045. More than 1,000 participants shared their experiences, concerns and comments with the project team. Multilingual materials and translation were provided to engage Essex County's diverse stakeholders.

The community involvement strategy included a multi-pronged approach to facilitate participation from public officials, residents, and other stakeholders through both traditional and non-traditional methods. Community engagement methodologies included the plan website and social media, virtual focus groups and open houses, survey and mapping tool, and three pop-up engagement and demonstration projects.

The outreach efforts were guided by a Stakeholder Advisory Committee, which met three times and was comprised of county departments, state agencies, community and stakeholder organizations, and the NJTPA.

Stakeholders raised concerns about numerous issues, including the safety and the adequacy of pedestrian and bicycle infrastructure, and the need for expanded intra-county transit service, especially in underserved communities.





## Multimodal Planning Process

A blend of qualitative and quantitative input from the community was combined with a multimodal needs assessment to develop a comprehensive, data-driven approach for identifying candidate projects and strategies.

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 Essex County, and help shape its future.

Numerous existing plans and studies were reviewed, with a focus on relevant findings and recommendations. With the purpose of identifying issues, opportunities, and the development of recommendations, the region's existing conditions were assessed, including population and demographic trends; land use and development; the transportation network (roads, transit, freight routes, bike lanes, sidewalks, trails etc.); traffic congestion; safety; equity; and environmental resources.

A scenario planning exercise was undertaken to help understand and prepare for anticipated growth in the region, and evaluate the pros and cons of potential future roadway and transit projects. The scenario planning process looks at what might happen to travel conditions and traffic congestion as population grows and new jobs are created, and how travel demand and travel choice grow and change over time.

The scenario assessment indicates that although traffic volumes will grow in the future, the net impact of traffic congestion to county and local roadway networks is projected to be minimal, with some isolated congestion hot spots.

The scenario planning process also demonstrates that instead of the conventional program of congestion-focused roadway improvements, an alternative mix of projects has the potential to achieve the "Aspirational" goals of Essex 2045, including improved safety, accessibility, and equity, expansion of intra-county transit and travel mode options, congestion relief, and mitigating truck impacts.

Together, these efforts shaped Essex 2045's comprehensive program of projects, policies, strategies, and studies including the development of a countywide bicycle plan and Vision Zero Action Plan; update of the County's Complete Streets Policy and Implementation Action Plan; studies focused on potential road diets along Bloomfield Avenue and Springfield Avenue, and numerous other road safety studies and projects throughout the county.

## Essex 2045 Strategic Vision

Safe, effective, and equitable access to affordable and efficient travel options and connections are essential to achieving a high quality of life, healthy lifestyles, and gaining access to opportunity.

### *Moving Essex County forward will require us all to*

- Commit to making our transportation system safer for all to achieve a future without transportation-related serious injuries and fatalities
- Prioritize reducing inequities across our transportation systems and the communities they serve
- Create the means to enhance accessibility and improve responsiveness to the needs of all transportation system users
- Tackle the climate crisis by ensuring that the transportation system works to safeguard environmental sustainability and resilience
- Invest in our transportation system to provide workers and businesses with reliable and efficient access to economic opportunity

## Essex 2045 Recommendations

Essex 2045 seeks to balance the often conflicting needs of safety, equity, mobility, traffic congestion, commerce, job creation, and sustainability to achieve equitable outcomes and access to opportunity through a comprehensive program of strategies, plans, and projects. Notable recommendations include:

- A total of 43 candidate roadway intersection and corridor projects are proposed to address safety and traffic operations needs

- Updates to the Essex County Complete Streets Policy
- 100 percent Complete Streets Policy adoption by the municipalities
- A cooperative effort among County departments to revisit the Complete Streets Implementation Action Plan recommendations and assign staff and committees to oversee each recommendation
- Adopt the Safe System Approach as the guiding framework for transportation planning and infrastructure design in Essex County
- Support the Essex County Safety Action Plan grant application and the overall Safe Streets for All program as priority actions
- Take a lead role in the advancement of Electric Vehicles (EV) and Connected and Automated Vehicle (CAV) implementation strategies
- Six separate bus and rail transit projects are proposed
- Support the PANYNJ climate change actions
- Support to the Essex-Hudson Greenway Connector and Morris Canal Greenway multiuser trail projects
- Support funding applications for the ten recently completed School Travel Plans
- Revisit the Roadway Safety Audit recommendations for County-owned roadways to establish priorities and feasibility, and select projects for future funding and grant opportunities Vision Zero
- initiate a Vision Zero Action Plan for Essex County or targeted to municipalities with significant equity concerns and disproportionate safety risks
- Countywide studies are recommended for bicycle, pedestrian, and micromobility modes; freight and goods movement; and roadway drainage and flooding







## Introduction

Essex County lies at the crossroads of commerce, travel, and activity for New Jersey and the Northeast Corridor. Its makeup - densely populated, regional employment hub, and center of freight and goods movement - creates a substantial demand for the movement of people and goods.

To ensure the transportation network continues to meet these demands, Essex County launched the Essex 2045 planning study to update its county transportation plan. Essex 2045 was funded by the North Jersey Transportation Planning Authority (NJTPA) and included extensive community outreach to develop a plan that considers the comprehensive needs of all the County's transportation system users.

Essex is New Jersey's second-most populous county with more than 863,000 people spread across 129 square miles. Diverse populations and landscapes present distinct challenges, from the urban core in the eastern half of the county that relies more heavily on mass transit to the more auto-oriented suburbs in the west. The freight and goods movement presents another unique component as Essex is home to Newark Liberty International Airport, among the busiest airports in the United States, and Port Newark-Elizabeth, the busiest on the East Coast.

Essex County's low-income population and of zero-vehicle households are both higher than the state average, contributing to the unique transportation needs. These and other demographic factors present challenges addressed by the study's recommendations.

Demographic projections indicate continued population growth in the County that started in the 2010s after an extended decline. Critical transportation trends and issues such as Complete Streets, micromobility, and electric vehicles were just emerging around the time when Essex County's transportation plan was last updated and have grown significantly in importance since.

Essex 2045 provides numerous recommendations that include roadway and transit projects, as well as policies, strategies, and studies focused on addressing issues and opportunities and achieving the plan's vision. The recommendations are based on projections for demographics, travel demand and congestion, transportation funding, as well as identified needs and opportunities, among other factors.

The study used scenario planning to assess numerous potential transportation projects. An aspirational scenario assessed the impacts of potential projects the County would like to complete if additional funds were available, such as the completion of the full proposed alignment of the Eisenhower Parkway from Florham Park to Passaic Avenue, as well as almost 12 miles of road diets in Verona, Belleville, Newark and Maplewood.

Public input was a critical component of this planning effort. More than 1,000 people participated via in-person meetings and events, an online survey and mapping tool, and social media posts. Outreach was conducted in various languages to ensure it was accessible. The public raised concerns during robust public outreach, including many related to safety and congestion, as well as support for more intra- and inter-city transportation options.





## 1. RELATED PLANS AND STUDIES

To inform the development of Essex 2045, plans and studies were reviewed including efforts led by the North Jersey Transportation Planning Authority (NJTPA), Essex County, municipalities, and other regional and local partners.

These various efforts include numerous recommendations developed separately from Essex 2045 but which are consistent with and deliver on the Strategic Vision and Goals.

Recurring themes among these related plans and studies that are beneficial to Essex 2045 include:

1. Implement the Complete Street framework to guide transportation decision making and project development and selection
2. Coordinate local and regional efforts to provide benefits across the County
3. Prioritize walkable downtowns, safety, and equity
4. Understand existing barriers and impediments to improvements
5. Develop and implement a project ranking methodology for Essex 2045 based on the strategic vision and goals

## Complete Streets Framework

Complete Street are a proven approach to improving safety, creating healthier and more equitable communities, and providing access to economic opportunity.

Essex County endorses this approach through its Complete Streets Policy and Implementation Plan.

Complete and Green Streets provide the overall policy framework to guide planning, design, and maintenance of local, county, and state-owned roadways, to deliver a safe, equitable, and sustainable future for Essex County.

Essex County's Complete Streets Policy and Implementation Plan define the propose and essential role of Complete Streets in transportation decision making and the selection and prioritization of proposed projects, strategies and policies, and future planning and conceptual studies.





### **Essex County Complete Streets Policy**

The [Essex County Board of County Commissioners](#) adopted Resolution R-2012-00392 on April 25, 2012, making "Complete Streets" an official policy of the County (see Appendix A).

The Policy sets a mandate for the future planning and design of Essex County roads and bridges and provides leadership to the County's municipalities for managing circulation and mobility for all modes of transportation in future roadway projects and land development review.

In 2012, the Complete Streets movement was just gaining its initial momentum in planning and engineering circles, and the primary emphasis was on spreading the word and encouraging governments to adopt policies that begin changing how our streets and communities are planned, designed, and built.

### **Examples of Complete Streets Projects from Essex County and Municipal Complete Streets Policies:**

- **Park Avenue Improvements in Newark, East Orange, and Orange:** Upgraded nine intersections along Park Avenue with LED traffic signals, modern traffic poles, pedestrian countdown timers, high visibility crosswalks, and roadway restriping.
- **Bloomfield Avenue Safety Improvements in Montclair:** Bloomfield Avenue from Mountain Avenue to Maple Avenue/Pine Street was repaved and restriped, sidewalks and curbs were repaired or replaced where needed. Twelve intersections were upgraded with new LED traffic lights, backup power, and pedestrian crossing signals.

### **Assessment of the County Complete Streets Policy**

A strong Complete Streets policy is essential and necessary to defining the steps needed to make Complete Streets the default transportation planning approach.

When it was adopted, the Essex County Complete Streets Policy represented the state-of-the-art in Complete Streets thinking and policies by:

- Providing safe accommodations for pedestrians, bike riders, and transit patrons
- Establishing checklists to guide planning studies and project development and design
- Anticipating likely future demand for bicycling and walking facilities and does not preclude the provision of future improvements
- Following NJDOT Policy #705 – accommodating pedestrian and bicycle traffic during construction
- Complying with equity and environmental justice
- Defining an exemptions process

Much has changed in the Complete Streets world since 2012 and Essex County would benefit greatly from a comprehensive reexamination of its policy. The emphasis has shifted beyond just adopting policies to implementation: translating policy statements into projects, strategies, and plans that create safe, successful, equitable, healthy, and vibrant communities.

*Proposed changes and additions to the Essex County Complete Streets Policy are presented in the Recommendations Chapter.*



According to the [National Complete Streets Coalition](#), an ideal Complete Streets policy:

- Includes a vision statement describing how and why the community wants to complete its streets, and mentioning the benefits that Complete Streets bring
- Benefits all users equitably, particularly vulnerable users and the most underinvested and underserved communities
- Applies to all projects — new, retrofit, reconstruction, maintenance, and operations
- Sets clear and accountable procedures for exceptions, requiring high-level written approval and public notice
- Requires coordination between government departments and partner agencies
- Directs the use of the latest and best design criteria, guidelines, and checklists; sets a time frame for implementation
- Considers the surrounding community's current and expected land use and transportation needs
- Establishes performance standards that are specific, equitable and available to the public
- Provides criteria for prioritizing and implementing Complete Streets
- Includes specific next steps for policy implementation

Fourteen of the County's 21 municipalities have adopted a Complete Streets policy, all by resolution.

- |                              |      |
|------------------------------|------|
| 1. Montclair, Township of    | 2009 |
| 2. Bloomfield, Township of   | 2011 |
| 3. Orange Township, City of  | 2011 |
| 4. Glen Ridge, Borough of    | 2012 |
| 5. Irvington, Township of    | 2012 |
| 6. Maplewood, Township of    | 2012 |
| 7. Newark, City of           | 2012 |
| 8. South Orange, Township of | 2012 |
| 9. East Orange, City of      | 2013 |
| 10. West Orange, Township of | 2013 |
| 11. Caldwell, Borough of     | 2014 |
| 12. Livingston, Township of  | 2014 |
| 13. Millburn, Township of    | 2014 |
| 14. Belleville, Township of  | 2022 |

As is the case for Essex County, the vast majority of these municipal policies were adopted a decade or more ago and many are similar to the Essex County policy: strong and successful, but in need of a reexamination to take stock of strengths and weaknesses, what has been accomplished to date, what remains to be done, and how to get there.

Belleville's policy is the lone recent adoption (in 2022), and the only one in Essex County based on the recent Complete & Green Streets for All: Model Policy.

*Essex 2045 recommends review and update of the municipal Complete Streets policies with the goal of achieving 100 percent adoption across Essex County.*



**Complete & Green Streets for All**  
New Jersey now has a comprehensive guide to support the reexamination effort: Complete & Green Streets for All: Model Complete Streets Policy & Guide (2019).<sup>i</sup> This model Complete Streets Policy and Guide is a one-stop resource for New Jersey municipalities, counties, agencies, organizations, and advocates with an interest in implementing Complete Streets in their communities. It is a Complete Streets do-it-yourself guide that includes a ready-to-adopt Resolution of Support, a state-of-the practice Policy, and implementation checklists to ensure that every transportation project achieves Complete Streets objectives.<sup>ii</sup>

Assistance to support the review and update of Complete Streets policies is available from many planning and advocacy groups and resources in New Jersey, including the Voorhees Transportation Center at Rutgers University, New Jersey Bike & Walk Coalition, the state's three Metropolitan Planning Organizations, eight Transportation Management Associations, [National Complete Streets Coalition](#), and others.

Public Health & Safety

Green Streets

Economy

Equity

JULY 2019



*Essex 2045 recommends use of the Complete & Green Streets For All: Model Complete Streets Policy & Guide as a primary resource for review and update of the Essex County and municipal Complete Street policies to bring each in line with the current state-of-practice for Complete and Green Streets.*





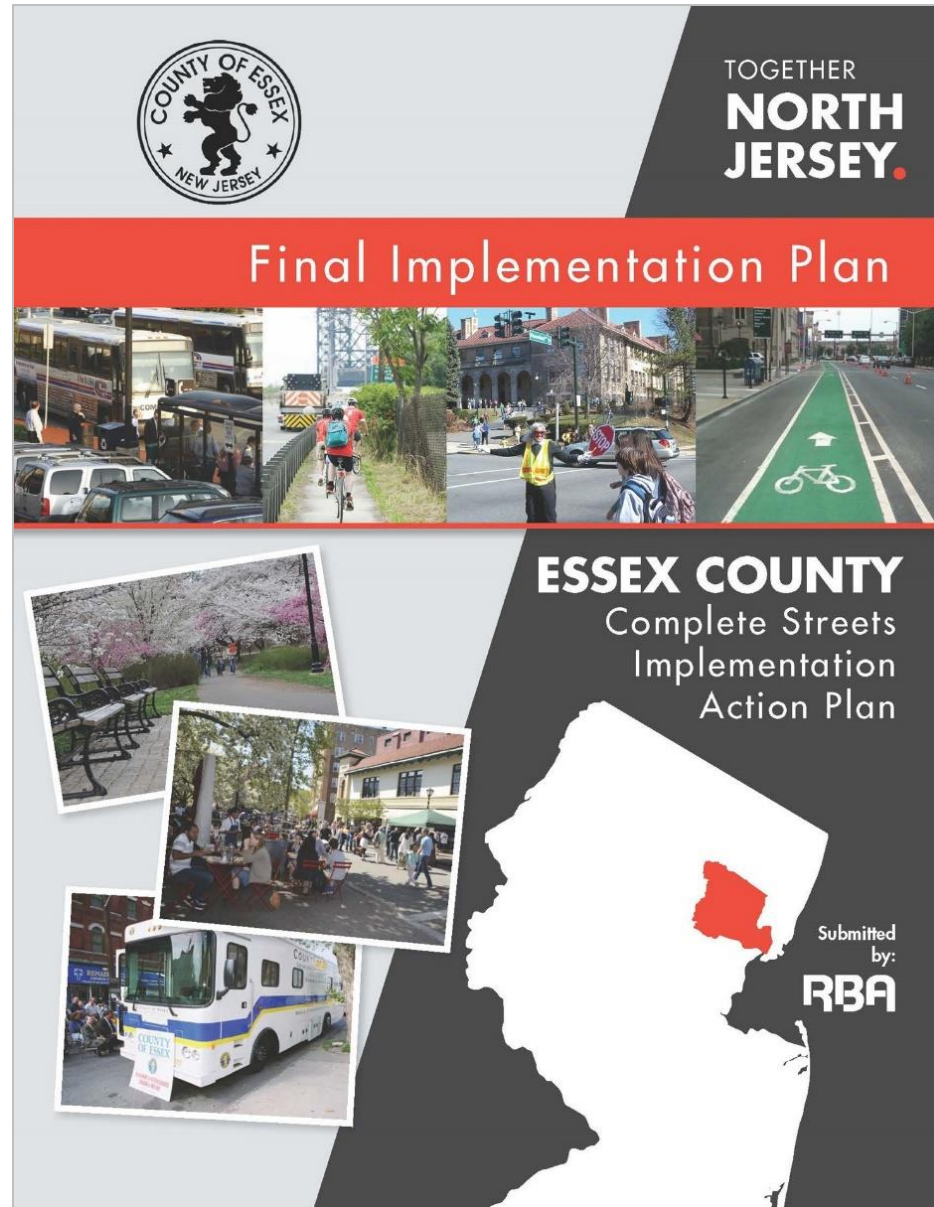
**Essex County Complete Streets Implementation Plan**

Essex County's Complete Streets Implementation Action Plan was undertaken to analyze existing Essex County plans, policies, guidelines, and procedures, and update these documents as needed to fully integrate the County's Complete Streets Policy into the project development, construction, and maintenance processes; integrate Complete Streets into the subdivision and site plan review process; develop a pilot Complete Streets demonstration project; and train County staff on the incorporation of Complete Streets in the planning, design, operation, and maintenance of County roadways.<sup>iii</sup>

The Complete Streets policy and implementation plan and policy further the idea that for implementation to be successful, consideration of Complete Streets elements must begin at the earliest possible stage of project development and continue throughout each stage of the project development process.

The implementation plan serves as a guide for how to make this happen.

*Essex 2045 endorses the recommendations of the Essex County Complete Implementation Plan; a summary is presented in the Recommendations Chapter.*



## Regional Plans

### ***Plan 2050: NJTPA Long-Range Transportation Plan (2021)***

The NJTPA's 2050 Long Range Transportation Plan was completed in 2021. Focusing on the three themes of transportation, people, and opportunity. This plan laid out an implementation and investment plan for North Jersey.

Several key points concerning Essex County are summarized below. Essex County ranks second in the region for each data point, behind Hudson County.

- 69 percent of Essex County's population is a racial minority or Hispanic
- One-quarter of Essex County households do not have access to an automobile
- 22.6 percent of commuters use public transit

### ***Essex-Hudson Greenway Connector Plan (2017)***

Led by the New Jersey Department of Transportation (NJDOT) and East Coast Greenway Alliance, the Essex-Hudson Greenway Connector Routing Plan was completed in 2017. The plan recommended a route connecting Newark and Jersey City as part of the larger East Coast Greenway (ECG) alignment. Since this initial study was completed, the Essex-Hudson Greenway, an eight-mile rail corridor that connects Essex County and Jersey City, has been purchased by the State of New Jersey. Planning is underway for design and construction of the greenway.

*Essex 2045 recognizes the Essex-Hudson Greenway Connector as a priority and supports ongoing efforts to design and build the greenway improvements.*

### ***Paterson-Newark Transit Market Study (2020)***

The Paterson-Newark Transit Market Study was completed in 2020. The study marked the first step in determining the feasibility and scope of implementing a new, high-quality transit service between Paterson and Newark along the existing Newark Industrial Track (NIT) freight rail corridor. These three conceptual alternatives, including light rail and BRT, were tested, and demonstrated the demand for additional transit service.

A critical element to developing enhanced transit options in the corridor is the preservation of key right-of-way components. Action should be taken now to ensure their potential use, through concerted local government and agency partnerships to plan for the next generation of transit systems.<sup>iv</sup>

This initial study will need to be followed up to identify project champions and sponsors, advance a preferred alternative, and seek funding for final design and construction.

Developing a new Paterson-Newark rail alignment is responsive to the many comments received during the Essex 2045 community engagement effort expressing a strong interest in the expansion of intra-county public transit service.

*Essex 2045 recognizes the NIT corridor as a priority to address mobility needs and supports right-of-way preservation and further study to select a preferred alternative for this intercounty transit service.*

## Essex County Plans

### **Essex County Comprehensive Transportation Plan (2013)**

Essex County's previous Comprehensive Transportation Plan (ECCTP) was completed in 2013 to address mobility and transportation safety needs across Essex County. Projects and strategies were selected and ranked based on a variety of factors, including safety, stakeholder input, and the ability of the project to meet plan goals.

ECCTP recommendations included 33 roadway intersection and corridor projects to address safety and traffic operations needs; 15 rail and bus transit projects and transportation services for the disabled; 31 pedestrian, bicycle and safety projects; goods movement projects for vehicular, rail, and aviation freight modes; policy recommendations to advance the Essex County Complete Street policy; and the use of access management, transportation demand management, intelligent transportation systems, and land use strategies to achieve ECCTP goals.

Nine of the ECCTP roadway intersection and corridor projects are yet completed and therefore continued to Essex 2045 as carryover projects. These candidate projects include a mix of purposes, needs, deficiencies, and locations across Essex County. In addition, many other recommendations, such as the creation of a county bike plan, were also carried forward.

*Essex 2045 includes these carryover projects in the candidate roadway projects section of the Recommendations Chapter and the Essex 2045 Candidate Roadway Projects table and map.*

### **Bloomfield Avenue Complete Corridor Plan (2015)**

The Bloomfield Avenue Complete Corridor Plan is a [NJTPA Together North Jersey](#) Local Demonstration Project completed in 2015. The Plan includes recommendations for a 4.5-mile-long multi-modal corridor through Bloomfield, Montclair, and Verona Townships, and Glen Ridge Borough (all in Essex County), and identifies short- and long-term improvements aimed at making the corridor more pedestrian friendly and providing a more pleasant shopping experience while ensuring safer and more appropriate vehicle flow consistent with Essex County's Complete Streets Policy.

The proposed road diet concept was tested in Essex 2045's Aspirational Scenario to evaluate the ability to meet local and regional goals. The scenario modeling assessment (see Chapter Four) found that the proposed road diet can be implemented without detriment to Essex County traffic and travel patterns.

*Essex 2045 recognizes the need for improvements to the Bloomfield Avenue corridor to address mobility and safety needs and recommends that detailed study of the proposed road diet concept be undertaken to select and advance a preferred alternative and road diet alignment.*



**West Orange Complete Streets Concept Plan (2015)**

The West Orange Township's Complete Streets Concept Plan was completed in 2015. The plan reviews existing demographic, public transit, and safety data before developing a comprehensive set of bicycle and pedestrian recommendations for the Township. Nearly 20 corridors were assessed via walk audits, leading to a walkability score. Site-specific recommendations include marked bicycle facilities, mid-block crossings, painted buffers, and center turn lanes. Additional recommendations included a township-wide bicycle network, and wayfinding tools, culminating in a 10-year Vision Zero Action Plan.

*Essex 2045 endorses the strategic goals of the West Orange Complete Streets Concept Plan, but they must be pursued separately by the township, including corridor and intersection improvements, bicycle and pedestrian facilities, traffic calming, wayfinding, and township Vision Zero Action Plan.*

**Freeway Dr. Station Area Safety & Public Realm (2017)**

The Freeway Drive & Station Area Safety and Public Realm Study provides a comprehensive strategy for transforming Freeway Drive in Orange and East Orange into a pedestrian and bicycle-friendly multimodal thoroughfare. The corridor spans 1.5 miles on either side of Interstate 280, connecting three New Jersey Transit stations along the Morris & Essex Line, with 13 bridges (maintained by NJDOT) connecting either side of Freeway Drive.

Essex County is supportive of this effort but has no direct jurisdictional control of roadway improvement or concepts.

The study stemmed from a desire for improved safety, accessibility, and mobility along the auto-centric I-280/Freeway Drive corridors, creating a physical, visual, and psychological divide between the residential areas to the south and commercial areas to the north. At the time of the study, Freeway Drive consisted of at least three travel lanes in either direction, with capacity exceeding traffic demand. The study developed several recommendations that would, if implemented, transform the study area into a pedestrian and bicycle-friendly multimodal thoroughfare.

*Essex 2045 endorses the strategic goals of the Freeway Drive Station Area Safety & Public Realm study, and provides general guidance and support. Essex County, however, has no jurisdictional control in the study area.*



### Inner Morris & Essex Strategic Corridor Plan (2013)

The Inner Morris & Essex Strategic Corridor Plan for Newark, East Orange, and Orange was completed in 2013. The plan is a Together North Jersey (TNJ) Local Demonstration Project which seeks to advance initiatives for local communities to achieve short-term, implementable projects consistent with the TNJ Regional Plan for Sustainable Development.

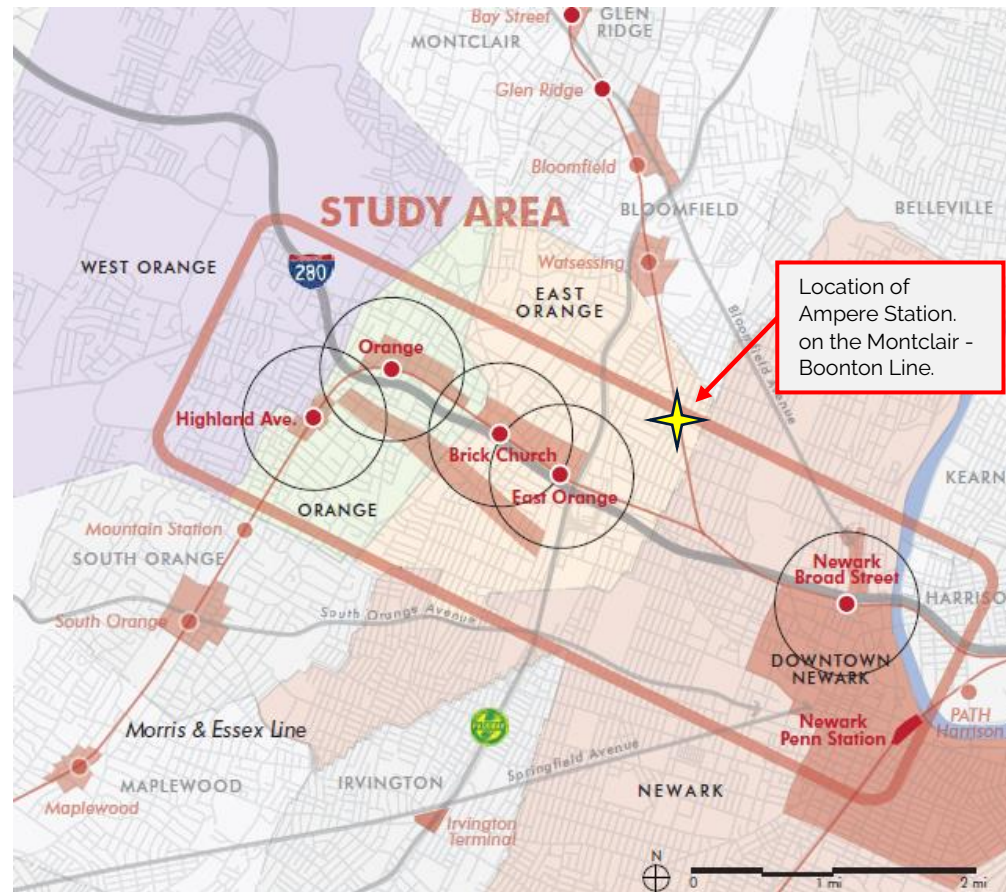
The plan highlights opportunities for improvements at five transit stations in three neighboring Essex municipalities: Highland Avenue and Orange Stations in Orange Township; Brick Church and East Orange Stations in East Orange; and Broad Street Station in Newark. Each is identified as a hub for redevelopment to create walkable neighborhoods with pedestrian and bus connectivity.

Additional recommendations include maintaining Freeway Drive as a multimodal corridor that unites and enhances the adjacent communities and neighborhoods.

The plan also recommends reactivating Ampere Station along NJ TRANSIT's Montclair-Boonton line. Although a complete and costly reconstruction of the station would be required to reactivate the station, projections indicate significant ridership potential at a reactivated Ampere Station.

*Essex 2045 recommends that Essex County work with NJ TRANSIT to evaluate whether these improvements, and the Ampere Station in particular, are feasible and should be a priority for further study.*

Inner Morris & Essex Strategic Corridor Plan Study Area



Source: Inner Morris & Essex Strategic Corridor Plan (2013)



## Municipal Plans

The municipal circulation element should focus on moving people and goods, not just vehicles, and be aligned with the land use, housing, and affordable housing plans to achieve common goals of equity, safety, mobility, and access to opportunity. Most circulation elements for the Essex County municipalities have been updated recently and reflect themes of Complete Streets, safety, walkable downtowns, and improved transit and multimodal mobility.

Notable elements include street design typologies for the City of East Orange; reducing speed limits in Essex Fells Borough; collaboration with Essex County and NJ Transit to improve transit options in Glen Ridge Borough; promoting infill development in Irvington; a focus on neighborhoods and area-specific plans in Montclair; traffic calming in Millburn; and reimagining South Orange Avenue in Newark.

Despite these advances and innovative recommendations, traffic congestion remains a principal focus of many circulation plans. Several municipalities have gone at least 10 years since the last master plan reexamination or circulation element update.

*Municipalities are responsible for guiding the local development process in ways that advance common goals of equity, safety, mobility, and access to opportunity. Development and redevelopment projects should advance these goals – not create new problems. Essex 2045 recommends that the Essex County Division of Planning work with the municipal partners to prepare the master plan reexamination reports and update municipal master plan elements.*

## Safe Routes to School (SRTS)

SRTS is funded through the Federal Highway Administration's Federal Aid Program and is administered by the New Jersey Department of Transportation (NJDOT) in partnership with the North Jersey Transportation Planning Authority (NJTPA). It is a resource to encourage and increase the number of students walking or bicycling to school, providing guidance for schools, students, families, and municipalities to build a safer walking and biking environment. Travel Plans document existing conditions at schools; identify issues and opportunities; and recommend actions to support streetscape improvements.<sup>v</sup>

At least 23 SRTS School Travel Plans have been completed in nine Essex County municipalities (Caldwell, Irvington, Millburn, Montclair, Newark, Orange, Short Hills, West Orange, Verona) since 2013.

Typical infrastructure improvements recommended by SRTS Travel Plans included repairing sidewalks, installing pedestrian crossing signals, installing speed limit and school zone signs, building pedestrian refuge islands, restriping faded crosswalks and stop bars, and installing tactile warning strips at intersections to alert vision-impaired pedestrians of the crossing's presence.

*Essex 2045 endorses the STRS program as an essential and beneficial component to achieving safety, mobility, and equity goals. Notable recommendations from recent School Travel Plans are presented in the Recommendations Chapter.*

## Roadway Safety Audits

Road Safety Audits (RSAs) are a proven Federal Highway Administration safety countermeasure consisting of a structured safety performance examination of a roadway, including a qualitative estimate and report on potential road safety issues and opportunities to improve safety.

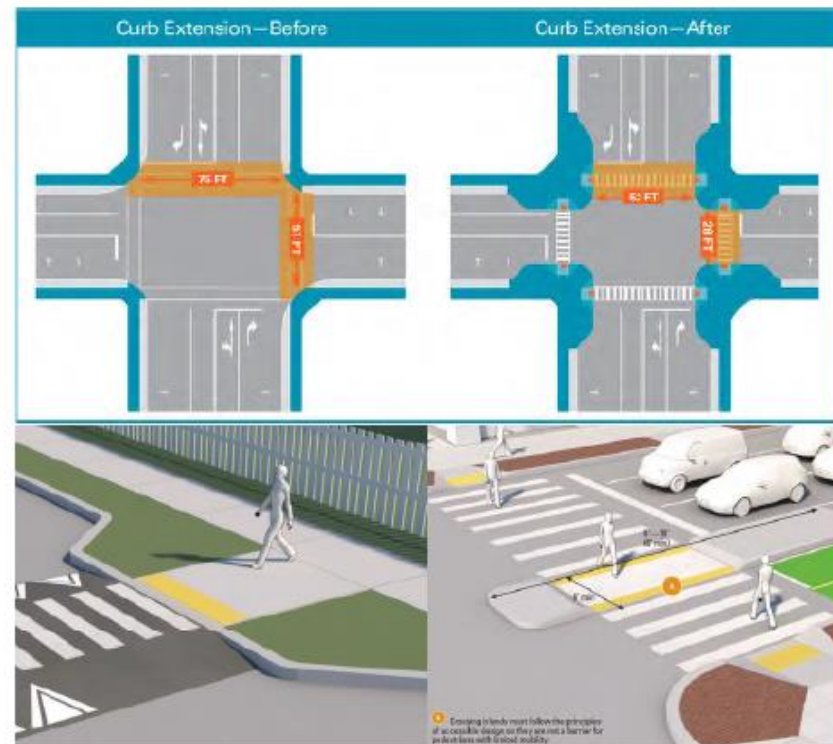
At least 11 Road Safety Audits (RSAs) have been completed in four Essex County municipalities since 2016.

FHWA works with and encourages state and local jurisdictions and Tribal Governments to integrate RSAs into the project development process for new roads and intersections, and also encourages RSAs on existing roads and intersections.<sup>vi</sup>

Typical infrastructure improvements recommended by RSAs included traffic signal upgrades, traffic calming elements, improved lighting, enhanced transit access, ADA-compliant ramps and curb cuts, bicycle lanes and bicycle parking, road diets, and converting intersections to modern roundabouts.

