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15-Minute Neighborhoods

A Pathway to Creating Healthier, More Just, Resilient, & Sustainable Communities in New Jersey

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- The **New Jersey Climate Change Resource Center (CCRC)** at Rutgers University is a climate service organization established in 2020 pursuant to Public Law 2019, c. 442. The mission of the CCRC is to create and support the use of impartial and actionable science to advance government, public, private, community-led, and nongovernmental sector efforts to adapt to, and mitigate, a changing climate.
- The **New Jersey State Policy Lab** is an independent research center operated by the Bloustein School of Planning and Public Policy and the School of Public Affairs and Administration at Rutgers University. The Policy Lab assists the State of New Jersey in the design, implementation, and evaluation of state policies and programs by conducting rigorous evidence-based research with a focus on equity.
- The **New Jersey Chapter of the Nature Conservancy (TNC)** has, for more than 60 years, been working to protect the lands and waters on which all life depends.

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Preface

Over the past several years, several policy threads have gained prominence in New Jersey. These include adapting to climate change, advancing social justice, and addressing the needs of overburdened communities. In addition, the global COVID-19 pandemic's disparate impacts on traditionally marginalized populations (low-income, Black and Brown communities, people with disabilities, and older adults) highlight the need to address mobility and accessibility issues more holistically. Finally, in the aftermath of the pandemic, Congress and President Biden came together to pass one of the most extensive and potentially transformative infrastructure funding bills that will distribute trillions of dollars to state and communities throughout the U.S. to make investments in broadband, transportation, water, and other infrastructure systems.

Near-term, multi-billion-dollar investments in infrastructure, a revolution in transportation technologies not seen in a century, the recalibration of relationships between people and places brought about by the pandemic, and converging policies related to energy, health, climate, transportation, and environmental justice provide New Jersey with an unprecedented opportunity to rethink and adjust how we design and build communities.

For the first time in decades, communities can transcend conventional transportation and land use planning paradigms by taking a holistic approach to addressing the future mobility needs of New Jersey's residents, especially those residents that have been historically marginalized by available transportation modes. We hope that the findings from this research and the recommendations made in this report inspire bold action that helps to create a healthier, more just, resilient, and sustainable New Jersey for current and future generations.

Executive Summary

This study investigated how a comprehensive, multi-goal planning and policy framework can be used to achieve carbon-neutral transportation choices that simultaneously support healthy, just, and resilient communities for all New Jersey residents.

The 15-minute neighborhood concept gained visibility as the global pandemic demonstrated that local access to basic life needs is critically important. Fifteen-minute neighborhoods provide residents with easy access to parks, schools, gathering places, social services, places to buy healthy fresh food, and other amenities within a comfortable walk or bike ride. In more urbanized settings, 15-minute neighborhoods also provide residents with access to frequent and reliable public transit. Thriving 15-minute neighborhoods rely on not just desired destinations within a 15-minute walk or bike ride but also a safe, convenient, and climate resilient network of walkways, bicycle facilities, and the other amenities such as traffic calming, green infrastructure, lighting, and street furniture necessary to encourage people to drive less.

Near-term, multi-billion-dollar investments in infrastructure, a revolution in transportation technologies not seen in a century, the recalibration of relationships between people and places brought about by the pandemic, and converging policies related to energy, health, climate, transportation, and environmental justice provide New Jersey with an unprecedented opportunity to rethink and adjust how we design and build communities. This report was prepared by the Alan M. Voorhees Transportation Center at Rutgers University (hereafter, the “Rutgers team”) for the New Jersey Climate Change Alliance and the NJ Climate Change Resource Center, the New Jersey State Policy Lab, and The Nature Conservancy. The report summarizes the results of a two-year planning and research study designed to investigate how a comprehensive, multi-goal planning and policy framework can be used to achieve carbon-neutral transportation choices that simultaneously support healthy, just, and resilient communities for all New Jersey residents.

Phase 1 research involved a comprehensive literature review that assessed the current state of knowledge and identified potential leading practices related to healthy communities, transportation equity and mobility justice, climate resilience and green infrastructure, reducing emissions from the transportation sector, and the emerging concept of 15-minute accessibility as an organizing framework for community planning. Phase 1 also included an exploration of these topics from the perspective of national thought leaders, an analysis of

current conditions in eight New Jersey counties, and obtained input from stakeholders in those eight counties through a series of online virtual workshops.

Phase 2 explored whether the 15-minute neighborhood planning model could be used in New Jersey to create healthier, more just, resilient, and sustainable communities. To do this, the project team worked with three groups of urban planning graduate students and community leaders in three municipalities that exemplified New Jersey's diverse landscape of urban, suburban, and rural place types. The three communities selected to be case studies were the City of Newark in Essex County, the Township of Cherry Hill in Camden County, and the City of Bridgeton in Cumberland County. In each location the teams worked with local leaders to identify ways to simultaneously reduce greenhouse gas (GHG) emissions, make it easier to travel, improve health, increase transportation system efficiency, improve the resilience of communities and infrastructure, and ensure equitable mobility and access for residents. The local planning case studies were informed by the results of Phase 1 research, including stakeholder input from county visioning workshops. Additional stakeholder interviews were conducted by the team in Bridgeton and a public workshop was held in Cherry Hill to solicit feedback from residents. Findings and recommendations for each case study location are presented in Chapter 2.

Research Findings:

The input received from stakeholders at our eight county workshops, the evidence from our three local case studies, and the literature and past studies on healthy, equitable, resilient, and sustainable mobility and communities revealed numerous challenges associated with today's built environment conditions. These challenges cut across topics and community types. In addition, stakeholders at the workshops identified a consistent set of desired future outcomes and there was significant agreement in both the literature and stakeholder input regarding the solutions that could bring about these desired outcomes. Throughout the two phases of research, recurring themes were evident and a common set of solutions emerged. The following is a summary of key findings from the research:

- **Complete streets and active transportation provide path to improved safety, better health, enhanced connectivity, and lower greenhouse gas emissions.** Many residents in the three case study communities live within a 15-minute walking distance from amenities and desired destinations and almost all residents live within a 15-minute bike or e-bike ride of those destinations. However, safe, convenient, well-maintained, and inviting pedestrian and bicycle infrastructure was lacking in all three communities. Sidewalks, crosswalks, and ADA-accessible curb ramps were nonexistent, incomplete, and/or in poor condition in many locations. Similarly, there was a general lack of adequate bicycle infrastructure and almost no dedicated bicycle lanes in the three communities. Lack of street trees and other amenities such as street furniture and traffic calming further discourages walking and biking. The lack of street trees makes walking on hot days very unattractive.

These conditions limit both real and perceived accessibility to desired destinations. This was true in urban, suburban, and rural settings. In addition, in all three case study communities, road widths and travel lanes in many locations were observed to be too wide and designed to accommodate only cars. These instances were identified as an opportunity for a “road diets” that could right-size and reallocate road space. Stakeholders in all eight phase 1 counties and all three Phase 2 case study teams identified complete streets strategies as way to improve pedestrian and bicycle access safety and provide needed connectivity for pedestrians and cyclists.

- **New transportation technologies and modes have the potential to bring about transformative change.** A revolution in transportation is underway but changes are needed to reap the benefits of these new technologies and modes. Electric bikes for example have the potential to be transformative but existing infrastructure is not designed well to accommodate these options. E-bikes and e-scooters offer a solution to address first- and last-mile mobility gaps and increase accessibility for all residents. At the same time, these modes can reduce emissions and vehicle miles traveled in single-occupant vehicles. Stakeholders in all eight counties and all three case study teams recommended ways to address current infrastructure deficiencies and promote the use of e-bikes and e-scooters.
- **Green infrastructure and nature-based solutions will be key to addressing climate impacts.** Climate hazards including flooding from stormwater runoff and/or sea-level rise and extreme hot temperatures caused by urban heat island effects were identified as risks facing all residents in all eight Phase 1 counties and in all three Phase 2 communities. Too much impervious surface was observed in all three Phase 2 case study locations. This was particularly true in Bridgeton and Newark, but to a lesser extent in Cherry Hill. The implementation of green infrastructure best practices such as using pervious paving materials, tree planting, rain gardens, green roofs, rain harvesting, bioswales, and other nature-based solutions were recommended as strategies to help mitigate these threats during each of the eight county workshops. In addition, in Cherry Hill, where local residents were given an opportunity to participate in an online workshop, there was almost unanimous support from green infrastructure solutions.¹
- **Planning and zoning reforms are needed to facilitate the creation of “complete” 15-minute neighborhoods.** Complete 15-minute neighborhoods have a mix of housing types affordable to a range of incomes, a variety of desired destinations and amenities, and robust pedestrian and bicycling infrastructure to connect people to where they need to go without having to drive. Existing zoning requirements were identified as an impediment to redevelopment and creating complete, 15-minute neighborhoods in all eight counties and the three case study communities. In Bridgeton and Cherry Hill, restrictions on mixed-use development limited opportunities for redevelopment. In Newark, density restrictions were identified as a constraint.

¹ Resident workshops were planned in Newark and Bridgeton, but attendance was low.

In all three communities, restrictions on multifamily housing were an impediment to creating a wider mix of housing types at densities that support more walking, biking and transit use. Existing retail corridors, office complexes, and shopping centers were identified as prime locations for infill, redevelopment, and rezoning. In Bridgeton, redevelopment of brownfield sites was identified as a priority. In Cherry Hill and Newark, transforming existing shopping malls and addressing vacant properties were identified as priorities.

- **Placemaking and activity programming.** Stakeholders in all eight counties and all three case study teams recommended activity programming such as movie screenings, cultural nights, farmer’s markets, public art, historic tours, and others to increase economic activity, recreation, and entertainment opportunities closer to neighborhood residents and to promote a sense of community and foster active mobility and living. In Newark and Bridgeton, vacant and underutilized properties were identified as potential opportunities to utilize for community programming.
- **Better coordination and creative partnerships can help to support change.** Many of the stakeholders that participated in the county planning workshops and all three case study teams identified the need for improved coordination and partnerships between jurisdictions, levels of government, and the private sector. Coordination and partnerships were deemed to be essential to advancing recommendations aimed at creating a healthier, more just, resilient, and sustainable New Jersey. In Bridgeton, partnerships between government, property owners, private investors, and community organizations were identified as critical for successful implementation. In Newark, cross-border coordination is needed with neighboring jurisdictions where flooding and zoning conflicts such as use, density, and bulk requirements (i.e., building height, setbacks, etc.) are an issue. In Cherry Hill, cooperation and partnership with developers were seen as key, and in all three communities, coordination between municipal, county, and state officials will be needed to implement recommended pedestrian and bicycle improvements.
- **Details regarding our built environment matter.** What was also made clear from the literature review, stakeholder input, and the planning conducted in each of the three case studies is that details matter. Most importantly, it is not enough to be theoretically able to walk or bike between an origin and a destination. People must feel safe and empowered to drive less and walk, bike, and take transit more. This means having well-designed streets with safe and well-maintained sidewalks, safe and protected bike lanes, frequent, clearly marked crosswalks, ADA-accessible curb ramps, amenities such as street trees and furniture, well-lit streets and bus stops with shelters, a variety of mobility options available, and a mix of housing types and destinations located proximate to one another. Mobility options must also be affordable and accessible to people of all incomes and abilities.

Based on these research findings, the project team developed a vision for what a healthier, more just, resilient, and sustainable New Jersey might look like in 2050. The following statements describe a state made better by the planning and investments pursued between now and 2050.

2050 Vision Statement

To provide a framework for setting aspirational goals and recommendations, the project team drafted a series of vision statements that reflect the finding from our research and input received from various stakeholders and individuals throughout the planning process. The following statements describe a state made better by the planning and investments pursued between now and 2050.



Healthier

New Jersey's residents are healthier than they were three decades ago. Rates of physical activity are high because people are walking and biking more. Obesity rates have declined dramatically, which prompted a decline in chronic conditions, such as diabetes, high blood pressure, heart disease, and others. Air quality is healthier too because people are driving less and investments in green infrastructure has expanded tree canopy in every community, especially in urban areas. Asthma rates are down statewide. Trees have also helped to cool air temperatures during the summer, so vulnerable populations like older adults are able to withstand successive days of extreme heat.



More Just

New Jersey residents in all age and income groups in communities statewide have access to affordable, convenient, and safe transportation options, including an extensive network of well-maintained sidewalks, an interconnected system of protected bicycle lanes and paths, expanded transit options and transit stops and stations that have the amenities needed to make riding comfortable, safe, and pleasurable. The e-bike incentive program put in place in 2024 dramatically expanded the number of e-bikes used in the state and e-bikes have become the mode of choice for short local trips and some longer regional trips. These options make accessing jobs, essential services, healthy food, recreation, and other amenities easy for everyone.



Resilient

New Jersey communities are ready for adverse events—extreme weather, climate change, or other major set-backs—and can quickly bounce back from them. Wetlands and other important ecosystems are protected and restored. Investments that expanded green infrastructure, including tree canopy, rain gardens, green streets, and other nature-based solutions have paid off. There is less impervious surface, stormwater is well managed, temperatures are tolerable even on very hot days, air quality has improved and so has quality of life throughout New Jersey. Conditions for socially vulnerable populations have improved.



Sustainable

Greenhouse gas emissions are down substantially from where they were in 2020. New Jersey just achieved its target of reducing emissions by 80 percent. An accomplishment that was only possible due to the planning and investments that started in the early 2000's and were reinvigorated in the 2020's. Emission reductions from the transport sector are a particular bright spot. Nearly 100 percent of the vehicle fleet transitioned to EVs and VMT is down by more than 50 percent. Green streets and a vastly expanded tree canopy statewide contribute to removing pollution from the air and sequestering carbon. Green streets have also reduced stormwater runoff and flooding and helped to improve water quality in the State's streams, rivers, lakes, and bays.



Effective Governance

None of these accomplishments would have been possible without extensive public engagement and significant coordination and cooperation among jurisdictions, between levels of government, and in partnership with the private and non-profit sectors. The great gains made over the past thirty years would also not have been possible without the thoughtful, innovative, and well-planned investment of state and federal funding, especially funds made available by the federal Bipartisan Infrastructure Law passed by Congress in 2021. Without the political leadership and courage to chart a course different from business as usual, state, and local leaders would not have been able make this vision a reality.



Aspirational Targets

The following goals and targets are proposed in the spirit of inspiring bold action to achieve the vision of becoming a healthier, more just, resilient, and sustainable New Jersey:

- Create conditions that allow **80% of NJ residents to live in complete, 15-minute neighborhoods.**
- Build **10,000 miles of protected bicycle lanes** statewide.
- Expand the number of NJ households with **e-bikes by 1.5 million** while providing 500,000 working age (16-64), low-income residents incentives worth 50% of the e-bike purchase price.
- Reduce **per driver VMT 30% by 2035 and 50% by 2050.**
- Increase **transit ridership 15% by 2035 and 50% by 2050** and increase the percentage of residents that have access to **high-frequency transit service to 40% by 2035 and 60% by 2050.**
- Reduce **impervious cover by 10%** statewide.
- Expand **tree canopy cover to 40%** in every municipality.

Chapter 3 provides for more detail regarding the rationale for each target.

Planning and Policy Recommendations

Achieving this vision and reaching these targets will require a myriad of actions by the government, the private sector, and individuals. All have a significant role to play. The choices we make about how we build and maintain our communities matter and the choices we as residents and visitors make in terms of how we travel will profoundly impact whether the vision described earlier can be achieved. Toward this end, we propose the following suite of ten recommendations. Chapter 4 provides more detail.

1. Embrace the 15-minute neighborhood planning model.

The 15-minute planning model appears to be adaptable to most land use settings in New Jersey. With that said, we need not strive to make every place into a 15-minute neighborhood, especially in the more rural parts of the state. The model is most appropriate for urban and suburban communities and town centers and villages located in rural settings. In addition, some planners suggest that there are important benefits to be derived from creating an interconnected network of 15-minute neighborhoods that form the fabric of 15-minute towns and cities. This is the approach Portland, OR and other cities worldwide are taking.

The **New Jersey Office of Planning Advocacy (NJOPA)** and **State Planning Commission (SPC)** should consider adopting the 15-minute neighborhoods planning model as a central theme of the 2023-2024 state plan update process. The principles of complete 15-minute neighborhoods, including an emphasis on 15-minute accessibility by walking, biking, e-bikes, and e-scooters can be incorporated in the plan’s statewide goals, policies, and strategies. Municipalities and counties should be encouraged to consider and incorporate the 15-minute planning model in their local planning processes as part of the state plan cross-acceptance process. In addition, the **Governor’s office** and relevant state agencies can encourage, require, and support municipalities to integrate the principles of 15-minute neighborhood planning into upcoming Mount Laurel Fourth Round Fair Share Plans and Housing Elements, which will drive the bulk of residential development in NJ over the coming decade.

Municipalities can integrate the 15-minute neighborhood concept into local plans and processes, engage residents in a 15-minute neighborhood planning process, map neighborhood boundaries and important destinations and amenities, analyze how accessible destinations and amenities are to residents in each neighborhood or area of your municipality, inventory and assess existing pedestrian and bicycle infrastructure conditions, expand the mix of housing types available in each neighborhood, especially proximate to desired destinations and amenities, and assess which areas have the best and worst accessibility and take steps to improve conditions.

Finally, the state’s three **Metropolitan Planning Organizations (MPOs)** can incorporate 15-minute accessibility planning into their unified planning work programs and provide technical assistance and funding support to municipalities and counties to develop 15-minute neighborhood/city plans and work with counties, **Transportation Management Associations (TMAs)**, and transit providers to identify existing transit services, transit stop locations, frequency of service, and the availability and condition of transit amenities such as signs, benches, shelters, lighting, and information.

2. Develop and implement a statewide Vehicle Miles Traveled (VMT) reduction strategy.

While transitioning vehicles to zero emissions technology like battery electric will reduce energy consumption and GHG emissions, the negative impacts associated with billions of VMT—traffic congestion, reliance on cars for most travel, land dedicated to parking, the cost of road upkeep and maintenance, and the increasing share of family income required to pay for transportation will not be improved. Creating healthier, more just, resilient, and sustainable communities will require us to reduce the number of miles driven in New Jersey each year. Significant reductions in VMT will require a strong policy context, incentives, and a range of programs to encourage New Jersey residents to drive less.

Toward this end, the **New Jersey State Legislature** should consider passing legislation that establishes a VMT reduction target and direct the **New Jersey Department of Transportation (NJDOT)** and partner agencies to assess current policies to identify which potentially impact VMT and develop a comprehensive VMT reduction strategy to meet the targets. Among other requirements, the strategy should include policies, programs, and incentives to empower New Jersey residents to drive less, encourage transit-oriented development and transit-friendly land use and design, and shift goods movement from highway and to freight rail.