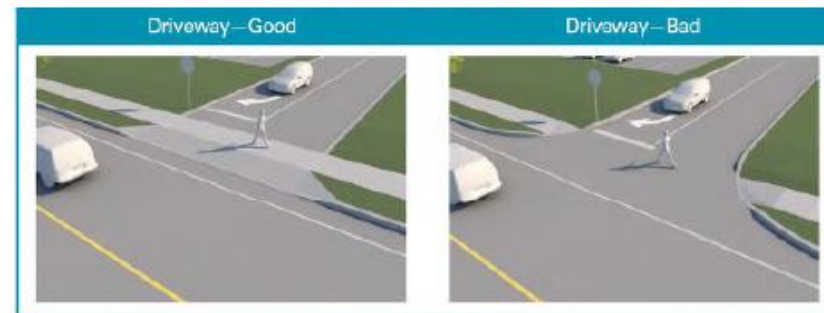
See images to the right for examples of safety countermeasure concepts from the RSA for Central Avenue (CR 508), Oakwood Place to South Munn Avenue, in Orange and East Orange.

*Essex 2045 endorses the RSA program as an essential and beneficial component to achieving safety, mobility, and equity goals. Notable recommendations from recent RSAs are presented in the Recommendations Chapter.*



**Pedestrian Facility Examples**

Top: Curb Extension. Left: Midblock Curb Extension. Right: Crossing Island (Source: CSDG)



**Sidewalk and Driveways (Source: CSDG)**

Source: Roadway Safety Audit for Central Avenue





## 2. INVENTORY AND ASSESSMENT

This chapter presents a comprehensive overview of demographics and existing conditions of transportation system infrastructure in Essex County. A variety of factors – including demographics, development patterns, work locations, and existing transportation infrastructure – drive and shape the demand for travel and travel patterns both locally and regionally.

This assessment evaluates these and related factors, and identifies critical needs, deficiencies, and opportunities for improvement.

### Essex County is ...

Essex County is a place of both great diversity and great disparity – among incomes, educational attainment, race, ethnicity, and other measures – placing equity at the forefront of regional considerations and decision making.

Essex County is more densely populated, and racially diverse than New Jersey as a whole, the population is younger, has lower average incomes, is slightly less educated, and more likely to have a disability. Essex residents are more reliant on transit for travel and mobility needs, and less likely to drive to work.

Disparity is evident across the county: the southeastern towns are densely populated, heavily impacted by equity considerations; residents have lower incomes and educational attainment, they drive less, are less likely to own an automobile, and are more reliant on transit. The northern and western towns differ significantly from the southeast towns: they are much less densely populated,

residents have higher incomes and educational attainment, and they drive more and are much less reliant on transit.

As such, no single countywide strategy or project type can address all of Essex County's needs, rather individual strategies, projects and policies must be based on local issues, context, and demographics, all with the unified approach of achieving the Essex 2045 vision and goals.

### Underserved Communities

The term “underserved” refers to populations and communities that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life, similar to definitions of equity and environmental justice.<sup>vii</sup>

By Executive Order 1408 from the White House on January 27, 2021, and Office of Management and Budget's Interim Implementation Guidance for the Justice40 Initiative, it is the official policy of the Federal Government to pursue a comprehensive approach to advancing equity for all, including people of color and others who have been historically underserved, marginalized, and adversely affected by persistent poverty and inequality.

Identification of underserved communities is an integral part of FHWA's Safe System Approach and eligibility for various FHWA safety-related grant opportunities.

Essex County has an underserved community rate of 49 percent of its entire population: several municipalities have significant underserved community populations, including large portions of Newark, Orange, East Orange, and Irvington. The City of East Orange, in particular, has an underserved community rate of over 94 percent.



## Essex County Population

Population, demographic makeup, and where people live and work shape the demand for transportation. For example, households with lower incomes are more likely to depend on transit, walking, and cycling to access work, education, and other basic daily travel needs. Furthermore, renter households are also less likely to have access to a vehicle, more frequently relying on walking, cycling, and transit as a means of transportation.

Essex County experienced a steady and continuing population growth rate of about 2.5 percent per year over the 160 years from 1790 to the 1940s and 1950s. During the post – World War II period, growth slowed substantially to a period of flat growth from 1950 and into the 1970s and 1980s. Starting during the 1970s and through at least 2010, Essex experienced an extended period of population decline, dropping more than 154,000 from the high point in 1970 to the low point in 1990.

The 2010s reversed this trend of flat growth and decline, as evidenced by the 10 percent increase in population recorded by the 2020 U.S. Census, and overall population growth of more than 142,000 since the low point of the 1990 Census.

Based on the 2020 Decennial Census, Essex County has a population of 863,728, the second most populous county in New Jersey with 9.3 percent of the total state population. The resurgence in Essex County population growth is forecast to continue through 2050, according to NJTPA projections.

The City of Newark is the largest municipality in New Jersey and Essex County, with a population of over 300,000.

All other Essex County municipalities have fewer than 70,000 residents. Of these, the largest are East Orange, Irvington, Bloomfield, and West Orange. These larger municipalities are all concentrated in the denser, and highly urbanized, eastern portion of the County.

Essex County household size is projected to remain virtually unchanged at 2.66 persons per household in 2050 vs. 2.69 in 2020.

Investments in housing, new development and redevelopment, and employment growth in several sectors have all contributed to the resurgence in population. Essex County led New Jersey in the rebuilding and rehab of its housing stock in the 2000s and Newark led the state in the issuance of building permits.<sup>viii</sup>

## Demographics

In addition to the U.S. Census data, the 2020 American Community Survey 5-Year Estimates were used to evaluate data for age, race and ethnicity, education, disability, income, employment and commute, and vehicle ownership.

### Age

The median age in Essex County is 37.7 years of age, several years younger than New Jersey's median age of 40.

Children and older adults are more vulnerable to fatal or severe crashes as vehicle occupants, pedestrians and/or cyclists. Both seniors and young children may require more time to cross the road and younger children are not as visible to motorists.

### Race and Ethnicity

Essex County is more racially diverse than New Jersey as a whole, having a much higher proportion of residents that are Black or African American; 38 percent of Essex residents are Black or African American, 30 percent are White, 23 percent are Hispanic or Latino (of any race) (Figure 1).

In New Jersey, about 55 percent of residents are White, 20 percent are Hispanic or Latino (of any race), 13 percent are Black or African American, and 10 percent are Asian.

### Education

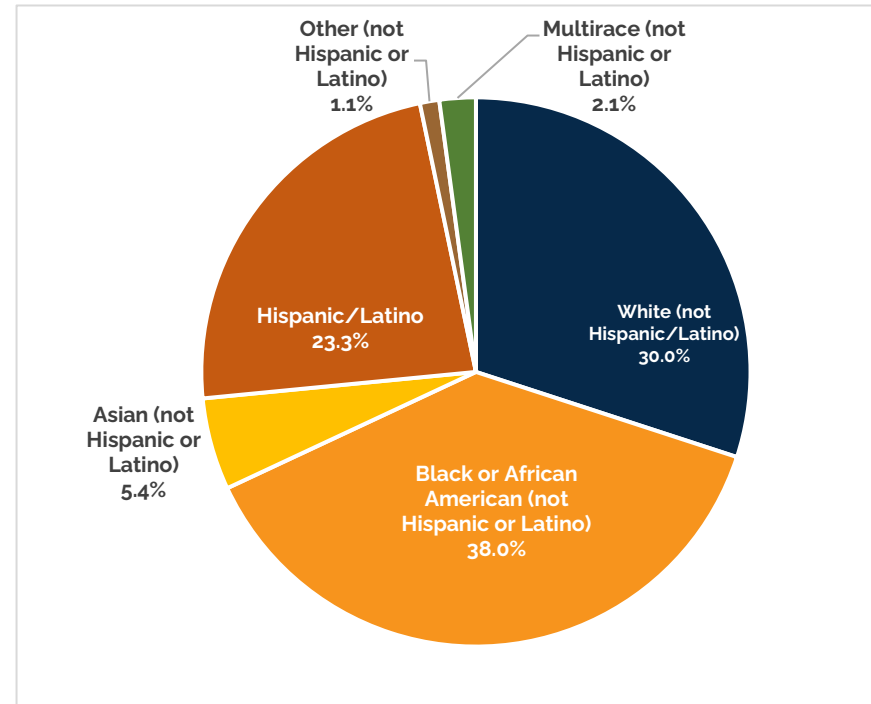
In Essex County, about 87 percent of residents have a high school degree or higher and 36 percent of residents have a bachelor's degree or higher. This is slightly lower than the New Jersey averages of about 90 percent and 41 percent, respectively.

### Disability

Disabilities, as defined by the US Census Bureau, include hearing, vision, cognitive, and ambulatory disabilities, and other difficulties with self-care and/or living independently. In Essex County, about 11 percent of the population has a disability. This is slightly higher than the statewide average of 10.4 percent.

The percentage of the population with a disability increases with age. In Essex County, about 34 percent of residents over 65 and nearly one-half over age 75 have a disability. This is higher than New Jersey where 30 percent of residents over 65 and 44 percent over 75 have a disability.

Figure 1. Race and Ethnicity in Essex County, NJ



Source: US Census Bureau, 2020 American Community Survey 5-Year Estimates

ADA-compliant curb ramps, auditory walk signals, high visibility infrastructure, and an efficient and accessible transit network are all important parts of creating an accessible and equitable transportation network.



**Income**

The NJTPA's Equity Analysis methodology defines low-income as a household with income less than twice the federal poverty level. For a single person, this is an annual income of \$27,180 or less. For a household of four, this is an annual income of \$55,500 or less.

In Essex County, 32 percent of the population is considered low-income by this definition which is significantly higher than the statewide rate of 10.2 percent. The county's poverty rate is nearly double for individuals without a high school degree. The share of transportation costs of households' expenses is much greater for those who are near and below the poverty line.

The median household income in Essex County is \$63,959, which is significantly lower than New Jersey's median household income of \$85,245.

Median income alone does not provide a complete picture of economic conditions due to significant geographic disparity in incomes among Essex County's municipalities.

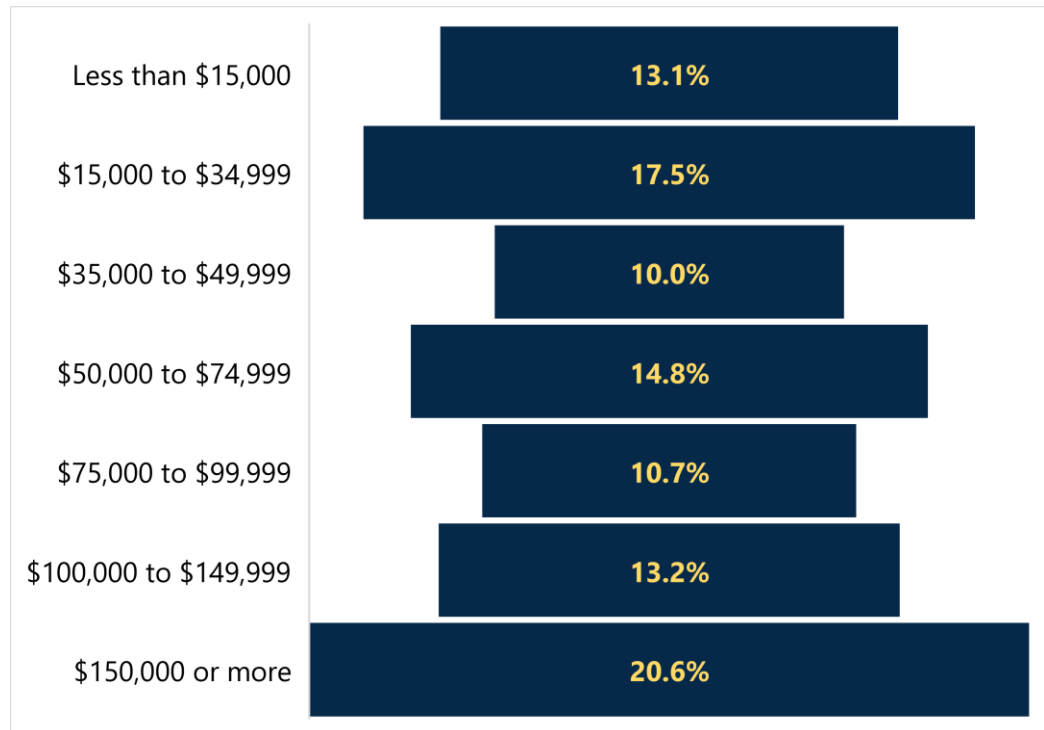
Income stratification is prevalent in Essex County: 20.6 percent of households have an annual income of over \$150,000 and 30.6 percent of households have a household income of less than \$35,000 (**Figure 2**).

Median household incomes in Newark, Orange, East Orange, and Irvington are well below the County median, ranging between \$37,000 and \$51,000. These four communities are home to more than half of the County's residents.

However, the median household incomes in Bloomfield, Fairfield, and Nutley are between \$81,000 and \$98,000, while the median income in all other municipalities is above \$100,000.

Essex Fells, Glen Ridge, and Millburn each have median incomes above \$200,000.

**Figure 2. Income Distribution in Essex County**



Source: US Census Bureau, 2020 American Community Survey 5-Year Estimates





### Employment & Commute

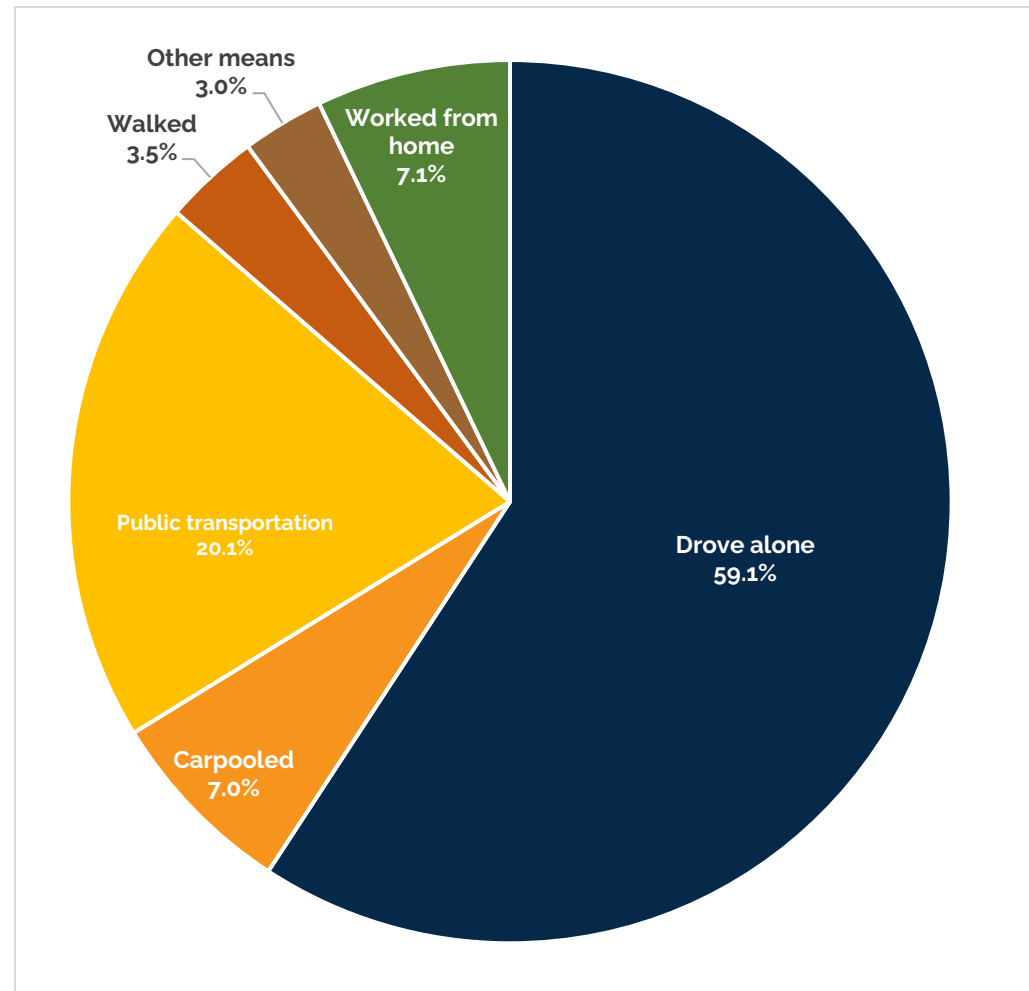
In Essex County, there are 379,534 employed people, with an unemployment rate of 5.2 percent, slightly lower than the New Jersey rate of 5.8 percent.

The mean travel time to work in Essex County is 35 minutes, which is slightly longer than the mean of 32 minutes for New Jersey. About 19 percent of commuters travel fewer than 20 minutes and 19 percent travel more than 60 minutes.

About 59 percent of workers drove alone compared to 71 percent statewide, while 20 percent took public transportation which is double the statewide transit share. About seven percent worked from home and seven percent carpooled to work (**Figure 3**).

About 51 percent of workers both lived and worked in Essex County, while 34 percent work in another county in New Jersey, and 15 percent work outside of New Jersey, mostly in New York City or elsewhere in New York State.

**Figure 3. Method of Commute to Work in Essex County**



Source: US Census Bureau, 2020 American Community Survey 5-Year Estimates



**Vehicle Ownership**

Households with limited or no vehicle access rely on the pedestrian, bicycle, and transit systems to travel to work and school, access shopping and services, and participate in community life, and other essential travel needs.

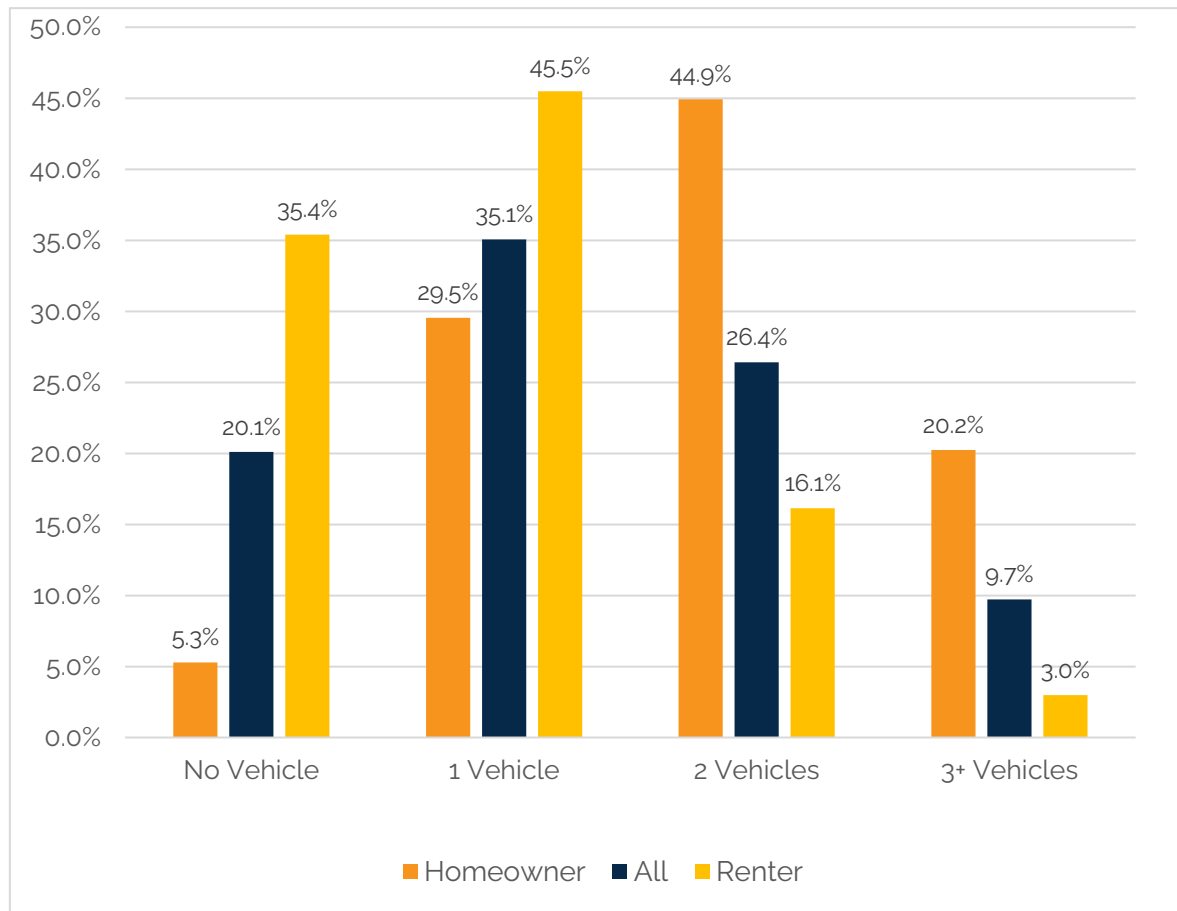
Limited vehicle access means some household members may not have reliable access to a vehicle when needed.

In Essex County, vehicle ownership is starkly different between homeowners and renters. While only five percent of homeowners have no vehicle, 35 percent of renters do not have a vehicle (**Figure 4**).

There are significantly more households without a vehicle in the more densely populated eastern portion of Essex County (**Figure 5**).

Some people in Essex County live without a vehicle by choice, especially those living in dense downtowns, such as Newark, with excellent transit access. However, some residents are unable to afford a vehicle even if it would make it easier to travel in an area where transit is lacking, infrequent, or unreliable.

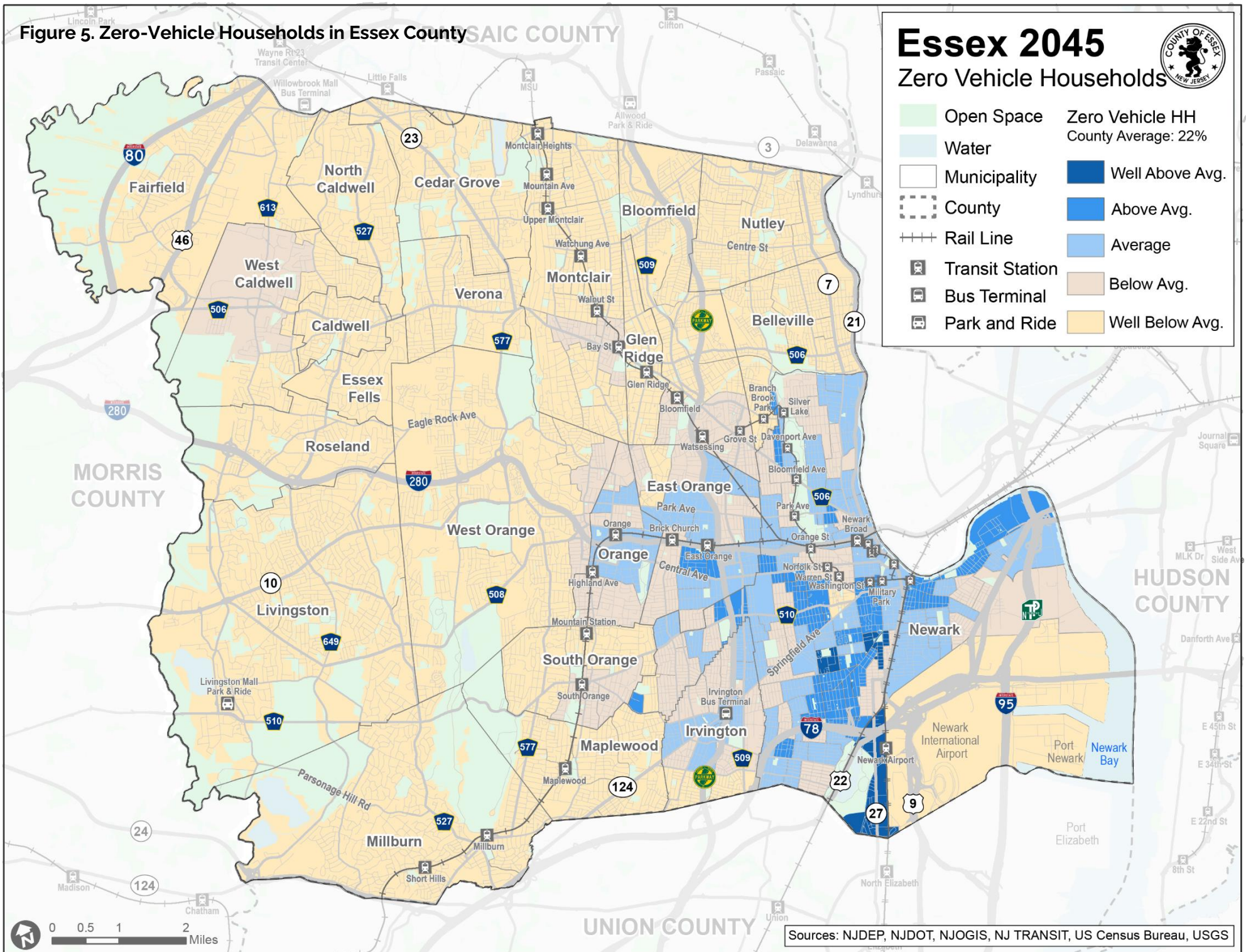
**Figure 4. Vehicle Ownership by Household Type in Essex County**



Source: US Census Bureau, 2020 American Community Survey 5-Year Estimates



Figure 5. Zero-Vehicle Households in Essex County





**Housing**

There are 318,385 total housing units in Essex County, 290,680 of which are occupied, resulting in a vacancy rate of 8.7 percent, which is lower than New Jersey's vacancy rate of 9.8 percent. In Essex County, 56 percent of housing is renter-occupied, and 44 percent of housing is owner-occupied. The rate of renter-occupied housing is about 20 percent higher than New Jersey overall.

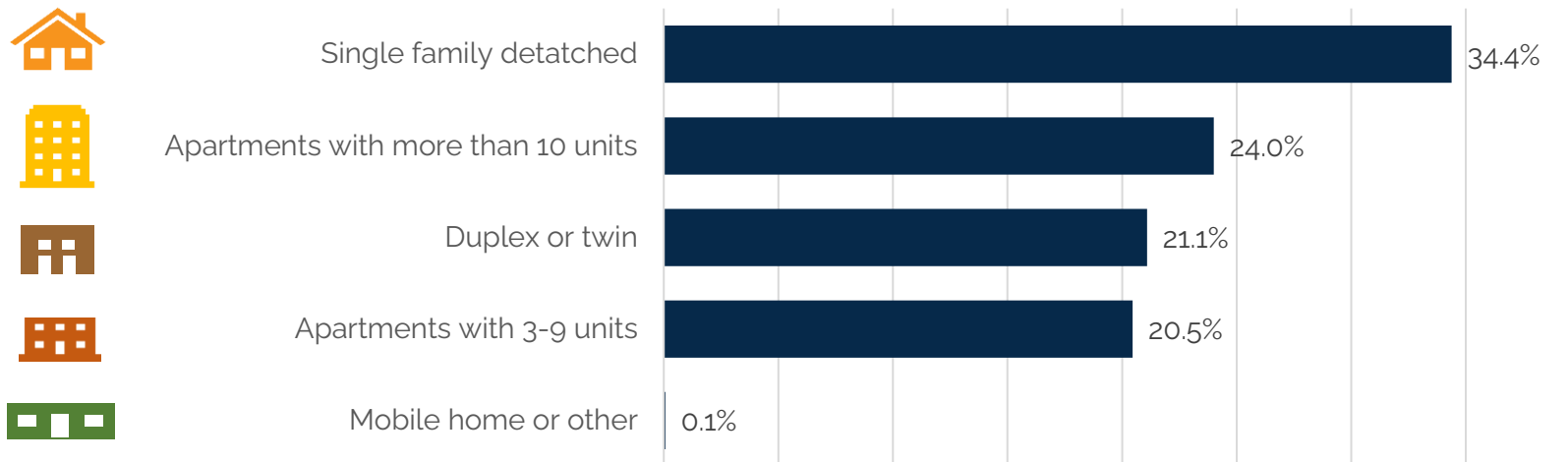
The most common housing type is single family detached (Figure 6).

The average household size is 2.99 persons per household for owner-occupied households, and 2.42 people for renter-occupied households.

Although the County's population is 70,000 below its peak in 1970, housing costs are high, and many residents are housing cost burdened. The median monthly cost is \$2,875 for homeowners with a mortgage. This is \$400 higher than the median for the state. For the 55 percent of the population that are renters, the median monthly rent in Essex County is \$1,211. The median monthly rent in the County increased \$234 from the median of \$977 in 2010.

A household is considered housing cost burdened if housing costs are more than 30 percent of the household's income. In Essex County, about 40 percent of homeowners with a mortgage and 29 percent of homeowners without a mortgage are housing cost burdened. Housing cost burden is more severe for renters with 54 percent of renters spending more than 30 percent of their income on housing.

**Figure 6. Housing Types in Essex County**



Source: US Census Bureau, 2020 American Community Survey 5-Year Estimates



## Land Use & Development Conditions

### Existing Land Use Patterns

Residential development accounts for nearly half of Essex County land area, followed by open space, commercial, transportation, civic, and other uses as indicated in **Figure 7** and **Figure 8**.

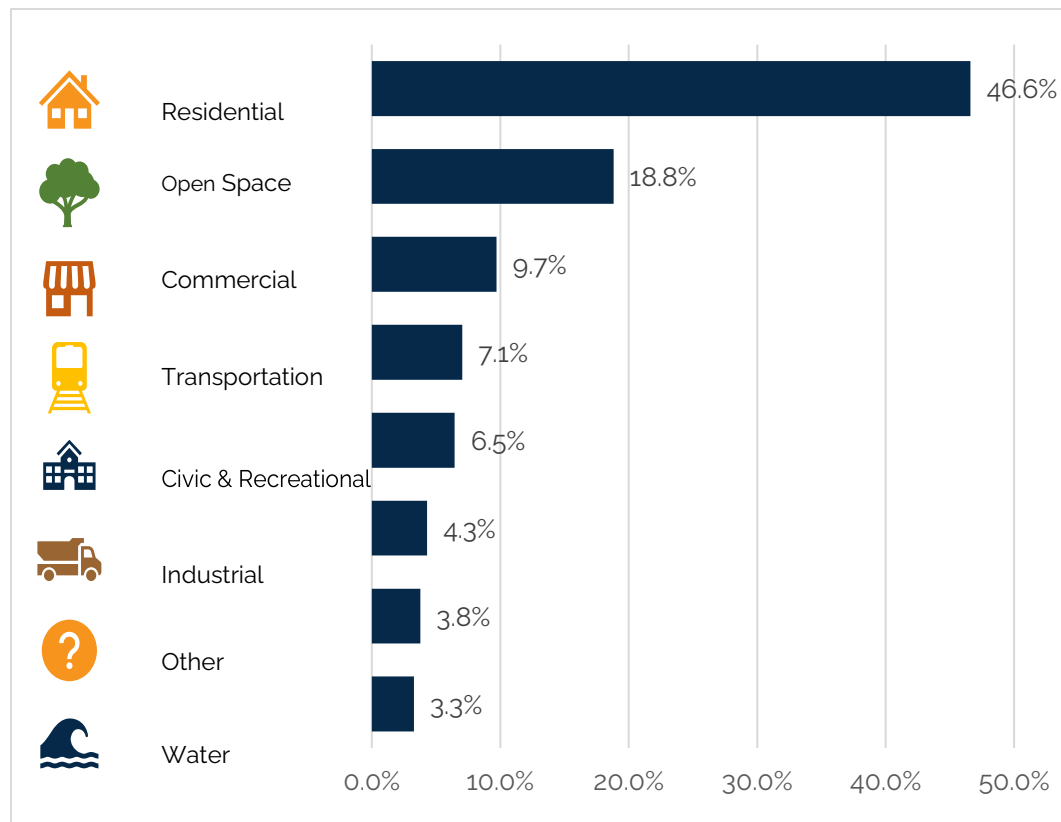
Essex County transitions significantly from its eastern industrial base and high-density profile, to a moderate density center, and a mix of open space and low density in the west.

Pockets of commercial development and along found along the state and county highways and arterial roadways throughout much of Essex County.

There are many industrial clusters within Essex County that contribute greatly to the employment and tax base. These industrial clusters are active, and generate substantial freight and goods movement by rail, truck, and water.

Forest and wetlands are concentrated around open spaces like South Mountain Reservation in Millburn, Maplewood, and West Orange; Eagle Rock Reservation in West Orange; Hilltop Reservation in Cedar Grove and Verona; and Great Piece Meadows in Fairfield.