The legislation could also direct the **NJ TRANSIT** Office of Real Estate and the Transit-Friendly Planning Program and NJDOT Transit Village staff to develop and implement a strategy to decrease surface parking lots and increase residential and commercial development adjacent to the state's transit station assets, require the **New Jersey Economic Development Authority, New Jersey Housing and Mortgage Finance Agency, and the New Jersey Redevelopment Agency** to incorporate a VMT assessment for all new residential and commercial development and redevelopment projects with a construction value \$5 million or more that apply for state financial assistance, and direct the **Department of Community Affairs (NJCA)** and the **Site Improvement Advisory Board** to review and revise the Residential Site Improvement Standards to make changes that will advance VMT reduction and increase active transportation and transit mode share.

In addition, the **legislature** should use the upcoming process to reauthorize the New Jersey Transportation Trust Fund to focus on mobility management and VMT reduction strategies. The legislation should set a revenue target commensurate with meeting VMT reduction and other targets recommended herein, including a significant increase in dedicated funds to support complete streets implementation that dramatically improves and expands pedestrian and bicycle infrastructure statewide and implementation of micromobility solutions that make it easier to get around without driving. The reauthorization legislation should also transition from the current motor fuels tax structure to mileage-based user fees by 2035. This structure will incentivize driving less.

3. Encourage active transportation and expand the availability of micromobility options.

Active transportation such as walking and biking, as well as micromobility options such as e-bikes and e-scooters can expand accessibility to desired amenities and destinations and help people live active healthier lifestyles. Walking, biking, and travel using micromobility options reduces GHG emissions and other pollution that harms the environment and human health.

To empower people to drive less and make it easier, safer, and more attractive to walk and bike more, **municipalities and counties** should consider adopting and implementing complete streets policies, including taking the steps necessary to incorporate complete streets improvements

in local roadway construction and maintenance programs, partnering with TMAs to conduct jurisdiction-wide road safety and walkability/bikability audits and use the findings of the audits to develop and implement Vision Zero action plans that seek to eliminate **ALL** fatal and serious injury crashes within their jurisdictions. Municipalities can also revise local development regulations to incorporate complete streets and bicycle and pedestrian friendly design standards, use the local land development process to advance recommended improvements, and engage private vendors to expand the availability of e-bike and e-scooter programs.

The **NJDOT** can continue to implement the NJDOT complete streets policy through both capital projects and maintenance projects associated with the state highway network, increase the amount of funding available through the agency's Local Aid and Economic Development grant programs, including the Safe Routes to School, Municipal Aid, Bikeways, Safe Routes to Transit and Transit Villages, and Transportation Alternatives Set-Aside programs, prioritize implementation of complete and green streets improvements through these programs, and allow funds from these programs to enable local governments to do the planning and feasibility studies necessary to access state and federal transportation grants, in part through an expansion of the department's popular but oversubscribed on-call consulting services.

4. Create the first-in-the-nation, statewide network of protected bicycle lanes designed to improve safety, increase access to local destinations, and facilitate longer trips that connect to regional destinations.

Currently bike lane implementation relies on actions at three levels of government depending on which jurisdiction owns, operates, and maintains each roadway. This leads to disjointed infrastructure with varying design approaches which can make navigating to destinations difficult and unsafe for cyclists. For these reasons, New Jersey should plan and implement the first ever statewide network of interconnected protected bike lanes on municipal, county, and state roadways. This will require significant coordination and cooperation among jurisdictions and between levels of government. It will also require commitment to significant and coordinated capital investment and maintenance over time. To be effective, it will take leadership at all levels of decision-making.

Toward this end, **municipalities and counties** can inventory and map current bicycle facilities including both on- and off-road lanes and paths, develop a bicycle level of stress/comfort map using existing MPO resources or using one of several successful methodologies used by jurisdictions in New Jersey and nationally, identify critical gaps in the bicycling network, especially areas with a history of traffic crashes, identify potential off-road corridors including properties owned by utility companies and railroads, map recommended future bicycle routes, including on- and off-road facilities that provide connectivity between municipalities and essential destinations, such as schools, parks, libraries, colleges, job centers, and transit, document pavement widths and existing roadway cross-sections and develop concept plans for adding

the recommended bicycle facilities, develop prioritization plans for implementing the identified improvements, adopt local Bicycle and Pedestrian Master Plans and work with the planning board to adopt the plan as an element of the municipal comprehensive plan, ensure that repaving and restriping maintenance cycles incorporate recommendations and implement bicycle lanes, identify innovative sources of funding and apply for county, state, and federal grants as they are made available, and ensure municipal staff and outside consultants are trained in the latest bicycle infrastructure guidelines.

MPOs can collect and compile local bicycle facilities maps into a region-wide inventory/database that can be used by municipalities, counties, and the NJDOT to identify network gaps and make sure routes connect across jurisdictional boundaries to create a more seamless statewide network, host meetings between neighboring jurisdictions to coordinate bicycle plans beyond local boundaries, collect and maintain a database of regional bicycle traffic counts, and provide a reliable mechanism for the public to report pedestrian and bicyclist infrastructure issues on state, county, and municipal facilities, and provide recommendations to improve reporting methods or increase the awareness of available reporting methods.

The **NJDOT** can update NJ's statewide bicycle and pedestrian master plan and ensure it is connected to long-range transportation plans, update the NJDOT ADA transition guide to address e-mobility, update the NJ straight-line diagram database to include comprehensive bicycle and pedestrian infrastructure data, create a New Jersey bicycle facilities planning, engineering, and construction management corps that can lead efforts to identify, construct and maintain a statewide network of bicycle facilities, including protected bike lanes on municipal, county, and state-owned roadways, work with utility companies to maximize the use of utility corridors statewide for bicycle travel, incorporate protected bicycle facilities into all bridge replacement projects, and incorporate protected bicycle facilities into regional road and highway improvements.

NJDOT can also elevate the visibility and stature of department's bicycle and pedestrian program coordinator's office and the Complete Streets program to have equal influence as other divisions and programs within the department, review agency manuals, policies, and other documents, including the Roadway Design Manual, to incorporate the latest design recommendations for protected bicycle lanes as developed by outside manuals (NACTO), work with NJDCA to update the Residential Site Improvement Standards to accommodate complete streets, review the state highway access code and identify opportunities to strengthen it to provide greater pedestrian and bicycle safety, review the Municipal Land Use Law and provide recommendations to strengthen it to enhance pedestrian and bicycle safety, and work with the **NJ Department of Environmental Protection (NJDEP)** to update the 2009 NJ Trails Plan to ensure a seamless statewide network of facilities that connect to on-road facilities and address the need for midblock trail crossings.

5. Create a statewide e-bike incentive program.

E-bikes are increasingly popular as a mode of transportation as they help riders reach their destination faster and, often, more conveniently than a traditional bicycle. E-bikes are inexpensive to operate and more affordable than other travel options, however, the purchase price of e-bikes can be prohibitively expensive for some purchasers. Over the past decade, e-bike purchase incentive programs have been implemented throughout North America. The programs, which are most often structured as either point-of-sale vouchers or post-sale rebates, are administered by a range of jurisdictions and organizations, including local, county, and state government agencies, universities, and others.

As of April 2023, seven states (California, Colorado, Connecticut, Hawaii, Massachusetts, Rhode Island, and Vermont) have already implemented statewide e-bike incentive programs, and 16 additional states have introduced legislation to create or renew funding for e-bike incentive programs. The **New Jersey State Legislature** should consider adopting legislation that directs the **NJ Board of Public Utilities (BPU)** or other state agency to create and implement a statewide e-bike incentive program that provides a sliding-scale point-of-sale incentive for up to 50 percent of the purchase price based on income eligibility. With or without a statewide program, **municipalities, counties, and non-profit organizations** can also allocate funding for and implement local e-bike incentive programs of their own.

6. Make it more convenient and attractive to use public transit and expand transit service where feasible.

Equitable and just mobility means that all New Jersey residents regardless of ability or resources should have safe, convenient, and affordable travel options that allow them to reach the places they need to go. To make it more convenient and attractive to use public transit, New Jersey leaders can imagine a new mobility future for the state that includes a network of designated mobility corridors that speed travel for transit customers and connect them to a constellation of high-amenity mobility hubs where residents can access a range of shared mobility services. **NJ TRANSIT** and other regional transit operators, including **PATH, PATCO, SEPTA, private ferry operators, and Amtrak** can identify and designate a network of mobility corridors statewide and develop corridor enhancement strategies for each corridor that include service changes, changes to bus stop spacing, and other operational changes. **NJ TRANSIT** can also work with **NJDOT, local governments, and other partners** as needed to make appropriate investments in physical infrastructure, including but not limited to complete streets improvements and bus priority treatments.

NJ TRANSIT should also consider systematically modernizing bus services to improve service quality. This should include regularly assessing and making changes to existing bus routes and services to meet current and future market demands and customer needs, fully implementing the

recommendations from NJ TRANSIT's Newark and Camden New Bus studies and other similar studies as they become available, introducing new and more frequent service in underserved areas such as on existing bus routes and light rail lines where appropriate, expanding services in strategic locations, such as constructing the Northern Branch Corridor and Westside extensions of the Hudson-Bergen Light Rail, expanding capacity at terminals such as Hoboken Terminal, New York Penn Station, Port Authority's Midtown Bus Terminal, and others where necessary and addressing first- and last-mile transit service gaps.

The **New Jersey State Legislature** should consider adopting legislation that provides NJ TRANSIT with the authority to regulate the spacing and location of bus stops along designated mobility corridors and responsibility for maintaining bus stops in designated mobility corridors with appropriate levels of amenity based on adopted minimum standards, adopting legislation to establish an adequate, stable source of on-going funding to support NJ TRANSIT operations and maintenance, and adopting legislation that establishes statewide minimum standards for transit stop design and amenities.

7. Integrate nature and green infrastructure in community design.

New Jersey is already experiencing the effects of climate change, as evidenced by rising sea levels, more frequent and intense rain events, and more frequent high heat days. Substantial amounts of impervious surface statewide, especially in the state's cities, exacerbates flooding and raises ambient temperatures in many locations. Flooding causes loss of life, destruction of homes, and disrupts business activity and essential services. Urban areas are heavily impacted by the rising temperatures. As the effects of climate change worsen, we must start investing in and more aggressively promoting green infrastructure as a climate resilience strategy.

Toward this end, municipalities and counties can assess green infrastructure needs, goals, and opportunities, engage the public and potential partners in the green infrastructure planning and implementation process, conduct a green infrastructure inventory and analysis, develop green infrastructure implementation plans, and implement green infrastructure projects and programs. Jurisdictions can also establish stormwater utilities to advance green infrastructure projects and programs and encourage/require property owners and developers to incorporate green infrastructure in site development.

In addition, **NJDEP** should consider working with **NJDCA** to plan and implement a stormwater utility pilot program. The pilot program should identify willing local partners and provide financial assistance, guidance, and technical assistance to participating municipalities and counties for establishing stormwater utilities, setting fees and credits, developing stormwater system asset management programs, and public education and outreach. **NJDCA** should also consider amending the Residential Site Improvement Standards (RSIS) to incorporate green infrastructure practices consistent with NJDOT's 2019 Complete and Green Streets for All: Model Complete Streets Policy and Guide, as well as within NJDEP's 2021 NJ Climate Resilience Strategy.

8. Plan and zone for people and places.

As noted above, to achieve a healthier, more just, resilient, and sustainable future, the state must embrace ambitious policies to reduce driving and enable more transit, biking, and walking. Sustainable transportation policies are critical but without reforms to how we plan and zone our communities, they will be less effective. To create people-centered quality places, residents and local leaders must reimagine their communities and adopt policies and regulations that create interconnected centers of activity with a diversity of destinations, density that is appropriate to context, and community design that fosters a sense of place and reflects the unique character and history of their communities.

To achieve this end, **municipalities** should consider embracing placemaking as a central theme of community planning and development, adopting zoning standards and design guidelines that encourage compact mixed-use development, create a strong sense of place, and promote walking, biking, and transit use, encouraging transit-friendly planning and design and transit-oriented development, building more diverse housing affordable to a broader range of families, adopting anti-displacement policies to guard against gentrification, utilizing schools as a community focal point, and repurposing road space and parking.

9. Adapt communities and infrastructure for climate change.

As mentioned above, green infrastructure and the use of nature-based solutions to promote climate resilience are important strategies for promoting healthy and sustainable communities. In many instances however, additional adaptation will be needed, especially in terms of creating resilient systems. Consistent with New Jersey’s climate resilience strategy and existing laws, **municipalities and counties** should integrate resilience into local and regional planning by updating plans (e.g., master plans, redevelopment plans, hazard mitigation plans, capital plans, and others) to include a comprehensive vulnerability assessment that can inform decisions about zoning, redevelopment, housing, transportation, conservation, and infrastructure investment.

Municipalities can also amend zoning and other regulations to address identified vulnerabilities, take action to retreat from and restore fluvial floodplains to their natural state, and work with the public to “prepare for and facilitate the evolution of the coastal zone” over time. This should include reframing the conversation around coastal resilience to make retreat a viable resilience strategy that allows moving populations to safer areas and limiting investments that will hinder that purpose. In places where retreat is not feasible, jurisdictions should adapt infrastructure to be more resilient by hardening, flood proofing, and where feasible elevating critical roadways and facilities.

State agencies can expand grant funding to support integration of climate resilience into local plans and adapting infrastructure to address the impacts of climate change over time and provide guidance and technical assistance to municipalities and counties regarding how to integrate

resilience into **plans, regulations, and investment decisions**. Programs should prioritize capacity-building in underserved communities. In addition, **NJOPA and the SPC** can make climate change, resilience, and adaptation a central focus of the 2023-2024 State Development and Redevelopment plan update process.

10. Advance effective government decision-making.

Achieving the vision and implementing the recommendations described above will require greater planning capacity and effective government decision-making at all levels. In some cases, structural changes to government decision-making may be needed to remove traditional “home rule” considerations as an impediment to transformative change. **All levels of government** should work to foster horizontal and vertical consistency, coordination, and cooperation. Fragmented decision making is one of the key impediments to implementation. Communities may not share the same vision for the future. Various levels of government and different agencies may have varying priorities. Decision timelines may be uncoordinated. However, there are ways to address fragmentation if there is political will to do so. 'Horizontal' refers to coordination and cooperation between neighboring jurisdictions and/or departments and agencies in the same level of government, while 'vertical' refers to coordination and cooperation between levels of government (i.e., municipal, county, state, and federal). Opportunities to advance consistency, cooperation, and coordination include municipal plan consistency, regional planning, and the NJ State Plan update process.

Decision-makers at all levels should also seek to optimize capital planning and investment. The **Governor** should consider convening a “creative capital program” task force to figure out how to optimize use of funds from all federal and state sources. The committee should include representatives from **NJDOT, NJ TRANSIT, MPOs, NJDEP, BPU, NJEDA, legislators, and outside experts**. The goal should be to identify how best to use available resources not just from historic or traditional approaches, but to optimize outcomes.

Finally, many municipalities lack the expertise and capacity to develop and advance capital projects (transportation, green infrastructure, and others) that can create healthier, more just, resilient, and sustainable communities. The **Governor** should consider directing the **NJOPA, NJDOT, NJDEP, and NJDCA** to set-aside financial resources to establish an engineering and design corps of on-call planning, engineering, and design consultants to fast-track green infrastructure, complete streets, safety, and other climate smart projects at all levels. Priority should be given to increasing the capacity of socially vulnerable, marginalized, and overburdened communities first.

Conclusion

Many of the recommendations suggested in this report require transformational change. Business-as-usual will not allow us to get where we need to go. Collectively, we must create a convincing case for why change is important and then public support for making the changes necessary. This report lays out a vision for a healthier, more just, resilient, and sustainable New Jersey and suggests some of the steps that are needed to achieve the vision. To get started, New Jersey non-profit advocacy organizations should identify the agencies, organizations, entities, and individuals empowered to implement the recommendations presented in this report and those that can play a role as influencers. Next, we must build consensus around the vision and cultivate a network of champions that includes key decision makers and constituent groups. Finally, we must develop and implement a communications strategy that informs the public, educates policy makers, and tells a convincing story for why change is critical.

Introduction

This report was prepared by the Alan M. Voorhees Transportation Center at Rutgers University (hereafter, the “Rutgers team”) for the New Jersey Climate Change Alliance, Transportation Work Group, the New Jersey State Policy Lab, the New Jersey Climate Change Resource Center, and The Nature Conservancy. The report summarizes the results of a two-year planning and research study. This two-phase study investigated how a comprehensive, multi-goal planning and policy framework can be used to achieve carbon-neutral transportation choices that simultaneously support healthy, just, and resilient communities for all New Jersey residents.

During Phase 1 of the study, the Rutgers team:

- Conducted a comprehensive review of available literature and a scan of current practices to identify leading practices in healthy, resilient, equitable, and sustainable transportation and community design,
- Completed desktop data analyses and mapping for eight New Jersey Counties (Atlantic, Camden, Cumberland, Essex, Hudson, Mercer, Middlesex, and Warren),
- Convened a national thought leaders’ webinar on Healthy, Just, Resilient, and Carbon-neutral Mobility, with 100+ participants. The program included talks by:
 - Brianne Eby, Senior Policy Analyst, Eno Center for Transportation,
 - Calvin Gladney, President, and CEO of Smart Growth America, Inc.,
 - Curtis Ostrodka, AICP, LEED AP, Director of Community Planning, VHB, and
 - Regan F. Patterson, Ph.D., Transportation Equity Research Fellow, Congressional Black Caucus Foundation, Inc. (CBCF), and
- Convened eight (8) county stakeholder workshops, attended by 150+ participants, to explore specific needs and concerns and the vision for a healthier, more just, resilient, and sustainable mobility system in each county.

More information on Phase 1 can be found in the sections that follow and on the [project website](#).

Phase 2 of the study focused on investigating how the “15-minute neighborhood” planning model, which emphasizes sustainable land use and transportation approaches, could be applied in New Jersey to simultaneously reduce emissions, expand travel options, improve health, increase transportation system efficiency, improve the resilience of communities and infrastructure, and ensure equitable mobility and access for all New Jersey residents.

During Phase 2, the Rutgers Team worked with three New Jersey municipalities – the City of Bridgeton in Cumberland County, Cherry Hill Township in Camden County, and the City of Newark in Essex County – and three teams of graduate students from the Bloustein School of Planning and Public Policy at Rutgers to examine community development and mobility needs in each community and explore how the 15-minute neighborhood model could be implemented to address these needs.

The remainder of this report summarizes the findings from each phase, discusses key themes that emerged from the work, and identifies an aspirational vision and targets for achieving a healthier, more just, resilient, and sustainable New Jersey. Finally, the report concludes with planning and policy recommendations that chart a path forward for state and local leaders.