**Figure 7. Land Use by Category in Essex County**



Source: New Jersey Department of Environmental Protection 2015 Land Use GIS Data Layer



Figure 8. Land Use in Essex County

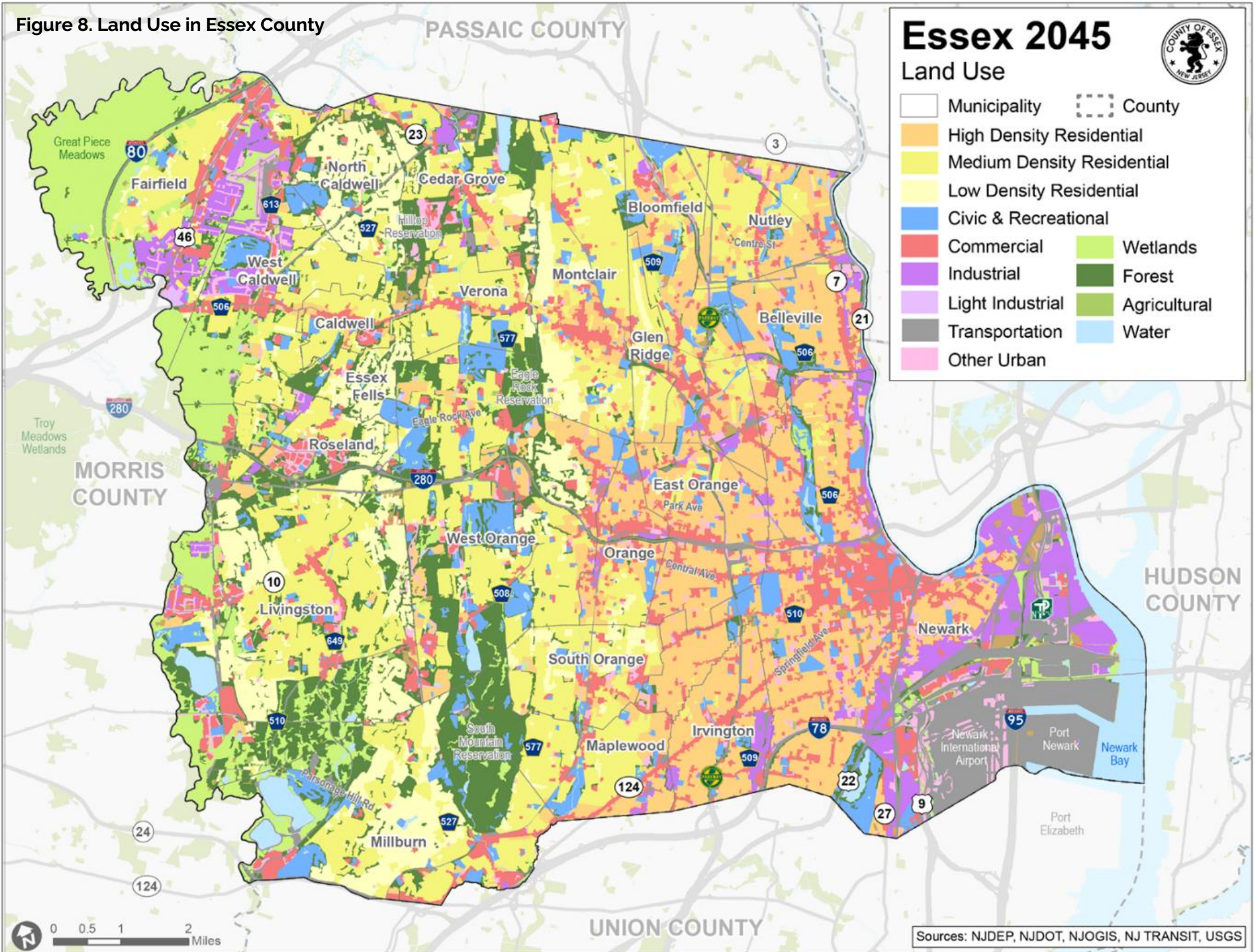
PASSAIC COUNTY

# Essex 2045



## Land Use

- |                            |              |
|----------------------------|--------------|
| Municipality               | County       |
| High Density Residential   |              |
| Medium Density Residential |              |
| Low Density Residential    |              |
| Civic & Recreational       |              |
| Commercial                 | Wetlands     |
| Industrial                 | Forest       |
| Light Industrial           | Agricultural |
| Transportation             | Water        |
| Other Urban                |              |



Sources: NJDEP, NJDOT, NJOGIS, NJ TRANSIT, USGS

## Major Destinations

Major destinations in Essex County include employment centers, schools, hospitals, and parks. These destinations generate high demand for travel as residents access work, schools, medical services, and recreation (**Figure 9**).

### **Employment Centers**

By far, the largest concentrations of employment are in downtown Newark, Newark Liberty International Airport, and the Port of Newark.

There are also smaller but significant employment centers along Bloomfield Avenue in Montclair, near I-280 and Livingston Avenue in Roseland.

There are also smaller employment hubs near I-280 and Livingston Avenue in Roseland, and around the Short Hills Mall where the Morris Turnpike (NJ 24) and JFK Parkway (CR 649) meet in Millburn. Smaller employment sites are spread throughout Essex County.

### **Hospitals**

There are 28 hospitals in Essex County. Hospitals are concentrated in the eastern half of the County with more than half in Newark alone. Many of the hospitals on the eastern side are accessible along transit lines. On the western side of the County, hospitals are located in Livingston, West Orange, and Cedar Grove.

### **Schools**

Schools are major generators of pedestrian, bicycle, and/or vehicle trips in the mornings and afternoons. Considering the location of schools is important for creating a safe County transportation system.

There are 336 public and private schools in Essex County, and 11 universities and college campuses. Seven are in Newark while the other four are in Bloomfield, Caldwell, Montclair, and South Orange. These include:

- Berkeley College (Newark)
- Bloomfield College (Bloomfield)
- Caldwell College (Caldwell)
- Essex County College (Newark)
- Essex County College (West Caldwell)
- Montclair State University (Montclair)
- New Jersey Institute of Technology (Newark)
- Pillar College (Newark)
- Rutgers University – Newark (Newark)
- Rutgers School of Health Professions (Newark)
- Seton Hall University (South Orange)
- Seton Hall University Law School (Newark)





Figure 9. Major Destinations in Essex County

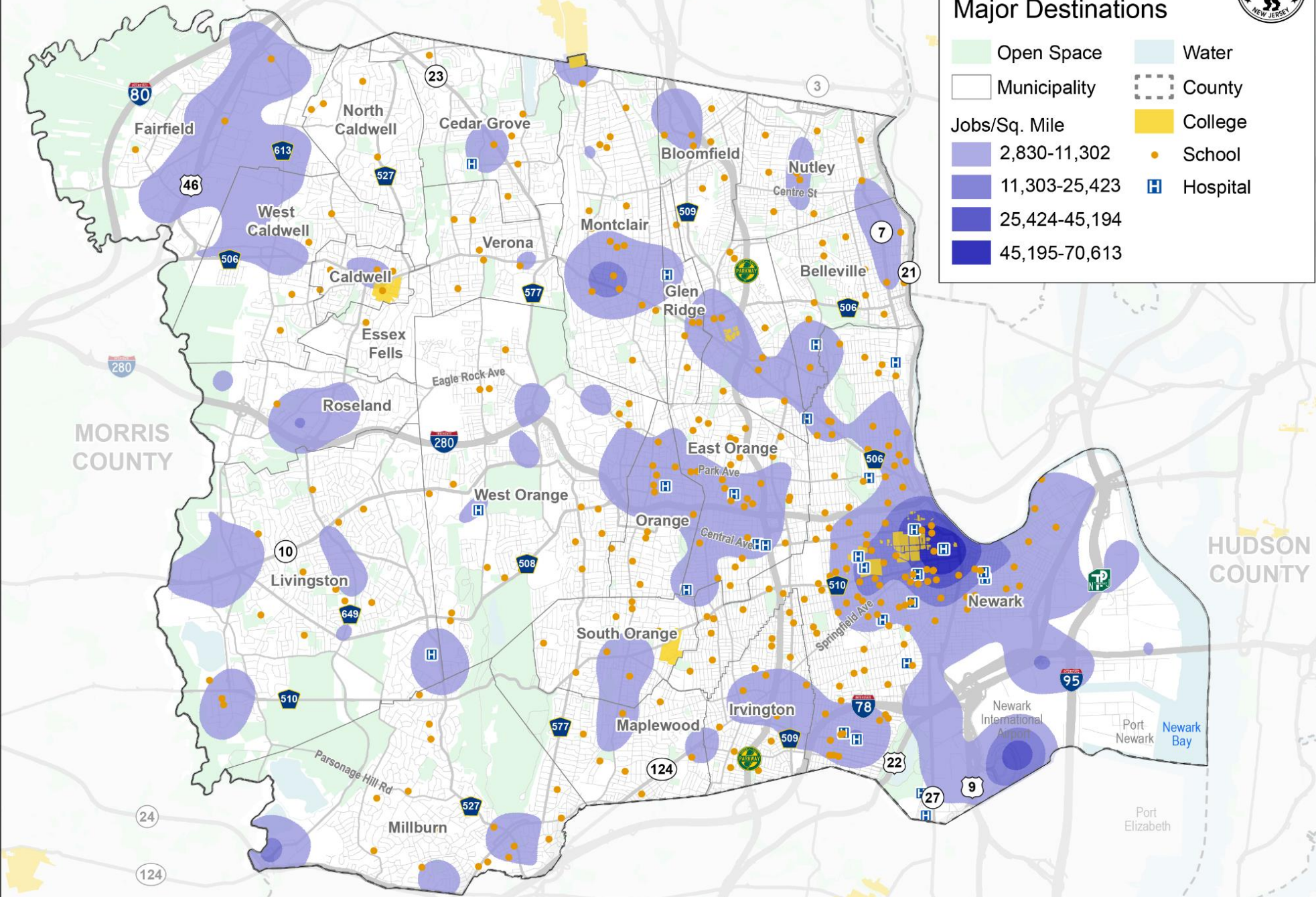
PASSAIC COUNTY

# Essex 2045

## Major Destinations



- Open Space
- Water
- Municipality
- County
- Jobs/Sq. Mile**
- College
- School
- Hospital
- 2,830-11,302
- 11,303-25,423
- 25,424-45,194
- 45,195-70,613



HUDSON COUNTY

UNION COUNTY



Sources: NJDEP, NJDOT, NJGIS, NJ TRANSIT, US Census Bureau, USGS



**Parks & Recreation**

Nearly 19 percent of the Essex County land area, more than 15,600 acres, is open space. Almost every municipality has at least one county park. **Figure 10** displays the overall Essex County Park system.

Essex is home to four major recreational reservation areas:

- **South Mountain Reservation:** 2,110 acres in Millburn, Maplewood, and West Orange with hiking trails, picnic areas, and fishing spots throughout
- **Eagle Rock Reservation:** 408 acres in West Orange, Montclair, and Verona along the Watchung Mountain ridge with many hiking trails and picnic areas
- **Hilltop Reservation:** 284 acres in Cedar Grove, North Caldwell, and Verona along Second Watchung Mountain with hiking trails
- **Great Piece Meadows:** 1,170 acres in Essex and Morris Counties along the Passaic River with hiking trails and fishing spots

In addition to these reservation areas, there are 24 County parks and various other recreation facilities such as golf courses, athletic fields, and environmental education centers.

**Figure 10. Essex County Park System**



Source: Essex County Department of Parks, Recreation, and Cultural Affairs



## Environmental Resources & Issues

Throughout its history, Essex County has experienced significant environmental degradation and impacts from decades of sprawl, urbanization, and industry.

In the future it is anticipated that these environmental issues and impacts will worsen, including more intense storms, increased flooding, and more extreme heat. Creating a resilient transportation network through both adaptation and mitigation is essential to maintaining both the transportation system and quality of life.

### **Flooding**

Essex County is already seeing the impacts of climate change including increased flooding made worse by sea level rise at both Newark Bay (adjacent to Port Newark) and the Passaic River, more frequent and extreme storms, and increased extreme heat days.

The 2020 Essex County Hazard Mitigation Plan identified 24 flooding events in Essex County from 2014 to 2018 that resulted in road closures; at least four of these involved county-owned roadways, including CR 527 in Short Hills and Bloomfield Avenue (CR 506) in Montclair.

In 2021, Essex County experienced significant flooding from Tropical Storm Ida, which broke daily and hourly rainfall records at Newark Liberty International Airport (8.41 and 3.24 inches, respectively), flooding the terminals, and grounding all flights during and after the storm. The flooding also caused road and lane closures on many roads in the county including the New Jersey Turnpike. NJ TRANSIT suspended all transit services in the region during and after the storm.

Due to the proximity of Newark Bay, Passaic River, and

many smaller streams, there are numerous areas within the floodplain designated by the Federal Emergency Management Agency (FEMA). About 15,800 acres are within the area that has a one percent yearly flood risk and about 18,300 acres are within the area that has a 0.2 percent yearly flood risk. Municipalities with large areas within the floodplain include Fairfield (90 percent floodplain), Newark (40 percent floodplain), West Caldwell (28 percent floodplain, and Roseland (22 percent floodplain).

*Essex 2045 recommends an assessment of Roadway Drainage and Flooding impacts; details are presented in the Recommendations Chapter.*

### **Energy Master Plan**

The State of New Jersey released its Energy Master Plan in January 2020, which calls for the state to achieve 100 percent clean energy by 2050 through carbon-neutral electricity generation and maximum electrification of the transportation and building sectors. This commitment will meet or exceed the state's Global Warming Response Act (GWRA) of reducing state greenhouse gas emissions by 80 percent below 2006 levels by the year 2050.

The Port Authority of New York and New Jersey (PANYNJ) has committed to become carbon neutral by 2050 and reduce emissions directly under the Authority's control by 50 percent by 2030.

*Essex 2045 supports the goals of the State of New Jersey Energy Master Plan and the PANYNJ climate change actions, as summarized in the Recommendations Chapter.*

## Roadway Inventory

In total, Essex County has approximately 1,688 miles of roadway of various type and classification and nearly 500 bridges (**Figure 11**).

### *Interstate highways in Essex County:*

- **The New Jersey Turnpike (I-95)** passes between Newark Liberty International Airport and Port Newark
- **The Garden State Parkway** provides access to New Jersey shore to the south and New York to the north
- **I-78** crosses southeast Essex County in Newark just north of Newark Liberty International Airport
- **I-80** crosses northwest Essex County in Fairfield
- **I-280** is an 18-mile spur from I-80 that provides access across Essex County

### *Major Arterials:*

- **US 1&9** crosses southeastern Essex County, traveling past Newark Liberty International Airport and separating the residential Ironbound neighborhood from industrial uses near the airport and port
- **US 22** terminates near Newark Liberty International Airport where I-78 and US 1&9 meet
- **US 46** located in northwest Essex County in Fairfield parallel to I-80

### *Minor Arterials:*

- **NJ 7** passes through Nutley and Belleville before becoming a county route in Newark
- **NJ 10** passes through Livingston and West Orange before transitioning to a county route
- **NJ 21** follows the Passaic River through Nutley, Belleville, and Newark before terminating where I-78, US 1&9, and US 22 meet

- **NJ 23** passes through Cedar Grove and Verona before ending at Bloomfield Avenue (CR 506)
- **NJ 27** connects Princeton to Newark, ending where it meets US 22 in Newark
- **NJ 82 and 24** run parallel along the southern border of Essex County in Millburn
- **NJ 124** enters Essex County in Maplewood before transitioning to a county route in Irvington

### *500-Series Essex County Roadways*

- **CR 506** connects US 46 in Fairfield east to NJ 21 in Belleville passing through Bloomfield, Glen Ridge, Montclair, Verona, Caldwell, and West Caldwell
- **CR506 Spur** branches off in Glen Ridge and south to Newark, connecting to NJ 21
- **CR 508** connects NJ 10 in Livingston east to NJ 7 in Kearny passing through the Oranges and Newark
- **CR 509** crosses Essex County north to south through Bloomfield, East Orange, Newark, and Irvington
- **CR 510** crosses Essex County west to east entering in Livingston to NJ 21 in Newark
- **CR 527** runs north-south from Millburn to NJ 23 in Cedar Grove passing through Livingston, Roseland, Essex Fells, Caldwell, and North Caldwell
- **CR 577** enters Essex County at NJ 124 in Millburn and runs north to NJ 23 in Verona passing through South Orange and West Orange

### *600-Series Essex County Roadways*

The 70 County 600 routes are classified as minor collectors.

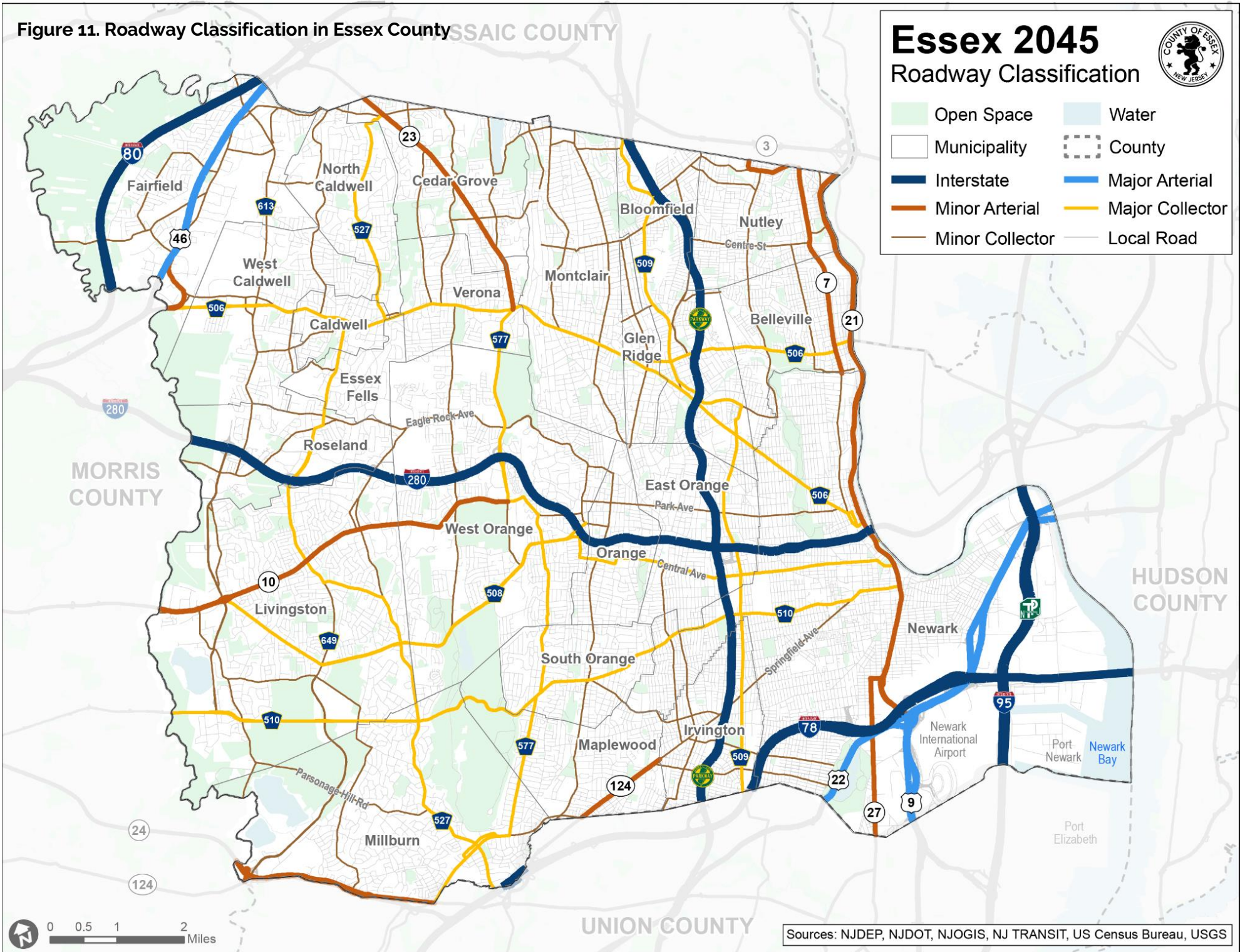
### *Local and Municipal Roadways*

The majority of Essex County roadway miles are municipal roads that provide local access and connectivity.





Figure 11. Roadway Classification in Essex County



# Essex 2045

## Roadway Classification



- Open Space
- Water
- Municipality
- County
- Interstate
- Major Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local Road

Sources: NJDEP, NJDOT, NJOGIS, NJ TRANSIT, US Census Bureau, USGS

## Pavement Inventory

The New Jersey Department of Transportation (NJDOT) ranks pavement on State roads only using a Surface Distress Index (SDI). The index rates roads 0 to 5 with 5 being a road free of distress. Roads with an SDI of 3.5 or above are considered in good condition (or good state of repair), between 2.4 and 3.5 is considered fair, and 2.4 or under is poor.

Ratings for State maintained roadways within Essex County are shown in **Figure 12**. The pavement on NJ 7 is in poor condition. Portions of the pavement on NJ 21 and US 46 are considered fair. The remaining state roadways within the County are rated as having pavement in good condition.

No data is available for pavement conditions of county and municipal roadways in Essex County.

The pavement inventory includes 62.76 miles of state-owned roadway in Essex County; 31 percent of this total state-owned mileage is in poor condition; 17 percent is fair, and 52 percent is in good condition.

## Bridge Inventory

NJDOT is responsible for statewide bridge and structure inspection programs which assures compliance with the Federally mandated National Bridge Inspection Standards (23 CFR, Part 650 - Bridges, Structures, and Hydraulics).<sup>x</sup>

Bridges are evaluated based on the physical condition of the bridge materials and structural elements with a scale ranging from failed to excellent condition.

A Structurally Deficient bridge is one for which the deck (riding surface), the superstructure (supports immediately beneath the driving surface) or the substructure (foundation and supporting posts and piers) are rated as poor or worse. A Functionally Obsolete bridge is one that was not built to the current design standards. Functionally Obsolete bridges are not necessarily deficient, rather they do not meet the current standard for one or more design element such as lane width, shoulder width, or vertical or clearance.<sup>xi</sup>

The Essex County-owned list includes a total of 130 bridges. Of these 17 are rated as "Functionally Obsolete" and three are "Structurally Deficient." The remaining 110 bridges are neither Functionally Obsolete nor Structurally Deficient (**Figure 13**).

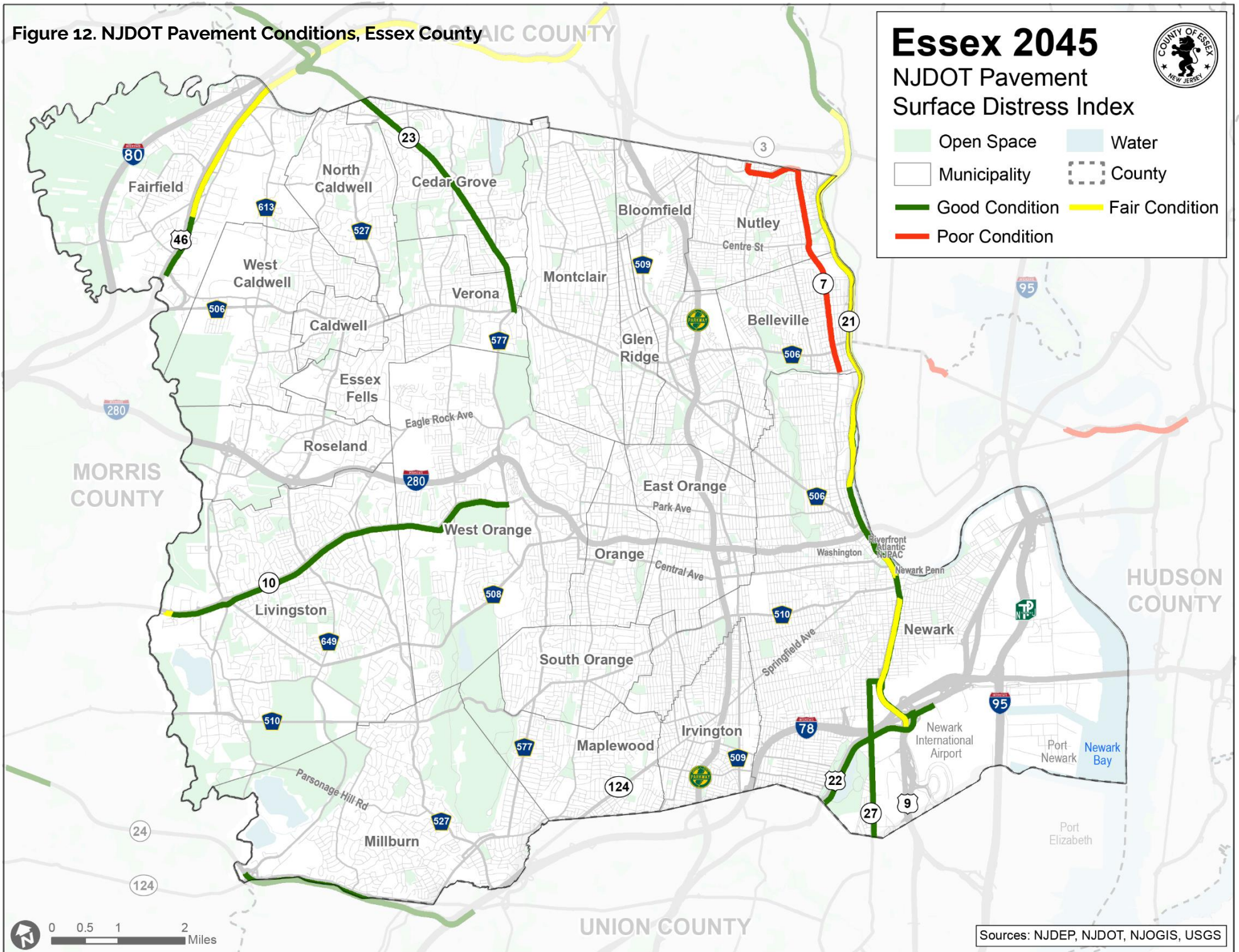
Essex County's structurally deficient bridges are committed for replacement with federal funding and listed as follows:

- Park Avenue (Essex County)/Kingsland Avenue (Bergen County) over the Passaic River in Nutley & Lyndhurst. Bridge replacement is recommended.
- Clay Street over the Passaic River in Newark & East Newark. Emergency & Priority Repairs are needed. The bridge is rated as serious condition due to serious superstructure rating. Bridge is identified as "fracture critical" and "scour critical."
- Bridge Street (CR 508) over the Passaic River in Newark & Harrison. Emergency & Priority Repairs are needed. This bridge is in poor condition due to poor superstructure rating. Bridge is identified as "fracture critical."





Figure 12. NJDOT Pavement Conditions, Essex County



Sources: NJDEP, NJDOT, NJOGIS, USGS



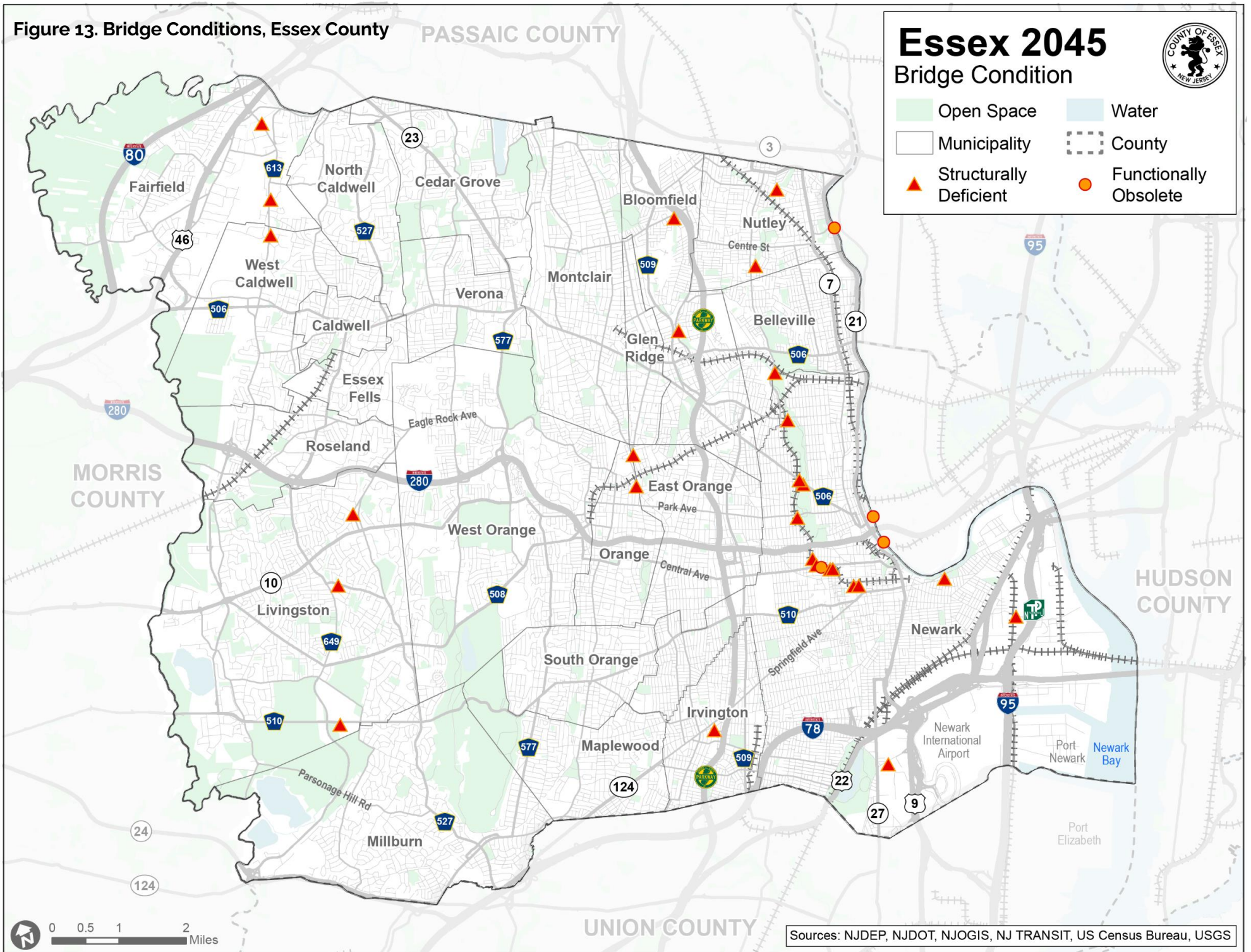
Figure 13. Bridge Conditions, Essex County

PASSAIC COUNTY

# Essex 2045 Bridge Condition



- Open Space
- Municipality
- Structurally Deficient
- Water
- County
- Functionally Obsolete



HUDSON COUNTY

UNION COUNTY

Sources: NJDEP, NJDOT, NJOGIS, NJ TRANSIT, US Census Bureau, USGS

## Multimodal Transportation Network

The multimodal transportation network includes aviation, rail, buses, bicycle facilities, sidewalks, and multiuser trails to support the movement of goods and people within, across, and through Essex County. The multimodal network services a broad range of travel needs and trip purposes among Essex County's diverse population, employment centers, and industrial base. Interconnections among these travel modes are essential to meeting daily travel needs.

### ***NJ TRANSIT Regional Rail***

NJ TRANSIT has 22 stations in Essex County. Newark Penn Station is the largest hub. Six NJ TRANSIT commuter lines that travel through Essex County serving many trip origins and destinations both local and regional. These rail lines primarily serve commuters to Newark and New York City:

- **Northeast Corridor:** The Northeast Corridor connects Trenton to the south with New York City to the north. It has two stops in Essex County, Newark Penn Station, and Newark Liberty International Airport Station. This is NJ TRANSIT's busiest line with on average about 123,000 weekday riders before the COVID-19 pandemic. In 2022, the line had on average 54,000 weekday riders.
- **North Jersey Coast Line:** The North Jersey Coast Line connects the many shore towns to New York City. It has two stops in Essex County: Newark Penn Station and Newark Liberty International Airport Station. This line had 22,000 average weekday riders before the pandemic and in 2022 averaged 10,000 weekday riders.
- **Gladstone Branch:** The Gladstone Branch travels on the same tracks as the Morris & Essex in Essex County. It stops at Newark Broad Street and ends at the Hoboken Terminal. To reach New York City from Hoboken,

passengers can take the PATH or take a ferry from Hoboken Terminal.

- **Raritan Valley Line:** The Raritan Valley Line connects communities in Hunterdon, Somerset, and Union Counties to Newark Penn Station where riders can transfer to the Northeast Corridor or North Jersey Coast Line to continue to New York Penn Station. The only stop in Essex County is Newark Penn Station. This line averaged about 22,000 weekday riders before the pandemic. In 2022, the line averaged about 8,000 weekday riders.
- **Morris & Essex:** The Morris & Essex travels through Millburn, Maplewood, the Oranges, and Newark Broad Street. Some trains connect to Hoboken with some having a direct connection to New York Penn Station. To reach New York City from Hoboken, passengers can take the PATH or take a ferry from Hoboken Terminal. This is NJ TRANSIT's second busiest line with 60,000 average weekday riders before the pandemic. In 2022, the line had 25,000 average riders.
- **Montclair-Boonton Line:** The Montclair-Boonton line travels northwest from Newark through Bloomfield, Glen Ridge, Montclair, and Wayne (in Passaic County) before turning west into Morris County. This line has both direct connections to New York Penn Station and some trains that terminate in Hoboken. This line is NJ TRANSIT's least busy line with on average 19,000 riders before the pandemic. In 2022, the line had about 7,000 weekday riders on average.



## Amtrak

Amtrak service in New Jersey operates on the Northeast Corridor (**Figure 14**) which is Amtrak's busiest passenger route. Amtrak trains stop in Newark Penn Station and Newark Liberty International Airport Station. Essex County has two stops at Newark Penn Station and Newark Liberty International Airport.

The Northeast Regional and Keystone routes stop at the Newark Airport station. Newark Penn is served by nine regional and national service routes including the Acela express service from Boston to Washington, DC via New York City and Philadelphia. Additional regional and national routes provide wide ranging connectivity through Newark and along the East Coast from Boston to Florida and west to Chicago.