Chapter 1. Background Research

Phase 1 research included a comprehensive literature review designed to assess the current state of knowledge and to identify potential leading practices related to healthy communities, transportation equity and mobility justice, climate resilience and green infrastructure, reducing emissions from the transportation sector, and the emerging concept of 15-minute accessibility as an organizing framework for community planning. Phase 1 also included an exploration of these topics from the perspective of national thought leaders, an analysis of current conditions in eight New Jersey counties, and by obtaining input from stakeholders in those eight counties through a series of online virtual workshops. The results of these efforts are summarized below.

Literature Review and Practice Scan

Healthy Communities and Transportation

Definitions of what constitutes a healthy community vary. For example, the Centers for Disease Control and Prevention describes a healthy community as one “in which local groups from all parts of the community work together to prevent disease and make healthy living options accessible.” According to the CDC, “working at the community level to promote healthy living brings the greatest health benefits to the greatest number of people. It also helps to reduce health gaps caused by differences in income, education, race and ethnicity, location and other factors that can affect health.”²

The California planning roundtable, an organization of experienced professional planners in California, suggests that “a healthy community is one that strives to meet the basic needs of all residents; it is guided by health equity principles in the decision-making process; it empowers organizations and individuals through collaboration, civic and cultural engagement for the creation of safe and sustainable environments. Vibrant, livable and inclusive communities provide ample choices and opportunities to thrive economically, environmentally and culturally, but must begin with health.”³

On an individual level, transportation is a leading social determinant of personal health “because transportation touches many aspects of a person’s life, adequate

² Centers for Disease Control and Prevention. Public Health Matters Blog. Centers for Disease Control and Prevention. [Online] <https://blogs.cdc.gov/publichealthmatters/2015/09/a-healthy-community-is-a-prepared-community/>.

³ California Planning Roundtable. Healthy Communities Work Group. California Planning Roundtable. [Online] <https://cproundtable.org/publications/healthy-communities-definition/>.

and reliable transportation services are fundamental to healthy communities.” For example, “transportation issues can affect a person’s access to health care services. These issues may result in missed or delayed health care appointments, increased health expenditures and overall poorer health outcomes.” At the same time, “transportation also can be a vehicle for wellness. Developing affordable and appropriate transportation options, walkable communities, bike lanes, bike-share programs and other healthy transit options can help boost health.”⁴

Reliable, convenient, affordable, accessible, safe, clean, and green mobility options build healthy communities in many ways by:

- Improving air quality, lowering noise levels, and reducing crashes,
- Enhancing access to well-paying jobs, educational/training opportunities, parks and recreation, fresh food, essential services, and other community amenities,
- Giving people opportunities to stay connected and fostering community cohesion,
- Increasing physical activity among those that choose to walk and bike more, take public transportation, and drive less, and
- Saving families money, because studies show that households that use public transportation and walk and bike to get around spend less on the combined costs of transportation and housing.

When integrated with expanded use of electric and other clean vehicle technologies and resilient transportation infrastructure, healthy and just travel options contribute to a clean energy future and help to ensure that everyone has fair mobility even in times of disruption, such as during and after climate-related events.

The United State Department of Transportation (USDOT) encourages transportation agencies and their community partners to “create opportunities for people to exercise for recreation and to build physical activity into their daily routine by reducing distances between key destinations and providing and improving bicycle and pedestrian facilities,” so more people can walk and bike to work, shops, and services. According to the USDOT, active transportation “helps reduce obesity and the risks for developing costly chronic conditions such as diabetes and cardiovascular disease.”⁵ The literature widely supports the idea that well-planned communities that offer a variety of desired destinations close to one another along with well-designed streets that provide safe, convenient, and accessible bicycle and pedestrian infrastructure can improve health.⁶ The influence of built environment characteristics on travel mode choice and the health benefits of walking are well documented.⁷

4 American Hospital Association. Social Determinants of Health Series: Transportation and the Role of Hospitals. American Hospital Association. [Online] <https://www.aha.org/aharet-guides/2017-11-15-social-determinants-health-series-transportation-and-role-hospitals>.

5 Ibid.

6 United State Department of Transportation. Active transportation: Relationship to public health. U.S. Department of Transportation. [Online] <https://www.transportation.gov/mission/health/active-transportation>.

7 Travel and the Built Environment. Ewing, Reid and Robert Cervero. 3, Chicago, IL : Journal of the American Planning Association, 2010, Vol. 76. DOI 10.1080/01944361003766766.

In addition to the health benefits associated with accessing needed destinations such as work, medical appointments, pharmacies, and fresh health food, and opportunities to walk and bike more, transportation can impact health in other ways. Examples include transportation-related noise and air pollution, contaminated runoff from parking and roads, as well as injuries and deaths associated with motor vehicle crashes.

For these and other reasons, the USDOT created a Transportation Health Tool (THT) in collaboration with the CDC. The THT “provides data on a set of transportation and public health indicators for each U.S. state and metropolitan area that describe how the transportation environment affects safety, active transportation, air quality, and connectivity to destinations.” The tool can be used “to quickly see how states or metropolitan areas compares with one another in addressing key transportation and health issues. It also provides information and resources to help agencies better understand the links between transportation and health and to identify strategies to improve public health through transportation planning and policy.” Some of the strategies recommended by USDOT include complete streets, providing safe routes to schools, expanding transit availability, promoting connectivity between destinations, advancing built environment strategies that reduce crime, transitioning to zero emissions vehicles, and implementing traffic calming and other proven safety countermeasures designed to reduce crashes.⁸

Transportation Equity and Mobility Justice

Environmental Justice requires “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.”⁹ Equity in transportation “seeks fairness in mobility and accessibility to meet the needs of all community members.”¹⁰ These two concepts, environmental justice and transportation equity, are rooted in several federal laws, executive orders (EOs) and regulations dating back to 1960s. Key among these are:

- *Title VI of the Civil Rights Act of 1964*, which states that “No person in the United States shall on the ground of race, color or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance;”¹¹

8 United States Department of Transportation. Transportation and Health Tool. [Online] 2015. <https://www.transportation.gov/transportation-health-tool>.

9 U.S. Environmental Protection Agency. Environmental Justice. U.S. Environmental Protection Agency. [Online] <https://www.epa.gov/environmentaljustice>.

10 U.S. Department of Transportation. Equity in Transportation. USDOT, Federal Highway Administration/Federal Transit Administration, Transportation Planning Capacity Building. [Online] https://www.planning.dot.gov/planning/topic_transportationequity.aspx.

11 Ibid.

- *EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (1994)*, which “directs Federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects, including interrelated social and economic effects, on low-income or minority populations resulting from their programs, policies, and activities;”¹² and, more recently,
- *EO 13985, Advancing Racial Equity and Support for Underserved Communities Through the Federal Government (2021)*, which affirms that “the Federal Government should 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. Affirmatively advancing equity, civil rights, racial justice, and equal opportunity is the responsibility of the whole of our government.”¹³

Transportation is central to creating just and equitable communities. People rely on safe, dependable, and affordable transportation to go to work, to school, for leisure activities, medical appointments, and shopping. Not every household has the funds to afford a private car and not everyone has the desire or ability to drive. This makes them highly reliant on walking, biking, rolling, and public transportation services.

Over the past several years, the concept of mobility justice has emerged as an organizing framework for proactively addressing transportation inequities, such as inaccessible sidewalks, vehicles and transit facilities, uneven access to opportunity, long public transit commutes, pedestrian and bicycle crashes that disproportionately impact communities of color, traffic enforcement that too frequently targets black and brown individuals. Mobility justice is “a vision for a world rooted in social justice where people feel safe existing on the streets and can build lives experiencing the full joy of movement regardless of their race, religion, background, or physical ability.”¹⁴

Advancing transportation equity and mobility justice requires a multidimensional perspective. One dimension has to do with how individuals or groups are treated. Fundamentally, this dimension considers the impact of government policies, investments, and other decisions seeking to ensure equal treatment and opportunity for meaningful involvement in decisions. For example, making sure that government decisions, such as how and where to invest billions of dollars earmarked for transportation, do not favor or disproportionately burden a certain individual, group, or neighborhood.

Transportation equity and mobility justice advocates believe, however, that equal treatment is not enough. Equity and social justice demand two additional dimensions be considered. First,

12 *Ibid.*

13 *Ibid.*

14 America Walks. Mobility Justice Resources. America Walks. [Online] <https://americawalks.org/resources/mobility-justice/>.

proactive consideration must be given to the specific needs of traditionally disadvantaged individuals and groups, such as low-income residents, racial and ethnic minorities, and people with different abilities. Second, decision makers should consider whether past decisions have negatively impacted disadvantaged groups and how. These two perspectives suggest that progressive policies are needed to favor these groups to address the inequities derived from current and past policies and decisions. For example, providing special services, discounts, and mode improvements to ensure inclusive access and/or compensate for current and past burdens such as limited accessibility, pollution, and high crash rates.¹⁵

Climate Resilience

One of the critical challenges facing the world is global climate change and its impacts. In blog post published in June of 2022, the Union of Concerned Scientists noted that “solving the climate crisis isn’t just about cutting carbon emissions, it’s about protecting people from harm.” The authors suggest that “climate resilience is about successfully coping with and managing the impacts of climate change while preventing those impacts from growing worse.” Noting further that “a climate resilient society” must be both “low-carbon and equipped to deal with the realities of a warmer world.”¹⁶

According to the National Oceanic and Atmospheric Administration, “global temperatures rose about 1.98°F (1.1°C) from 1901 to 2020, but climate change refers to more than an increase in temperature. It also includes sea level rise, changes in weather patterns like drought and flooding, and much more.” These changes impact water, energy, and transportation systems, wildlife, agriculture, ecosystems, and human health in many ways. For example, “flooding can lead to disease spread and damages to ecosystems and infrastructure. Human health issues can increase mortality, impact food availability, and limit worker productivity.”¹⁷ As the impacts of climate change have become more evident in recent years, especially in the form of more frequent extreme weather events, climate resilience has emerged as an important policy priority for many government agencies and nonprofit organizations.

New Jersey adopted its first ever Climate Change Resilience Strategy in 2021.¹⁸ The strategy identifies numerous climate change effects that are likely to impact the State, including:

15 Litman, T. Evaluating Public Transportation Health Benefits. Victoria Transport Policy Institute. [Online] 2020. https://www.vtpi.org/tran_health.pdf.

16 Union of Concerned Scientists. What is climate resilience? Union of Concerned Scientists. [Online] June 6, 2022. <https://www.ucsusa.org/resources/what-climate-resilience>.

17 U.S. Department of Commerce, National Oceanic and Atmospheric Administration. Climate Change Impacts. National Oceanic and Atmospheric Administration. [Online] August 13, 2021. <https://www.noaa.gov/education/resource-collections/climate/climate-change-impacts>.

18 Angerone, Nicholas, Thomas Caggiano, Rebecca Hill and Jessica Jahre. State of New Jersey Climate Change Resilience Strategy. Trenton, NJ : State of New Jersey, 2021.

- ***Rising temperatures*** – New Jersey is warming faster than the rest of the Northeast. As a result, the state can expect heatwaves to impact larger areas of the state, with more frequency, and for longer durations by 2050.
- ***Increasing precipitation*** – Annual precipitation in New Jersey is expected to increase by 4-11 percent by 2050. The intensity and frequency of precipitation events is also anticipated to increase due to climate change.
- ***Rising seas*** – Sea levels are increasing at a greater rate in New Jersey than other parts of the world. By 2050, there is a 50 percent chance that sea-level rise will meet or exceed 1.4 feet and a 17 percent chance it will exceed 2.1 feet. Those levels increase to 3.3 and 5.1 feet by the end of the century (under a moderate emission scenario).
- ***Ocean acidification*** – Since the industrial age, ocean pH levels have declined, and the ocean is now 30% more acidic. If carbon dioxide emissions continue at current rates, ocean pH levels are expected to fall, creating an ocean that is more acidic than has been seen for the past 20 million years.
- ***Decreased water quality*** – Surface and groundwater quality will be impaired as increased nutrients and contaminants enter waters due to runoff from more intense rain events. In addition, droughts lasting three to six months and longer may slightly increase in frequency in the Northeastern United States under a low emissions scenario and increase significantly under a high emissions scenario.
- ***Decreased air quality*** – Despite on-going efforts to reduce ground-level ozone precursor emissions, New Jersey’s air quality will be impacted due to changes in meteorological conditions, often referred to as the ozone climate penalty which is “the deterioration of air quality due to a warming climate.”
- ***Socially vulnerable populations*** – Young children, older adults, socially or linguistically isolated individuals, economically disadvantaged individuals, and those with preexisting health conditions will be more at risk to health impacts from the combination of heat stress and poor urban air quality.
- ***Infrastructure*** – Aging public water supply infrastructure and demands are vulnerable to the consequences of climate change. Existing treatment infrastructure in New Jersey is not designed to treat elevated salt levels and drinking water standards do not exist for the primary components of saltwater. Many roads and transit facilities will be exposed to more frequent inundation from stormwater flooding and sea-level rise.
- ***Health and wellbeing*** – The effects of climate change are likely to contribute to an increase in air pollution, and in turn likely to lead to increased respiratory and cardiovascular health problems. Urban populations are particularly vulnerable as climate models predict an increase in the number of days per year with temperatures affecting human health due to heat stress.
- ***Ecosystems and wildlife*** – Climate change is likely to facilitate expansion of invasive plant species and 29 percent of New Jersey’s bird species are vulnerable to climate change.

- *Coastal communities* – “Sunny day flooding” will occur more often across the entire coastal area of New Jersey due to sea-level rise. Coastal areas will be particularly vulnerable to flooding from storm surge and increased intensity of coastal storms.
- *Agriculture and food supply* – The productivity of crops and livestock is expected to change due to the climate induced changes in temperature and precipitation patterns.
- *Oceans and marine life* – Ocean acidification not only threatens the health of the oceans, but also the economic value that people and industries depend on.

Fostering climate resilient communities necessitates both carbon emission reductions and climate adaptation. In terms of emissions reductions, jurisdictions, organizations, and companies worldwide are pursuing a range of approaches targeting emission reductions from power generation, residential and commercial buildings, industrial production, transportation, and agriculture. Leading practices for reducing carbon emissions include promoting the use of renewable energy sources, end-user efficiency strategies, building weatherization, carbon capture and sequestration, fuel switching, travel demand management, land use changes, recycling, as well as land, crop, livestock, and manure management, and others.¹⁹ Strategies for reducing emissions from the transportation sector specifically are explored in more depth in the next section.

Climate adaptation “means taking action to prepare for and adjust to both the current and projected impacts of climate change.”²⁰ There are a multitude of strategies that communities can use to adapt to climate change. The U.S. Environmental Protection Agency provides a database of climate resilience and adaptation strategies designed “to inform and assist communities in identifying potential alternatives” and “consider possible ways to address anticipated current and future threats resulting from the changing climate.” One hundred and sixty-four strategies are described in the database with nature-based solutions and green infrastructure strategies highlighted under multiple themes including ecosystem protection and stormwater management.²¹ New Jersey’s climate resilience strategy prioritizes several planning, programmatic, regulatory approaches to building healthy and resilient communities, strengthening the resilience of ecosystems, promoting coordinated governance, investing in information, and increasing the public’s understanding of climate change, its effects and what residents and government officials can do to prepare for and adapt to a changing climate.²²

¹⁹ U.S. Environmental Protection Agency. Source of Greenhouse Gas Emissions. U.S. Environmental Protection Agency Greenhouse Gas Emissions and Removal Home. [Online] April 28, 2023. <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>.

²⁰ Climate Adaptation and EPA’s Role. U.S. Environmental Protection Agency Climate Adaptation Home. [Online] September 19, 2022. <https://www.epa.gov/climate-adaptation/climate-adaptation-and-epas-role>.

²¹ Ibid.

²² Angerone, Nicholas, Thomas Caggiano, Rebecca Hill and Jessica Jahre. State of New Jersey Climate Change Resilience Strategy. Trenton, NJ : State of New Jersey, 2021.

Green Infrastructure and Nature-Based Solutions

“Green infrastructure encompasses a variety of water management practices, such as vegetated rooftops, roadside plantings, absorbent gardens, and other measures that capture, filter, and reduce stormwater.” Green infrastructure “cuts down on the amount of flooding” helps to prevent erosion, and “reduces the polluted runoff that reaches sewers, streams, rivers, lakes, and oceans... It mimics natural hydrological processes and uses natural elements such as soil and plants to turn rainfall into a resource instead of a waste. It also increases the quality and quantity of local water supplies and provides myriad other environmental, economic, and health benefits—often in nature-starved urban areas.” Common types of green infrastructure include green, vegetated roofs, blue roofs, downspout disconnection, rainwater harvesting, rain gardens, bioswales, urban tree canopy, permeable pavement, green parking lots, and green streets, which is “a form of sustainable road design that combine various green infrastructure practices to more effectively manage stormwater from roads.”²³

Gray infrastructure, on the other hand, encompasses the “storm drains, concrete, and pipes used to collect and channel stormwater (sometimes treated, oftentimes not) into waterways.” Green infrastructure is often used to complement gray infrastructure but can at times replace it. Gray infrastructure generally does not “reduce the amount of stormwater that reaches waterways nor, for the most part, does it improve the quality of that runoff.”²⁴

Nature-based solutions to climate change, a subset of which includes green infrastructure, are a broader “collection of approaches that offer the potential to both reduce and remove emissions and pollution from air and water while strengthening the resilience of ecosystems and communities. They do this by enhancing the ability of ecosystems to sequester carbon dioxide or reverse the degradation of an ecosystem so that it no longer emits harmful greenhouse gas emissions and once more becomes a ‘carbon sink’ that stores more carbon than it emits.” Examples of nature-based solutions include:

- avoiding emissions by protecting landscapes and limiting deforestation,
- restoring ecosystems such as drained peatlands so they sequester carbon,
- improving degraded habitats by bringing ecological diversity into landscapes dominated by singular species,
- improving management practices of farmed land such that emissions are reduced and sequestration is maximized,
- allowing waterways to meander along their natural courses to reduce flood risk, and
- better integrating nature into urban areas and agricultural landscapes.²⁵

²³ Natural Resources Defense Council. Green Infrastructure: How to Manage Water in a Sustainable Way. NRDC. [Online] July 25, 2022. <https://www.nrdc.org/stories/green-infrastructure-how-manage-water-sustainable-way#whatis>.

²⁴ Ibid.

²⁵ The London School of Economics and Political Science. What are nature-based solutions to climate change? The London School of Economics and Political Science. [Online] November 15, 2022. <https://www.lse.ac.uk/granthaminstitute/explainers/what-are-nature-based-solutions-to-climate-change/>.