Figure 14. Amtrak's Northeast Corridor, Newark Penn Station



**Newark City Subway**

The Newark City Subway connects Newark Penn Station with Newark Broad Street Station. The Newark Light Rail connects Newark Penn Station with Grove Street in Bloomfield. The Newark Subway travels west through downtown Newark and then north along Branch Brook Park, with a total of 18 stations, 16 in Newark, and one each in Belleville and Bloomfield (**Figure 15**). Total ridership in 2019 was 5.4 million passengers.

**Port Authority Trans-Hudson (PATH)**

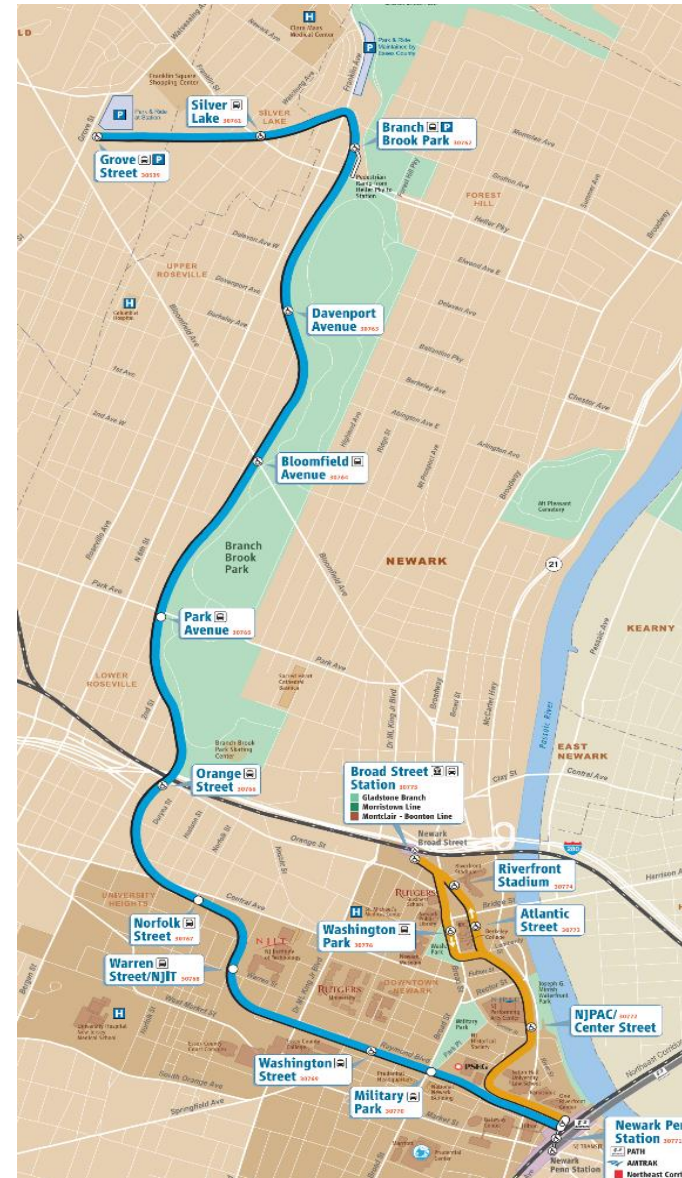
The PATH system run by the Port Authority, has four lines serving 13 stations and connecting Newark, Hoboken, Jersey City, Lower Manhattan, and Midtown Manhattan (**Figure 16**). PATH served over 29 million trips in 2021 with a weekday average of 90,000 trips. Newark Penn Station is the fourth busiest PATH station after the World Trade Center, Journal Square, and 33<sup>rd</sup> Street.

**Figure 16. Port Authority Trans-Hudson (PATH)**



Source: Port Authority of New York and New Jersey

**Figure 15. Newark Subway and Light Rail**



Source: NJ TRANSIT



## Bus Transit

Essex County has the largest concentrations of fixed-route bus service in New Jersey. Western Essex County has limited bus service.

### ***NJ TRANSIT Buses***

There are 52 NJ TRANSIT bus routes that stop in Essex County and 3,990 bus stops. The Irvington Bus Terminal serves as a major transfer point serving routes 13, 25, GO 25, 26, 27, 37, 70, 90, 107, and 375. Just across the border in Passaic County, the Willowbrook Mall Bus Terminal serves as another hub with service on routes 11, 191, 193, 194, 195, 197, 198, 704, 705, 712, 748, and 874.

Currently, there are few lines that have service with 10-to-15-minute headways; this is considered the frequency that allows riders to take the bus without checking the schedule, making it easier to use and more convenient for riders. Weekends have less service available than weekdays, with 17 out of the 52 bus lines not operating on Sundays and seven not operating on Saturdays. For many routes, operating hours are shortened on the weekends. Many buses heading to the western part of the County stop running before 10pm, with some stopping as early as 6pm.

### ***NewBus Newark Findings***

NJ TRANSIT is working on the NewBus Newark study, which focuses on 38 routes that serve the Newark area. The study is underway but recommendations are not yet finalized. Critical findings from the study include:<sup>xii</sup>

- In October 2019, the 38 study area routes carried an average of 180,000 riders each weekday. Half of these riders use just 7 of the 38 bus routes.

- Improving service on just these routes will benefit one in every two riders.
- NJ TRANSIT bus riders are reliant on the bus for basic travel needs. 44 percent do not own a car, 58 percent have household incomes below \$35,000, and 80 percent ride the bus five or more times a week.
- A significant share of trips across all travel modes (driving, transit, walking biking) are for non-work purposes. However, only 30 percent of trips made on NJ TRANSIT bus service are for non-work purposes. NJ TRANSIT is more heavily used for work trips because there is more service offered during the typical commute periods in the early morning and late afternoon. Increasing bus service during the midday and evenings can help grow ridership by making the bus more attractive for non-work purposes.
- The built environment has a direct impact on transit's ability to be an attractive travel mode. Transit is most successful when there are concentrations of both people and jobs, a variety of destinations that generate all-day and all-week demand, and walkable, people-oriented streets that emphasize the importance of the land use-transportation connection.

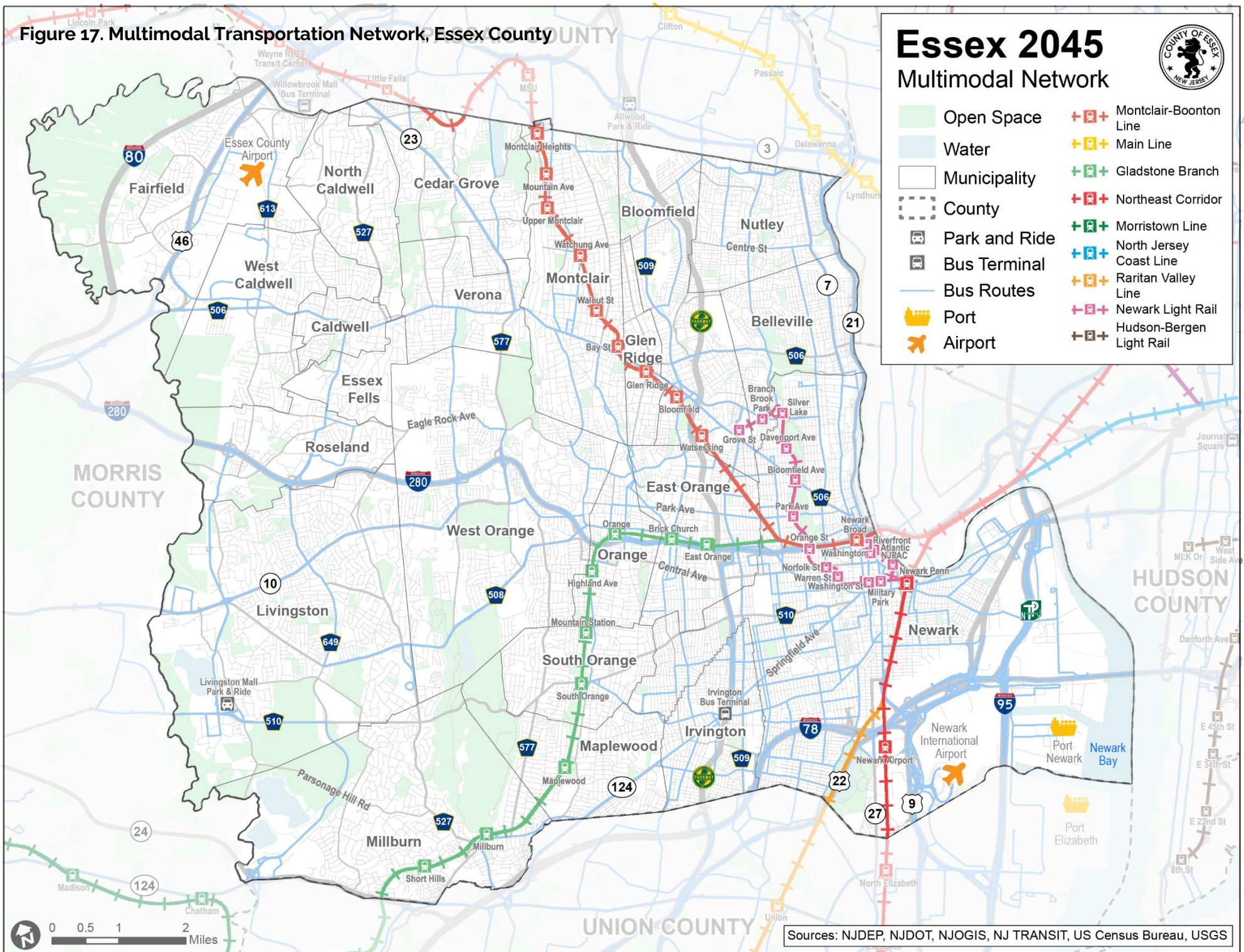
### ***Private Bus Operators***

Private operators offer limited stop service to New York City. Community Coach offers commuter service from East Orange, Livingston, and West Orange to New York City. They also have an airport express bus from Newark Liberty International Airport to Manhattan. DeCamp Bus Lines offers three commuter routes to and from NYC.





Figure 17. Multimodal Transportation Network, Essex County



# Essex 2045 Multimodal Network



- Open Space
- Water
- Municipality
- County
- Park and Ride
- Bus Terminal
- Bus Routes
- Port
- Airport
- Montclair-Boonton Line
- Main Line
- Gladstone Branch
- Northeast Corridor
- Morristown Line
- North Jersey Coast Line
- Raritan Valley Line
- Newark Light Rail
- Hudson-Bergen Light Rail



Sources: NJDEP, NJDOT, NJOGIS, NJ TRANSIT, US Census Bureau, USGS

## Shuttle/Jitney Service

### **Essex County & EZ Ride Commuter Shuttles**

Essex County offers several shuttles to help residents access travel to work or complete last-mile connections. Last-mile connections complete a transit trip by allowing riders to get from door to door. Essex County provides the following free shuttles in partnership with local partner EZ Ride:

- **Route 10 Shuttle:** between Essex County and the NJ TRANSIT bus stop at Route 10 & New Murray Road in East Hanover (Morris County) along Route 10 from 6:30 to 9:15am and 3:00 to 6:45pm Monday through Friday to help workers access employment along the corridor.
- **Route 46 Shuttle:** between the NJ TRANSIT bus stop at Passaic Avenue and Bloomfield Avenue in West Caldwell along Route 46 from 6:20-9:15am and 3-7pm Monday through Friday to help workers access employment along the corridor.
- **Essex Night Owl Shuttle:** every hour from 1am to 5am every day of the week from Newark Penn Station to residents' homes in Newark, Orange, East Orange, and Irvington.
- **WAVE Shuttle:** services to help low-income residents access agencies that provide work training and assistance Monday-Friday from 8:00am to 4:45pm.

EZ Ride also operates a shuttle from the Harrison PATH station along Ridge Road and Kearny Avenue to facilitate access to employment along these corridors. While this is in Hudson County, it is directly across the Passaic River from Newark.

### **Municipal Commuter Shuttles/Jitneys**

Many of the more densely developed suburban Essex County towns with train stations have created their own municipal shuttles or jitneys, including the following:

- Bloomfield operates the "Bloomfield Shuttle"
- Glen Ridge, in conjunction with NJ TRANSIT, operates a jitney service to the Glen Ridge Train Station
- Maplewood jitney service to the Maplewood Train Station
- Nutley jitney service to the Delawanna Station in Clifton
- South Orange jitney bus service to the South Orange Train Station
- West Orange free jitney service to Orange, South Orange, and Brick Church Stations

## **Transportation Services for Seniors and Disabled Adults**

Transportation services for seniors and disabled adults are offered by Essex County, EZ Ride, and municipalities. Essex County offers rides to non-emergency medical and therapy appointments for seniors 60 and older and disabled adults Monday to Friday 9am-4pm.

EZ Ride offers a Ryde4Lyfe program that offers free Lyft and Uber rides for seniors on demand Monday to Friday from 8am-8pm and Saturday from 8am-5pm. At least 14 municipalities offer free senior transportation services: Belleville, Bloomfield, Caldwell, Roseland, and West Caldwell, Cedar Grove, East Orange, Irvington, Livingston, Maplewood, Millburn, Nutley, West Orange, and Verona.





## Park-and-Ride Facilities

There is one park-and-ride facility in Essex County at the Livingston Mall. This lot is served by NJ TRANSIT routes 70 (Newark), 73 (Newark), 873 (Morristown); Community Coach 77 (New York); and the Livingston Express Shuttle (South Orange Station).

The Allwood Park and Ride in Clifton is on the border of Essex and Passaic Counties and is used by residents of both. This lot is served by NJ TRANSIT routes 191, 192, 195, 199, which all travel to New York, and route 705, which travels between Wayne and Passaic.

## Sidewalks

Essex County's roadways include numerous routes that have sidewalks in one or both directions of travel. The presence of sidewalks is largely dependent on surrounding land uses, the presence of pedestrian generators, and the general density of adjacent development, as well as local zoning regulations and land development review practices. Sidewalks are more widely available in the eastern part of the County than the western part.

Limited data is available to develop an accurate countywide assessment of sidewalk coverage.

Essex County does not have a policy to require sidewalks when there is development on County routes. Municipalities may require developers to provide sidewalks when development occurs on County routes.

*Essex 2045 recommends consideration of a sidewalk policy for County-owned roadways to improve pedestrian safety and mobility..*

## Bicycle Facilities: Level-of-Traffic-Stress

The Level of Traffic Stress (LTS) methodology categorizes roads by their suitability for bicycling. LTS is based on the number of lanes on the roadway, speed limit, and bicycle facilities. The categories used for this analysis are:

- **LTS 1:** Little to no stress. Suitable for all cyclists (8-80) including children and older adults
- **LTS 2:** Little traffic stress. Suitable for most adult cyclists but demanding more attention than might be expected from children
- **LTS 3:** Moderate traffic stress level, requiring higher levels of experience and risk tolerance
- **LTS 4:** Highest traffic stress. Only for the most-experienced and risk-averse bicyclists
- **LTS 5:** Bikes are prohibited on the New Jersey Turnpike, Garden State Parkway, I-78, I-80, and I-280

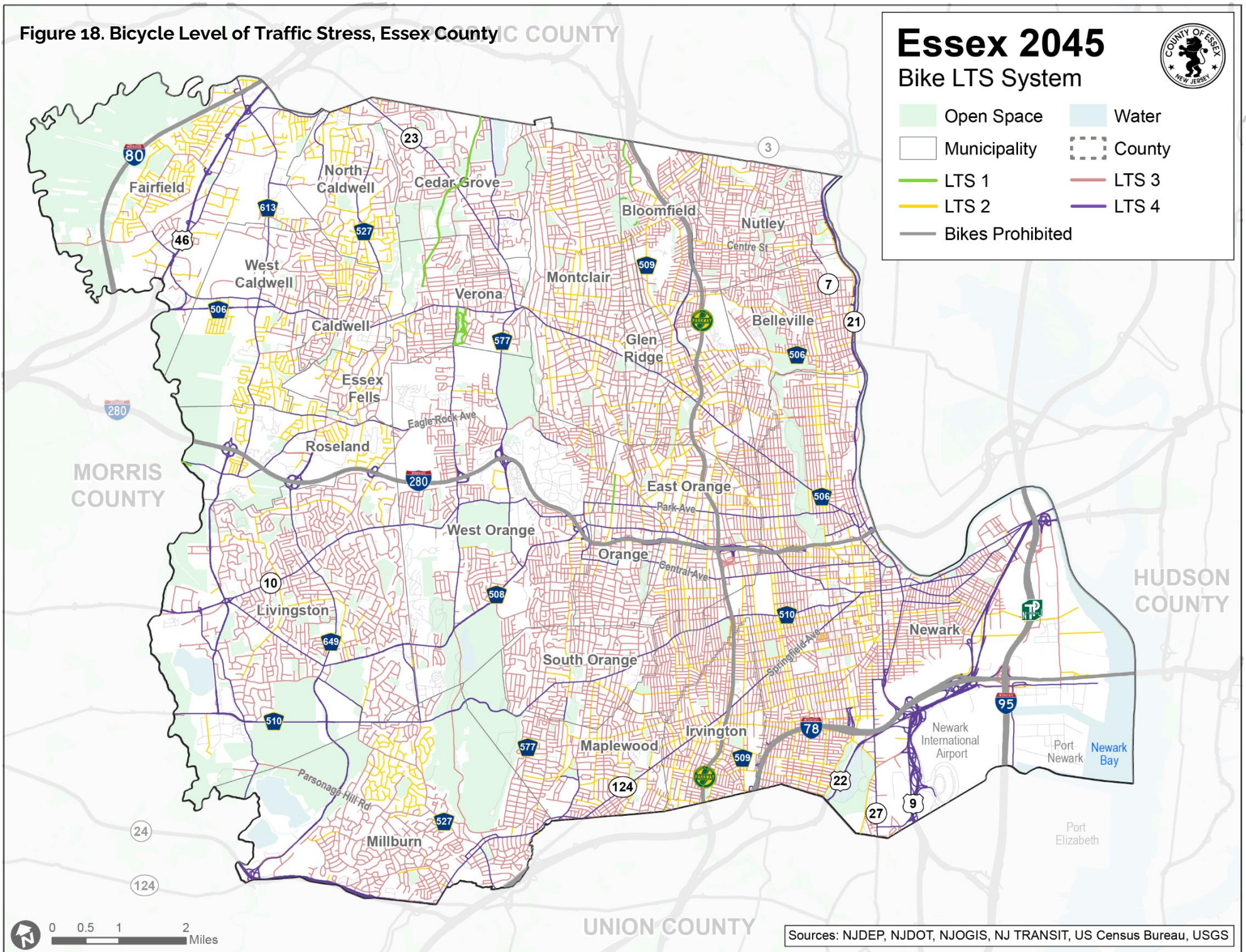
Essex County's roadway network presents a high-stress bicycle environment, with 75 percent of mileage at LTS 3 and 4, making the vast majority of roadways inaccessible to most bike riders. The low-stress roadways (LTS 1 and 2) comprise just 17 percent of roadway miles (**Figure 18**), creating a stressful and highly disconnected cycling network. The mileage for each LTS category is as follows:

- **LTS 1:** 64 miles (3 percent)
- **LTS 2:** 287 miles (14 percent)
- **LTS 3:** 1,243 miles (60 percent)
- **LTS 4:** 313 miles (15 percent)
- **LTS 5:** 160 miles (8 percent)

*Based on this assessment Essex 2045 recommends a full countywide bicycle master plan for Essex County.*



Figure 18. Bicycle Level of Traffic Stress, Essex County





## Multiuser Trails

In addition to the many trails in the various parks and reservation areas in Essex County, there are also several larger regional multiuser trails including the East Coast Greenway, the future Essex Hudson Greenway, and the West Essex Trail.

The **West Essex Trail** is a three-mile trail along the former Caldwell Branch of the Erie-Lackawanna Railroad. The trail is aligned from the border of Essex and Passaic counties in Little Falls to Arnold Way in Verona.

The **East Coast Greenway** is a developing trail system, spanning nearly 3,000 miles between Maine and Key West, Florida linking all the major cities of the eastern seaboard. About 35 percent of the trail is complete with approximately 1,050 miles of off-road, protected, multi-use paths across the eastern seaboard.

The current New Jersey interim route uses the Goethals and Bayonne Bridges to access the Hudson River Waterfront Path, bypassing Union and Essex Counties.

In the future, the proposed Essex Hudson Greenway will provide a crucial link between Branch Brook Park in Newark and the Hudson River Waterfront Path in Hudson County.

The **Essex-Hudson Greenway** is a proposed nine-mile linear park connecting Essex and Hudson Counties along the former Boonton rail line. The trail will run from Montclair in Essex County to Jersey City in Hudson County. The State of New Jersey acquired the land in September 2022.

The **Morris Canal Greenway** is envisioned as a continuous pedestrian and bicycle route across the state of New Jersey, connecting people and places, and giving new purpose to the state's first industrial transportation corridor.

The Greenway Corridor Study identifies a continuous greenway for walking and bicycling that follows the original route as closely as possible; identifies potential projects for short- to medium- and long-term implementation; and recommends an organizational structure to coordinate implementation, helps to maintain the greenway, and promotes its benefits.<sup>xiii</sup>

Essex County has 4.5 miles of existing Morris Canal Greenway alignment, which includes 2.4 miles off-road and 2.1 miles on-road. An additional 10.2 miles are proposed to complete the alignment through Essex County.

The preferred alignment in Essex County would include 5.7 miles off-road and 9.0 miles on-road or roadside, for a total of 14.7 miles of Morris Canal Greenway within Essex County.

*Essex 2045 recognizes the Essex-Hudson Greenway and Morris Canal Greenway as priorities; projects and strategies specific to Essex County are presented in the Recommendations Chapter.*

## Freight and Goods Movement

Freight activity at the Essex County-based ports and the International Airport is a critical economic engine for the region, and its success is essential for continued prosperity and competitiveness. The economic activity generated by freight and goods movement contributes significantly to local, state, and federal tax revenues. This includes taxes on cargo, property taxes on airport facilities, income taxes on port and airport employees, and other related taxes.

Essex County's proximity to New York City, New England, major international ports and airports, and a dense network of highways and railroads, make it one of the country's most critical hubs for freight-related industries (see Freight and Goods Movement Network in **Figure 19**).

The Port of New York and New Jersey facility attracts new businesses and industries to the region, leading to further economic growth and job creation, including the construction of distribution centers, warehouses, and other industrial facilities.

Newark Liberty International Airport (EWR) also plays a vital role in freight and goods movements and has a significant impact on the regional and national economy.

According to NJTPA's Freight Profile for Essex County, slightly over a quarter of all jobs in the County are highly dependent on freight movement, and close to 77.3 million tons of domestic freight are shipped or received annually from Essex County through all modes. Petroleum or coal products constituted almost a quarter of the domestic tonnage for the County, followed by consumer goods, minerals, and chemicals.

The port directly employs thousands of workers and indirectly supports many more jobs in related industries such as transportation, logistics, and manufacturing. The port is estimated to support over 400,000 jobs in the New Jersey/New York region.

*Essex 2045 recognizes the essential role of the freight and goods movement sector to the local and regional economies; a countywide study of freight and goods movement infrastructure, data, project needs, and priorities is recommended.*

### Mode Split

For domestic freight traveling to, from or within Essex County, 55 percent travels by truck, 39 percent by water, five percent by rail, and one percent by air. Essex County's freight infrastructure of rail, water, and air facilities provides the opportunity for the most diverse mode split among counties within the NJTPA region.<sup>xiv</sup>

**Mode Split, Domestic O-D Tonnage, 2007**

Source: IHS Global Insight

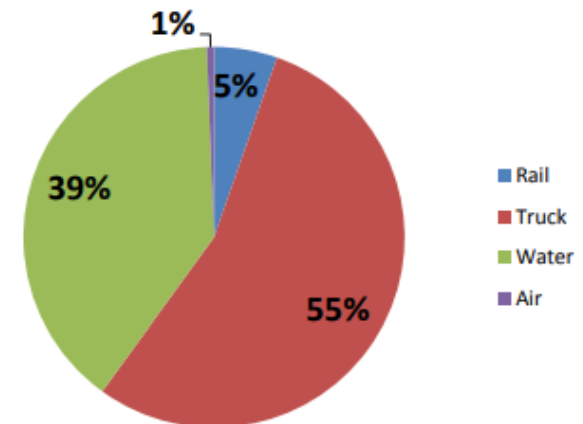
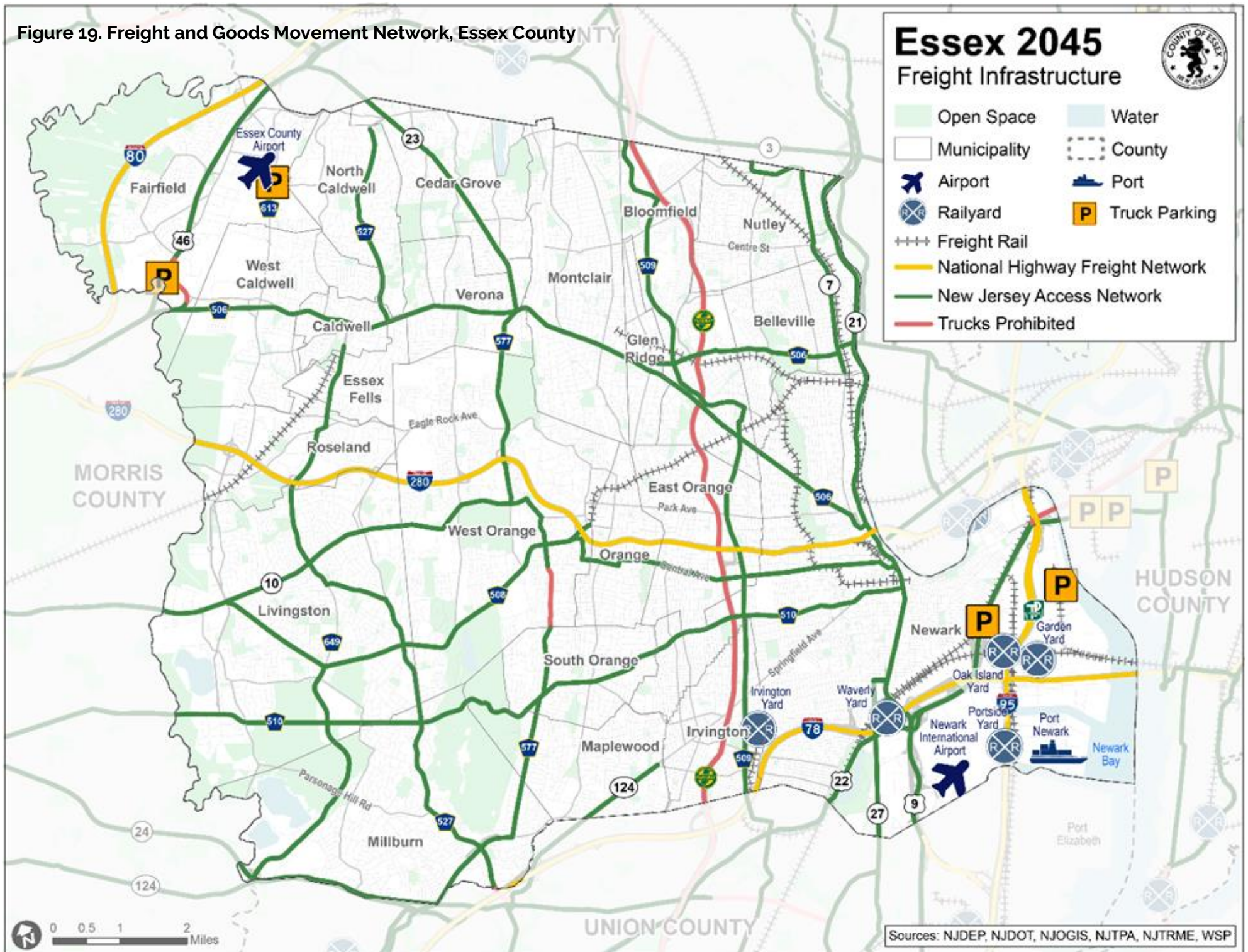




Figure 19. Freight and Goods Movement Network, Essex County





### **Trucking Routes**

The highway network in Essex County (**Figure 20**) supports 55 percent of the domestic freight movement to, from, and within Essex County.<sup>xv</sup> The National Freight Highway Network (NFHN) and New Jersey Access Network (NJAN) are the primary goods movers within and through Essex.

The NFHN includes I-78, I-80, I-95, and I-280. As one of the major backbones of the national and state highway systems, I-95 (New Jersey Turnpike) carries the largest volume of truck traffic. U.S. 1&9 also serves a substantial amount of north-south freight, whereas I-78 and I-280 carry east-west truck traffic. I-80 provides an alternative east-west route between New York City and Pennsylvania. NJ 21 also carries considerable truck traffic in the eastern end.

The NJAN in Essex County includes:

- U.S. 1&9 and U.S. 22 in southeastern Essex County and U.S. 46 in Fairfield
- NJ 7, 10, 21, 23, 27, and 124
- Most Essex County 500 routes and some County 600 routes

In Essex County, trucks are prohibited on the following:

- Garden State Parkway
- U.S. Route 1 & 9 (Pulaski Skyway) in Newark
- NJ 159 (Oak Road and Clinton Road) between CR 506 and U.S. 46 in Fairfield
- CR 577 (Gregory Avenue) from Ludington Road to Mitchell Street/Gregory Place in West Orange

Roadways not part of the NJAN but carrying substantial truck volumes include Springfield Avenue and Park Avenue in Newark, and Pleasant Valley Way in West Orange.

### **Truck Parking**

Finding truck parking while on the road is a constant problem for truck drivers. The County is home to four truck parking locations. Two are located in the southeast corner of the County around Newark-Liberty International Airport (EWR) and Port facilities, and the other two are located in northwest Essex County. Truck parking data was obtained from NJTPA's Freight Activity Locator.

### **Port Newark/Elizabeth Marine Terminal**

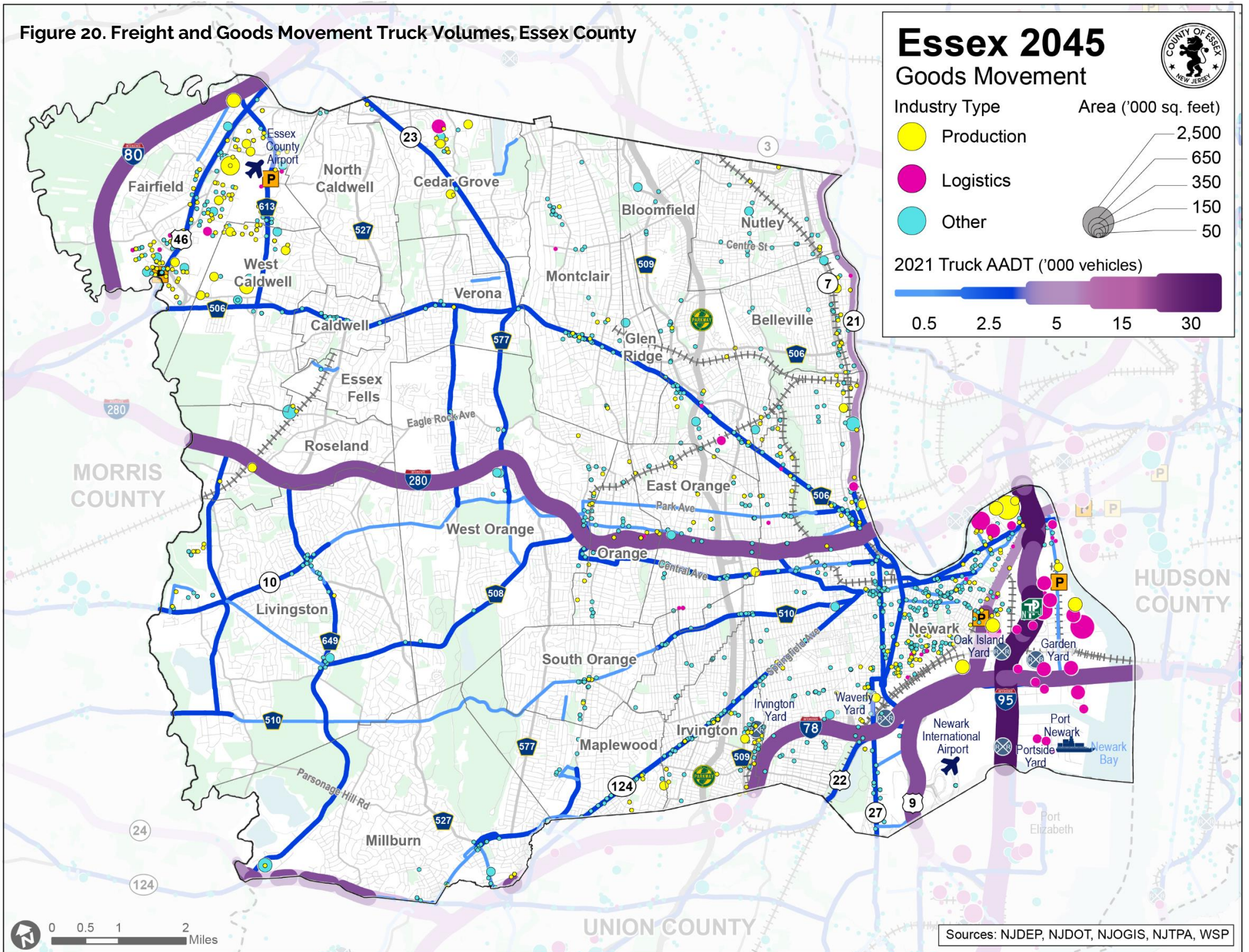
The Port of New York and New Jersey (which includes terminals in Newark, Elizabeth, and Bayonne in New Jersey and Red Hook and Staten Island in New York) is the third-largest cargo port in the United States, and the largest port on the East Coast, handling over seven million TEUs of cargo in 2021, according to data from the American Association of Port Authorities. In 2020, the Port handled more than 4.25 million containers, 32.4 percent of total market share.

The Port Newark-Elizabeth Marine Terminal operates as one fully integrated marine terminal located on the west side of Newark Bay. The port is directly east of the New Jersey Turnpike and Newark Liberty International Airport. Port Newark is a flexible, multi-purpose cargo center and includes wharves, deep-water ship berths, buildings, roadways, and direct rail access.

Port Newark (excluding Port Elizabeth) supports more than 13,000 jobs, \$1.1 billion in wages, and \$3.25 billion in business income. The port also generates more than \$364 million in annual state and local tax revenues.



Figure 20. Freight and Goods Movement Truck Volumes, Essex County





### **Newark Liberty International Airport (EWR)**

EWR, the 12<sup>th</sup> largest air cargo airport facility in North America, is a major hub for air freight cargo carriers, including FedEx, UPS, and DHL. It has a total cargo facility space of about one million square feet.<sup>xvi</sup> EWR connects to major highways, including the NJ Turnpike, I-78, and U.S. Route 1/9.

EWR directly employs thousands of workers and indirectly supports many more jobs in related industries such as air cargo transportation, logistics, and manufacturing. The airport is estimated to support over 22,000 jobs in the New York/New Jersey region, and is a key hub for international trade, handling a large volume of air cargo imports and exports. In 2020, EWR handled over 413,000 tons of cargo, valued at over \$10 billion. The airport generates significant revenue for the region and the country, and continued growth and success depends on ongoing investments in infrastructure such as airport facilities, air cargo terminals, and transportation connections.

### **Essex County Airport (DCW)**

This small general aviation airport, located on 278 acres in Fairfield Township, is owned and operated by the Essex County Improvement Authority. CDW is designated as a general aviation reliever airport for the New York/New Jersey region by the Federal Aviation Administration.

### **Railroad Freight**

Rail freight infrastructure is most densely concentrated in the southeast corner of the County, also home to EWR, Port facilities, I-78, and I-95.

The primary rail freight operators are CSX, Norfolk Southern, and Conrail. This area includes four railway yards; Portside Yard, Oak Island Yard, Garden Yard, and Waverly Yard.

The Conrail Lehigh Line is a main east-west rail corridor serving the region and one of the busiest rail lines in the U.S. The Lehigh runs parallel to the Raritan Valley Line and terminates at Oak Island Yard in Newark, the largest classification yard in the state.

Conrail's Passaic & Harsimus Line serves as an alternative for freight traffic to the largely passenger-train-based Northeast Corridor. Trains come from the Northeast Corridor and Lehigh Line through Newark and head northeast and east to Jersey City on the Passaic & Harsimus Line.

The Chemical Coast Secondary serves the Port of New York and New Jersey with ExpressRail connections to GCT (Global Terminal Container) New York at Staten Island, Port Elizabeth, Port Newark, and Port Jersey in Bayonne. A flyover connection between Port Newark Container Terminal and Portside allows direct transfer from ship to rail without having to access city streets. Running north from Oak Island are the Brills Lead and the Bay Shore Lead serving the intermodal transfer activities in Brills Yard and various industries along Doremus Avenue.



## EV and CAV Assessment

Emerging vehicle technologies such as electrification and automation represent generational change in transportation and mobility that are impacting the industry in profound ways and must therefore be considered as part of this long-range transportation planning effort.

EVs and CAV technologies have the potential to bring significant and long-standing equity, environmental, safety, mobility, and accessibility benefits to Essex County. The benefits, however, will not come about on their own.

To incentivize EV sales, the State's "Charge Up New Jersey" program offers financial rebates up to \$4,000 for the purchase or lease of new, eligible EVs. In its third year, consumer response to the program has been strong, with FY2023 funding fully obligated by April 2023 for EV purchases, orders, and leases made through April 17, 2023. To further advance EV adoption in New Jersey, Governor Phil Murphy signed an Executive Order in February 2023 phasing out sales of gas- and diesel-powered cars and light trucks by 2035.

Impacts from connected and automated vehicle (CAV) technologies will be felt in the longer-term. Current technologies are generally vehicle-focused, whether through original equipment manufacturer (OEM) parts or aftermarket add-ons such as sensors (cameras, LIDAR, radar, etc.) and computers that aid in data capture and environmental recognition and reaction (acceleration, braking, steering, etc.). Infrastructure technologies in the form of cameras, traffic signals, signage, and static roadside units for information transmission will be required to fully realize connected and autonomous mobility in the coming decades.

### **Meet EV charging demand by 2045**

According to the Essex County transportation model, there will be 338,568 households in the County in 2045. Using a conservative estimate of 1.8 vehicles per household<sup>xvii</sup> – the national average – and one charging port per 24 vehicles, there is a need to have approximately 25,400 public electric vehicle supply equipment (EVSE) charging ports in Essex County by 2045. With approximately 250 existing EVSE in the County per NJDEP records, there will be a need for an estimated 25,150 new ports.<sup>xviii</sup>

New Jersey's National Electric Vehicle Infrastructure (NEVI) Deployment Plan (August 2022)<sup>xix</sup> summarizes key risks and challenges associated with EVSE installation, including the following:

- **Utility Capacity.** New Jersey will need to identify and address areas that lack sufficient capacity to accommodate the minimum 600 kW required (for charging).
- **Buy America.** Buy America legislation delay implementation by several years. These concerns were raised to the FHWA in 2021; but the Buy America provisions remain in force. As numerous states seek to simultaneously procure and install EVSE equipment this will be a significant impediment to rapid deployment of DC fast chargers.

*Essex 2045 recommends that Essex County take a lead role in the advancement of EV and CAV technologies and implementation strategies as presented in the Recommendations Chapter.*



### 3. EQUITY AND CRASH ASSESSMENT

Equity is an essential and integral element of the Essex 2045 planning process, with the stated goals to:

- Identify traditionally underserved communities.
- Inform and guide the outreach process to better incorporate underserved communities and identify and address their concerns and needs.
- Incorporate equity considerations into Essex 2045 so that recommendations benefit everyone as equitably as possible and that any adverse effects do not disproportionately impact underserved communities.

#### Methodology

Based on the NJTPA equity methodology<sup>xx</sup>, demographic data from the 2016-2020 Five-Year American Community Survey (ACS) at the census tract level and the relative prevalence in Essex County was assessed for the 10 traditionally underserved communities listed below.

1. Minority population
2. Low-income population
3. Zero vehicle households
4. Disability Population
5. Limited English Proficiency
6. Foreign born population
7. Population under 5
8. Population 5-17
9. Population over 65
10. Female population

As part of Essex County 2045, an overall score (or composite score) was compiled by comparing the population density for each of the 10 populations at the census tract level to the overall population density at the County level (for each of the ten populations). The scores consist of one of the following five categories: very below average (score of 0); below average (score of 1); average (score of 2); above average (score of 3); and very above average (score of 4). The average category represents census tracts that are at or near the Essex County average for that factor. The other categories were then defined based on standard deviations above and below the mean. A composite score is determined for each census tract by adding the scores of all 10 factors together, so the composite score for each census tract can range from 0 to 40. Census tracts with a composite score of 29 or greater are at least above average.

#### Equity Findings

The analysis establishes equity as the central factor of Essex 2045. Significant populations of underserved communities are present in the eastern and heavily urbanized portions of Essex County (see), especially minority, lower income, foreign born, low English proficiency, and zero car populations. These include large parts of Newark, Irvington, East Orange, Orange, and smaller portions of West Orange and eastern Montclair.



Equity findings of particular concern include:

- Essex County has a minority population of almost 70 percent compared to 47.3 percent in the NJTPA region.
- All census tracts in Irvington, East Orange, and Orange, as well as substantial portions of Newark have a population that is at least 85 percent minority and considered at least above average compared to the County average.
- Essex County has a population that is 32.1 percent low-income compared to 21.6 percent in the NJTPA region.
- Newark, Irvington, East Orange, and Orange have significant proportions of census tracts that are at least 42.7 percent low-income and considered at least above average compared to the County average. There are some census tracks in Newark and Irvington that have populations that are at least 63% low-income.
- The two most commonly spoken languages other than English in Essex County are Spanish and Portuguese.
- Numerous census tracks within Newark, Irvington, East Orange, and Orange have populations that are at least 35 percent foreign born and considered at least above average compared to the County average. The Ironbound district of Newark is at least 63 percent foreign born. Not coincidentally, the distribution of populations with limited English proficiency is very similar to that of foreign-born populations.
- Portions of Irvington, East Orange, Orange, Verona, and especially Newark have at least 14.5 percent of the population with a disability and considered at least above average compared to the County average. Newark has some census tracts with over a quarter of the population with a disability.

- The percentage of zero-vehicle households in Essex County is 22 percent compared to 12.1 percent in the NJTPA region.
- Substantial portions of Newark, Irvington, East Orange, and Orange have 30.2 to 76.5 percent of households with no access to a vehicle and considered at least above average compared to the County average. Newark has the greatest proportion of its population without access to a vehicle.

Informed by the results of the equity assessment, the Essex 2045 community engagement strategy included a series of outreach events, activities, and methodologies that were specifically designed to identify and better engage underserved communities, including two tactical urbanism demonstration events, pop-up activities, and providing both multilingual materials and live translations at virtual and in-person events.



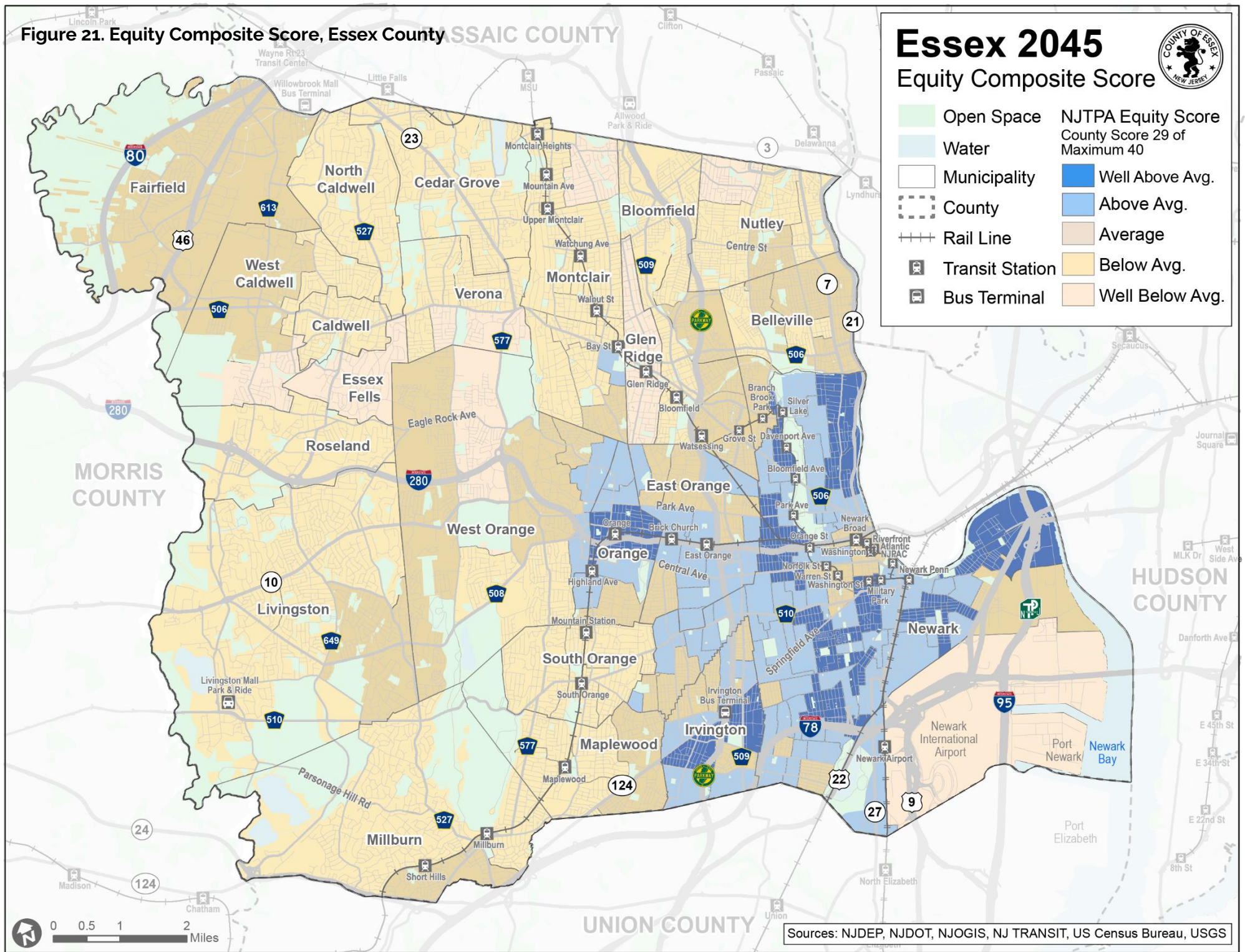
Figure 21. Equity Composite Score, Essex County

# Essex 2045

## Equity Composite Score



	Open Space		NJTPA Equity Score
	Water		County Score 29 of
	Municipality		Maximum 40
	County		Well Above Avg.
	Rail Line		Above Avg.
	Transit Station		Average
	Bus Terminal		Below Avg.
			Well Below Avg.



0 0.5 1 2 Miles

Sources: NJDEP, NJDOT, NJOGIS, NJ TRANSIT, US Census Bureau, USGS

## Crash Data Findings

Crash data for the five-year period from 2016 to 2020 was examined to evaluate travel safety in Essex County. During this period there were 140,887 total crashes with 1,058 severe injury crashes and 206 fatal crashes; four percent of crashes involved a pedestrian or cyclist.

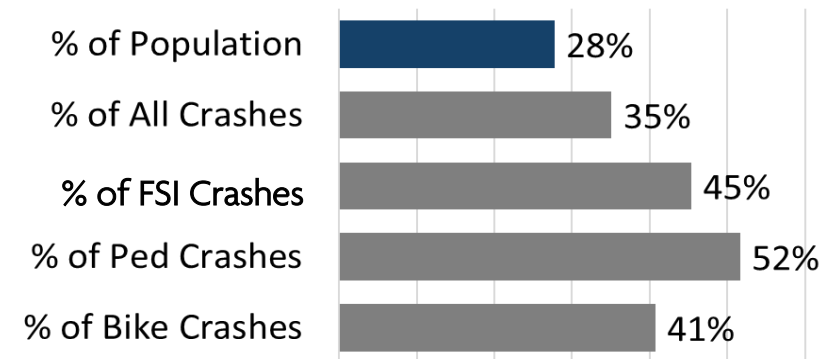
Pedestrians and cyclists are disproportionately represented in fatal and severe injury crashes. Although pedestrians and cyclists comprise just four percent of all crashes, they are involved in 54 percent of fatal crashes and 33 percent of severe injury crashes.

- Total Crashes, All Types: 140,887
- Fatal and Severe Injury (FSI) Crashes: 1,058
- FSI Pedestrian and Cyclist Crashes: 410
- Pedestrian Crashes: 4,153
- Cyclist Crashes: 810

**Figure 22** overlays the crash hot spots for Essex County on the equity composite score, indicating severe safety impacts to vulnerable roadway users, and an extremely high correlation among underserved communities and safety considerations, especially among severe injuries and fatalities for pedestrian and cyclists. This finding is consistent with the need for a Vision Zero planning approach to address and improve safety for vulnerable roadway users.

Several of the equity indicators demonstrate significant safety risks faced by underserved communities compared to the overall Essex County population.

**Underserved Communities Census Tracts:** 28 percent of Essex County population lives in census tracts with equity composite scores that are above average, yet 35 percent of all crashes occur there, 45 percent of FSI, 52 percent of ped, and 41 percent of bike crashes.



**Minority Population Census Tracts:** 58 percent of Essex County population lives in census tracts with above average minority population, yet 63 percent of all crashes occur there, 75 percent of FSI, 77 percent of pedestrian, and 66 percent of bike crashes.

**Low Income Population Census Tracts:** 53 percent of Essex County population lives in census tracts with above average low-income population, yet 61 percent of all crashes occur there, 73 percent of FSI, 80 percent of pedestrian, and 67 percent of bike crashes.

**Zero-Vehicle Population Census Tracts:** 45 percent of Essex County population lives in census track with above average zero-vehicle populations, yet 51 percent of all crashes occur there, 65 percent of FSI, 71 percent of ped, and 58 percent of bike crashes.



Figure 22. Crash Hot Spots for All Crash Types PASSAIC COUNTY

# Essex 2045

## Crash Hotspots and Equity Score

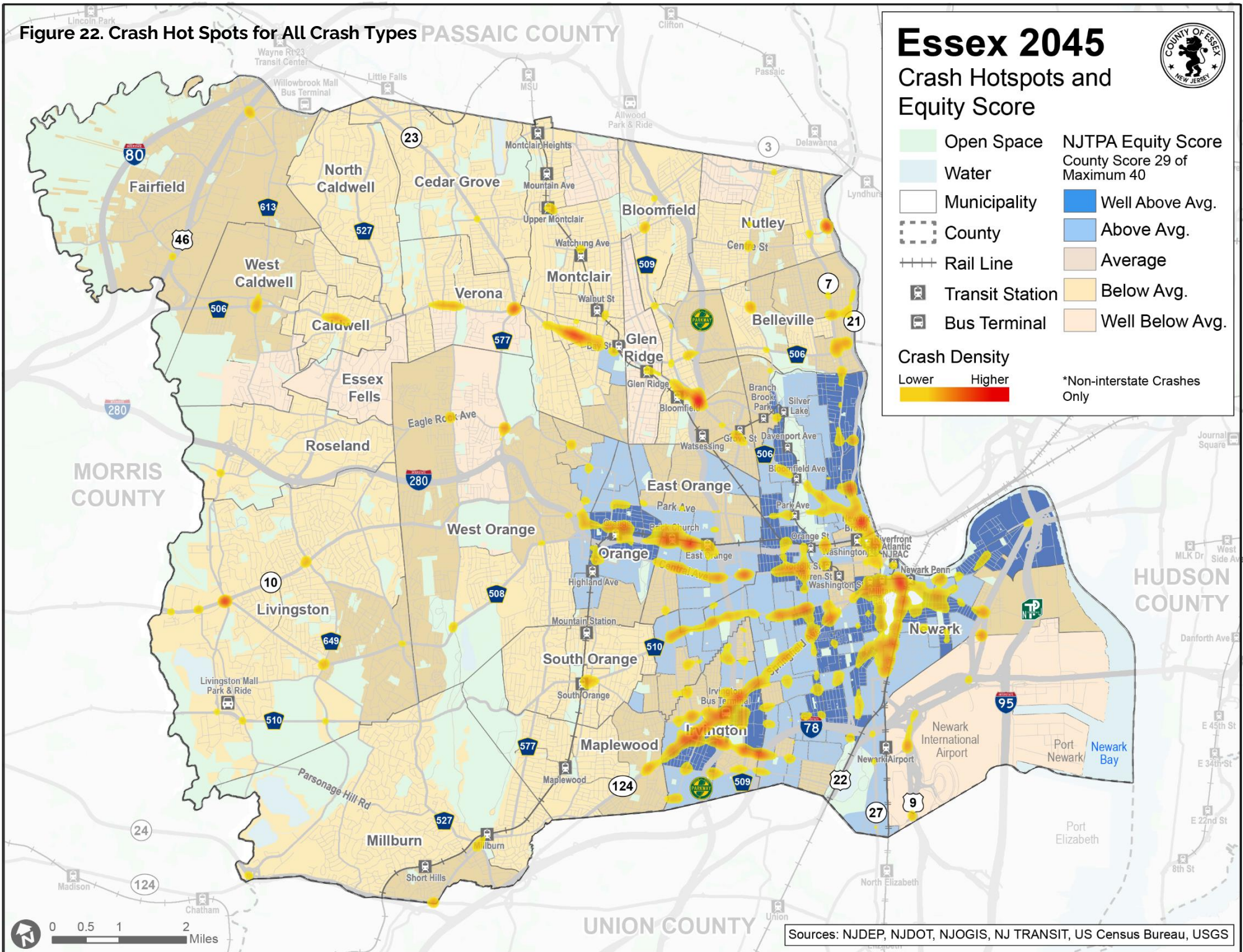


	Open Space	NJTPA Equity Score County Score 29 of Maximum 40	
	Water		
	Municipality		Well Above Avg.
	County		Above Avg.
	Rail Line		Average
	Transit Station		Below Avg.
	Bus Terminal		Well Below Avg.

**Crash Density**  
 Lower Higher

\*Non-interstate Crashes Only



Sources: NJDEP, NJDOT, NJOGIS, NJ TRANSIT, US Census Bureau, USGS

## Roadway Crash Hot Spots

Throughout Essex County, there are many roads with crash hot spots along various roadways and intersections.

### State-Owned Roadways

- NJ 21 in Newark, Belleville, and Nutley
- NJ 23 in Verona and Cedar Grove
- NJ 7 in Newark, Belleville, and Nutley

### Essex County Routes and Municipal Roads

- County Route 510 in Newark
- County Route 506 in Newark, Bloomfield, Montclair, Verona, Caldwell, and West Caldwell
- Springfield Avenue in Newark, Irvington, and Maplewood
- Central Avenue in Newark and East Orange
- Clinton, Chancellor, and Lyons Avenues in Newark and Irvington
- Park Avenue in Newark, East Orange, and Orange
- Main Street in the Oranges

### Transit Station Crash Hot Spots

Multiple crash hot spots are located at Newark Broad Street Station, Newark Penn Station, and Irvington Bus Terminal, and at numerous stations along the Morristown Line, Montclair-Boonton Line, and Newark Light Rail.

## FSI Crash Hot Spots

FSI crash hot spots are most concentrated in Newark, Irvington, East Orange, and Orange (**Figure 23**). Fifty percent of FSI crashes are on municipal roads in Essex County versus 25 percent statewide. The high rate of FSI crashes on municipal roadways can be partially explained by the dense network of municipal roadways in Essex County.

This is especially apparent in Newark, highlighting the importance of partnering with municipalities to improve safety.

In addition, 60 percent of FSI crashes in Essex County are on roads with a 25-mph speed limit versus 28 percent statewide and 51 percent are at intersections versus 34 percent statewide. The high rate of FSI crashes on 25-mph roads prioritizes the need for a focus on traffic calming and intersection safety solutions that protect vulnerable road users like pedestrians and bicyclists.

FSI crash hot spots on Essex County roadways include:

- Market Street/South Orange Avenue (CR 510)
- Springfield Avenue (CR 503)
- Central Avenue (CR 508)
- Bloomfield Avenue (CR 506)
- Broadway (CR 667)
- Lyons Avenue (CR 602)

## Pedestrian and Bicycle Crash Hot Spots

Crashes that involve a pedestrian or bicyclist are most concentrated in Newark, Irvington, East Orange, and Orange (**Figure 24**). Significant hot spots include the following:

- Springfield Avenue (CR 503)
- Central Avenue (CR 508)
- Bloomfield Avenue (CR 506)
- Broadway (CR 667)
- Lyons Avenue (CR 602)
- Chancellor Avenue (CR 601)
- Clinton Avenue (CR 665) in Irvington
- Stuyvesant Avenue (CR 619)
- Franklin Avenue (CR 645) in Belleville and Nutley



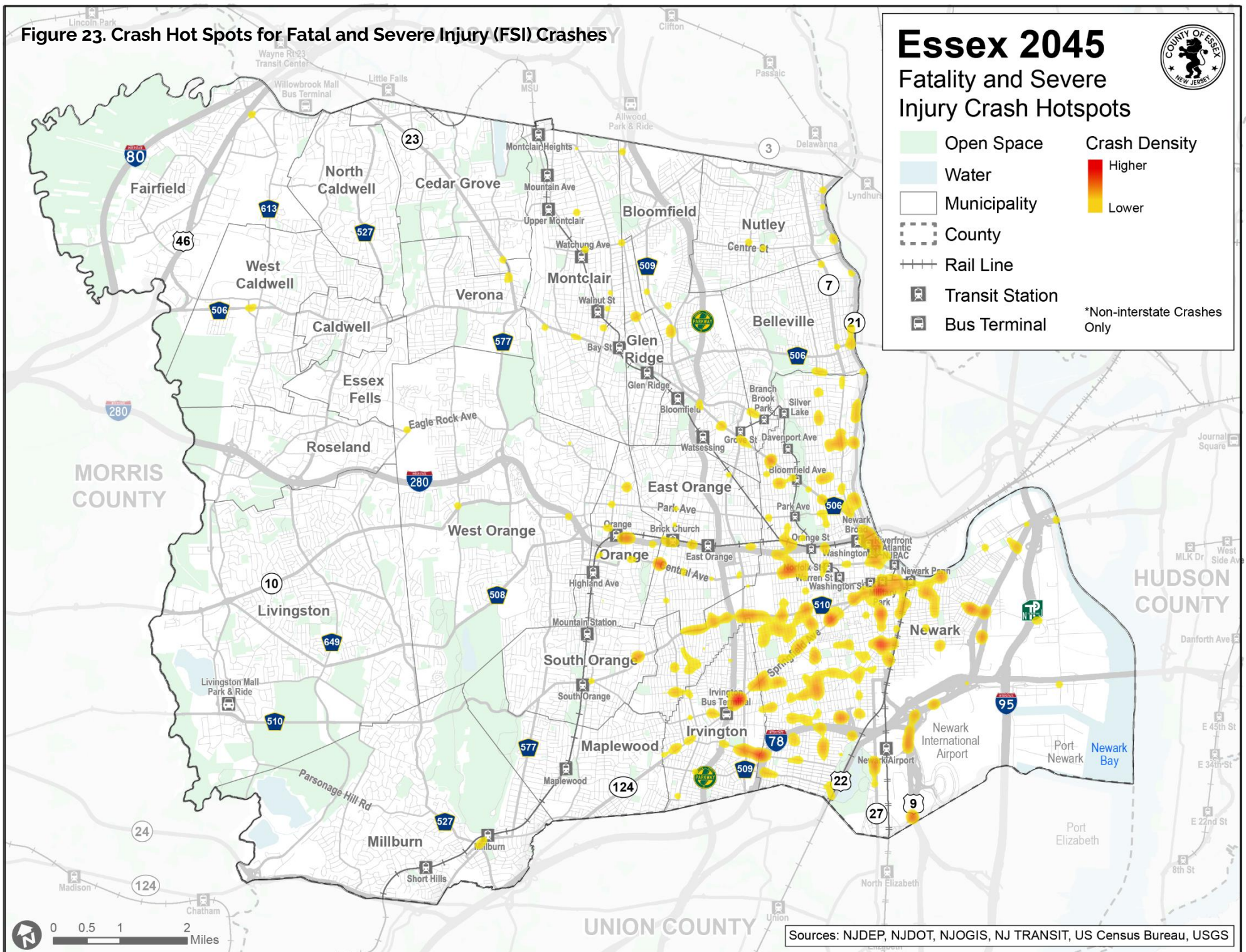
**Figure 23. Crash Hot Spots for Fatal and Severe Injury (FSI) Crashes**

# Essex 2045

## Fatality and Severe Injury Crash Hotspots



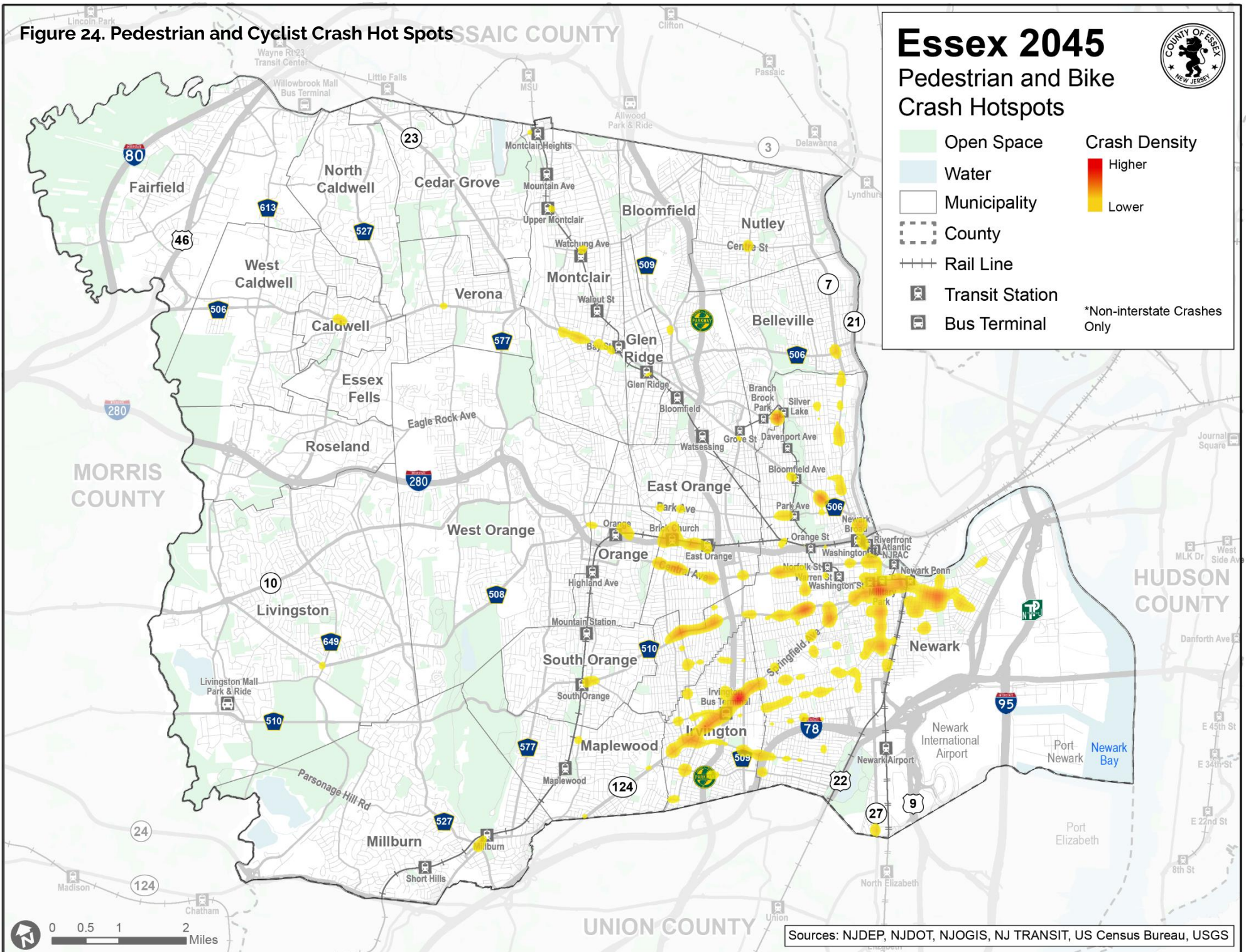
	Open Space	<b>Crash Density</b>  Higher Lower
	Water	
	Municipality	
	County	
	Rail Line	
	Transit Station	
	Bus Terminal	
		*Non-interstate Crashes Only



Sources: NJDEP, NJDOT, NJOGIS, NJ TRANSIT, US Census Bureau, USGS



Figure 24. Pedestrian and Cyclist Crash Hot Spots





## 4. SCENARIO PLANNING

A scenario planning exercise was undertaken for Essex 2045 to help understand and prepare for anticipated changes and growth, and to evaluate the pros and cons of potential future roadway and transit projects. 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 Essex County, and help shape its future.

The scenario planning process looks at what might happen to travel demand and traffic congestion as the population grows, new jobs are created, and travel choice changes over time.

The process draws upon the NJTPA travel demand model (NJTRM-E), demographic projections, Essex 2045 existing conditions analysis, and assessment of problems, deficiencies, and opportunities.

The NJTRM-E was used to forecast travel demand and traffic congestion through 2045 and test alternative roadway and transit projects and evaluate the projected changes in travel demand and traffic congestion.

The NJTPA's approved forecasts of population, households, and employment are critical inputs to the travel demand model to help ensure the process is consistent with the region's transportation planning and investment decision-making processes.

### ***Demographic and Economic Trends***

As presented in the population analysis in Chapter 2, the NJTPA demographic projections indicate a continued resurgence in population growth rate in Essex County, after many decades of flat growth and decline. Starting during the 1970s and through at least 2010, Essex County experienced an extended period of population decline, dropping more than 154,000 from the high point in 1970 to the low point in 1990. The 2010s reversed this trend of flat growth and decline, as evidenced by the 10 percent increase in population recorded by the 2020 U.S. Census, and overall population growth of more than 142,000 since the low point of the 1990 Census.

Investments in housing, new development and redevelopment, and employment growth in key sectors have all contributed to this resurgence.<sup>xxi</sup>

### ***Scenario Alternatives***

Three scenarios were tested for Essex 2045 using the NJTRM-E to evaluate the pros and cons of alternative future projects and related travel demand and congestion impacts:

- Existing Year 2022
- Future Baseline 2045
- Future Aspirational 2045



### **Existing Year**

Scenario planning for Essex 2045 began with the Existing Year Scenario (2020). The year 2020 represents the starting point for comparison between current travel conditions and future scenario alternatives to understand and evaluate future changes and trends in travel demand and traffic congestion.