In addition to “removing emissions from the atmosphere by sequestering it in plants, soils and sediments, these practices provide a number of other important benefits such as cleaner air and water, flood and erosion control, increased biodiversity, enhanced resilience and ability to adapt to climate change impacts, and even economic benefits borne from a cleaner environment – for example, reductions in healthcare costs associated with cleaner drinking water.”²⁶

Reducing Transport Emissions

Data from 2021 shows that 28 percent of total greenhouse gas (GHG) emissions in the United States are generated by the transportation sector, 23 percent from commercial and residential uses, 23 percent from industry, 25 percent from power generation, and 10 percent from agriculture.²⁷ In the most recent New Jersey GHG inventory report, 34 percent of overall emissions were generated by the transportation sector, while commercial and residential uses (23.1 percent), industry (7.5 percent), power generation (7.6 percent), waste management (7.1 percent), and land clearing (1 percent) accounted for the rest.²⁸ Transportation accounts for the largest share of overall GHG emissions in the U.S. and in New Jersey. Consequently, reducing GHG emissions from the transportation sector is key to achieving national and state carbon reduction targets.

The transportation sector encompasses the movement of goods and people via road, rail, ship, and airplane. A recent study found that over 75 percent of transportation sector emissions come from on-road sources including passenger vehicles, light-duty trucks, medium and heavy-duty trucks, buses, and motorcycles.²⁹ Studies have also shown that energy policies aimed at reducing greenhouse gas emissions from transport also improve air quality and public health.³⁰

A key strategy for reducing energy use and GHG emissions from the transport sector is transitioning to Zero Emission Vehicles (ZEVs). This strategy has been embraced worldwide, including in the U.S. As of July 2021, 47 U.S. states offered incentives to support the deployment of electric or alternate fuel vehicles and the supporting infrastructure. States, including New Jersey, have implemented tax credits, rebates, and registration fee reductions as financial incentives to promote electric vehicles.³¹

26 Ibid.

27 U.S. Environmental Protection Agency. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2021. Washington, DC : U.S. Environmental Protection Agency, 2023. EPA 430-R-23-002.

28 New Jersey Department of Environmental Protection. New Jersey Greenhouse Gas Inventory: 2022 Mid-Cycle Update Report. Trenton, NJ : New Jersey Department of Environmental Protection, 2022.

29 Lawson, A. and Fatima Maria Ahmad. Decarbonizing U.S. Transportation. C2ES Climate Innovation 2050. [Online] 2018. <https://www.c2es.org/wp-content/uploads/2018/07/innovation-transportation-background-brief-07-18.pdf>.

30 Zhu, S., Et al. Decarbonization will lead to more equitable air quality in California. [Online] 2022. <https://doi.org/10.1038/s41467-022-33295-9>.

31 Igleheart, A. State Policies Promoting Hybrid and Electric Vehicles. [Online] 2022. <https://www.ncsl.org/research/energy/state-electric-vehicle-incentives-state-chart.aspx>.

In 2019, New Jersey Governor Phil Murphy signed an executive order, targeting a 50 percent reduction in GHG emissions by 2030 and an 80 percent reduction by 2050.³² Following the executive order, the state issued two reports—the *2019 Energy Master Plan* and the *2020 New Jersey Global Warming Response Act 80x50 Report*, which lay out a program actions aimed at achieving these aggressive goals.

Regarding transportation, the reports recommend transitioning 100 percent of the state’s private passenger vehicles and medium and heavy-duty trucks to ZEVs, however, uptake of ZEVs has been slow. In 2020, state officials estimated that annual ZEV purchases would need to increase “from today’s rate of 8,000 ZEV purchases annually to more than 111,000 annually, with significant continual increases until 2035” to meet this target.³³ In 2021, annual ZEV sales had increased from 8,000 to nearly 26,000 vehicles,³⁴ far short of the estimated 111,000 needed.

Additional approaches will be required to meet the 80x50 goal. In addition to transitioning to ZEVs, there are a number of strategies that can be pursued to reduce transport emissions, primarily by reducing vehicle miles (VMT) traveled in single-occupant vehicles. This means shortening trips and making it easier and safer to walk, bike, take transit, and use other non-auto modes. Studies show that reducing VMT can have positive impacts on air pollution, water pollution, wildlife ecosystems, and general health and safety of urban residents. Reducing VMT can also directly and indirectly help reduce household costs and increase government revenues.³⁵

New Jersey *2019 Energy Master Plan* recommends a number of actions aimed at reducing VMT. Key among these is “improving connections between people, jobs, and services.” The plan suggests that this can be accomplished by designing “streets and roads to shorten trips, minimize the need to drive, support safe bicycling and walking, and improving access to transit;” increasing transit service, implementing bus rapid transit (BRT), as well as other measures to make public transit more attractive; promoting transit-oriented development and transit-friendly land use planning; expanding carpool and vanpool programs; encouraging micro-mobility options such as electric bikes and scooters; and eliminating minimum parking requirements where appropriate to promote urban development.³⁶

32 New Jersey Department of Environmental Protection. Greenhouse Gas Emissions Goals. NJ Department of Environmental Protection Greenhouse Gas (GHG) Emissions. [Online] July 11, 2023. <https://dep.nj.gov/ghg/ghg-emissions-goals/>.

33 Barr, Helaine et. al. New Jersey's Global Warming Response Act 80x50 Report: Evaluating our Progress and Identifying Pathways to Reduce Emissions 80% by 2050. Trenton, NJ : New Jersey Department of Environmental Protection, 2020.

34 Charge EVC. On the Road to Reach Our Goals: NJ Sees Strong Year for EV Sales. Charge EVC What's Happening. [Online] May 5, 2022. <https://chargevc.org/on-the-road-to-reach-our-goals-nj-sees-strong-year-for-ev-sales/>.

35 Fang, K. and Jamey Volker. Cutting Greenhouse Gas Emissions is Only the Beginning: A Literature Review of the Co-Benefits of Reducing Vehicle Miles Traveled. National Center for Sustainable Transportation. [Online] 2017. <https://ncst.ucdavis.edu/project/cutting-greenhouse-gas-emissions-only-beginning-literature-review-co-benefits-reducing>.

36 New Jersey Board of Public Utilities. 2019 Energy Master Plan: Pathway to 2050. Trenton, NJ : State of New Jersey, 2019.

The Concept of Accessibility in Transportation Planning

Accessibility in transportation planning refers to the “...ability to reach desired services and activities” such as jobs, grocery stores, and parks. These services and activities are sometimes referred to as “opportunities.”³⁷ The concept of accessibility is widely used in transportation planning to consider transportation system performance, including various measures of how well transportation systems serve different geographies and population groups. For example, how many people have access to well-paying jobs within a certain commute time, how well is a destination served by different modes of travel, and which modes of travel are available and affordable to different neighborhoods and population groups.

A variety of factors can affect levels of accessibility. These include mobility, the quality and affordability of transport options, transport system connectivity, travel substitutes such as e-commerce and telework, as well as land use patterns.³⁸ “Mobility refers to physical movement, measured by trips, distance and speed, such as person-miles for personal travel.” In general, greater mobility equals higher levels of accessibility. “The more and faster people can travel the more destinations they can reach.”³⁹

Accessibility is measured in a variety of ways, most often in relation to the spatial relationships between origins and destinations, time, and space. For example, how far away is the destination from where you start the trip and how long does it take to make a trip. Levels of accessibility can vary widely based on a range of natural and built environment conditions such as topography, presence of physical barriers such as a river or limited-access freeway, the density of the street network and intersections, availability of travel options, infrastructure conditions, levels of congestion, as well as personal characteristics such as age, ability, literacy, and income.

Conventional measures of accessibility which are based on “averages and uniform assumptions about the population” often neglect less tangible influences that can affect each individual’s accessibility.⁴⁰ The concept of “perceived accessibility, defined as the perceived potential to participate in spatially dispersed opportunities” is explored in a 2021 article which examines traditional calculated measures of accessibility, which are based on spatial relationships, along with factors that shape perceived accessibility.⁴¹ The authors argue that there is often a “mismatch” between calculated measures of accessibility and how accessible people perceive destinations to be.

37 Litman, Todd. Evaluating Accessibility in Transport Planning: Measuring People's Ability to Reach Desired Services and Activities. Victoria, BC : Victoria Transport Policy Institute, 2023.

38 Ibid.

39 Ibid.

40 What are we missing when we measure accessibility? Comparing calculated and self-reported accounts among older people. Ryan, Jean, Rafael H.M. Pereira. 103086, s.l. : Elsevier, Ltd. , May 14, 2021, Journal of Transport Geography, Vol. 93. ISSN 0966-6923.

41 Perceived accessibility: What it is and why it differs from calculated accessibility measures based on spatial data. Pot, Felix Johan, Bert van Wee, Taede Tillema. 103090, s.l. : Elsevier Ltd., May 31, 2021, Journal of Transport Geography, Vol. 94.

Causes of this mismatch may include but are not limited to people overestimating the distance between origin and destination or how long it will take them to make the trip, individuals lacking knowledge of what transportation and destination options are available to them, attitudes toward different modes, beliefs about personal ability, variations in how individuals value time, variations in safety tolerance, and past experiences.^{42 43} Due to these individualistic influences, conventional measures of accessibility often overstate accessibility and can hide accessibility inequities.

One study found that this may be particularly true for older adults and individuals with more limited mobility options. For example, individuals that owned a bicycle were almost 14 times as likely to self-report being able to cycle to everyday activities, and “habitual cyclists” perceived it possible to cycle to many more everyday activities despite having a lower level of calculated accessibility.⁴⁴ Negative perceptions regarding how accessible destinations are can sometimes artificially limit experienced accessibility and positive perceptions of accessibility can expand the number of destinations available.

The 15-minute Neighborhood Planning Model

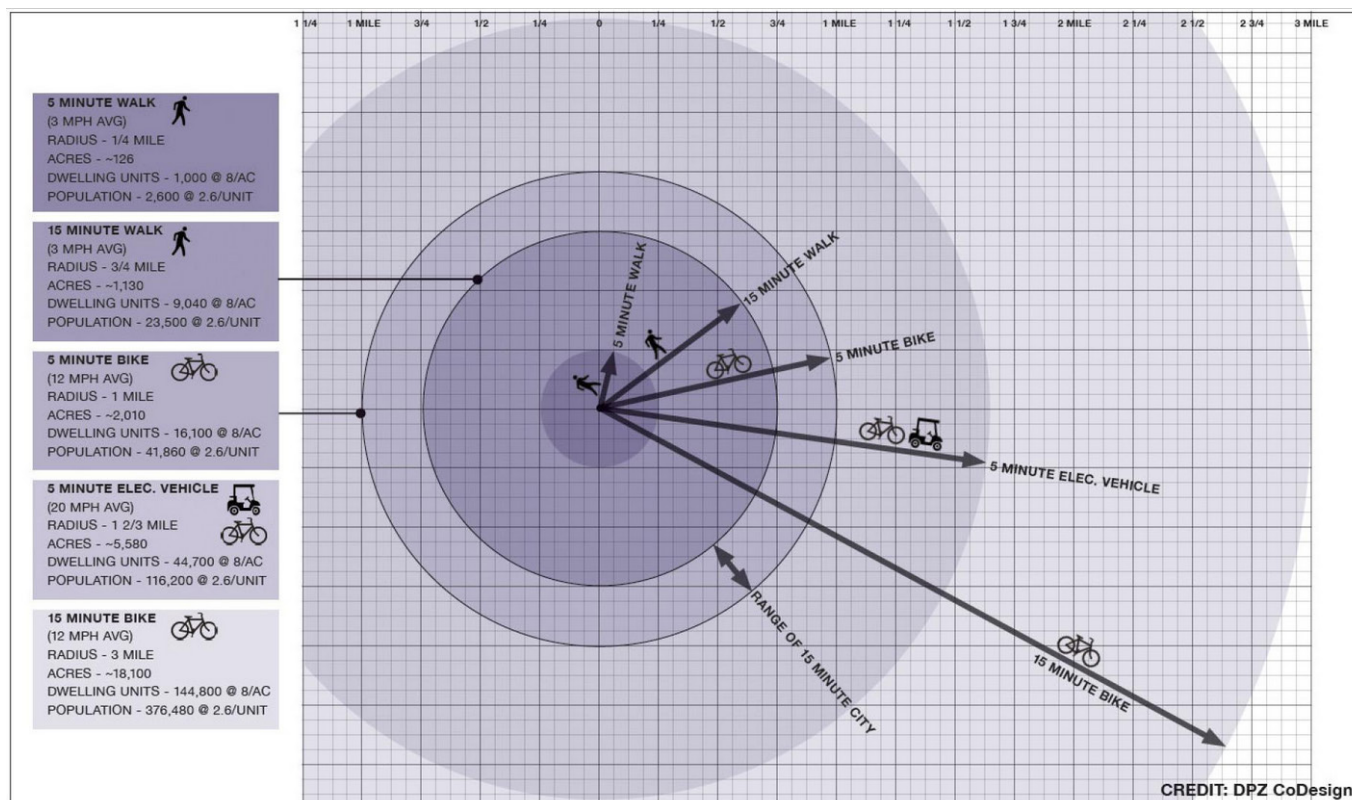
The 15-minute neighborhood concept gained visibility as the global pandemic demonstrated that local access to basic life needs is critically important. Fifteen-minute neighborhoods provide residents with easy access to parks, schools, gathering places, social services, places to buy healthy fresh food, and other amenities within a comfortable walk or bike ride. In more urbanized settings, 15-minute neighborhoods also provide residents with access to frequent and reliable public transit that connects to other 15-minute neighborhoods and regional destinations like employment hubs, hospitals, and cultural centers. Thriving 15-minute neighborhoods rely on not just desired destinations within a 15-minute walk or bike ride but also a safe, convenient, and climate resilient network of walkways, bicycle facilities, and the other amenities such as traffic calming, green infrastructure, lighting, and street furniture necessary to encourage people to drive less. Figure 1 (pg. 37) presents a diagram of the 15-minute neighborhood in graphic form as imagined by DPZ CoDesign, a leading urban planning and design firm.

42 Ibid.

43 What are we missing when we measure accessibility? Comparing calculated and self-reported accounts among older people. Ryan, Jean, Rafael H.M. Pereira. 103086, s.l. : Elsevier, Ltd. , May 14, 2021, Journal of Transport Geography, Vol. 93. ISSN 0966-6923.

44 Ibid.

Figure 1. The 15-minute City



Planners and elected officials in cities, including Paris, Barcelona, Melbourne, Ottawa, and Singapore, have embraced the concept as a framework for making decisions about economic development, affordable housing location, and transportation investments, among others. In the United States, for over a decade Portland, Oregon, has made 20-minute neighborhoods a centerpiece of its comprehensive master plan. While neighborhood definitions vary and each city has unique circumstances and priorities, the approaches and strategies each has employed to create 15-minute neighborhoods share many similarities.

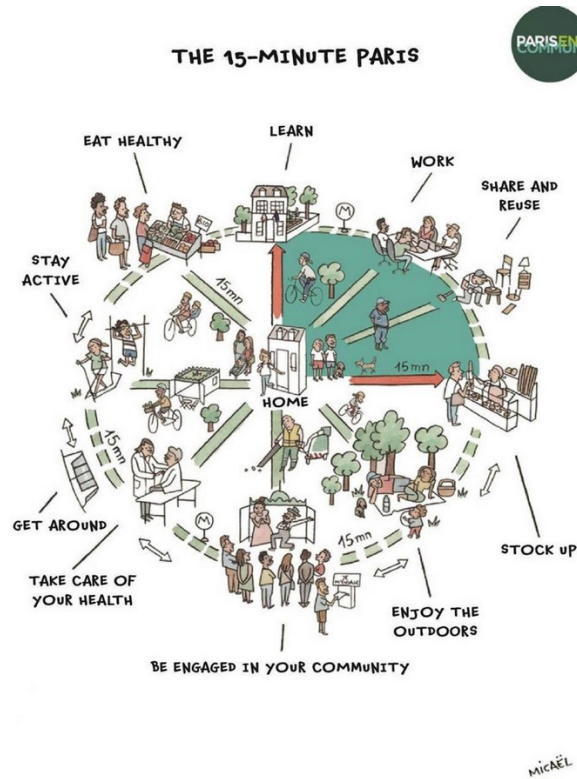
Paris, France

The 15-minute city concept in Paris was first mentioned in 2014 by Mayor Hidalgo who prioritized improving pedestrian and bicycle infrastructure citywide. The city's 15-minute city initiative evolved to include three key strategies: a ban on polluting vehicles, designation of restricted (car-free) zones for soft mobility users (i.e., pedestrians and bicyclists), and creation of new green spaces in the city. The initiative focuses on four important concepts—proximity, diversity, density,

and ubiquity, which aim to generate “a city of proximities.”⁴⁵ Figure 2 illustrates the 15-minute Paris vision.

In Paris, schools are the focal point of each 15-minute neighborhood with car-free and thus pedestrian-safe zones around schools. City officials made investments to make reclaimed streets more pedestrian-friendly and to ensure infrastructure is of a high quality. In addition, networks of bicycle lanes were implemented near the schools and playgrounds were transformed into green spaces with trees that now serve as new rest spaces for the community. The city also implemented the concept of shared roads which are designed to allow multiple transportation modes to operate safely in the same space. One way this is accomplished is by setting the maximum allowable speed limit of travel for all modes using the road at the speed of the lowest transportation mode, mostly the bicycle.⁴⁶

Figure 2. The 15-minute city, Paris, (Diagram)



© Micael

45 Allam, Zaheer., Carlos Moreno, Didier Chabaud, and Florent Pratlong. Proximity-based planning and the 15-minute city: A sustainable model for the city of the future. The Palgrave Handbook of Global Sustainability. 2022.

46 Introducing the “15-Minute City”: Sustainability, Resilience and Place Identity in Future Post-Pandemic Cities. Moreno, Carlos, Zaheer Allam *, Didier Chabaud, Catherine Gall and Florent Pratlong. 93-111, 2021, Smart Cities, Vol. 4.

Public sentiment regarding the 15-minute neighborhood transformations implemented in Paris has been mostly positive. Many residents report that they enjoy living in their city more since the various changes have been made. One criticism of Paris’ approach is that it has not adequately addressed equity concerns. Public investments in 15-minute neighborhoods have been made mostly in the city center where enhanced livability has led to gentrification, while neighborhoods in peripheral areas, called the banlieues, have not received the same level of investment and are suffering from a lack of public (transportation) services and local stores.⁴⁷ This cautionary note highlights the importance of integrating equity and social justice considerations in neighborhood planning processes.

Melbourne, Australia

Figure 3. Hallmarks of Melbourne’s 20-minute neighborhoods



In 2017, the City of Melbourne adopted an urban mobility plan called the Melbourne 2050 plan. The plan is organized around 20-minute neighborhoods that allow residents to “live locally.” A central focus of the plan is to increase resident access to 17 amenities—such as community schools, green spaces, public transit, diverse and affordable housing options, and local shopping—within a 20-minute walk or approximately 0.5 miles. The plan prioritizes cycling infrastructure, with an emphasis on making cycling safer, and expanding the availability of public transport. One motivation for advancing 20-minute neighborhoods is to reduce reliance on cars which are a major

⁴⁷ 15-Minute City: Decomposing the New Urban Planning Eutopia. Pozoukidou G, Chatziyiannaki Z. 928, 2021, Sustainability, Vol. 13 (2).

source of congestion, pollution, and environmental and social problems in Melbourne.⁴⁸ Figure 3 illustrates the six “hallmarks” of Melbourne’s 20-minute neighborhoods.⁴⁹

To create 20-minute neighborhoods, the city was divided into zones to allow a more customized approach to designing feasible solutions. Improving accessibility for all ages and abilities is central theme of Melbourne’s approach. The city focuses on providing high quality pedestrian and bicycle infrastructure for its citizens. Resident input and community partnerships are emphasized to inform technical assessments and facilitate discussion of future opportunities. The city strives to achieve solutions that are accepted by the population through mutual collaboration and discussions.⁵⁰

Assessments of the Melbourne 2050 plan have noted that community partnerships are key and place-based planning is integral to achieving a successful result. This type of planning focuses on a high level of interaction between government planners and neighborhood representatives throughout the planning process. The Melbourne 2050 plan recognizes that achieving 20-minute neighborhoods requires a long-term commitment and a lot of collaboration and flexibility on both sides to achieve a proportional solution for all involved parties. The city also recognizes the importance of continual improvement and is committed to monitoring progress and planning outcomes over time. Understanding how interventions impact outcomes is key to improvement. It will allow planners to look for better and more adequate designs and innovative solutions that can be implemented in other places over time.⁵¹

Portland, Oregon

In 2012, the City of Portland, Oregon adopted The Portland Plan, a strategic plan for the city with a primary focus on improving equity for all city residents. A principal component of the plan is its “healthy connected city” strategy. The strategy seeks to improve human and environmental health by creating “safe and complete neighborhood centers” linking residents to essential destinations via safe walking and biking facilities, including greenways within a 20-minute walk or bike ride. According to the Portland Plan, essential destinations include places to buy healthy food, parks, community centers, schools, and transit.⁵²

48 15-Minute City: Decomposing the New Urban Planning Eutopia. Pozoukidou G, Chatziyiannaki Z. 928, 2021, Sustainability, Vol. 13 (2).

49 Victoria State Government, Department of Transport Planning. 20-minute neighbourhoods. [Online] June 13, 2023. <https://www.planning.vic.gov.au/guides-and-resources/strategies-and-initiatives/20-minute-neighbourhoods>.

50 15-Minute City: Decomposing the New Urban Planning Eutopia. Pozoukidou G, Chatziyiannaki Z. 928, 2021, Sustainability, Vol. 13 (2).

51 Victoria State Government, Department of Transport Planning. 20-minute neighbourhoods. [Online] June 13, 2023. <https://www.planning.vic.gov.au/guides-and-resources/strategies-and-initiatives/20-minute-neighbourhoods>.

52 City of Portland, Oregon. The Portland Plan. Portland.gov. [Online] <https://www.portland.gov/bps/planning/about-bps/portland-plan>.

Here are just some of the strategies Portland is advancing to create more complete neighborhoods: prioritizing the placement of community services in neighborhood centers, designing and programming schools as community gathering places, expanding access to healthy, affordable food by supporting the viability of grocery stores, local markets and community gardens in neighborhood centers, encouraging development of high-quality, well-designed housing in and around neighborhood centers and near transit—at a variety of sizes and cost ranges, promoting and providing affordable housing options accessible to older adults and mobility-limited individuals in places where close proximity to services and transit makes it easier to live independently, linking neighborhood centers to each other, employment areas, the Central City and the broader region through a multi-modal transit system, prioritizing safe and attractive frequent transit service, bikeways and accessible pedestrian connections, including sidewalks, and integrating parks, plazas or other gathering places into neighborhood centers to provide places for community activity and social connections, just to name a few.⁵³

In 2012, when the plan was adopted, city planners estimated that approximately 45 percent of residents lived in complete neighborhoods. The plan set goals of achieving 55 percent of residents living in complete neighborhoods by 2017 and 80 percent by 2035.⁵⁴ To monitor progress toward these goals, city planners developed a 20-minute neighborhood index to score 24 analysis areas identified throughout the city. This index scores neighborhood walkability on a scale of zero to 100. Scores are based on the percent of neighborhood residents that live within 0.5-miles of a grocery store elementary schools and parks, within three-miles of a full-service community center, and 0.25-miles of a frequent transit. This assumes the average person can walk 0.25 to 0.5-miles in 20 minutes. The score also considers additional factors that may limit pedestrian access including topography, freeways, and difficult street connections. A score of 70 or higher for each analysis area is considered a complete neighborhood. After the first four years the plan was in place, the number of residents living in complete neighborhoods rose to nearly 53 percent, an eight percent increase from the 2011 baseline.⁵⁵

Plans for all three cities emphasize proximity and access to important destinations, active transportation, convenient public transit, and green spaces in ways the empower residents to drive less and lead healthy active lifestyles, while also reducing carbon emissions and promoting social interaction, which as urbanist Carlos Moreno suggests is “essential to creating an integrated social fabric of the different citizens and cultures.”⁵⁶

53 City of Portland, Oregon, Bureau of Planning and Sustainability. *The Portland Plan Progress Report*. Portland, OR : City of Portland Oregon, 2017.

54 Armstrong, Tom, Tyler Bump, Spencer Williams. *Comprehensive Plan Update: Growth Scenarios Report*. Portland, OR : City of Portland Oregon, 2015.

55 Ibid.

56 Introducing the “15-Minute City”: Sustainability, Resilience and Place Identity in Future Post-Pandemic Cities. Moreno, Carlos, Zaheer Allam *, Didier Chabaud, Catherine Gall and Florent Pratlong. 93-111, 2021, *Smart Cities*, Vol. 4.

What do the critics say?

The 15-minute city planning concept is not universally embraced. Some critics worry that like other efforts to revitalize urban neighborhoods, investments may lead to gentrification, segregation, and inequality. The goal is to make neighborhoods and cities better places to live, work, and interact with others. This in turn makes them more attractive and leads to potential displacement. In addition, it may not be feasible to improve conditions everywhere at once. You must start somewhere, and many jurisdictions have chosen to first focus on city centers and neighborhoods that have at least some of the sought after characteristics. The neighborhoods that need more investments are sometimes neglected which increases the possibility for segregation, inequality, and discrimination in those neighborhoods.⁵⁷

Despite successes experienced in Portland, some critics also question whether the 15-minute neighborhoods planning model, which is perceived to have its roots in European cities, adapts well to the United States. Politics and governmental decision-making structures are different in the U.S. than in Europe. So too is the physical layout and density of many American cities and towns compared to European settlement patterns. European cities tend to be denser, less auto-centric, and better served by public transportation. Street networks in European cities are often “circular” while in American cities streets are laid out in a more radial pattern. Critics believe that these differences make it difficult to implement the strategies and approaches designed to create 15-minute, complete neighborhoods.⁵⁸

Finally, as is evidenced by recent popular media articles and online posts,^{59 60 61} there is a vocal minority of critics in the U.S. and other countries that believe that the 15-minute neighborhood planning model is designed “to curtail individual freedoms.” These critics believe that strategies such as vehicle restrictions, speed limitations, and congestion pricing are designed to “restrict people’s movement.” They also suggest that internationally-minded organizations such as the U.N. that are concerned about climate change have embraced the 15-minute neighborhoods concept to impose a way of living—one that revolves around dense urban housing and limiting car use. Eventually, these critics believe that governments will be able to force society into “climate lockdowns” similar to the lockdowns enforced during the COVID pandemic to reduce GHG emissions.⁶²

57 Ibid.

58 15-Minute City: Decomposing the New Urban Planning Eutopia. Pozoukidou G, Chatziyiannaki Z. 928, 2021, Sustainability, Vol. 13 (2).

59 Marcelo, Philip. Fact Focus: Conspiracies misconstrue 15-minute city idea. [Online Blog Post] s.l. : APNews.com, March 2, 2023.

60 Stanford, Chris. The 15-minute City: Where Urban Planning Meets Conspiracy Theories. March 1, 2023.

61 Ratti, Carlo and Robert Muggah. The pushback against the 15-minute city. March 6, 2023.

62 Marcelo, Philip. Fact Focus: Conspiracies misconstrue 15-minute city idea. [Online Blog Post] s.l. : APNews.com, March 2, 2023.

County Patterns and Needs in New Jersey

In addition to the literature review, Phase 1 research included significant data collection, analysis, and mapping that examined a range of topics and issues in eight New Jersey counties (Figure 4). These counties were selected because they broadly reflect the range of community, mobility, and landscape conditions present in the state. The purpose of the analyses and mapping was to help community members, advocates, and decision-makers understand better on-the-ground conditions and the relationships between people, places, and the transportation systems that connect people to opportunity in New Jersey.

The analysis of existing conditions was oriented toward understanding where people live, where they need to go, and what options they have for getting there. Such an understanding is fundamental to identifying existing mobility challenges and gaps and reimagining the mobility system in a way that better meets the needs of residents, especially potentially marginalized groups. The project team examined a range of sociodemographic characteristics, including indicators of potential disadvantage such as low-income, ability, and age, county-level land use patterns, transportation systems and services, climate vulnerability, and health status. The analyses also examined residents' proximity to various amenities such as grocery stores, pharmacies, health care, parks, and public transit to explore 15-minute neighborhood accessibility in various parts of the state.

The results of the desktop analyses were used as the basis for stakeholder outreach. The research team convened eight county workshops, attended by 150+ participants, to explore specific needs and concerns in each county and what a vision for a healthier, more just, and resilient New Jersey might look like. Workshop participants were engaged in small group discussions to better understand community needs/concerns and desired long-term outcomes related to healthy communities and mobility, fair and just communities and mobility, and resilient communities and mobility with decarbonizing the transportation sector as an overarching theme. Table 1 (pg. 44) lists the issues and concerns commonly mentioned by stakeholders at the workshops when asked to identify what aspects of healthy, just, resilient, and carbon-neutral mobility and communities are most important to them. Table 2 (pg. 45) summarizes what stakeholders expressed were desired long-term outcomes related to healthy, just, resilient, and carbon-neutral mobility and communities and some of the actions recommended to achieve the suggested outcomes.

Figure 4. Phase 1 case-study counties

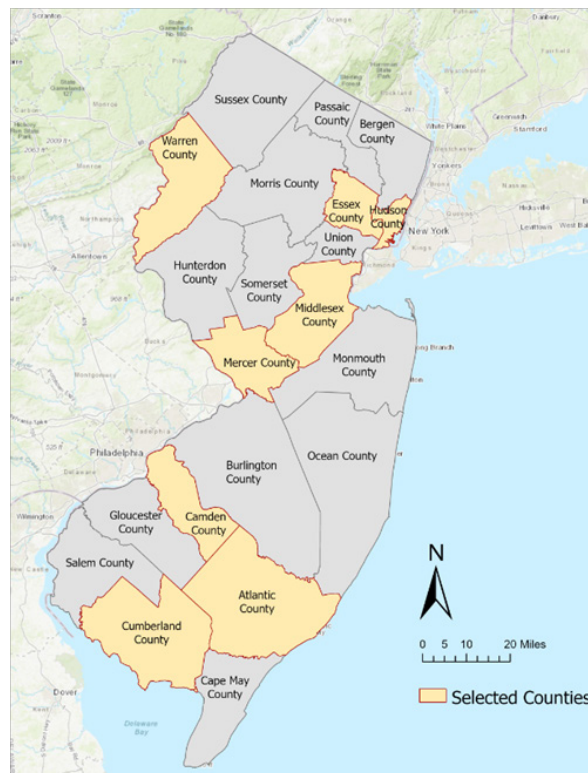


Table 1. Issues and concerns commonly identified by stakeholders

Issues and Concerns	Atlantic	Camden	Cumberland	Essex	Hudson	Mercer	Middlesex	Warren
In many communities it is challenging for aging adults to age-in-place, especially because of housing costs and limited transportation options.	✓		✓	✓				✓
Food deserts are present in many locations, especially lower-income areas.	✓	✓	✓					✓
Car-oriented community design and culture, (i.e., low density, separate uses, and warehouse sprawl) makes travel by other means difficult.	✓	✓	✓	✓	✓	✓	✓	✓
There are too few travel alternatives like shared e-scooters and e-bikes, which can be expensive to purchase.	✓	✓	✓	✓	✓			✓
Public transit options are limited in many areas.	✓	✓	✓	✓	✓	✓	✓	✓
Where transit does exist, it can be inconvenient, unreliable and doesn't always connect people to where they need to go. There is also a stigma attached to using transit, especially buses.	✓	✓	✓	✓	✓	✓	✓	✓
Most bus stops lack basic amenities like seating and shelters.	✓	✓	✓	✓	✓	✓	✓	✓
Pedestrian and bicycle infrastructure is often inadequate, poorly maintained, and/or unsafe.	✓	✓	✓	✓	✓	✓	✓	✓
There are low levels of physical activity in many communities. This leads to related health issues (i.e., obesity, heart disease, diabetes).	✓	✓	✓	✓	✓	✓	✓	✓
Housing costs are high with too few options for low- and moderate-income families.	✓	✓	✓	✓	✓	✓	✓	✓
Poor air quality in some communities, especially urban areas and along heavily traveled roadways leads to related health problems like asthma.				✓	✓			
Flooding, sea level rise, and heat island and similar issues are concerns in many locations.	✓	✓	✓	✓	✓		✓	✓
Without a car, access to opportunities like parks, recreation, shopping, healthcare, and jobs is limited in many communities.	✓	✓	✓	✓	✓			✓
Access to electric vehicle charging infrastructure is limited in many communities.	✓	✓	✓	✓	✓	✓	✓	✓
There is too little public and private investment in cities and older suburbs.	✓		✓					✓
There are concentrations of poverty and economic disadvantage in most communities.	✓	✓	✓	✓	✓	✓	✓	✓

Table 2. Desired long-term outcomes and actions to get there

Desired outcomes:	Recommended actions:
<p>Walking and biking is safe and easy.</p>	<ul style="list-style-type: none"> • Adopt and implement complete streets policies. • Plan and install striped bike lanes, protected bike lanes, and bike paths throughout New Jersey to create a network of facilities that connect communities and residents to the destinations they need to go (i.e., schools, commercial areas, parks, etc.). • Fix existing and install new and wider sidewalks where they are needed. • Expand roadways, bridges, and culverts to accommodate wider sidewalks and bicycle facilities. • Improve lighting on roads and sidewalks. • Install wayfinding signage indicating safe routes for pedestrians and bicyclists to take and for drivers to watch for pedestrians and bicyclists. • Make improvements so students can safely walk and bike to schools.
<p>Affordable and clean mobility options are available and used in every community.</p>	<ul style="list-style-type: none"> • Increase community access to bike share. • Provide financial incentive to encourage people to purchase and use bicycles and e-bikes. • Support bike refurbishment programs. • Increase visibility of TMAs to promote awareness about how to access mobility options. • Expand safe driver education to address pedestrian and bicycle crashes. • Expand access to education that promotes safe bicycling, e-bike, e-scooter use. • Improve coordination between county paratransit and other transportation providers. • Encourage and support shared van and carpooling services, especially to employment nodes and to warehousing jobs. • Expand access to high-speed Internet service and devices so people can take advantage of app-based mobility solutions. • Implement shared community EV programs. • Significantly expand the availability of public EV charging stations. • Support a transition to EVs by creating a market for used EVs so they are more affordable, and create more affordable financing options for new EVs. • Convert public vehicle fleets to EVs. • Transition bus, ferry, and truck fleets to ZEVs to reduce emissions, improve air quality and reduce noise.

<p>More public transit options are available, and transit is convenient, safe, and desirable to use.</p>	<ul style="list-style-type: none"> • Expand public transit options to/from employment nodes and in rural parts of the state. • Increase the level of amenities at bus stops, including seating, shelters, and lighting. • Increase the frequency of transit service in key corridors and expand the hours of operations. • Invest in bus rapid transit improvements to speed travel and improve on-time performance. • Make it easier to find information on all available travel options. • Expand the use of community transportation services beyond just older adults and people with disabilities. • Use technology to expand the availability of on-demand micro-transit services.
<p>People are healthier because they are more physically active.</p>	<ul style="list-style-type: none"> • Organize events and programs like senior walks in the parks. • Install more fitness stations in parks and outdoor spaces. • Install bike/pedestrian infrastructure throughout the county, including interconnected walking and biking trails like greenways. • Coordinate at the local level to ensure pedestrian infrastructure is connected to towns.
<p>Communities are more resilient to flooding and extreme weather.</p>	<ul style="list-style-type: none"> • Plan for and invest in green infrastructure and nature-based solutions to address stormwater runoff and protect against street flooding and flooding along rivers, streams, and back-bays. • Improve inter-agency communication related to emergency management. • Improve resilience of roadways that flood and pre-plan alternate routing and detours so communities and people can stay connected and still get around.
<p>Land use and transportation planning and investment are well coordinated.</p>	<ul style="list-style-type: none"> • Plan more thoughtfully regarding the location of amenities so more people have access to desired destinations with a reasonable walk or bike ride. • Promote mixed use development and walkable neighborhoods. • Revitalize main streets and downtowns to reduce the need for so many separate trips. • Expand housing diversity and affordability in areas near desired destinations. • Expand access to fresh healthy food options near where people live. • Amend local zoning to promote transit-friendly land uses and encourage transit-oriented development.
<p>Other</p>	<ul style="list-style-type: none"> • Promote a deeper understanding of racism, environmental justice, and mobility justice to build support for needed change and investment.

Thought Leader Perspectives

To supplement local perspectives, the project team convened a webinar featuring national thought leaders with expertise in transit, transportation governance, racial equity, and public health. The speakers were asked to offer their perspectives on the 15-minute neighborhoods planning model and how to create a healthier, more just, resilient, and sustainable communities. Jon Carnegie, Executive Director of Alan M. Voorhees Transportation Center at Rutgers University, facilitated the discussion alongside Jeanne Herb, who co-facilitates the New Jersey Climate Change Alliance, and Zoe Baldwin, the New Jersey Director for the Regional Plan Association and chair of the New Jersey Climate Change Alliance Transportation Working Group. The webinar began with an introduction presented by Mr. Carnegie who briefly described background on the project, the motivations behind exploring the 15-minute cities planning model, and introduced the panel.