### **Future Baseline Scenario**

The Future Baseline Scenario indicates what is forecasted to happen to travel conditions in the region if no other plans, policies, programs, or projects are implemented beyond what has already been approved, adopted, and/or planned for within the 2045 timeframe.

Overall, the results of the scenario planning indicate that under the Future Baseline Scenario, Essex County residents and workers will be traveling more miles and more hours each day, taking slightly shorter trips at lower speeds, and traveling more on lower functional classification roadways than they do today. An increase in traffic on Essex County's lower functional classification county and local roadways is also forecasted.

A similar pattern of diversion in travel and congestion has also been observed in regional and county-wide planning studies for other NJTPA counties, including Somerset and Warren 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, rather than regional highways and principal arterials.

However, the scenario also indicates that although traffic volumes will grow in the future, the net impact to county and local roadway networks is projected to be minimal with the vast majority of the roadway network being below mild congestion levels, with some isolated congestion hot spots.

### **Future Aspirational Scenario**

The Future Aspirational Scenario was conceived as an alternative to the current program of congestion-focused roadway improvements, with an alternative mix of projects designed to achieve the "Aspirational" goals of Essex 2045, including improved safety, accessibility, and equity, expansion of intra-county transit and travel mode options, congestion relief, and mitigating truck impacts. The scenario includes:

- Proposed extension of the PATH rail system from Newark Penn Station south to the Dayton neighborhood in Newark, near the Newark International Airport station of the Northeast Corridor rail line
- Complete the full proposed alignment of the Eisenhower Parkway from NJ 24 in Florham Park to Passaic Avenue (CR 613), a distance of 8.1 miles
- Bloomfield Avenue Road Diet
  - 4.5 miles from Grove Ave in Verona to the Garden State Parkway in Bloomfield
- Broadway Avenue Road Diet
  - 2.2 miles from Mill Street in Belleville to Bloomfield Avenue (CR 506 Spur) in Newark
- Springfield Avenue Road Diet
  - 5 miles, from Market Street in downtown Newark to Maplewood

### Future Aspirational Scenario Findings

The results of the scenario planning indicate that the Future Aspirational Scenario can help achieve the Essex 2045 strategic goals with minimal impact to traffic conditions. Similar to the Future Baseline Scenario, Essex County residents and workers are projected to be traveling more miles and more hours, but the Future Aspirational Scenario reverses part of the net shift to Essex County's lower functional classification roadways to lessen the net impact.

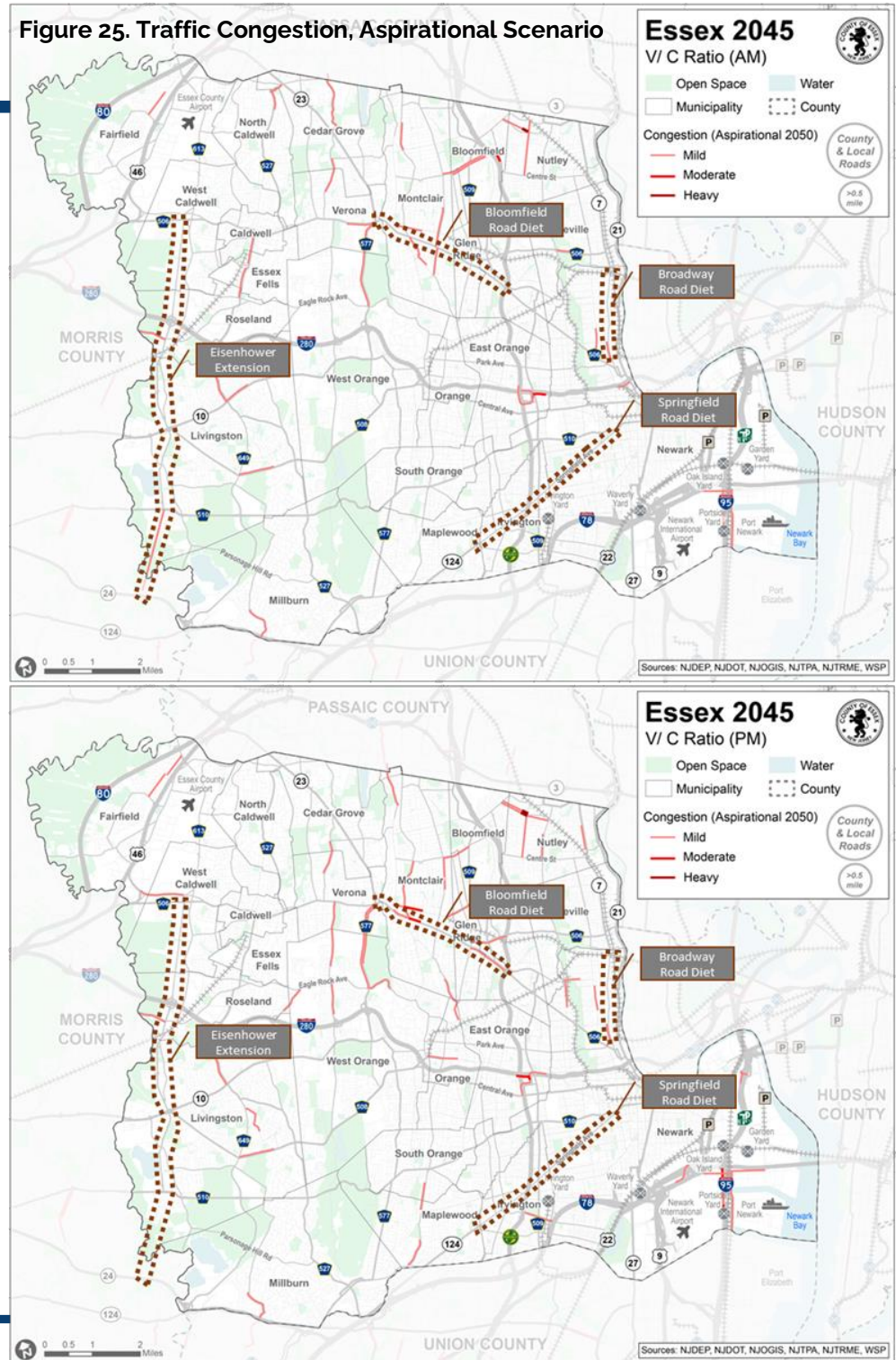
Most notably, the proposed Eisenhower Parkway Extension would provide some congestion and traffic relief to the adjacent communities in western Essex County, and the three road diet projects would not cause a significant increase in congestion or diversion to parallel roadways.

Although traffic volumes are projected to grow in the future, the net impact to the County and local roadway networks would be minimal with the vast majority of the County roadway network being below mild congestion levels.

**Figure 25** highlights the Future Aspirational Scenario project areas and projected changes in traffic congestion for the proposed Eisenhower Avenue Extension and the three road diets during the AM and PM peak periods.

- Adjacent to Eisenhower Avenue, several portions of Passaic Avenue and South Livingston Avenue would experience a mild increase in traffic congestion
- The Bloomfield Avenue road diet area would experience some mild and moderate increase in congestion in the surrounding local roadways
- The Broadway Avenue and Springfield Avenue road diets areas would experience minimal or no changes in congestion

**Figure 25. Traffic Congestion, Aspirational Scenario**

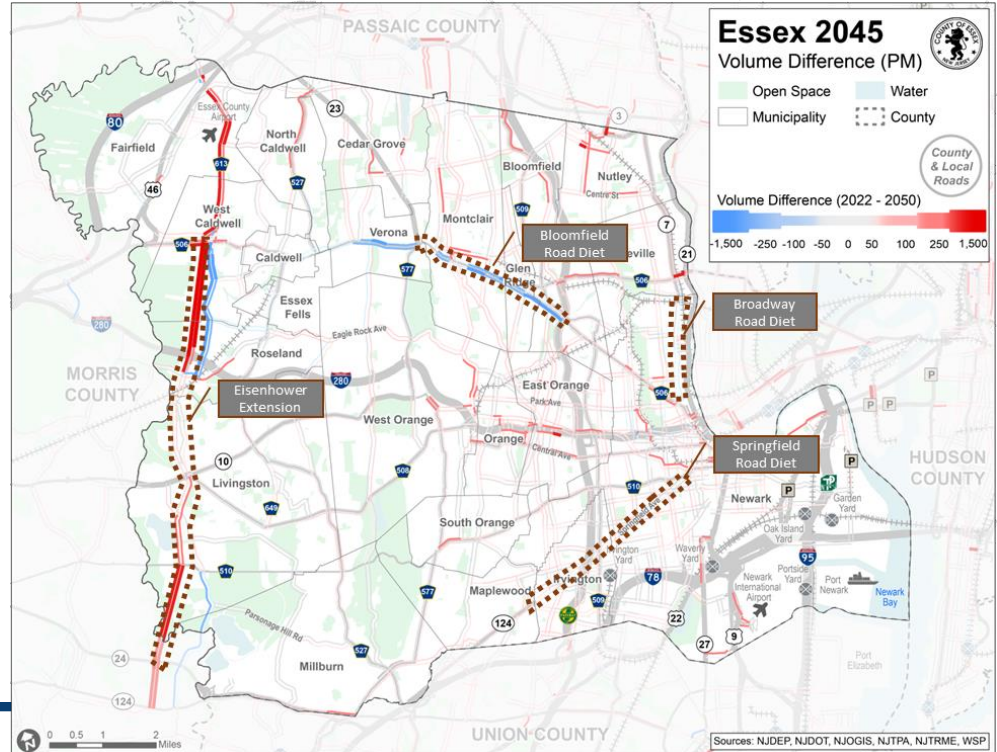
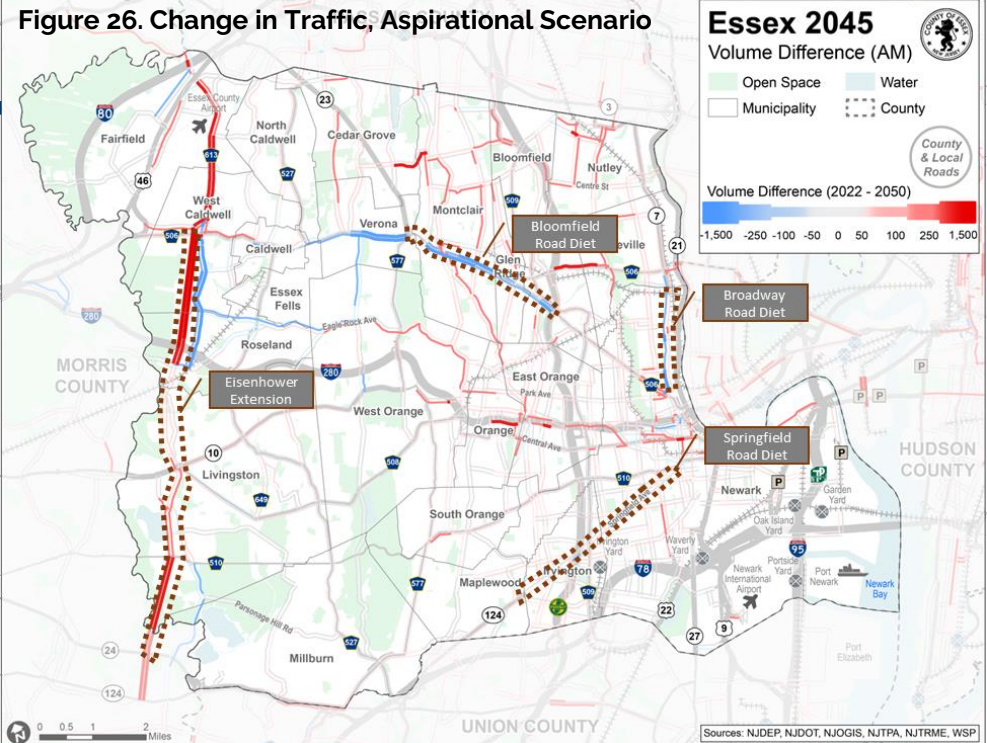




**Figure 26** provides additional details to highlight the benefits of the Future Aspirational Scenario projects by displaying the net change in traffic volumes during the AM and PM peak periods. Red lines indicate an increase in traffic while blue lines indicate a decrease in traffic.

- The projected diversion of traffic from adjacent local and county roadways to the extension of the Eisenhower Parkway in the Future Aspirational Scenario provides additional evidence for the need for this project.
- The Bloomfield Avenue road diet would encourage a decrease in traffic volumes along Bloomfield Avenue with some increase in traffic on the surrounding local roadways both north and south of the project area
- The Broadway Avenue road diet would create a very small decrease in traffic volumes along Broadway Avenue with some minor increases on the surrounding local roadways
- The Springfield Avenue road diet performs the best of the three road diet concepts with almost no projected change in traffic volumes either along or adjacent to Springfield Avenue

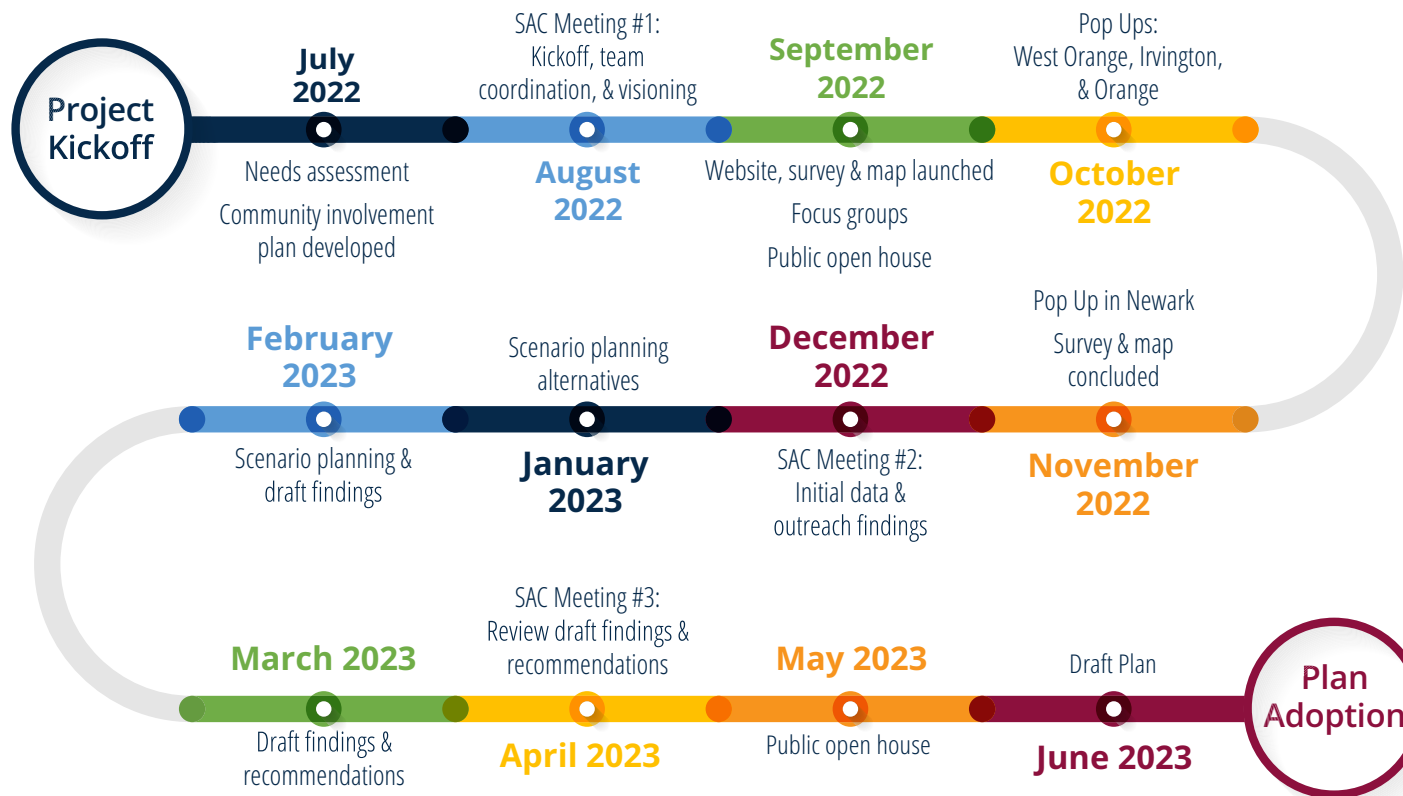
Based on the scenario planning exercise, the proposed Eisenhower Parkway Extension and all three road diets appear suited to further study and concept development.



## 5. Collaboration and Communications

Essex County established a Stakeholder Advisory Committee (SAC) to help guide the development of Essex2045 through a 12-month process that included extensive community outreach. The community involvement strategy included a multi-pronged approach that facilitates participation from public officials, residents, and other stakeholders through both traditional and non-traditional methods. A mixture of qualitative and quantitative input from the community was combined with a detailed needs assessment to develop a detailed, data-driven approach for developing candidate projects.

### Timeline



### SAC Members

- Essex County Department of Public Works
- Essex County Division of Engineering
- Essex County Environmental Commission
- Essex County Planning Board
- EZ Ride
- Lackawanna Coalition
- New Jersey Department of Transportation
- NJ TRANSIT
- North Jersey Transportation Planning Authority



## Gathering Input

The community involvement process began with the launch of Essex2045's website. The website was the launch pad where residents could find updates, ways to get involved, and additional details about Essex2045 and the importance of public input.

Ultimately, more than 1,000 community members were engaged by responding to an online survey/map or participating in a virtual open house, focus group, or pop-up kiosks in traditionally underserved communities. Residents and workers of all ages and backgrounds from across the County shared their ideas for the future of transportation in Essex County.

### Public Engagement Numbers



## Making Outreach Accessible

Essex County employed a wide range of outreach methods to give multiple opportunities for engagement. This included a project website; online survey; social media campaign; and strategic partnerships with community groups to help publicize outreach opportunities.

Specific efforts were made to reach traditionally underrepresented members of the community by:

1. Setting up pop-up engagement kiosks in traditionally underserved communities .
2. Translating public outreach materials into Spanish, Portuguese, and Haitian Creole.
3. Distributing printed public outreach materials to strategic partners in traditionally underserved communities .
4. Providing incentives to encourage broader participation at every community involvement activity.
5. Having a Spanish Translator at every community involvement event.

### What is a traditionally underserved community?

Traditionally underserved communities are identified through a quantitative analysis of census data, including income, age, race and ethnicity, Limited English Proficiency, household structure, and other factors.

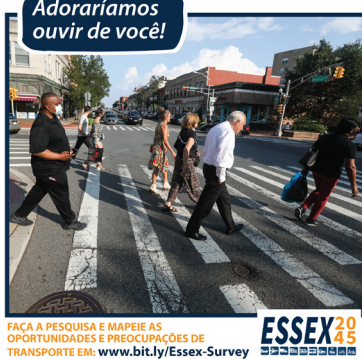
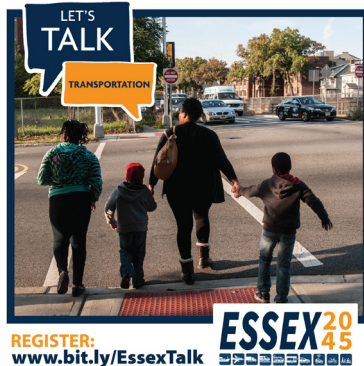


## Website & Social Media

The community involvement process began with the launch of Essex2045's website (in English and Spanish). The website was the launch pad where residents could find updates, ways to get involved, and additional details about Essex2045 and the importance of public input.

The Essex2045 project team also created the content for the official Facebook, Instagram, and Twitter pages of Essex County, and produced easy to share social media content for strategic project partners. Social media content was provided in English, Spanish, Portuguese, and Haitian Creole.

### Social Media for Open House & Survey/Map



## Virtual Focus Groups

The Essex2045 project team held a series of seven virtual focus group with strategic stakeholders to answer specific, targeted questions related to their area of expertise or subject matter interest. Essex County held two types of focus groups – a set for technical professionals/decision makers and a set for those impacted by transportation infrastructure decisions. The purpose of the focus group meetings was to understand how transportation relates to the County's municipalities and organization's mission and what matters to their stakeholders. Essex County invited all 22 of the municipalities in the County, as well as over 100 organizations. Representatives from 60 percent (13 municipalities) of the County's municipalities and 25 organizations participated in the discussions.

The focus groups asked participants about the greatest changes in the County over the last decade and about their transportation experiences —what they like and what they'd like to change—and their visions for the future. Focus groups included sessions for bicycle and pedestrian interests; community development public health organizations; downtown districts; freight industry; local communities; and transit advocates.

## Virtual Open Houses

The Essex2045 project team hosted virtual public open houses, providing an easily accessible way to gather substantive feedback from the community. Using the breakout room capabilities of the ZOOM platform, the project team simulated a traditional open house where participants reviewed informational slides and participate in discussions at their leisure during a defined time period.

The project team coordinated two open houses:

- Open House #1 (September 29, 2022): The first open

house was held toward the beginning of the outreach process to gather input about weaknesses and opportunities and to support vision development

- Open House #2 (May 17, 2023): The second open house was held toward the end of the planning process to present and gather feedback about draft recommendations.

Participants included residents, advocacy organizations, municipalities, and agencies.

### Survey & Map Tool

The community involvement process included a short online survey and interactive map to gather insights about desired transportation improvements, future transportation demand, and anticipated transportation priorities in Essex County. The interactive mapping component allowed participants to identify place-based transportation opportunities and concerns.

The survey included optional demographic questions, and was available in four languages, including English, Spanish, Portuguese, and Haitian Creole. To encourage broader participation, respondents were offered an opportunity to enter a raffle to win one of six \$25 gift cards to ShopRite. Ultimately, the online survey and map yielded 636 validated responses.

### Promotional Flyers for the Two Virtual Open Houses





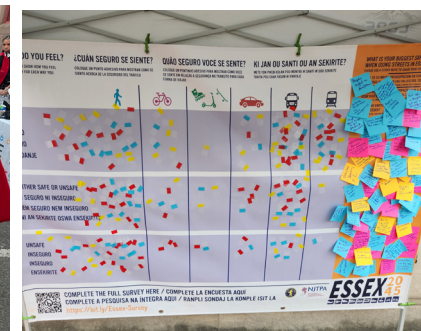
## Pop-Up Engagement

Pop-up engagement kiosks helped the Essex2045 project team connect with traditionally underserved communities. The pop-ups included a table with activities for passers-by to share their thoughts about transportation safety. Two of the pop-ups included temporary tactical urbanism demonstration projects using materials from the NJTPA Complete Streets Demonstration Library, which provided an opportunity for passersby to see and experience firsthand how safety interventions can improve the pedestrian experience. Two pop-up engagement kiosks with demonstration projects were held in West Orange and Irvington. The Essex2045 project team also set up two pop-up engagement kiosks at safety fairs hosted by University Hospital in East Orange and Newark.

Images from Pop-Up Engagement Kiosks



Images from Pop-Up Engagement Kiosks





## What We Heard

The feedback and input collected from the various methods of community outreach helped inform the strategic vision and the development of candidate projects. The summary presented in this document is drawn from a comprehensive summary of community involvement available in **Appendix H**.

### Most Frequently Noted Concerns

Over 1,000 stakeholders shared their experience with transportation in Essex County. The most frequently noted concerns include:

- Inadequate pedestrian and bicycle infrastructure make it unsafe for them to participate in active transportation.
- There is a growing desire to rely on public transportation to get to and from their destinations, especially the case in traditionally underserved communities .
- Equity and accessibility were highlighted as top concerns for how the County allocates its resources.
- Vehicles are causing unsafe conditions across transportation modes.

- Increased traffic from development and goods movement is making it difficult to get around the County and impacting the County's environmental well-being.

Other concerns raised from the community outreach process include:

- The availability of parking is a challenge at destinations around the county.
- The lack of roadway maintenance damages automobiles and creates unsafe conditions for various modes of transportation.
- The quality of communication needs to be improved so that residents and employees of Essex County are aware of delays and detours, as well as knowing that they are being heard and that their concerns are being addressed.
- Greening the built environment is important for addressing flooding concerns and creating a more pleasant environment for active lifestyles.
- Enhanced enforcement of traffic laws is needed to prevent unsafe transportation conditions.
- Crime and personal safety is a concern for residents especially in equity priority communities.



Inadequate  
**Pedestrian & Bicycle**  
Infrastructure



**Equity & Accessibility**

Vehicles Causing  
**Unsafe** Conditions

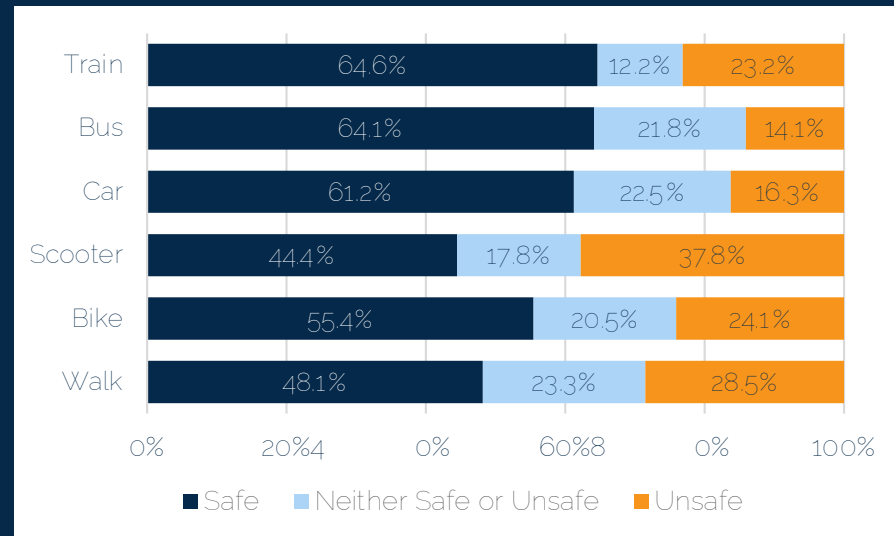


**Increased Traffic**  
from Development  
& Goods Movement

### Perceptions of Safety by Mode

Pop-up engagement kiosks asked passersby how safe they feel using various modes of transportation in Essex County. While the results varied at each location, overall perceptions of safety were lower for modes of active transportation (scooter, bike, and walk) than with public transportation (train and bus) and automobiles.

Perceptions of Safety by Mode  
(combined results of all pop-up engagement kiosk locations)



### Common Themes

The following common themes were heard throughout the community involvement process, and serve as the basis of the Essex2045 Plan Vision described in Chapter 5.

Participants want more and better **pedestrian and bicycle infrastructure** – including crosswalks, complete sidewalks, recreational trails, and bike lanes.

Accessibility of **public transit** – including bus, train, light rail, and PATH – was a top concern for participants, especially for those in traditionally underserved communities.

Participants placed an emphasis on **sustainability** and how we can preserve, protect, and enhance the natural environment through green streets and green infrastructure.

Participants want **equity** to be a priority – ensuring the needs of traditionally underserved communities and all vulnerable road users are identified and equitably addressed.

Participants want recommendations to advance the **economic wellbeing** of the County's residents and businesses.

Participants would like to see better **responsiveness** – how well they are engaged and how their concerns are addressed.

Participants noted that the increase in **goods movement and freight traffic**, resulting from changes in consumer behavior, has meant more competition for curb space, heightened congestion, and increased wear and tear on roads.







## 6. Strategic Vision

Moving Essex County forward will require us all to...

Commit to Safety

Prioritize Equity

Become Accessible and Responsive

Safeguard Environmental  
Sustainability and Resilience

Invest in Economic Development  
and Job Creation





This strategic vision is developed in response to the feedback and input collected from the multi-pronged community outreach process. It reflects the commitment that Essex County is making to its transportation system users including motorists, pedestrians, bicyclists, and transit users while addressing emerging issues such as economic recovery, social equity and post-COVID-19 needs.

The strategic vision includes goals and strategic objectives. Goals are general, outcome-oriented, long-term goals that address the greater impacts desired by the County. Objectives reflect the outcomes that the County is trying to achieve with candidate projects in this transportation plan.

## Safety

Essex County is committed to making our transportation system safer for all people and advancing a future without transportation-related serious injuries and fatalities.

Objectives:

- Prioritize interventions in locations with fatal and serious injury crashes.
- Recognize disproportionate impacts on vulnerable road users, including pedestrians and cyclists, elderly, youth, and disabled.
- Incorporate Americans with Disabilities Act (ADA), personal safety, and Crime Prevention through Environmental Design (CPTED) concepts and principles with transportation projects.



## Equity

Essex County will prioritize reducing inequities across our transportation systems and the communities they affect.

Objectives:

- Identify and work with traditionally underserved communities.
- Ensure the needs of all vulnerable road users are identified and equitably addressed.
- Provide access and mobility for all, especially in traditionally underserved communities .
- Prioritize interventions in traditionally underserved communities.



## Accessibility and Responsiveness

Essex County will create the means to enhance accessibility and responsiveness to the needs of transportation system users.

### Objectives:

- Focus on first and last-mile connections.
- Connect residents and employees from where they live to where they want and need to go.
- Actively engage and listen to residents, businesses, and visitors.
- Incorporate local needs, concerns, and opportunities for transportation projects.

## Environmental Sustainability and Resilience

Essex County will tackle the climate crisis by ensuring that transportation works to safeguard environmental sustainability and resilience.

### Objectives:

- Preserve, protect, and enhance natural environment through green streets and green infrastructure.
- Reduce greenhouse gas emissions by prioritizing transit and active transportation improvements.
- Incorporate unique local needs, concerns, and context within plans for project implementation.

## Economic Development and Job Creation

Essex County will invest in our transportation system to provide its workers and businesses with reliable and efficient access to economic opportunities.

### Objectives:

- Develop plans, policies, and procedures that create positive economic change.
- Promote transportation projects that support Essex County's industries and local businesses.
- Support efficient goods movement, while also recognizing and supporting the safety of vulnerable road users.





## 7. ESSEX 2045 PLAN RECOMMENDATIONS

Essex 2045 includes a diverse range of strategic actions for consideration. These include:

- A. Essex 2045 Candidate Roadway Projects
- B. Complete Streets Policy
- C. Complete Streets Implementation Plan
- D. County and Municipal Transportation Policies and Master Plan Updates
- E. FHWA Safety System Approach and Safe Streets and Roads for All (SS4A) Grants
- F. Electric Vehicles (EV) and Connected and Automated Vehicle (CAV) Strategies
- G. Bus and Rail Transit Options
- H. PANYNJ Climate Change Actions
- I. Multiuser Trail Projects
- J. Safe Routes to Schools Studies
- K. Roadway Safety Audits
- L. Vision Zero
- M. Proposed Countywide Action Plans and Conceptual Studies

### A. Essex 2045 Candidate Roadway Projects

Candidate roadway projects for Essex 2045 were assembled from a variety of plans and studies, and recommendations by participants, partners, and stakeholders. These include both quantitative and qualitative sources and methodologies.

#### **Candidate Project Sources**

- Carryover projects from ECCTP
- Public and stakeholder comments from ECCTP
- New projects from Essex County DPW
- Network Screening Lists for Essex County
- Safety projects based on crash and hot spot data
- NJTPA Congestion Management Process
- Projects from the Scenario Planning Process
- Locations subject to flooding
- Essex 2045 public and stakeholder comments
- Proximity to transit station or stop

#### **ECCTP Carryover Projects**

ECCTP (2014) identified a total of 33 proposed projects for primarily operational and safety purposes and included both intersection and corridor locations. Of these 33 projects, a total of nine are not yet completed and therefore continued to Essex 2045 as carryover projects. These candidate projects include a mix of purposes, needs, deficiencies, and locations across Essex County.

#### **ECCTP Public and Stakeholder Comments**

Among the carryover projects from ECCTP, all nine were also identified as congestion or safety problems by SAC members, through public outreach and engagement, and other sources.



### **Essex County Recommended New Projects**

New safety-related projects were added by Essex County Department of Public Works based on crash, traffic, and other data sources, and department knowledge and experience with current and historical safety and infrastructure conditions. These include a total of 15 new project locations.

### **Network Screening Lists for Essex County**

NJTPA provides access to the Network Screening Lists to highlight locations where crash occurrence and severity are a concern. The Network Screening Lists are based upon a programmatic analysis of statewide locations utilizing data supplied by third party sources, including NJDOT.<sup>xxii</sup>

Crash locations were evaluated separately for all crash types, and for pedestrian & bicycle crashes only.

The top ten locations were selected from each of the following Essex County Network Screening Lists:<sup>xxiii</sup>

- Intersection Lists
- Segment Lists for Roadway Corridors
- Intersection Lists for Pedestrian-Bicycle
- Segment Lists for Pedestrian-Bicycle Corridors

### **Safety Projects**

To supplement the Network Screening Lists, additional sources were consulted to identify multimodal safety concerns, including NJDOT's Safety Voyager portal and detailed crash data from the years 2016-20. Crash locations and hot spots were evaluated separately for all crash types; pedestrian & bicycle crashes only; and fatal or severe injury crashes. The top ten locations were selected from each.

### **NJTPA Congestion Management Process**

The NJTPA's Congestion Management Process (CMP) systematically studies the region's complex travel patterns and searches for suitable approaches for improving the transportation system's performance. The CMP concentrates on accessibility to key destinations and the movement of persons and goods. The Accessibility and Mobility Strategy Synthesis, the most recent regional CMP analysis, identifies regional and local needs and strategies to address them.<sup>xxiv</sup>

The CMP includes a list of strategies that local, regional, and state agencies and other partners can implement to address needs, along with possible locations to consider.<sup>xxv</sup>

### **Scenario Planning Process**

Additional congestion- and safety-related projects for County roadway were identified from the Scenario planning and modeling process and NJRTM-E travel demand model data. This includes County roadway corridors of at least one-half-mile in length that are identified as congested based on volume-to-capacity-ratio plots from the NJRTM-E existing year and future baseline scenarios.