Figure 5. Thought Leaders Webinar Speakers



The first presenter was **Curtis Ostrodka**, Director of Smart Communities at VHB Consulting, was the first presenter. He spoke from a perspective of having worked to develop modeling related to community-based health outcomes. Within his presentation, Mr. Ostrodka discussed factors that determine health such as family history, physical activity, and lifestyle and the rising prevalence of negative health outcomes across the U.S. He related these negative outcomes to various social determinants of health including a range of factors related to built environment characteristics. He described current gaps in public health data, specifically the limitations of CDC 500 cities data and then explained VHB's Healthy Mobility Model which uses statistical regression techniques and existing public health data to estimate/predict health outcomes at a census tract level, filling in current spatial gaps with our knowledge of community health outcomes. The VHB model also incorporates land use as a predictive measure, allowing planners to see what type of health outcomes may come from different zoning schemes and land-use patterns.

The second presenter was **Dr. Regan Patterson**, Transportation Equity Research Fellow at the Congressional Black Caucus Foundation, who spoke on environmental justice and issues of race and mobility. Dr. Patterson discussed ways that mobility can be understood within the context of race, the importance of freedom of movement, and the need to be free to navigate space and place in the absence of racism. Her presentation included historic perspectives as well as her reflections on the racial outcomes of car-centric planning, from urban renewal to current freeway expansion, and the disparate impacts car-centric planning creates. She cited various statistics that show how Black communities suffer from higher rates of asthma and other heart-related and pulmonary conditions caused by living nearby high-volume roadways, disparities in mobility access comparing of Black populations to other races, disparities in pedestrian safety among Black populations, and the prevalence of police violence and punitive punishment within Black communities in the context of traffic stop statistics and citations issued for “jaywalking.”

Presenter three was **Brianne Eby**, Senior Policy Analyst for the Eno Center for Transportation. Ms. Eby discussed the importance of shifting conversations about transportation from “mobility,” which focuses on what modes of transportation and vehicles available, to “accessibility,” which focuses on what destinations are accessible given the transportation network and systems serving neighborhoods and cities. She also emphasized the importance of thinking about the spatial limitations and capacity of urban areas, the high cost of private vehicle ownership, which is out of reach from many people, and compounding negative externalities such as pollution, health disparities, and safety issues which are made worse by personal vehicle ownership and use. She cautioned participants to resist the urge to view vehicle electrification as the primary answer solely due to its novelty as an emerging technology. Finally, Ms. Eby tied the concepts of environmental justice and fair access to land use, zoning and housing policy, rolling back subsidies for personal vehicle use, and implementing pricing policies such as congestion pricing, which despite at its core being a regressive fee, can help accomplish reduced personal vehicle use when implemented with caution and a focus on maintaining equity within the fee structure.

The keynote talk was given by **Calvin Gladney**, President and CEO of Smart Growth America. Mr. Gladney noted the significant contribution the transportation sector makes to overall GHG emissions in the U.S. and the high cost of sprawling development patterns in terms of infrastructure maintenance and investment and environmental degradation. He highlighted the importance of climate resilience and adaptation in 15-minute neighborhood planning, pointing out that Black and Brown communities, for historic reasons and otherwise, are disproportionately impacted by climate events and impacts such as urban heat islands. He suggested that climate resilience and adaptation policies must include proactive investment in these communities.

He also introduced the idea of “perceived accessibility” to drive home the point that real and true accessibility depend on lived experience and personal perceptions of what is accessible. In other words, if individuals do not feel welcomed and free from discrimination and bias when accessing a particular amenity or going to various destinations, then they may not benefit from 15-minute accessibility. For example, due to racialized policing practices and other forms of discrimination

and bias, many Black and Brown folks do not feel welcome as pedestrians in areas which technically do not restrict their movement.

In conclusion, Mr. Gladney challenged participants to look at the 15-minute city concept with a critical eye, cautioning that equitable 15-minute cities will require intentional planning and careful monitoring. Without careful planning and implementation, many policies aimed at creating 15-minute cities can result in racialized outcomes such as racial disparities in small business program support, transit-oriented development leading to displacement, pedestrian safety initiatives resulting in racialized policing. He suggested that these inequitable outcomes must be addressed head-on. He urged participants to acknowledge that segregation of communities continues in modern U.S. planning, intentional or not, and needs to be addressed in 15-minute city planning frameworks.

Chapter 2. Local Planning Case Studies

Phase 2 of the study involved local-scale concept planning activities designed to explore whether the 15-minute neighborhood planning model could be used in New Jersey to create healthier, more just, resilient, and sustainable communities. To do this, the project team worked with three groups of urban planning graduate students and community leaders in three municipalities that exemplified New Jersey's diverse landscape of urban, suburban, and rural place types. In each location the teams worked to identify ways to simultaneously, reduce GHG emissions, make it easier to travel, improve health, increase transportation system efficiency, improve the resilience of communities and infrastructure, and ensure equitable mobility and access for all New Jersey residents.

Case Study Selection

As summarized in a previous section, during Phase 1, the Rutgers team completed extensive desktop data analyses and mapping for eight New Jersey Counties (Atlantic, Camden, Cumberland, Essex, Hudson, Mercer, Middlesex, and Warren). The analyses documented conditions and patterns at a systems-level scale using demographic data and data related to economic opportunities, access to healthcare, essential services, and recreational facilities, public health conditions, climate hazards, transportation system characteristics, and more. The team also convened a series of exploratory visioning workshops designed to explore specific needs and concerns and the vision for a healthier, more just, resilient, and sustainable communities in each county.

The first step was to develop a short-list of potential case-study locations. This list, which included 24 municipalities, was informed by the county-scale analyses completed as part of Phase 1 as well as consultations with representatives from the NJ Climate Change Alliance Transportation Work Group and the Nature Conservancy. Short-list selection criteria included:

- The community is in one of the eight Phase 1 counties,
- The case study will leverage ongoing or recently completed planning and policy initiatives related to one or more healthy, just, resilient, and carbon-neutral mobility topics,
- The location illustrates conditions representative of and transferable to other NJ communities; and
- There is evidence that the community will be receptive and have the capacity to advance concept plan recommendations when complete.

Once the short-list was identified, the Rutgers team collecting data and information on each community on the list and discussed the candidate communities with our project sponsors. Based on these discussions, the list was narrowed, and the Rutgers team conducted preliminary outreach to several prospective municipal partners to gauge their interest in being a case study. Following the outreach, three communities selected to be case studies: The City of Newark in Essex County, the Township of Cherry Hill in Camden County, and the City of Bridgeton on Cumberland County.

Spring 2023 Planning Studio

As described earlier, the 15-minute neighborhood planning model has been successfully implemented in several locations; however, the concept remains untested in New Jersey. In addition, research conducted as part of Phase 1 showed disparate patterns of 15-minute accessibility across the state. Older, more-dense neighborhoods often have the highest levels of measured accessibility. Suburban and rural places appear to exhibit lower levels of accessibility. At the same time, neighborhoods with high 15-minute accessibility often perform poorly in terms of broad success outcomes such as poverty rates, unemployment, health outcomes, and others. Why is this the case? What needs to change to ensure 15-minute access connects New Jerseyans to opportunity and a fair, prosperous future? Can emerging transportation technologies and mobility concepts combine with large-scale investment in complete and green streets to finally dislodge entrenched travel habits? Will local officials and the public support transformational change?

In Spring 2023, the Rutgers team planned and conducted a graduate planning studio course entitled: “Can 15-minute neighborhoods reshape New Jersey’s landscape?” The goal of this studio was to tackle these questions and more as part of local planning processes conducted in the three case study municipalities named above. The planning efforts explored if and how equitable 15-minute neighborhoods can reshape New Jersey’s landscape while creating a healthier, more just, resilient, and sustainable communities and mobility systems. The studio was conducted as part of the curriculum offered at Rutgers University’s Bloustein School of Planning and Public Policy (Bloustein School). The course lasted 14 weeks.

Studio Objectives

Through the course, students had an opportunity to:

- Explore current topics in planning such as 15-minute neighborhood/city planning model, decarbonizing transport, climate mitigation and adaptation, transportation equity and mobility justice, green infrastructure and nature-based solutions and others.
- Apply planning theory and concepts in a specific “real-world” context collaborating with representatives from either municipal government or a local non-profit.

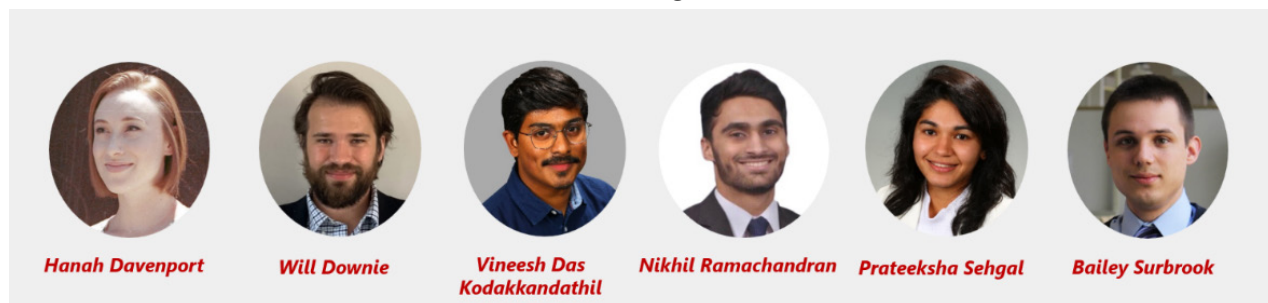
- Be creative in developing projects and proposals that respond to community planning challenges and opportunities.
- Assess planning proposals and outcomes in the context of equity and sustainability.
- Demonstrate technical planning skills, including data collection and analysis, GIS mapping and analysis, data visualization, information synthesis, problem solving, ideation, as well as written and verbal communication.
- Understand the standards of quality expected in professional practice.
- Practice the skills necessary to work successfully in teams, such as recognizing and dealing with group dynamics, active listening, and interpersonal cooperation.

Studio Teams

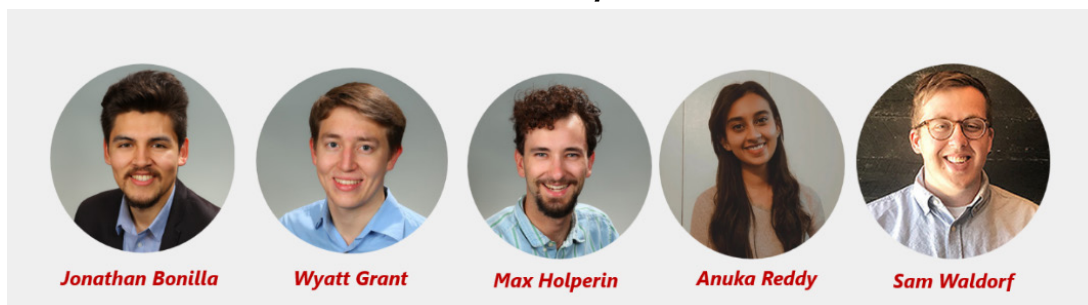
In total 17 students participated in the studio. They were organized into three teams, each focused on one of the case study communities. Each team was assigned a professional staff advisor from the Bloustein School, and each team had a “client.” For the Bridgeton case study, the client was Gateway Community Action Partnership, for Cherry Hill the client was the Cherry Hill Department of Community Development, and for Newark, the client was the City of Newark, Office of Sustainability.

Figure 6. Case study studio teams

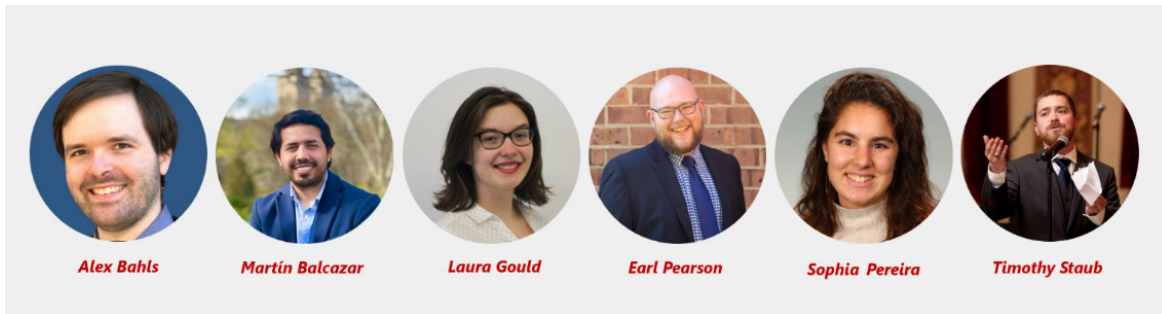
Team Bridgeton



Team Cherry Hill



Team Newark



Technical Work Activities

Each of the case study teams conducted a series of activity typical of local planning processes. These efforts were aimed at understanding local conditions and needs related to healthy, just, resilient, and sustainable community planning topics. The four main activities are summarized below.

Site visits

During the first weeks of the studio course, each team met with their “clients” and toured their case study communities. The local tours were led by client representatives who were asked to design an experience that exposed the teams to issues and concerns in their communities as well as the range and variety of built and natural environment conditions in each place. Through these tours, student teams were also able to see how residents and visitors interact in each community, where they frequent, how they get there, and what kinds of planning and policy interventions might be feasible and warranted.

Analysis of existing conditions

Understanding community context is a critical component of any planning process. One way to gain insights into community context is to review documents and conduct desktop analyses. To better understand existing conditions in each case study municipality, the teams:

1. reviewed and synthesized current and past plans, studies, and reports,
2. collected, analyzed, and mapped data from a range of sources, including where appropriate comparisons to other municipalities, the county, and the state,
3. synthesized the data and information discovered, and
4. prepared a PowerPoint slide deck presentation summarizing their findings.

Topics explored included historic and current development patterns, local demographics, economic conditions, transportation patterns and options, land use and zoning, redevelopment plans, public health conditions, environmental hazards, climate risks and related topics. The teams also identified and mapped data on community amenities and desired destinations such as parks, supermarkets, farmer's markets, pharmacies, childcare facilities, schools, and public transit stops.

Proximity and accessibility analyses

The concepts of proximity (nearness) and accessibility (physical access to goods, services, and desired destinations) are central to the 15-minute neighborhood planning model. There is important debate in the urban planning literature about the best way to measure spatial accessibility in the context of community transportation planning. However, two common methods have emerged as leading practices, each with constraints: isochrone mapping and x-minute statistical analysis.

Method 1: Isochrone Maps

Method 1 examines the accessibility of various community assets and amenities by building a series of isochrone maps and calculating amenity statistics for several types of amenities. Isochrone maps in geography and urban planning are maps that show the area accessible from a point within a certain time threshold. For the case studies, the isochrone mapping illustrated what parts of each municipality had access to various amenities within a 15-minute travel distance. The amenities considered in the analysis included childcare facilities, parks, pharmacies, schools, and supermarkets. Each team considered walking, bicycling, and e-biking as modes of travel.

Method 2: X-Minute Statistical Analysis

Method 2 examined the accessibility of residential blocks to a suite of frequently accessed amenities by calculating the maximum time to the closest amenities for each residential block and aggregating the statistics at the neighborhood scale. X-minute statistics refer to the travel time needed to reach the farthest of a set of amenities from a given origin. For this analysis, the origins were Census Block centroids. This type of analysis seeks to characterize the accessibility experienced of individuals by acknowledging the complex set of destinations that make up a person's day-to-day life. The two analyses together provided a multi-faceted understanding of accessibility in the case study communities—the x-minute statistic from the perspective of individual residents and the isochrone maps from the perspective of the general population.

To understand better proximity and accessibility in each case study community, the teams used ArcGIS Pro software to perform two spatial accessibility analyses designed to explore the 15-minute neighborhood concept.

Strengths, Weaknesses, Opportunity, and Threats (SWOT) Analysis

A SWOT analysis is a structured planning method, often used as part of strategic planning processes to help evaluate the forces that may affect success. A SWOT analysis can be conducted for an organization, product, place, industry, or even a person. It involves specifying the objective to be achieved— in this case, creating healthy, just, resilient, and sustainable 15-minute neighborhoods, and identifying the internal and external factors that are favorable and unfavorable to achieving that objective. Figure 7 depicts a graphic organizer commonly used when completing a SWOT analysis.

Figure 7. SWOT Analysis

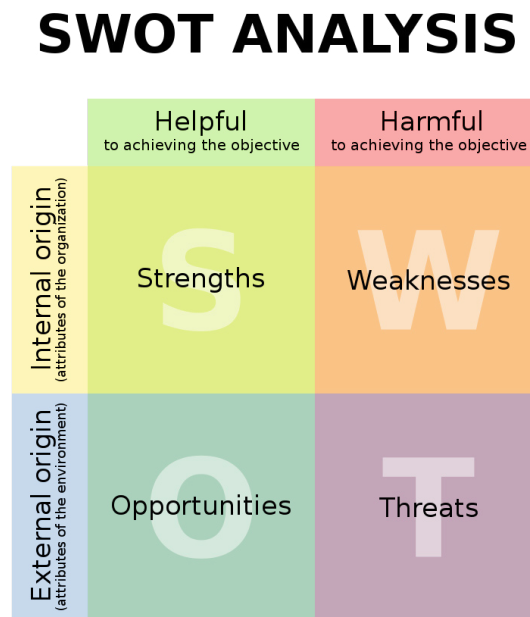


Image source: Wikipedia.

The site visits, analysis of current conditions, and proximity/accessibility analyses provided data and insights about community characteristics and spatial patterns in each case study locations. These insights allowed the teams to narrow their focus in each community to a particular neighborhood for more detailed planning. Neighborhood selection criteria included but were not limited to patterns of historic disinvestment, concentrations of poverty, physical barriers that limit mobility options, opportunities for redevelopment, available community and human capital, and economic, environmental, and public health conditions. Once the teams identified a neighborhood focus area, they conducted a SWOT analysis to identify neighborhood assets and success stories on which to build, internal and external factors and trends that might make it harder to implement complete, 15-minute neighborhood recommendations, and outside factors and trends that might support creating more complete, 15-minute neighborhoods.

The results of these planning activities are summarized in the sections that follow.

Bridgeton Case Study

History and current conditions

Located on the Cohansey River near the Delaware Bay, Bridgeton is a small city of about 26,000, surrounded by very low density residential develop and agricultural lands. It is the county seat of Cumberland County in South Jersey. Settled in the 1700s, Bridgeton’s economy began growing in the 1800s around the glass and iron manufacturing industry. After an extended period of economic prosperity, in the 1970s its economic decline began, bringing about disinvestment, unemployment, and high poverty rates. Despite the economic downturn, Bridgeton’s population has been growing since the 1990s, and is the only municipality in Cumberland County to experience population growth between 2010 and 2020.

In the early 2000s, demographics in Bridgeton, which has been a majority minority city for several decades, began shifting with an influx of Hispanic immigration to the area. According to the U.S. Census Bureau 2022 population estimates, approximately 36 percent of the city’s population is White alone, and 34 percent are Black or African American alone. Approximately 51 percent of the population reported being Hispanic or Latino. In terms of household characteristics, in 2021, the median household income in Bridgeton is \$39,995, well below that of Cumberland County or the State of New Jersey. Twenty-seven percent of the city’s population lives below the federal poverty threshold. The unemployment rate in Bridgeton is also consistently higher than the rate in Cumberland County and the state.

As shown in Figure 8 (pg. 58), more than a third of the city is occupied by residential land uses, approximately 16 percent is identified as commercial/industrial, and about a third is identified as open space or undeveloped. Only the downtown area is zoned for mixed use development. In 2007, the entire city was declared an Area in Need of Rehabilitation under New Jersey Local Redevelopment and Housing Law and since then, the city has designated several redevelopment areas (see Figure 9, pg. 59), mostly concentrated in the southeast quadrant of the city. Given its proximity to the Cohansey River, which is tidal, parts of the city are subject to flooding and are vulnerable to sea level rise. See Figures 10-11 (pgs. 60-61).

As shown in Figure 12 (pg. 62), the city is bisected by several major roadways and is served by several bus routes. Pedestrian and bicycle infrastructure is limited. According to the U.S. Census bureau, 85 percent of employed residents commute outside the city for work. Eighteen percent of residents lack access to a personal vehicle to meet their travel needs and approximately five percent walk, bike or take public transit to work. In terms of roadway safety, Figure 13 (pg. 62) shows several crash hotspots in the city. These are mostly concentrated in the City Center neighborhood and along major corridors. Obesity rates are high in the city as are rates of chronic illness, which may be in part due to generally low rates of physical activity.

Additional information on current conditions in Bridgeton is available on the [project website](#).

Figure 8. Bridgeton land use/land cover

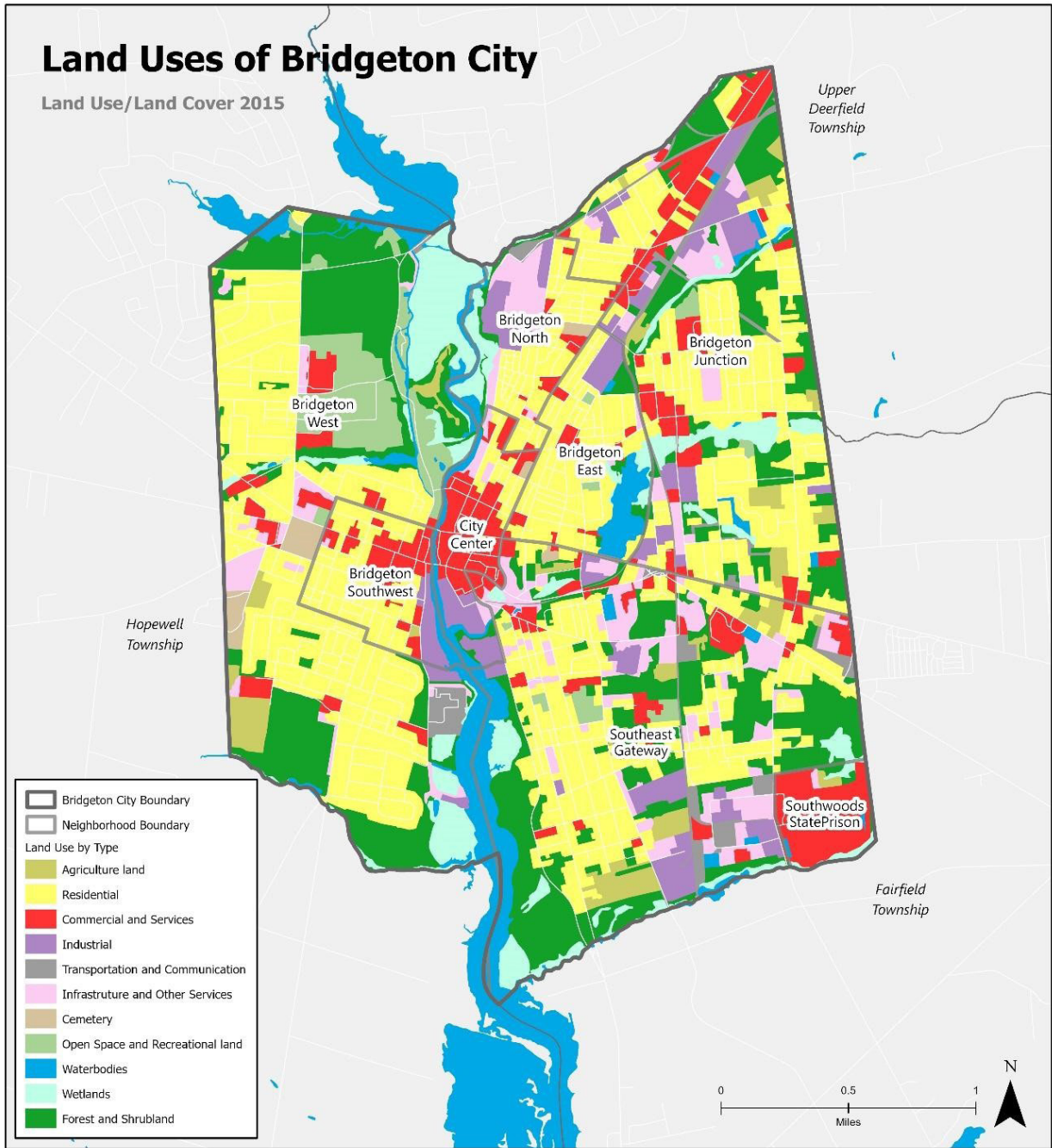


Figure 9. Bridgeton redevelopment areas

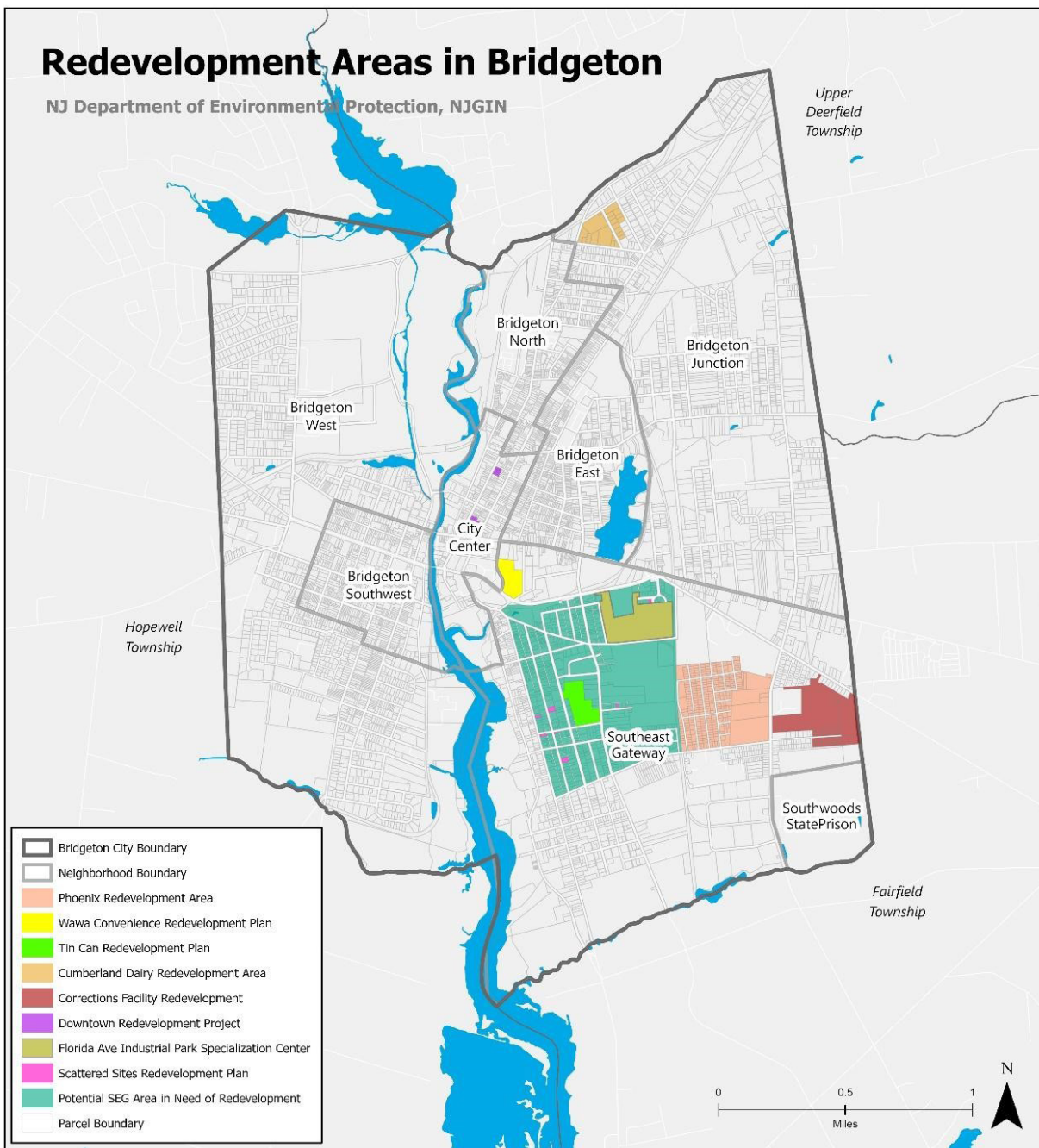


Figure 10. Bridgeton's flood hazard areas

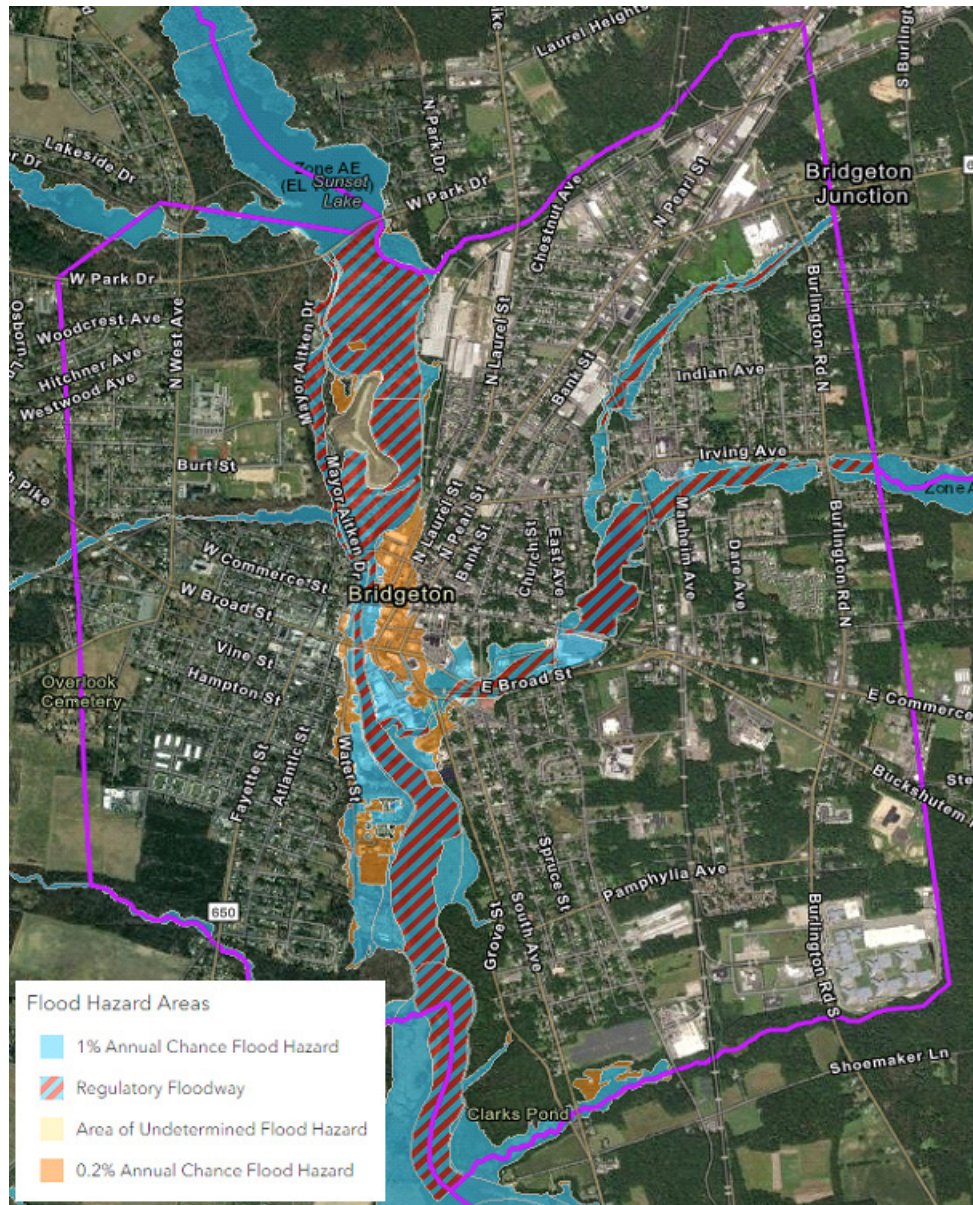


Figure 11. Areas of Bridgeton potentially inundated by 3 feet of sea level rise

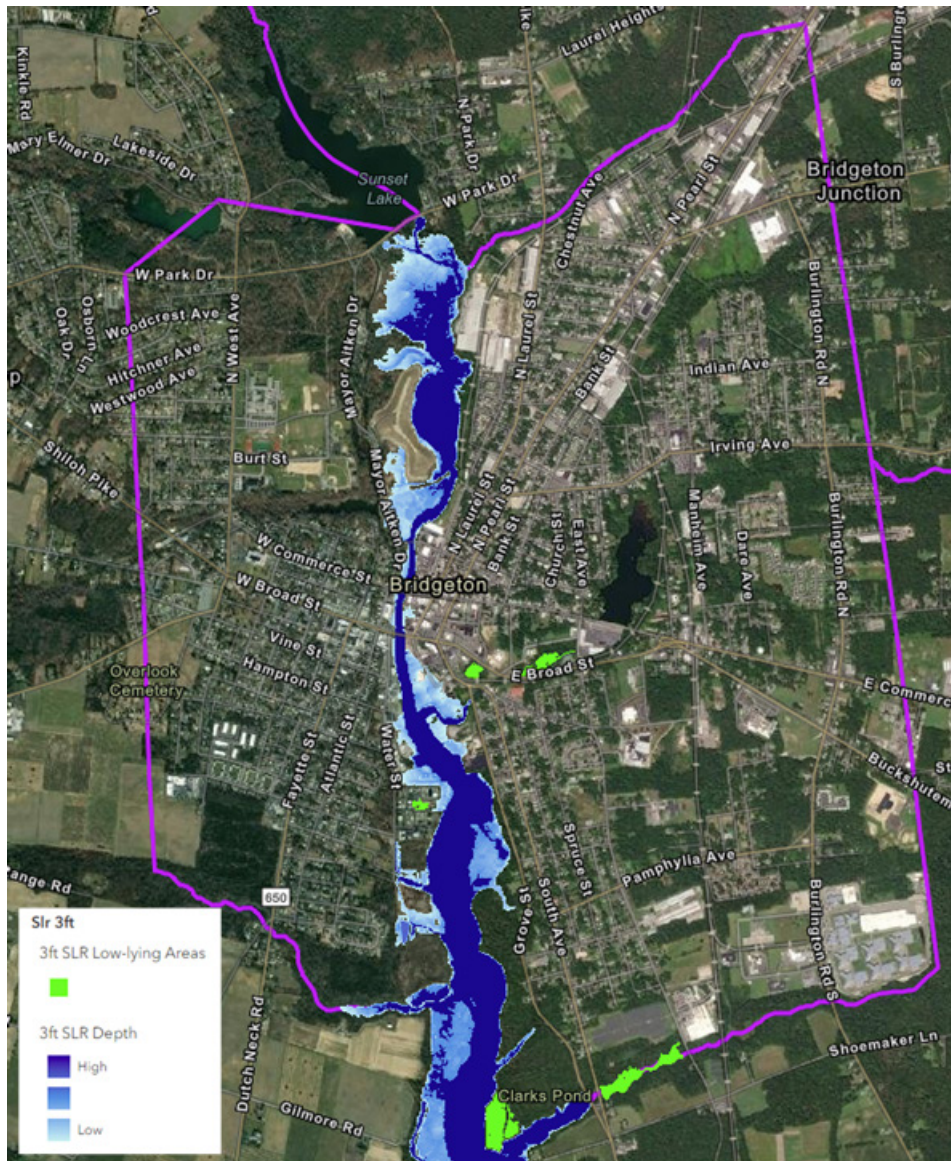


Figure 12. Bridgeton’s transportation network

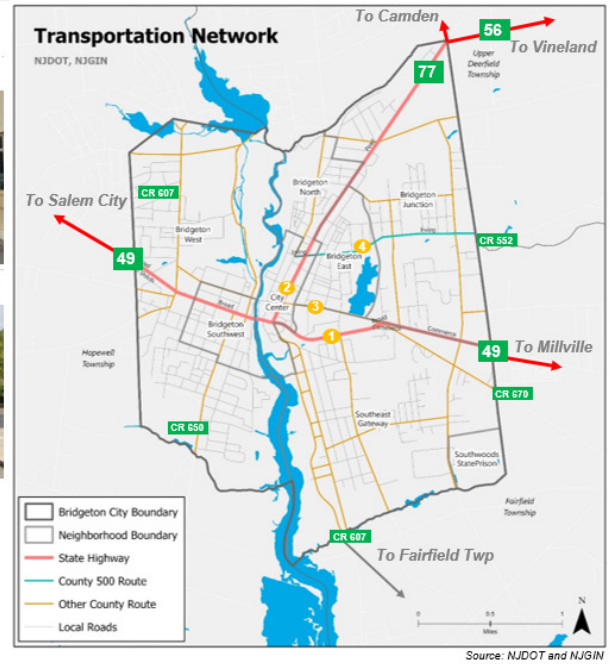
Major Roads



Source for all images: Google Maps

Public Transit

- NJ Transit Route 410 to Philadelphia, Route 553 between (Upper Deerfield Township and Atlantic City, NJ)
- Bus stops are located along NJ 49 and NJ 77 (Pearl St)



Source: NJDOT and NJGIN

Figure 13. Bridgeton crash analysis

Crash Statistics

- 353** Total Crashes
- 2** Bike Crash
- 7** Pedestrian Crash



Source: Google Maps

E Broad St (NJ 49)

Crash Type

25 % Right Angle **22 %** Struck Parked Vehicle

- A significant proportion of crashes, 56%, occur on four major roads.