### **Locations Subject to Flooding**

Essex County-owned roadway subject to flooding were identified in the Essex County All Hazard Mitigation Plan, 2020 Update to address environmental, resilience, and sustainability goals and mitigate future flooding concerns and costs.



### **Essex 2045 Public & Stakeholder Comments**

Essex 2045 was supported by a robust and comprehensive outreach and engagement process and methodologies, including the study SAC, focus groups, public meetings, pop-ups demonstration projects, and an online survey and mapping tool. The survey and map collected more than 4,000 individual comments including many related to safety, congestion, and other concerns. A total of 33 project locations were confirmed through these supplemental public and stakeholder comment sources.

### **Proximity to Transit Station or Stop**

Project locations were evaluated to identify those within one-quarter mile) of an existing bus stop or rail station.

### **Candidate Roadway Project Prioritization**

Candidate project locations were assigned a priority score based on the sum of priority weights for each of the Candidate Project Sources described above.

An additional “equity” category was included to prioritize location within the Essex County underserved communities (see Equity and Crash Assessment Chapter).

The sum of the project source categories including the equity score component is a maximum of 100 total points.

Based on the range of scores, the candidate projects were divided evenly among HIGH, MEDIUM, and LOW score groupings to assist Essex County with selection of the various candidate projects (see **Table 1** for the project priorities).

This table also includes summary of recommendations for each candidate project, based on the project phase and project source categories.

### **Table of Candidate Roadway Projects**

A total of 43 candidate roadway projects is listed in **Table 1** and depicted in **Figure 27**. Essex 2045 Candidate Roadway Projects, including 21 corridors, 21 intersections, and one bridge project. Candidate project are also identified by the current project phase:

- **Planning:** requires planning study to assess purpose and need, and determine feasibility to advance to concept development, design etc.
- **Maintenance:** milling, pavement, striping, etc. with no utilities or right-of-way costs
- **Engineering:** advance to concept development and preliminary design based on purpose and need, and initial feasibility assessment
- **Design:** advance to design
- **Construction:** advance to construction
- **Hand-off:** project requires hand-off to facility owner, i.e., NJDOT, NJTA, Porth Authority NYNJ, NJ TRANSIT



Table 1: Essex 2045 Candidate Roadway Projects with Project Phase and Priority Ranking

Project Number	Municipality	Major Street	Minor Street, From Street, To-Street	Mile Post	Distance (miles)	Project Phase	Priority (LOW MED HIGH)	Project Description and Recommendations (from various sources)
C-1	North Caldwell	Central Avenue/ Grandview Avenue (CR 631)	E. Greenbrook Road	2.10		Planning	HIGH	Traffic signal, safety, and circulation improvements study
			W. Greenbrook Road (CR 628)	2.22	0.12			
I-1	North Caldwell	Grandview Avenue (CR 631)	at Grandview Place	2.77		Planning	HIGH	Complex unsignalized intersection with potential for a roundabout
C-2	Roseland	Eagle Rock Avenue (CR 611)	Eisenhower Pkwy (CR 609)	6.01		Engineering	HIGH	Traffic signal improvements study
			Passaic Avenue (CR 613)	5.76	0.25			
C-3	Montclair	Upper Mountain Ave (CR 620)	Long Hill Rd (Passaic CR 631), Clove Rd	1.02		Planning	HIGH	Ped-bike crash hotspot study
			Lane Ave (CR 633), West Caldwell	0.00	1.02			
C-4	West Caldwell	Bloomfield Avenue (CR 506)	Passaic Ave (CR 613), West Caldwell	1.22		Planning	HIGH	Milling and pavement. ADA ramps
			Lane Ave (CR 633), West Caldwell	1.81				
	Caldwell	Lane Ave (CR 633), West Caldwell	1.81		Planning	HIGH	Milling and pavement. ADA ramps	
			Arlington Avenue, Caldwell	2.86				Corridor safety and operational optimization study
	Caldwell, N. Caldwell, Verona	Arlington Avenue, Caldwell	2.86		Planning	HIGH	Milling and pavement. ADA ramps	
			Grove Avenue (CR 639), Verona	4.13				Corridor safety and operational optimization study
	Verona, Montclair	Bloomfield Avenue Road Diet (CR 506)	Grove Avenue (CR 639), Verona	4.13		Planning	HIGH	Milling and pavement. ADA ramps. CMP ped safety and Road diet candidate
	Glen Ridge, Bloomfield		Garden State Parkway, Bloomfield	8.32	7.10			Corridor safety and operational optimization study
I-2	Verona	Bloomfield Avenue (CR 506)	at Mount Prospect Ave. (CR 577)/ Pompton Ave	5.22		Planning	HIGH	Safety and operational optimization study
I-3	Bloomfield	Belleville Avenue (CR 506)	at J.F. Kennedy Drive (CR 652)	8.19		Planning	HIGH	Safety and operational optimization study

Project Number	Municipality	Major Street	Minor Street, From Street, To-Street	Mile Post	Distance (miles)	Project Phase	Priority (LOW MED HIGH)	Project Description and Recommendations (from various sources)
I-4	Belleville	Rutgers Street (CR 506)	at Cortland Street	10.64		Planning	HIGH	Traffic signal improvements study
C-5	Bloomfield, Newark	Bloomfield Ave./ Broadway/ Clay St. (CR 506 Spur)	Conger Street	0.92		Maint.	HIGH	Milling and pavement. ADA ramps
			McCarter Highway (SR 21 )	4.30	3.38			
I-5	Newark	Clay Street (CR 506 Spur)	at McCarter Highway (SR 21)	4.30		Maint.	HIGH	Safety and operational optimization study. Demonstration project location
I-6	West Orange	Main Street (CR 659)	at Northfield Street (CR 508S)	0.34		Planning	HIGH	All crash types and Ped-bike crash hotspot study
C-6	West Orange	Mount Pleasant Avenue (CR 577)	Gregory Avenue	9.54		Engineering	HIGH	Roadway realignment
			Marcella Avenue	10.18	0.64			Elimination of excessive vertical and horizontal curvatures
C-7	Verona, West Orange	Prospect Avenue (CR 577)	Eagle Rock Avenue (CR 611)	11.25		Planning	HIGH	All crash types hotspot study
			Bloomfield Avenue (CR 506)	13.10	1.85			
C-8	Roseland, Livingston	North Livingston Avenue (CR 527)	Mt. Pleasant Avenue (NJ 10)	76.90		Planning	HIGH	All crash types hotspot study
			Eagle Rock Avenue (CR 611)	79.05	2.15			
C-9	Roseland, Livingston	Eisenhower Parkway (CR 609) Extension	U.S. 46	0.00		Planning	HIGH	Corridor planning study
			NJ 24/NJ 124	TBD				
C-10	West Caldwell	Passaic Avenue (CR 613)	Westville Avenue (CR 632)	1.92		Planning	HIGH	All crash types safety study
			Clinton Road (CR 614)	2.85	0.93			
C-11	Newark, Belleville, Nutley	Franklin Avenue (CR 645)	Franklin St (CR 670), Newark	0.00		Planning	HIGH	All crash types hotspot study. CMP Complete Streets study
			Kingsland Street (Rte 7), Nutley	3.84	3.84			





Table 1: Essex 2045 Candidate Roadway Projects with Project Phase and Priority Ranking

Project Number	Municipality	Major Street	Minor Street, From Street, To-Street	Mile Post	Distance (miles)	Project Phase	Priority (LOW MED HIGH)	Project Description and Recommendations (from various sources)
I-7	Belleville	Franklin Avenue (CR 645)	at Mill Street	0.76		Planning	HIGH	All crash types hotspot study. CMP Complete Streets study
I-8	Bloomfield	Franklin Street (CR 509/CR 670)	at Watsessing Avenue (CR 509)	21.81		Planning	HIGH	Traffic signal improvements study
I-9	Cedar Grove	Bradford Avenue (CR 640)	at Crestmont Road (MP 1.05) /Woodstone Dr.	1.04		Engineering	HIGH	Safety assessment & Improvement project
I-10	Cedar Grove	Little Falls Road (CR 619)	at NJ Transit Railroad Underpass	0.99		Planning	HIGH	Widen roadway through the underpass to accommodate two lanes
C-12	Cedar Grove, N. Caldwell	Mountain Avenue (CR 527)	White Oak Drive	83.00		Engineering	HIGH	Roadway realignment
			West Lindsley Road	84.86	1.86			Elimination of excessive vertical and horizontal curvatures
C-13	Essex Fells	Roseland Avenue (CR 527)	Runnymede Road (CR 633)	80.09		Planning	HIGH	Safety assessment & Signal warrant analysis
			Borough Place	79.98	0.11			
C-14	Irvington, Newark	Springfield Avenue Road Diet (CR 603, NJ 124)	Chancellor Avenue, Maplewood/Irvington	0.00		Planning	HIGH	All crash types and ped-bike safety study. Road diet candidate
			South Orange Avenue (CR 510), Newark	3.72	3.72			All crash types, ped-bike, and FSI hotspot study
I-11	Irvington, Newark	Springfield Avenue	at Clinton Avenue (CR 665), Irvington	1.10		Planning	HIGH	Ped-bike safety study. All crash types, ped-bike, and FSI hotspot study
I-12			at Myrtle Avenue, Irvington	1.13		Planning	HIGH	Ped-bike safety study. All crash types, ped-bike, and FSI hotspot study
I-13			at Brookside Avenue, Irvington	1.18		Planning	HIGH	Ped-bike safety study. All crash types, ped-bike, and FSI hotspot study
I-14			at North Maple Avenue, Irvington	1.47		Planning	HIGH	Ped-bike safety study. All crash types, ped-bike, and FSI hotspot study
I-15			at Grove Street (CR 509)	1.53		Planning	HIGH	All crash types safety study. All crash types, ped-bike, and FSI hotspot study
I-16			at Bergen Street, Newark	2.91		Planning	HIGH	All crash types safety study. All crash types, ped-bike, and FSI hotspot study
I-17			at Broome Street, Newark	3.49		Planning	HIGH	All crash types safety study. All crash types, ped-bike, and FSI hotspot study



Project Number	Municipality	Major Street	Minor Street, From Street, To-Street	Mile Post	Distance (miles)	Project Phase	Priority (LOW MED HIGH)	Project Description and Recommendations (from various sources)
C-15	Irvington, Newark	Chancellor Avenue (CR 601)	Garden State Parkway	0.73		Planning	HIGH	Ped-bike safety study. All crash types, ped-bike, and FSI hotspot study
			Leslie Street	1.75	1.02			
C-16	Irvington, Newark	Lyons Avenue (CR 602)	Stuyvesant Avenue (CR 619)	0.14		Planning	HIGH	All crash types and ped-bike safety study
			Leslie Street	1.29	1.15			
C-17	East Orange, Newark	Central Avenue (CR 508)	Oakwood Place, East Orange	7.76		Planning	HIGH	All crash types and ped-bike safety study. All crash types hotspot, ped-bike FSI Hotspot study
			1st Street, Newark	10.17	2.41			
I-18	East Orange, Newark		at South Munn Avenue, East Orange	8.81		Planning	HIGH	Ped-bike safety study. All crash types, ped-bike, and FSI hotspot study
C-18	Bellville, Newark	Broadway Avenue Road Diet (CR 667)	Mill Street, Bellville	2.12		Planning	HIGH	All crash types hotspot, ped-bike, FSI hotspot study. Road diet candidate
			Bloomfield Avenue (CR 506 S), Newark	0.00	2.12			
I-19	Newark		at East 3rd Avenue	0.40		Planning	HIGH	Ped-bike safety study. All crash types, ped-bike, and FSI hotspot study
C-19	South Orange, Maplewood	Irvington Avenue/Clinton Avenue (CS 665)	South Orange Avenue (CS 510)	0.00		Planning	HIGH	All crash types and ped-bike safety study
	Irvington		Springfield Avenue Road Diet (CR 603)	2.22	2.22			
C-20	South Orange, Newark	South Orange Avenue (CS 510)	Irvington Avenue	24.59		Planning	HIGH	Roadway streetscape improvements
			Sanford Avenue (CR 605)	25.97				All crash types and ped-bike hotspot safety study. CMP Complete Streets study
			Sanford Avenue (CR 605)	25.97		Planning	HIGH	Roadway streetscape improvements.
			Bergen Street	28.10				All crash types and ped-bike hotspot safety study. CMP Complete Streets study
			Bergen Street	28.10		Planning	HIGH	Roadway streetscape improvements.
			Sanford Avenue (CR 605)	28.80	4.21			All crash types and ped-bike hotspot safety study. CMP Complete Streets study

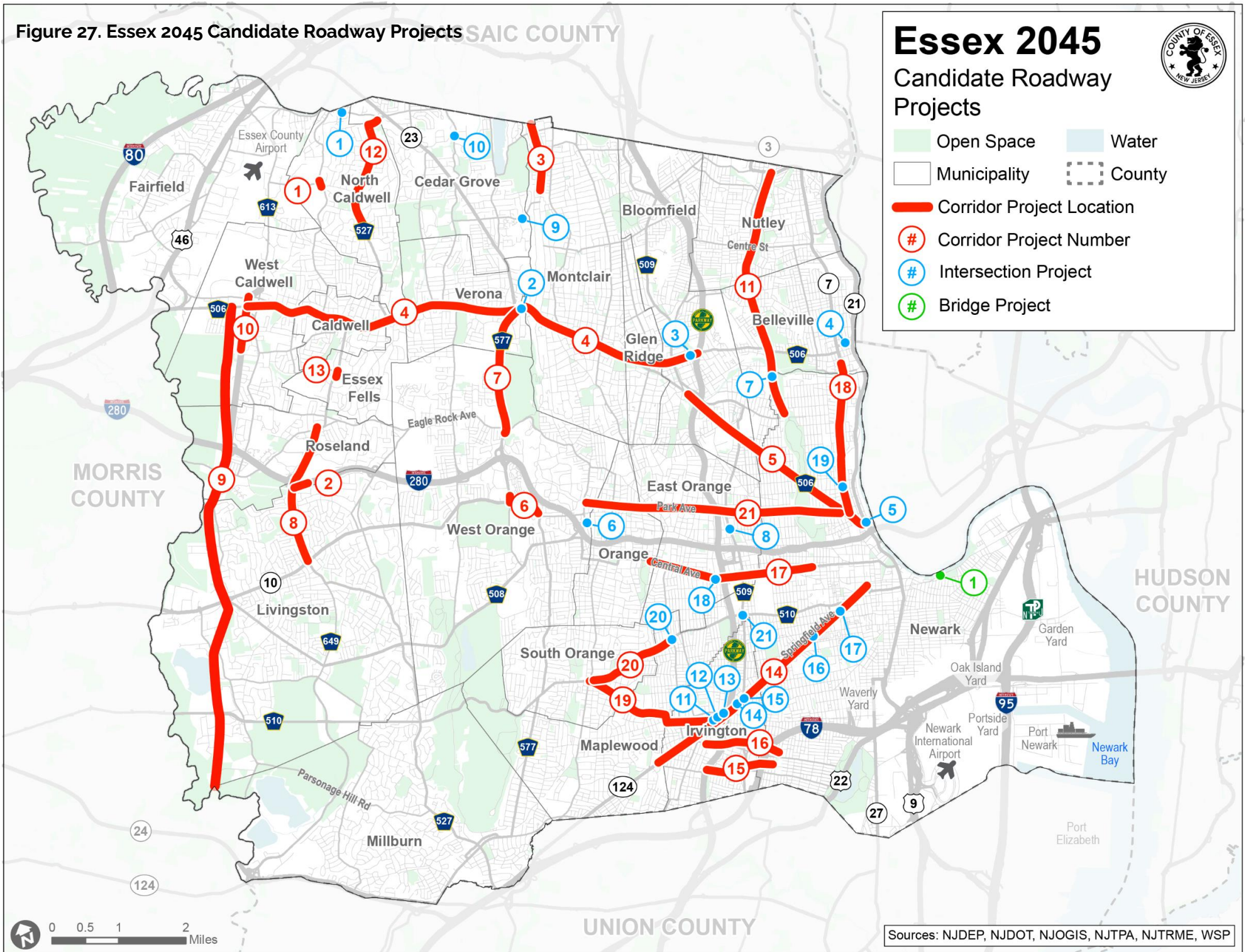


Table 1: Essex 2045 Candidate Roadway Projects with Project Phase and Priority Ranking

Project Number	Municipality	Major Street	Minor Street, From Street, To-Street	Mile Post	Distance (miles)	Project Phase	Priority (LOW MED HIGH)	Project Description and Recommendations (from various sources)
I-20	Newark	South Orange Avenue (CS 510)	at Sanford Avenue (CR 605)	25.97		Engineering	HIGH	Roadway streetscape improvements
I-21			at Grove Street (CR 509)	27.10		Engineering	HIGH	All crash types, ped-bike, and FSI hotspot safety study
C-21	West Orange, East Orange	Park Avenue (CR 658)	Main Street (CR 659), West Orange	0.00		Planning	HIGH	Ped-bike safety study. All crash types and ped-bike hotspot study
	Newark		Bloomfield Avenue (CR 506S), Newark	3.88	3.88			
B-1	Newark	Jackson Street Bridge over Passaic River	Raymond Boulevard, Newark			Handoff	HIGH	Functional and structural deficiency
			Cape May Street, Harrison, Hudson County					



Figure 27. Essex 2045 Candidate Roadway Projects



## B. Complete Streets Policy Updates

Much has changed in the Complete Streets world since the Essex County Complete Streets policy was adopted in 2012 and the County would benefit greatly from a comprehensive reexamination of its policy, with an emphasis on implementation translating policy statements into projects, plans, and strategies that create safe, successful, equitable, healthy, and vibrant communities.

Using guidance from New Jersey's Complete and Green Streets for All: Model Complete Streets Policy & Guide, the following updates and additions are recommended:

- Specify policy is applicable to all ages, all abilities
- Prioritize equity and environmental justice considerations
- Emphasize mobility and safety of vulnerable roadway users
- Integrate Green Street considerations to complement the focus on Complete Streets and achieve a more comprehensive range of planning and project goals
- Provide training for County decision makers and professional staff on a periodic basis
- Undertake periodic review and update of the Complete Streets Policy (similar to Master Plan reexaminations at very six years according to New Jersey Municipal Land Use Law)
- Submit annual report to the planning board and/or council which may include accomplishments, significant milestones, exemptions granted, and recommended changes and/or additions
- Define steps for continued implementation

As is the case for Essex County, many Complete Street policies were adopted by Essex County municipalities a decade or more ago, and are similar to the Essex County policy: strong and successful, but in need of a reexamination to take stock of strengths and weaknesses, what has been accomplished to date, what remains to be done, and how to get there.

In addition to the recommended master plan reexaminations, seven of the County's municipalities have not yet adopted a Complete Streets policy.

*Essex 2045 recommends review and update of County and municipal policies with the goal of achieving 100 percent Complete Streets policy adoption across Essex County.*

*Essex 2045 recommends that Essex County take a lead role in working with the municipal partners to encourage the municipalities to plan, design, build, and maintain all streets based on the Complete and Green Streets Model.*

## C. Complete Streets Implementation Plan

Essex County's Complete Streets Implementation Action Plan was completed in 2014 and includes a broad range of action to strengthen the planning and design process and make Complete Streets the default way in Essex County. To date, however, few of the plan's recommendations have been adopted.

Recommended actions from the Implementation Action Plan include:

- Development of a Complete Streets Implementation Committee to track projects and review and sign off on Complete Streets checklists. The committee would be comprised of Essex County DPW staff representing Planning, Engineering, and Maintenance
- Adopt the recommended changes to the 2012 CS Policy
- Require Purpose and Needs Statement for all proposed projects
- Develop and require mandatory Complete Streets Checklists for each project
- Implement a formalized process for evaluating resurfacing projects and identify opportunities for Complete Streets improvement
- Implement the proposed revision to the Essex County Roadway Policies
- Formalize the exemptions process
- Implement the proposed changes to the Essex County DPW Online Service Request Form
- Implement the proposed changes to the Subdivision and Site Plan Review process, including:
  - Recommended Additions/Changes to Site Plan Application
  - Site Plan Complete Streets Checklist
  - Recommended Additions/Changes to Site Plan Review Regulations
  - Recommended Additions/Changes to Subdivision Application
  - Subdivision Complete Streets Checklist
  - Recommended Additions/Changes to Subdivision Review Regulations

*Essex 2045 recommends a cooperative effort among County Departments to revisit the Complete Streets Implementation Action Plan recommendations and assign staff and committees to oversee each recommendation.*





## D. County and Municipal Transportation Policies and Master Plan Updates

### ***Municipal Master Plan Updates***

The municipal circulation element should focus on moving people and goods, not just vehicles, and be aligned with the land use, housing, and affordable housing elements to achieve strategic alignment toward common goals of equity, safety, mobility, and access to opportunity. Most circulation elements for the Essex County municipalities have been updated recently and reflect progressive themes of Complete Streets, safety, walkable downtowns, and improved transit and multimodal options. Several Essex municipalities, however, have gone at least ten years since the last reexamination or circulation element update.

Siting of affordable housing is a significant challenge in New Jersey, and one that is also guided by regulatory oversight to meet affordable unit obligations. This process of identifying and selecting locations, however, often does not assess whether proposed affordable units have adequate access and connectivity to safe multimodal travel options.

*Essex 2045 recommends that Essex County take a lead role in working with the municipal partners to review and update circulation elements and assure compatibility with land use, housing, and affordable housing elements. Reexamination should occur on a regular as recommended by New Jersey's Municipal Land Use Law. Siting of affordable units should include adequate connectivity and accessibility to existing public transit, sidewalks, trails and bike facilities, and to education, employment, social services, and medical destinations.*

### ***County and Municipal Sidewalk Policies***

Current policies regarding sidewalk construction represent a significant missed opportunity to expand the reach of safe, multimodal Complete Streets networks across Essex County.

Essex County currently does not have a policy to require sidewalks when there is development on County routes or when county roadways are repaved or redesigned. Furthermore, the land development review process creates built-in opportunities to systematically add new sidewalks and fill in gaps in existing sidewalk networks.

These actions should be the default way of both land use review and the capital improvements process.

Sidewalks should be provided in a strategic fashion – where they are most needed and where they can do provide the most benefit. Similar to Complete Streets projects, sidewalks should be prioritized based on context, adjacent land use and activity generators, and in areas with high crash occurrence or severity.

*Essex 2045 recommends review and update of sidewalk policies for county and municipal roadways, during land development review, and development of repaving projects and capital improvements.*

## E. Safe System Approach

FHWA's Safe System approach aims to eliminate fatal and serious injuries for all road users.<sup>xxvi</sup>

Implementing the Safe System approach involves anticipating human mistakes by designing and managing road infrastructure to keep the risk of a mistake low; and when a mistake does lead to a crash, the impact on the human body doesn't result in a fatality or serious injury. Road design and management should encourage safe speeds and driving behaviors to reduce injury severity.<sup>xxvii</sup>

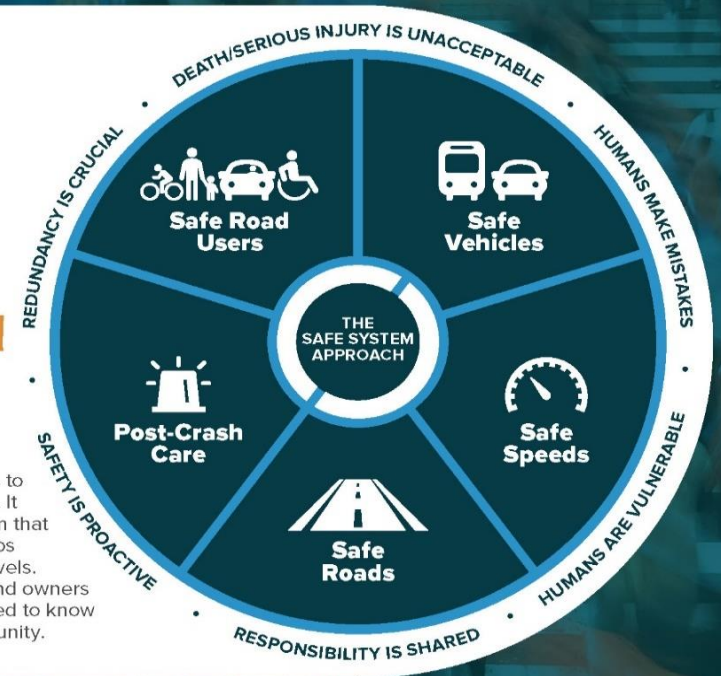
Planning and design of future project should follow the Safe System framework to build safety directly into the project development process: from planning and concept development through to project design, construction, and maintenance.

# THE SAFE SYSTEM

## APPROACH

**Zero is our goal. A Safe System is how we will get there.**

**Imagine a world where nobody has to die from vehicle crashes.** The Safe System approach aims to eliminate fatal & serious injuries for all road users. It does so through a holistic view of the road system that first anticipates human mistakes and second keeps impact energy on the human body at tolerable levels. Safety is an ethical imperative of the designers and owners of the transportation system. Here's what you need to know to bring the Safe System approach to your community.



## SAFE SYSTEM PRINCIPLES



### Death/Serious Injury is Unacceptable

While no crashes are desirable, the Safe System approach prioritizes crashes that result in death and serious injuries, since no one should experience either when using the transportation system.



### Humans Make Mistakes

People will inevitably make mistakes that can lead to crashes, but the transportation system can be designed and operated to accommodate human mistakes and injury tolerances and avoid death and serious injuries.



### Humans Are Vulnerable

People have limits for tolerating crash forces before death and serious injury occurs; therefore, it is critical to design and operate a transportation system that is human-centric and accommodates human vulnerabilities.



### Responsibility is Shared

All stakeholders (transportation system users and managers, vehicle manufacturers, etc.) must ensure that crashes don't lead to fatal or serious injuries.



### Safety is Proactive

Proactive tools should be used to identify and mitigate latent risks in the transportation system, rather than waiting for crashes to occur and reacting afterwards.



### Redundancy is Crucial

Reducing risks requires that all parts of the transportation system are strengthened, so that if one part fails, the other parts still protect people.



U.S. Department of Transportation  
Federal Highway Administration

FHWA-SA-20-015





Following this approach mitigates and reduces the potential of both crash risk and crash severity.

The safe system approach starts with better data and analysis methodologies to understand the problem: Where are the safety risks? Who is impacted? What are the contributing factors to crash occurrence and severity?

Lower travel speeds are a proven means of reducing crash risk and severity.

Traffic calming and innovative intersection and designs to reduce travel speeds; provide greater separation between vehicles and vulnerable roadway users; improve visibility and lighting at crosswalks; provide dedicated and separate facilities for pedestrians and cycling such as better sidewalks and crosswalks and protected bike lanes.

*Essex 2045 recommends adopting the Safe System Approach as the guiding framework for transportation planning and infrastructure design in Essex County.*

**SAFE SYSTEM ELEMENTS**

**Making a commitment to zero deaths means addressing every aspect of crash risks through the five elements of a Safe System, shown below.** These layers of protection and shared responsibility promote a holistic approach to safety across the entire transportation system. The key focus of the Safe System approach is to reduce death and serious injuries through design that accommodates human mistakes and injury tolerances.



**Safe Road Users**

The Safe System approach addresses the safety of all road users, including those who walk, bike, drive, ride transit, and travel by other modes.



**Safe Vehicles**

Vehicles are designed and regulated to minimize the occurrence and severity of collisions using safety measures that incorporate the latest technology.



**Safe Speeds**

Humans are unlikely to survive high-speed crashes. Reducing speeds can accommodate human injury tolerances in three ways: reducing impact forces, providing additional time for drivers to stop, and improving visibility.



**Safe Roads**

Designing to accommodate human mistakes and injury tolerances can greatly reduce the severity of crashes that do occur. Examples include physically separating people traveling at different speeds, providing dedicated times for different users to move through a space, and alerting users to hazards and other road users.



**Post-Crash Care**

When a person is injured in a collision, they rely on emergency first responders to quickly locate them, stabilize their injury, and transport them to medical facilities. Post-crash care also includes forensic analysis at the crash site, traffic incident management, and other activities.

**THE SAFE SYSTEM APPROACH VS. TRADITIONAL ROAD SAFETY PRACTICES**

**Traditional**

- Prevent crashes →
- Improve human behavior →
- Control speeding →
- Individuals are responsible →
- React based on crash history →

**Safe System**

- Prevent deaths and serious injuries
- Design for human mistakes/limitations
- Reduce system kinetic energy
- Share responsibility
- Proactively identify and address risks

Whereas traditional road safety strives to modify human behavior and prevent all crashes, the Safe System approach also refocuses transportation system design and operation on anticipating human mistakes and lessening impact forces to reduce crash severity and save lives.

**WHERE ARE YOU ON THE SAFE SYSTEM JOURNEY?**

Implementing the Safe System approach is our shared responsibility, and we all have a role. It requires shifting how we think about transportation safety and how we prioritize our transportation investments. Consider applying a Safe System lens to upcoming projects and plans in your community: put safety at the forefront and design to accommodate human mistakes and injury tolerances. Visit [safety.fhwa.dot.gov/zerodeaths](https://safety.fhwa.dot.gov/zerodeaths) to learn more.



## Safe Streets and Roads for All (SS4A)

Essex County was awarded a grant to prepare a countywide safety action plan under the SS4A grant program. The SS4A program supports the development of a comprehensive safety action plan (Action Plan) that identifies the most significant roadway safety concerns in a community and the implementation of projects and strategies to address roadway safety issues. Action Plans are the foundation of the SS4A grant program. SS4A requires an eligible Action Plan to be in place before applying to implement projects and strategies.<sup>xxviii</sup>

The Essex County Safety Action Plan is a joint application of Essex County and the City of East Orange to address safety and equity concerns and impact, with the finding that: "The need to provide equitable safety of all the roadway network users has reached a critical point." The Essex application is based on similar data-driven assessment and conclusions as Essex 2045: acute crash occurrence, severity, and fatality rates, particularly among vulnerable roadway users; and the presence of significant underserved communities.

### Action Plan Components

The Safety Action Plan will employ a Vision Zero-type approach to reduce and eliminate fatal and severe injuries.

- Planning structure and leadership commitment that requires both participation and commitment of Essex County and City of East Oranges in the development and implementation of the Safety Action Plan
- Data-driven systemic safety analysis and methodologies including geospatial identification of higher-risk locations

- Engagement and collaboration with municipal and agency partners, advocacy groups, and local and regional stakeholders to ensure participation and consensus of recommendations and implementation
- Ensure equitable investment in the safety needs of underserved communities
- Policy and process changes that recognize the need for new and innovative methodologies, low-cost, high-impact strategies, and project design elements to address safety and equity deficiencies
- The Action Plan looks beyond traditional designs that prioritize and congestion mitigation and vehicle throughput, based on data-driven and community-driven goals for reducing pedestrian fatalities and serious injuries
- Progress reporting and transparency, including annual public and accessible reporting on progress toward reducing roadway fatalities and serious injuries

*Essex 2045 supports the Essex County Safety Action Plan grant application and the overall SS4A program as priority actions. Essex 2045 also provides critical data resources and analysis to support the development of the Safety Action Plan, including crash data assessment, hotspot mapping, and demonstration of disproportionate impacts to underserved communities.*



## F. EV and CAV Strategy

Based on Essex County demographics and development patterns, there is a need for approximately 25,400 public electric vehicle supply equipment (EVSE) charging ports in Essex County by 2045. With an estimate of just 250 existing EVSE per NJDEP records, there will be a need for an estimated 25,150 new ports in Essex County.<sup>xxix</sup>

The following strategies will help to position Essex County for accelerated EV adoption by consumers and eventual widespread CAV deployment.

### **Countywide EV Infrastructure Study**

A countywide study EV infrastructure study will help Essex focus specifically on EV demand and needs, optimize EVSE siting, and establish an implementation and phasing timetable for charging port and capacity.

Union County, for example is completing its “Electric Vehicles Infrastructure Study” to prepare for growth in EV sales and identify public charging locations. A similar study in Essex County would quantify demand and determine phasing, consistent with the NJ NEVI Deployment Plan.<sup>xxx</sup>

**Establish Goals:** Essex County should establish actionable and implementable goals for transitioning its fleet of vehicles – passenger vehicles, light trucks, buses, vans, utility vehicles, and others – to electric. Goals should align with State policy phasing out sales of gas- and diesel-powered cars and light trucks by 2035. An EV Study can be used to support this strategy.

**Collaborate with Municipalities:** Considering future at-home charging needs, the County could collaborate with or provide guidance to municipalities on changes to municipal ordinances, land development codes, residential building

codes, and other local policies or directives that may preclude, prevent, or hinder the provision of adequate charging infrastructure.

### **Initiate CAV Partnerships and dedicated testing site**

Essex County can take steps to prepare for widespread deployment of CAV by working in partnership with NJDOT, USDOT, and/or public or private researchers or investors to identify pilot or test locations. A pilot location can help accelerate innovation by providing a dedicated, collaborative setting to stimulate academic, public-sector, and private-sector R&D, training, and testing of a range of technologies and systems including automated vehicle requirements; systems engineering and design; communication and navigation systems via vehicle-to-vehicle (V2) or vehicle-to-infrastructure (V2I) deployments, dedicated short-range communications (DSRC) devices, and intelligent transportation systems (ITS); warning systems (reduced speed, horizontal curve, red-light violation, pedestrian, etc.); and data networks and storage.

A test location can also facilitate the development of design criteria and testing protocols for future CAV systems deployment that align with National Highway Traffic Safety Administration (NHTSA) requirements.

*Essex 2045 recommends that Essex County take a lead role in the advancement of EV infrastructure and CAV technologies and implementation strategies.*

## G. Bus and Rail and Transit Concepts

Improved transit service options and intra-county connectivity were identified as critical needs during the Essex 2045 planning, stakeholder, and community engagement tasks. Several rail and transit concepts and projects were examined for their potential to address current and future needs for improved mobility, and access to opportunity. These projects and concepts are presented below.

The NewBus Newark study is currently underway; the recommendations are under review by NJ TRANSIT and not currently available.

### **Paterson-Newark Transit Market Study (2020)**

The study tested three conceptual alternatives to connect Paterson and Newark along the existing Newark Industrial Track (NIT) freight rail corridor (including light rail and BRT) and demonstrated the potential demand for additional transit service. Enhancing transit may help the region reduce traffic congestion, provide affordable transportation options, and support economic development through increased access to jobs, education, healthcare, and commercial development.<sup>xxx</sup>

*Essex 2045 recognizes the NIT corridor as a priority to address mobility needs and supports the recommendations of the Transit Market Study, beginning with development of detailed technical assessments and concept development and the identification of project champions and sponsors.*



Source: Paterson-Newark Transit Market Study



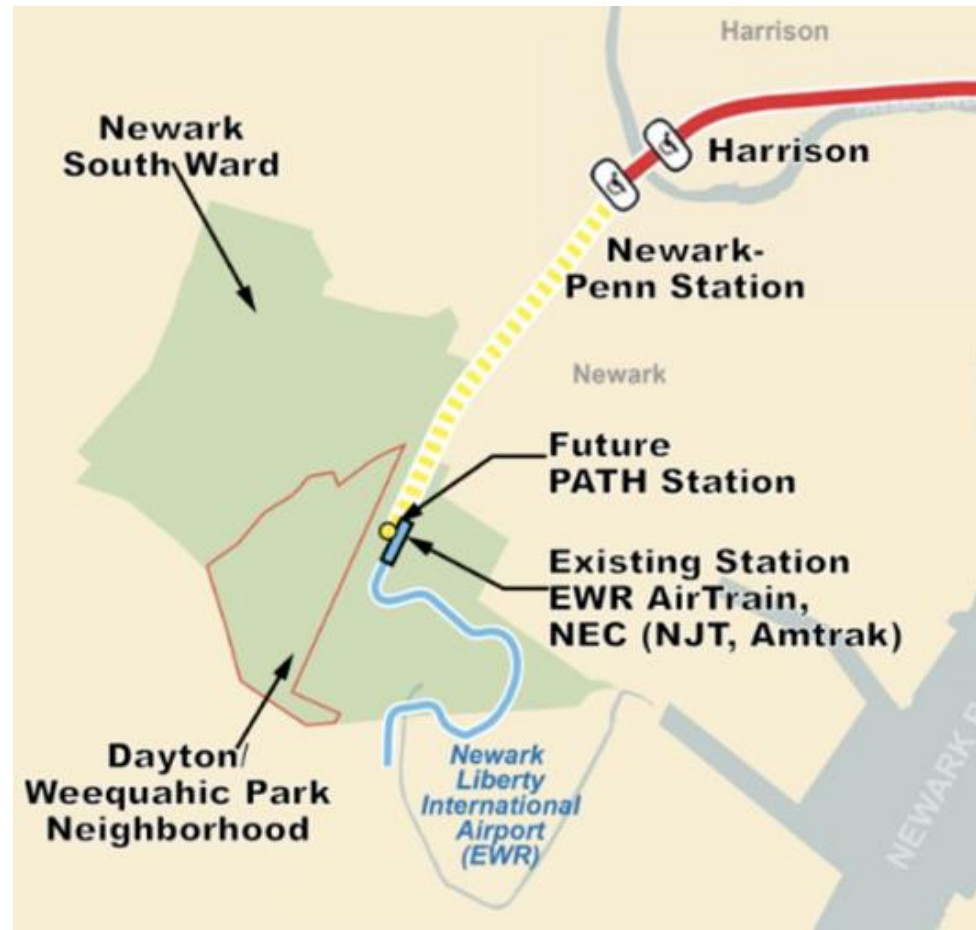


**PATH Extension to Dayton/EWR**

PANYNJ undertook a study of extending the current PATH Newark to World Trade Center Line approximately 2.5 mile south to the Dayton/Weequahic Park neighborhood in Newark's South Ward, a location that would also provide access to the Newark Liberty Rail Link Station (Airport Station) at Newark Liberty International Airport (EWR).<sup>xxxii</sup>

The proposed project provides several benefits, including equity needs of the Dayton neighborhood, improved mobility to an areas underserved by transit, and improved connectivity and capacity for the PATH system and rail railyards.

The Regional Plan Association (RPA) supports this project for both its equity and mobility benefits. The project has the potential to reverse a longstanding trend of disinvestment in the Greater Dayton area which is underserved by current transit service. Beyond the equity and economic gains for Greater Dayton, this extension has regional benefits as well. It will connect Newark Liberty Airport (EWR) to lower Manhattan and expand the PATH system capacity with rail yards and turnarounds at the Northeast Corridor (NEC) station.<sup>xxxiii</sup>



Source: <https://www.panynj.gov/path/en/modernizing-path/extension-project.html>

*Essex 2045 endorses consideration of the proposed PATH Extension to Dayton/EWR to address both equity and mobility needs and recommends that more detailed study be undertaken.*

**Flexible Route On-Demand Microtransit**

Flexible route on-demand service has the potential to meet mobility needs for targeted areas and communities in Essex County.

Although potential ridership may be relatively small compared to a conventional fixed-route rail or bus line, the potential benefits in terms of safety, equity, and access to opportunity may be substantial.

A nearby example is currently in operation in Jersey City which worked with service provider Via to develop and implement an ADA accessible, mobile-app powered service to improve mobility and complement existing transit.

Via Jersey City launched in February 2020 with a fleet that included electric vehicles. Recognizing that the City’s central wards are already well-served by transit, Via designed an innovative service model complements — rather than competes with — existing bus and rail options.

Via is designed to encourage first- and last-mile connections and minimize wait times to deliver reliability.



source: <https://ridewithvia.com/case-study/jersey-city>

*Essex 2045 recommends study of a microtransit service options to meet the demand for intra-county and intra-municipal transit, custom-design to the unique context, demographics, development patterns, and travel needs of Essex County and its highly urbanized eastern municipalities.*



### **Longer-Term Rail and Bus Options**

Several additional rail and bus projects have been proposed and studied. County Essex County will need to evaluate whether these projects should be a priority, and advanced for further study.

Summaries are provided below.

### **Newark Light Rail extension north into suburbs**

Current Newark Light Rail alignment connects Newark Penn Station with its terminus at Grove Street in Bloomfield. A 2008 "Discussion Paper for Newark's Transit Future" was prepared by the Voorhees Transportation Center at Rutgers University that identifies various options for improved bus and rail service. These included bus improvements (currently under study in the NewBus Newark study, see Chapter 3), Newark Light Rail service improvement, potential BRT options, and extension of Newark Light Rail in several stages. Of these, only NewBus Newark has advanced to the recommendations phase. The discussion paper does not include any specific service details, cost, ridership potential, or alignments, beyond a conceptual level.

Desire for extension of the current light rail service, however, is consistent with many of the comments received during the Essex 2045 community engagement effort expressing a strong interest in expansion of intra-county public transit service. Essex County will need to evaluate whether these options should be a priority for further study.

### **Reactivation of NJ TRANSIT stations on Montclair-Boonton line (e.g., Roseville-Ampere in East Orange)**

This feasibility study of restoration of NJ TRANSIT service for the former Ampere train station was undertaken in 2005 for the City of East Orange<sup>xxxiv</sup>, and was further recommended in the Urban Essex Coalition for Smart Growth, Inner Morris & Essex Strategic Corridor Plan (2013), and by Essex 2045 stakeholders. The former Ampere Station site is located in the northeastern portion of the City of East Orange on the NJ TRANSIT Montclair-Boonton Line. Due to a variety of factors, including deteriorating condition of station and buildings, severely diminished ridership, and a fire in 1992, the station was decommissioned in 1995.

The study examined the current conditions, potential impacts to the existing Montclair-Boonton Line and schedules, the scope of necessary improvements, and ridership projections for restoration of service.

The study concluded that "the estimated ridership is reasonable relative to the comparison stations. Ampere stands to have one of the largest commutersheds population-wise, which is reflective of the relatively dense and mostly residential development in the Study Area."

The station was also found to be a favorable location for development and redevelopment opportunities, and many comments received during the Essex 2045 community engagement effort confirmed a strong interest in expansion of intra-county public transit service.

Reactivation of the station and rail service could, however, be in competition with other proposed rail and bus projects. Essex County will need to evaluate whether this project and its cost should be a priority for further study.



## H. PANYNJ Climate Change Actions

PANYNJ has committed to become carbon neutral by 2050 and reduce emissions directly under the Authority's control by 50 percent by 2030. Proposed actions include solar power installations, reduced carbon emissions, and transitioning to electric light-duty vehicle fleets.

*Essex 2045 supports the PANYNJ climate change initiatives specific to Essex County ports and airports:*

- Planned solar installation on rooftops and parking lots at Newark Airport
- Achieving Airport Carbon Accreditation Level 3, which means the agency has inventoried carbon emissions, created and begun acting on a plan to reduce emissions, and begun to engage third parties (i.e., airlines, cargo handlers) at the airport in reducing emissions
- Working towards a 100 percent electric light-duty fleet by 2030 and a 50 percent heavy-duty fleet by 2035
- Offering incentives for cleaner cargo handling equipment to ships that make enhancements to reduce emissions and to truck owners to replace old trucks with cleaner, newer trucks
- Studying the use of sustainable aviation fuel

## I. Multiuser Trails

### ***Essex-Hudson Greenway Connector***

The Essex-Hudson Greenway is a proposed nine-mile linear park connecting Essex and Hudson counties along the former Boonton rail line, connecting Montclair in Essex County to Jersey City in Hudson County. The State of New Jersey acquired the land in September 2022.

### ***Morris Canal Greenway***

Essex County has 4.5 miles of existing Morris Canal Greenway alignment, which includes 2.4 miles off-road and 2.1 miles on-road. An additional 10.2 miles are proposed to complete the alignment through Essex County.

The Morris Canal Working Group, local jurisdictions, and implementing agencies helped identify the following key projects for short-to-medium term implementation.<sup>xxxv</sup>

- Bloomfield: Broad Street and Watchung Avenue bicycle facility and sidewalk enhancements
- Belleville: Mill Street bicycle and sidewalk projects
- Newark - Raymond Boulevard full corridor widening to Shared Use Path/ bicycle lanes and enhanced sidewalk (Passaic River to Branch Brook Park)
- Raymond Boulevard Cycle Track, grade separated 3/4-mile two-way cycle-track

*Essex 2045 recognizes the Essex-Hudson Greenway Connector and Morris Canal Greenway projects as for the region and supports ongoing efforts to design and build the greenway improvements.*



## J. Safe Routes to School

The Federal Highway Administration funded SRTS Program promotes walking and bicycling to school through infrastructure improvements, enforcement, tools, safety education, and incentives to encourage walking and bicycling to school.

Standard infrastructure improvements recommended by SRTS Travel Plans included repairing sidewalks, installing pedestrian crossing signals, installing speed limit and school zone signs, building pedestrian refuge islands, restriping faded crosswalks and stop bars, and installing tactile warning strips at intersections to alert vision-impaired pedestrians of the crossing's presence.

Notable recommendations from recent School Travel Plans include the following:

### ***Irvington – Florence Avenue Elementary School (2021)***

- In addition to standard SRTS infrastructure improvements, this Travel Plan recommended retraining crossing guards on safe crossing techniques, hiring a second crossing guard, asking NJ TRANSIT to relocate the bus stop one block west or east of the school, and closing the street at the intersection of Lyons Avenue and Springfield Avenue to reduce the crosswalk distance and normalize the intersection (removing slip lane to removed skewed lane approach).

### ***Millburn – Millburn Middle School (2020)***

- In addition to standard SRTS infrastructure improvements, this Travel Plan recommended limiting parking on Haddonfield Road until after school drop-off, expanding traffic flow for drop-off, creating a visualized

walking path for students, and considering temporarily designating roads one-way during the morning drop-off.

- Recommendations for Old Short Hills Road (CR 527) included shortening the crossing of the intersection with Hobart Avenue.

### ***Newark – Camden Street Elementary School (2016) & Newark – McKinley Elementary School (2016)***

- In addition to standard SRTS infrastructure improvements, these two Travel Plans recommend implementing maintenance of nearby abandoned properties.

### ***Newark – Hawkins Street Elementary School (2016)***

- In addition to standard SRTS infrastructure improvements, this Travel Plan recommended holding an annual safety presentation for students on walking and biking safety, adding drop-off/pickup procedures to their Family handbook, and contacting SPCA or Animal Control to deal with stray dogs in the neighborhood.

### ***Newark – Sussex Avenue Renew School (2016)***

- In addition to standard SRTS infrastructure improvements, this Travel Plan recommended installing pedestrian lighting, implementing maintenance of abandoned properties, and discouraging use of U.S. Route 1A due to the danger of the I-280 off-ramp's high traffic volumes and poor maintenance.
- Recommendations for Central Avenue (CR 508) included installing pedestrian lighting and restriping faded crosswalks at the intersection with Fourth Street.

**Newark – Thirteenth Avenue School (2016)**

- In addition to standard SRTS infrastructure improvements, this Travel Plan recommended encouraging the City take action on numerous nearby abandoned properties.
- Recommendations for South Orange Avenue (CR 510) included striping a crosswalk at the intersection with Eighth Street, installing ADA features, conducting a speed study, and implementing other traffic calming measures.

**Orange – Park Avenue Elementary School (2017)**

- In addition to standard SRTS infrastructure improvements, this Travel Plan recommended holding a "Drive Slow & Safe on Park Avenue" campaign to slow traffic and alert drivers to protect students and prevent crashes.
- Recommendations for Park Avenue (CR 658) included repainting high-visibility crosswalks.

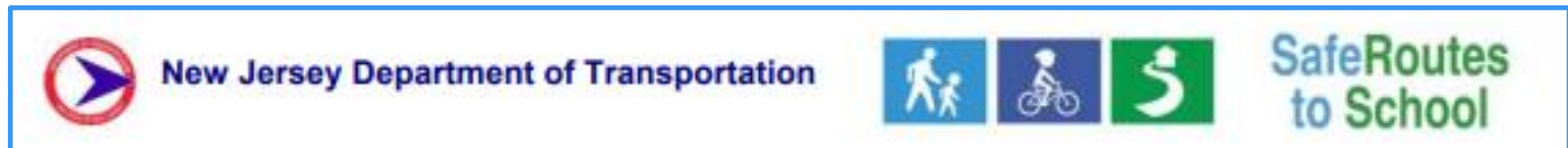
**West Orange – Kelly Elementary School (2021)**

- In addition to standard SRTS infrastructure improvements, this Travel Plan recommended holding a "Drive Slow and Safe on Pleasant Valley Way" campaign to slow traffic.
- Recommendations for Pleasant Valley Way (CR 636) included conducting a speed and traffic study and considering road diets, lane diets, and painted bike lanes.

**West Orange – Redwood Elementary School (2020)**

- In addition to standard SRTS infrastructure improvements, this Travel Plan recommended devising a better pickup/drop-off plan as traffic congestion and idling are frequent, and improving drainage near curb ramps and street corners including installing green infrastructure.

*Essex 2045 recognizes the Safe Routes to School program and the associated travel plans and recommendations as essential to achieving the Essex 2045 Vision and goals for safety, accessibility, equity, and access to opportunity. Application for the travel plan recommendations must be initiated by the responsible sponsor(s), including local municipalities and school districts.*





## K. Roadway Safety Audits

The Federal Highway Administration funded RSAs consist of a structured safety performance examination of a roadway and a report focused on potential road safety issues and opportunities to improve safety.

Notable recommendations from recent Road Safety Audits in Essex County include the following:

### ***East Orange: Central Avenue (CR 508) between Central Place and Munn Avenue (2020)***

- Recommendations included signal upgrades, conducting a lighting analysis and parking study, implementing a HAWK signal, and converting a roadway to one-way.

### ***Irvington: Intersections at Lyons Avenue (CR 602), Stuyvesant Avenue, Chancellor Avenue (CR 601), and Cordier Street (2014)***

- Recommendations included painting edge lines to visually narrow travel lanes, relocating stop bars, installing rumble strips, upgrading signals, repainting faded pavement markings, trimming overgrown foliage, widening sidewalks, implementing a road diet, and adjusting signal timing.

### ***Irvington: Springfield Avenue (CR 603) between Becker Terrace and Avon Avenue (2018)***

- Recommendations included upgrading curb ramps, studying pedestrian-scale lighting, enhancing bus stops, and implementing a leading pedestrian interval.

### ***Maplewood: Valley Street (CR 638) from Millburn Avenue to South Orange Avenue (2018)***

- Recommendations included developing an access management plan, repairing sidewalks, promoting education and enforcement efforts, extending a boulevard treatment, constructing a small roundabout, and investigating implementing an all-pedestrian phase.

### ***Newark: Ferry Street from Merchant Street to Market Street/Lexington Street (2015)***

- Recommendations included installing bike lanes and bicycle parking, planting trees, repairing pavement, installing curb extensions, and installing speed tables.

### ***Newark: Clinton Avenue between 11th Street and 20th Street (2020)***

- Recommendations included installing traffic calming measures, examining bicycle-safe grates, and installing speed feedback signs.

*Essex 2045 recommends that Essex County revisit the Roadway Safety Audit recommendation for County-owned roadways to establish priorities and feasibility, and select projects for future funding and grant opportunities.*

## L. Vision Zero Action Plan

Vision Zero is an approach to transportation planning and engineering that makes protecting human life on roadways the highest priority. From its earliest origins in Sweden, the Vision Zero movement has been dedicated to the idea that crashes are not accidents – they can be prevented through better roadway design and safer behaviors among all road users.<sup>xxxvi</sup>

The need for an Essex County Vision Zero action plan is based on the strategic emphasis on both equity and safety:

- Essex is among the most diverse of New Jersey Counties with substantial underserved communities
- These underserved communities are severely impacted by safety concerns: 28 percent of Essex County population lives in the equity-priority census tracts, yet 35 percent of all crashes occur there, 45 percent of FSI, 52 percent of ped, and 41 percent of bike crashes
- Essex County roadways with a 25-mph speed limit experience 60 percent of FSI crashes versus 28 percent statewide and 51 percent are at intersections versus 34 percent statewide

The high rate of FSI crashes on 25-mph roads prioritizes the need for a focus on traffic calming and intersection safety solutions that protect vulnerable road users like pedestrians and bicyclists.

Vision Zero focuses strategic action where it is most needed with the goal of eliminating transportation-related fatalities and severe injuries.

This approach has proven effective in nearby Hoboken which has achieved the Vision Zero goal of no traffic fatalities for four consecutive years from 2019–2022<sup>xxxvii</sup> through the Hoboken Vision Zero Action Plan.<sup>xxxviii</sup>

### **Priorities for the Essex County Vision Zero Action Plan**

- Implement 20 MPH residential speed zones to slow traffic and create safe, walkable, neighborhoods and downtowns
- Investigate targeted use of “No Turn on Red” at intersections. Right on Red is often incompatible with urban streets with high pedestrian demand
- Adopt countywide street design templates based on context to align road design with local use and context rather than emphasizing traffic flow through vehicle throughput
- Integrate Complete Streets, traffic calming as standard design elements
- Incorporate Green infrastructure into conceptual design to achieve strategic goals of sustainability and resilience.
- Leverage Essex 2045 demonstration project successes with low-cost, pedestrian-friendly projects that are accessibility and responsive to community concerns and needs
- Integrate Crime Prevention through Environmental Design (CPTED) approach into planning and design standards to create safe and accessible communities

*Essex 2045 recommends a Vision Zero Action Plan as essential to meeting the safety and equity needs and achieving the Strategic Vision and Goals.*



## M. Planning and Conceptual Studies

### **Countywide Bicycle, Pedestrian, and Micromobility Master Plans**

Essex 2045 identifies multimodal and vulnerable road user safety as priorities needs and strategic goals for Essex County, especially in underserved communities. Planning and design of a safe, low-stress bicycle network should be undertaken through an independent planning process.

Neighboring Passaic, Somerset, and Mercer Counties have all successfully adopted Bicycle Master Plans in the last five years with recommendations for hundreds of miles of bicycle facilities and supporting strategies and policies.

*Essex 2045 recommends a full countywide bicycle master plan to provide a comprehensive assessment and recommendation for safe and accessible cycling in Essex County.*

### **Countywide Freight and Goods Movement Study**

Freight activity at the Essex County-based ports and the International Airport is a critical economic engine for the region, and its success is essential for continued prosperity and competitiveness.

Essex County's proximity to New York City, New England, major international ports and airports, and a dense network of highways and railroads, make it one the country's most critical hubs for freight-related industries,

Neighboring Middlesex County recently completed a comprehensive freight related study of travel needs and impacts due to freight movements in the southern area of Middlesex County.

*Essex 2045 recommends a full countywide study of freight and goods movement infrastructure and project needs.*

### **Countywide Roadway Drainage and Flooding Study**

The County of Essex All Hazard Mitigation Plan (HMP) 2020 Update<sup>xxxx</sup> identifies transportation infrastructure as among the facilities "critical to the health and welfare of the population." and identified transportation failure as a hazard of concern for Essex County due to its extensive transportation network and vulnerability. Furthermore, the HMP finds that "Essex County is vulnerable to vehicular accidents, aviation accidents, railway accidents, bridge failures, and roadway failures and flood vulnerable roadways."

The HMP also identifies the risks related to flooding and climate impacts and noted at least 24 road closures in Essex County between 2014 and 2018 due to flooding from heavy rains. Four of these locations were on county-owned routes and many were in underserved communities in Newark and East Orange.

*Essex 2045 recommends an assessment of Roadway Drainage and Flooding impacts as part of the focus on both safety and equity.*



Responsible Jurisdiction	Location	Recommended Project , Strategy, or Planning Study	Type	Essex 2045: Strategic Goals					Timeframe	Possible Lead Agency	Level of Effort
			Project, Strategy, or Planning	Safety	Equity	Accessible and Responsive	Sustainable and Resilient	Economic Development and Job Creation			
Essex County	North Caldwell	Central Avenue/ Grandview Avenue (CR 631)	Project	X		X			Medium	County	Medium
Essex County	North Caldwell	Grandview Avenue (CR 631) at Grandview Place	Project	X		X			Medium	County	Medium
Essex County	Roseland	Eagle Rock Avenue (CR 611)	Project	X		X			Medium	County	Medium
Essex County	Montclair	Upper Mountain Ave (CR 620)	Project	X		X			Medium	County	Medium
Essex County	West Caldwell, Caldwell, N. Caldwell, Verona	Bloomfield Avenue (CR 506)	Project	X		X			Short	County	Medium
Essex County	Verona, Montclair, Glen Ridge, Bloomfield	Bloomfield Avenue Road Diet (CR 506)	Project	X		X			Short	County	Medium
Essex County	Verona	Bloomfield Avenue (CR 506) at Mount Prospect Ave. (CR 577)/Pompton Ave	Project	X		X			Medium	County	Medium
Essex County	Bloomfield	Belleville Avenue (CR 506) at J.F. Kennedy Drive (CR 652)	Project	X		X			Medium	County	Medium
Essex County	Belleville	Rutgers Street (CR 506) at Cortland Street	Project	X		X			Medium	County	Medium
Essex County	Bloomfield, Newark	Bloomfield Ave./ Broadway/ Clay St.(CR 506 Spur)	Project	X	X	X			Short	County	Medium
Essex County	Newark	Clay Street (CR 506 Spur) at McCarter Highway (SR 21)	Project	X	X	X			Medium	Municipality	Medium
Essex County	West Orange	Main Street (CR 659) at Northfield Street (CR 508S)	Project	X		X			Medium	County	Medium
Essex County	West Orange	Mount Pleasant Avenue (CR 577)	Project	X		X			Medium	County	Medium
Essex County	Verona, West Orange	Prospect Avenue (CR 577)	Project	X		X			Medium	County	Medium
Essex County	Roseland, Livingston	North Livingston Avenue (CR 527)	Project	X		X			Medium	County	Medium
Essex County	Roseland, Livingston	Eisenhower Parkway (CR 609) Extension	Project	X		X		X	Long	County	Medium
Essex County	West Caldwell	Passaic Avenue (CR 613)	Project	X		X			Medium	County	Medium
Essex County	Newark, Belleville, Nutley	Franklin Avenue (CR 645)	Project	X	X	X	X		Medium	County	Medium
Essex County	Belleville	Franklin Avenue (CR 645) at Mill Street	Project	X		X	X		Medium	County	Medium
Essex County	Bloomfield	Franklin Street (CR 509/CR 670) at Watsessing Avenue (CR 509)	Project	X		X			Medium	County	Medium
Essex County	Cedar Grove	Bradford Avenue (CR 640) at Crestmont Road (MP 1.05) /Woodstone Dr.	Project	X		X			Short	County	Medium



Essex County	Cedar Grove	Little Falls Road (CR 619) at NJ Transit Railroad Underpass	Project	X		X			Long	County	Medium
Essex County	Cedar Grove, N. Caldwell	Mountain Avenue (CR 527)	Project	X		X			Medium	County	Medium
Essex County	Essex Fells	Roseland Avenue (CR 527)	Project	X		X			Medium	County	Medium
Essex County	Irvington, Newark	Springfield Avenue Road Diet	Project	X	X	X			Medium	County	Medium
Essex County	Irvington, Newark	Springfield Avenue at Clinton Avenue (CR 665), Irvington	Project	X	X	X			Medium	County	Medium
Essex County		Springfield Avenue at Myrtle Avenue, Irvington	Project	X	X	X			Medium	County	Medium
Essex County		Springfield Avenue at Brookside Avenue, Irvington	Project	X	X	X			Medium	County	Medium
Essex County		Springfield Avenue at North Maple Avenue, Irvington	Project	X	X	X			Medium	County	Medium
Essex County		Springfield Avenue at Grove Street (CR 509)	Project	X	X	X			Medium	County	Medium
Essex County		Springfield Avenue at Bergen Street, Newark	Project	X	X	X			Medium	County	Medium
Essex County		Springfield Avenue at Broome Street, Newark	Project	X	X	X			Medium	County	Medium
Essex County	Irvington, Newark	Chancellor Avenue (CR 601)	Project	X	X	X			Medium	County	Medium
Essex County	Irvington, Newark	Lyons Avenue (CR 602)	Project	X	X	X			Medium	County	Medium
Essex County	East Orange, Newark	Central Avenue (CR 508)	Project	X	X	X			Medium	County	Medium
Essex County	East Orange, Newark	Central Avenue (CR 508) at South Munn Avenue, East Orange	Project	X	X	X			Medium	County	Medium
Essex County	Bellville, Newark	Broadway Avenue Road Diet (CR 667)	Project	X	X	X			Medium	County	Medium
Essex County	Newark	Broadway Avenue Road Diet (CR 667) at East 3rd Avenue	Project	X	X	X			Medium	County	Medium
Essex County	South Orange, Maplewood, Irvington	Irvington Avenue/Clinton Avenue (CS 665)	Project	X	X	X	X		Medium	County	Medium
Essex County	South Orange, Newark	South Orange Avenue (CS 510)	Project	X	X	X	X		Short	County	Medium
Essex County	Newark	South Orange Avenue (CS 510) at Sanford Avenue (CR 605)	Project	X	X	X	X		Short	County	Medium
Essex County	Newark	South Orange Avenue (CS 510) at Grove Street (CR 509)	Project	X	X	X	X		Short	County	Medium
Essex County	West Orange, East Orange, Newark	Park Avenue (CR 658)	Project	X	X	X			Medium	County	Medium
Essex County	Newark	Jackson Street Bridge over Passaic River	Project	X	X	X			Medium	County	High
Essex County	Countywide	Complete Streets Policy	Planning	X	X	X	X	X	Short	County	Low
Essex County	Countywide	Complete Streets Implementation Plan	Planning	X	X	X	X	X	Medium	County	Medium
Municipality	Various Municipal	Master Plan Updates	Planning	X	X	X	X	X	Medium	Municipality	Low



Essex County, Municipality	Countywide	Sidewalk Policies	Strategy	X	X	X	X	X	Short	Municipality	Low
Essex County, Municipality	Countywide	Safe System Approach	Strategy	X	X	X	X	X	Continuing	Various	Medium
Essex County, Municipality	Countywide	Safe Streets and Roads for All (SS4A)	Strategy	X	X	X	X	X	Continuing	County	Medium
Essex County	Countywide	EV and CAV Strategy	Strategy	X	X	X	X	X	Long	County	High
Rail and Transit Concepts (various)										NJ TRANSIT	
Essex County, NJ TRANSIT	Belleville, Newark, Nutley	Paterson-Newark Transit	Planning	X	X	X	X	X	Long	NJ TRANSIT	High
Essex County, NJ TRANSIT	Newark	PATH Extension to Dayton/EWR	Planning	X	X	X	X	X	Long	NJ TRANSIT	High
Essex County, NJ TRANSIT	Countywide	Flexible Route On-Demand Microtransit	Planning	X	X	X	X	X	Long	NJ TRANSIT	High
Essex County, NJ TRANSIT	TBD	Newark Light Rail extension north into suburbs	Planning	X	X	X	X	X	Long	NJ TRANSIT	High
Essex County, NJ TRANSIT	East Orange	Reactivation of Ampere Station on Montclair-Boonton line	Planning	X	X	X	X	X	Long	NJ TRANSIT	High
PANYNJ	Countywide	PANYNJ Climate Change Actions (various)	Strategy	X	X	X	X	X	Long	PANYNJ	Long
Multiuser Trails (various)										Various	
Essex County	Belleville, Bloomfield, Glen Ridge, Montclair, Newark	Essex-Hudson Greenway Connector	Project	X	X	X	X	X	Medium	NJDEP	Medium
Essex County	Bloomfield, Montclair, Newark	Morris Canal Greenway	Project	X	X	X	X	X	Medium	County	Medium
Safe Routes to School Projects (various)										Various	
Essex County, Municipality	Irvington	Florence Avenue Elementary School	Project	X	X	X	X		Medium	County	Low
Essex County, Municipality	Millburn	Millburn Middle School	Project	X	X	X	X		Medium	County	Low
Essex County, Municipality	Newark	Camden Street Elementary School	Project	X	X	X	X		Medium	Municipality	Low





Essex County, Municipality	Newark	McKinley Elementary School	Project	X	X	X	X	Medium	Municipality	Low
Essex County, Municipality	Newark	Hawkins Street Elementary School	Project	X	X	X	X	Medium	Municipality	Low
Essex County, Municipality	Newark	Sussex Avenue Renew School	Project	X	X	X	X	Medium	Municipality	Low
Essex County, Municipality	Newark	Thirteenth Avenue School	Project	X	X	X	X	Medium	Municipality	Low
Essex County, Municipality	Orange	Park Avenue Elementary School	Project	X	X	X	X	Medium	County	Low
Essex County, Municipality	West Orange	Kelly Elementary School	Project	X	X	X	X	Medium	County	Low
Essex County, Municipality	West Orange	Redwood Elementary School	Project	X	X	X	X	Medium	Municipality	Low
Roadway Safety Audit Projects (various)										
Essex County, Municipality	East Orange	Central Avenue (CR 508)	Project	X	X	X	X	Medium	County	Medium
Essex County, Municipality	Irvington	Intersections at Lyons , Stuyvesant Aves, Chancellor, Cordier Sts	Project	X	X	X	X	Medium	County	Medium
Essex County, Municipality	Irvington	Springfield Avenue (CR 603)	Project	X	X	X	X	Medium	County	Medium
Essex County, Municipality	Maplewood	Valley Street (CR 638)	Project	X	X	X	X	Medium	County	Medium
Essex County, Municipality	Newark	Ferry Street	Project	X	X	X	X	Medium	Municipality	Medium
Essex County, Municipality	Newark	Clinton Avenue	Project	X	X	X	X	Medium	Municipality	Medium
Essex County	Countywide	Vision Zero Action Plan	Planning	X	X	X	X	Medium	Municipality	Medium
Essex County Planning and Conceptual Studies (various)										
Essex County	Countywide Study	Countywide Bicycle, Pedestrian & Micromobility	Planning	X	X	X	X	Medium	County	Medium
Essex County	Countywide Study	Countywide Freight and Goods Movement	Planning	X	X	X	X	Medium	County	Medium
Essex County	Countywide Study	Countywide Safety Action Plan	Planning	X	X	X	X	Short	County	Medium
Essex County	Countywide Study	Countywide Roadway Drainage and Flooding	Planning	X	X	X	X	Medium	County	Medium

The projects are listed or proposed in this table as a potential initiative, indicating they need further study to be considered or explored. Note that at this stage, no concrete improvements or outcomes have been identified or documented. An evaluation process is essential to determine whether the improvement is feasible, aligns with the plan goals, and can deliver the desired impacts. To evaluate the project's viability and potential for improvement, a thorough assessment or analysis is necessary to identify the cause of the project need and corresponding solution. This assessment may involve factors such as feasibility, cost-benefit analysis, stakeholder consultation, or engineering/constructability, depending on the nature of the project.

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