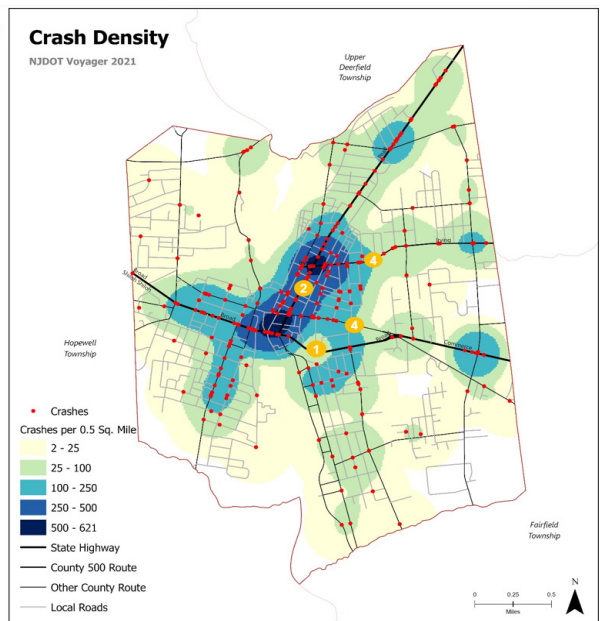
Comparison with AADT and Speed limit

Roads	Total Crashes	Total Percentage	AADT 2021	Speed Limit
1 Broad St (NJ 49)	65	18.41%	11793	40
2 Pearl St (NJ77)	54	15.30%	15382	30
3 E Commerce St (CR670)	41	11.61%	11478	25
4 Irving Ave (CR 662)	37	10.48%	5895	25

Source : NJDOT Voyager 2021 and NJGIN Road centerline Data

Crash Density

NJDOT Voyager 2021



Proximity and accessibility analysis results

The proximity and accessibility analysis conducted for Bridgeton showed that only 13 percent of residents can access all essential amenities within a 15-minute walk from their residence. In fact, we found that residents must travel 25 minutes on average to reach their farthest amenity, which was pharmacies. We conducted an amenity isochrone mapping analysis, with results presented in Table 3 below, as well as an x-minute analysis with results shown in Figure 14 (pg. 65). An x-minute represents the amount of time it would take residents in each Census Block to walk to the farthest amenity. As shown in the table, the least accessible amenity by walking are pharmacies, followed by schools, bus stops, parks, and childcare facilities. Only 35 percent of residents can access a pharmacy within a 15-minute walk. Figure 14 shows x-minute statistic for walking. Meanwhile, the most accessible neighborhood amenities were supermarkets and bus stops, as determined by the isochrone mapping and x-minute statistical analysis. Seventy-seven percent (77%) of residents can access a supermarket or neighborhood convenience store within a 15-minute walk.

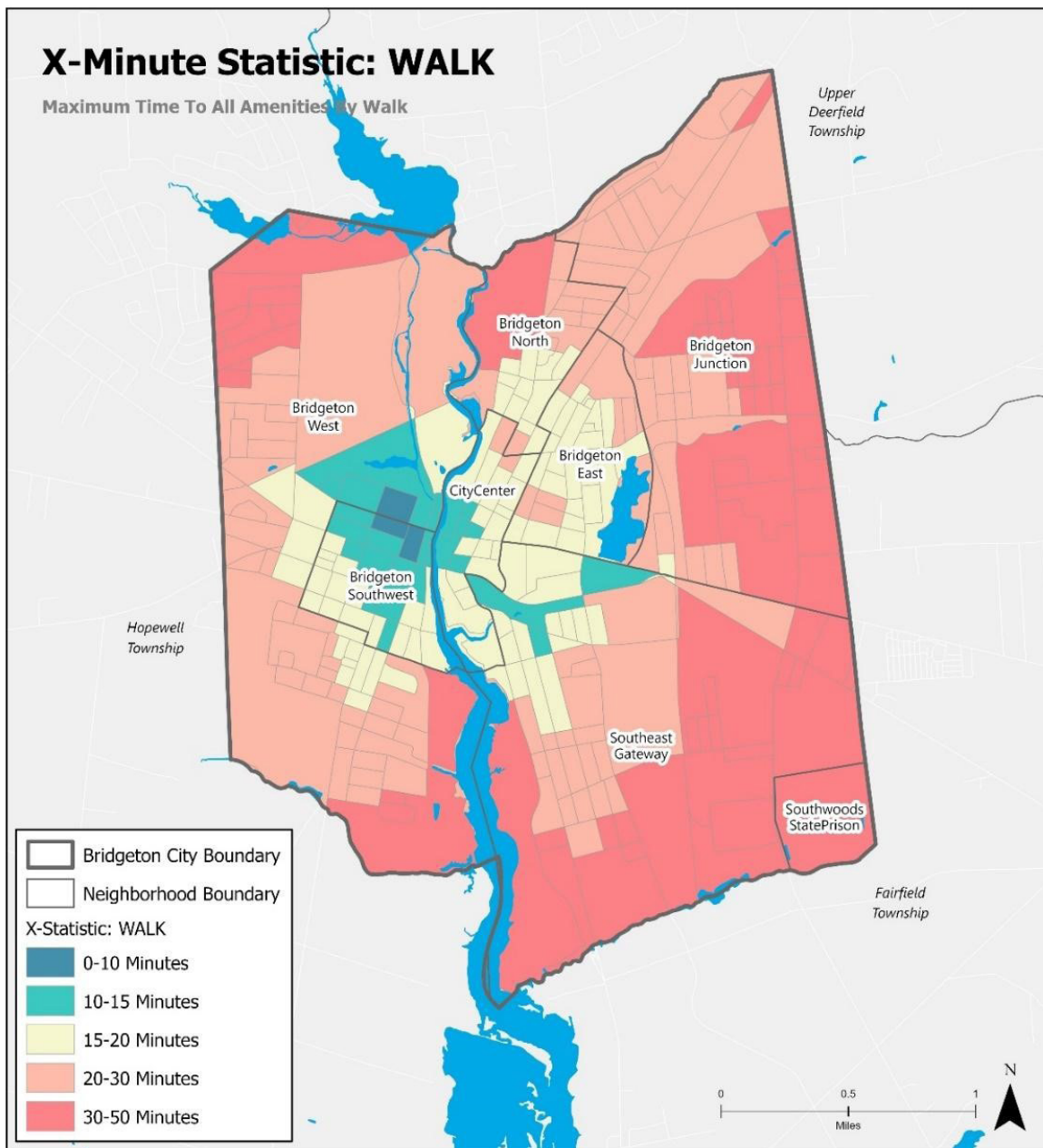
Table 3. Amenity access in Bridgeton based on isochrones mapping

Amenity/Details	% of residents with 15-minute access		
	Walk	Bike	E-Bike
<p>Supermarkets</p> <ul style="list-style-type: none"> The city has two full-service supermarkets and 16 neighborhood convenience stores. Both full-service supermarkets and 11 of the 16 neighborhood convenience stores are in the City Center neighborhood. The Bridgeton West neighborhood has the lowest walk access to supermarkets and convenience stores. 	77%	99%	99%
<p>Pharmacies</p> <ul style="list-style-type: none"> Two pharmacies (Rite Aid and Walgreens) located in the city, both in the City Center neighborhood approximately 350 feet apart. Neighborhoods with low walk access to pharmacies include Southeast Gateway, Bridgeton North, Bridgeton West, and Bridgeton Junction. 	35%	99%	99%
<p>Schools</p> <ul style="list-style-type: none"> The city has 10 schools, eight are part of the Bridgeton School District and two are private. There are one high school, two elementary, six K-8 grade schools, and one Pre-K school. Many of the schools are located at the periphery of the city. Neighborhoods with the lowest walk access to schools include Bridgeton Junction, Southeast Gateway, and City Center. 	51%	99%	99%

<p>Childcare facilities</p> <ul style="list-style-type: none"> • Eight childcare facilities located in the city. • Facilities with the highest capacity are in the City Center neighborhood. • Neighborhoods with low walk access to childcare facilities include Southeast Gateway and Bridgeton Junction. 	<p>62%</p>	<p>99%</p>	<p>99%</p>
<p>Parks</p> <ul style="list-style-type: none"> • The city has 17 parks, two large and 15 neighborhoods. • The parks are mostly concentrated in the City Center and Bridgeton West neighborhoods. • Neighborhoods with low walk access to parks include Southeast Gateway, Bridgeton West, Bridgeton North, and Bridgeton Junction. 	<p>60%</p>	<p>99%</p>	<p>99%</p>
<p>Bus stops</p> <ul style="list-style-type: none"> • There are two bus routes serving the city, one to Philadelphia that runs along Pearl Street and one to Atlantic City that runs along E. Broad Street. • There are no bus shelters at bus stops and limited sidewalks and cross walks. • Neighborhoods with low walk access to bus stops include Bridgeton West and Southeast Gateway 	<p>56%</p>	<p>99%</p>	<p>99%</p>

The neighborhoods with lowest walk access were the Southeast Gateway and Bridgeton West neighborhoods. While walk access was more limited for many residents, virtually all residents would be able to access all the amenities analyzed by bike and e-bike within 15 minutes. On average residents would need to travel six (6) minutes by e-bike and ten (10) minutes by bike to reach all the amenity destinations analyzed.

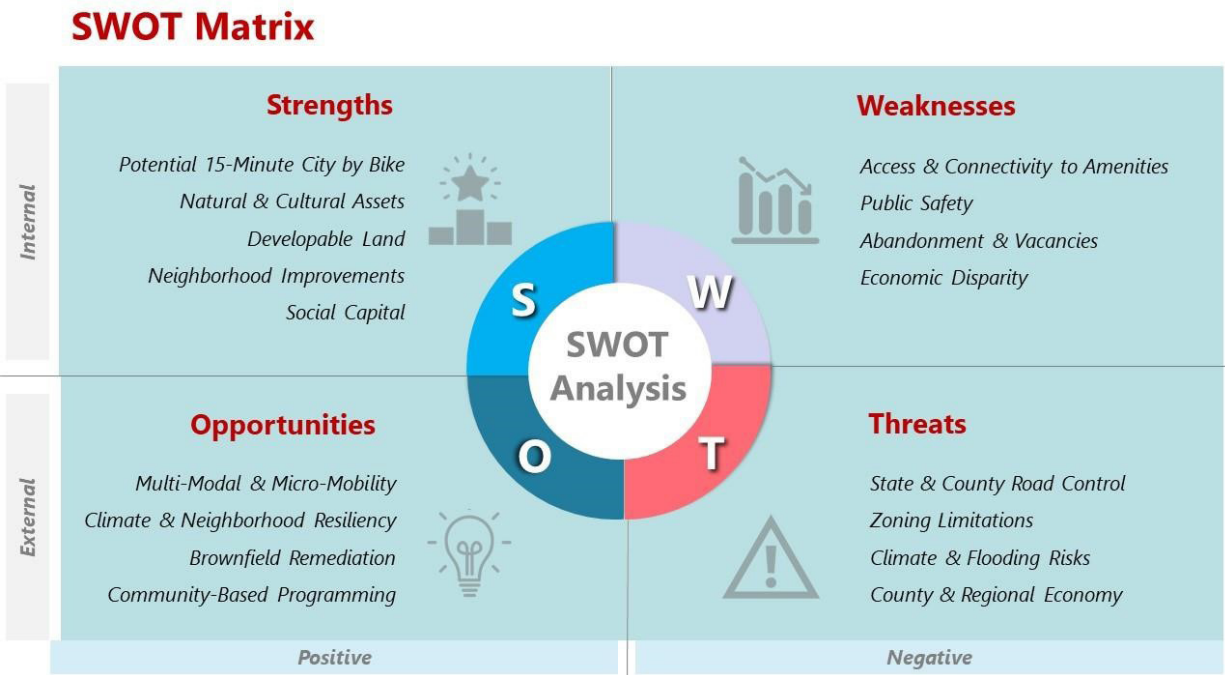
Figure 14. Bridgeton walk access x-statistic



SWOT analysis results

The Bridgeton team focused their detailed local planning efforts on the Southeast Gateway Neighborhood. The results of the SWOT analysis are depicted in Figure 15 and summarized below.

Figure 15. SWOT Analysis Results for Bridgeton



- Strengths** – Bridgeton, including the Southeast Gateway neighborhood, has strong potential to become a complete 15-minute city by bike/e-bike with proper planning and investment. Current bike infrastructure is limited, consisting only of a single, shared use paved path and one unprotected painted lane that borders vehicular traffic lanes. Throughout Bridgeton, there is a network of recreational space (parks and zoo), public gathering space (waterfront plaza), and communal/cultural organizations (such as STEAMworks, Gateway Community Action Partnership, the Lenni Lenape Tribal Headquarters, and the Rutgers Food Innovation Center). Although these assets are not necessarily well distributed throughout the city, they have potential to be activated through community events and festivals.

In addition, Bridgeton and the Southeast Gateway neighborhood have a significant amount of vacant land that provides development opportunities. The Southeast Gateway Neighborhood revitalization plan highlights three sites that offer opportunities to build

on: the waterfront plaza, the Florida Avenue Industrial Site, and the Tin Can site. The plan lists these as ripe areas for redevelopment for the purpose of creating public communal spaces and/or enhancing economic development through the development of new retail centers. Finally, over the past two decades, Southeast Gateway has been the focus of important investments efforts that have built community, organizational, and social capital that will be important to advancing 15-minute neighborhood recommendations.

- **Weaknesses** – Despite relative proximity to amenities, access is negatively impacted by a variety of factors. First, many of the nearest amenities are concentrated to the northwest in an area that has the most significant urban heat island effect within the city. Along the second route into the neighborhood, residents are confronted with uncomfortable walking and biking conditions. Of note is the lack of sidewalks connecting the community to the rest of the city, and the relatively poor condition of the sidewalks that do exist within the neighborhood. The poor condition of pedestrian infrastructure contributes to a car-centric culture where more than 90 percent of neighborhood workers drive or carpool to work and less than one percent walk or bike (ESRI 2022 Forecasts). In past surveys, many residents reported high levels of crime as a concern (Gateway Action Partnership). In 2020, Bridgeton was considered less safe than 94.7 percent of cities in the U.S.,⁶³ with high crime areas concentrated in the southeastern portion of the city.⁶⁴ Residents of Southeast Gateway are much more likely to be a victim of property and violent crime than the average New Jersey resident.

Southeast Gateway has among the highest poverty rates within the city and only has a median household income of \$35,448 and per capita income of \$14,385. This is slightly below the medians for Bridgeton and is substantially lower than the medians for New Jersey and the U.S. (ESRI 2022 Forecasts). In 2017, the neighborhood had only 151 jobs. Prior surveys note that residents believe they have limited opportunities for economic advancement and that they do not have access to jobs with sufficient salaries (Gateway Action Partnership).

- **Threats** – Southeast Gateway and Bridgeton are threatened by climate change, including urban heat island, potential flooding along the Cohansey River, and low tree canopy cover. Southeast Gateway specifically has minimal access to publicly accessible green and open space. To address these threats, Southeast Gateway and the City will need to invest in sustainable infrastructure to improve community resilience to climate risks. Bridgeton and Southeast Gateway also have numerous brownfield sites, which are hazards to community health and a deterrent to private investment.

The Southeast Gateway has a high concentration of residential uses and zoning does not permit mixed use development, an important way to expand access to desired

63 <https://www.city-data.com/crime/crime-Bridgeton-New-Jersey.html>

64 *Ibid.*

destinations for community residents. Rezoning will require extensive time and resources from the city, including public hearings and the approval of the planning and zoning boards, which will require time and effort from local governments as well as open the potential for resident opposition.

As noted previously, access to desired destinations in Bridgeton and the Southeast Gateway neighborhood is limited by a lack of safe, well-maintained pedestrian and bicycle infrastructure. This weakness is exacerbated by the fact that many roadways are owned and maintained by Cumberland County and the state. Investments to enhance walkability and bikeability along these routes will require significant interagency coordination and cooperation. Finally, Bridgeton's location in southern New Jersey, which is relatively distant from significant job concentrations in Philadelphia, PA, Wilmington, DE, and Atlantic City makes it difficult to attract outside private investment. Further, the city competes with other nearby jurisdictions, including Vineland and Millville to attract investment.

5. **Opportunities** – At the same time, growing interest in micromobility options such as e-bikes and e-scooters present opportunities to significantly enhance mobility and accessibility for residents, especially if the introduction of new mobility options are coupled with concurrent investments that make it easier and safer to walk and bike. Growing awareness regarding climate threats provide an opportunity to engage residents in the process of making Bridgeton more climate resilient and there are many existing programs that can be used to support brownfield remediation and redevelopment. Finally, past experiences with community-based programming can be leveraged to advance 15-minute neighborhood recommendations.

Recommendations

Recommendations for transforming Southeast Gateway into a complete 15-minute neighborhood and eventually Bridgeton into a 15-minute city include the following:

1. **Create a safe multimodal transportation network.**
 - a. Embrace **complete streets** and **safe routes** to school strategies to improve safety, comfort, and connections for those who walk or use non-motorized modes. This can be accomplished by extending, widening, and repairing sidewalks, creating safe and more frequent crosswalks, ensuring ADA accessibility, expanding street lighting, adding dedicated bike lanes where feasible, and introducing green infrastructure such as rain gardens, planted medians, street trees and more along roadway corridors. Prioritize improving sidewalk, crosswalks, and bicycle infrastructure near schools, parks, transit stops, commercial centers and in high-crash corridors. Improvements should include proven safety countermeasures and traffic calming where appropriate.

- b. Plan and implement a **robust bikeway network** to improve access and connectivity to key amenities and promote active transportation. This can be achieved by improving/enhancing existing connections and creating new ones. The network should connect existing green spaces, serve various existing amenities and desired destinations as well as future development sites, make it easier to access existing bus routes, and address safety issues in high-crash corridors.
- c. Promote the use of cost-effective, environmentally friendly, and convenient travel options for short trips within the city, including **shared e-bikes and e-scooters**. This can be accomplished by implementing a scalable pilot program in partnership with a private mobility provider. The e-bike/e-scooter system can be deployed in a pilot service area designed to serve an area of approximately 1.5 square miles with 30 mobility hubs that include docking/charging stations. The vehicles deployed should include adaptable models that meet the needs of people of all abilities, and it can include an income-based membership structure.
- d. Install **wayfinding signage** that encourages people to walk and bike more and to help people navigate to desired destinations. Include travel time and distance estimates on the signs to address misperceptions regarding how long it will take to travel to various destinations. Consider establishing self-guided walking tours of the city to promote local business and bolster the city's image. Include interpretive signage to highlight the unique characteristics and history of the city's neighborhoods.

2. Establish sustainable infrastructure systems.

- a. Implement **green infrastructure best practices** in the built environment to improve climate resilience and overall health. This should include converting existing paved areas to permeable surfaces and requiring the use of **permeable materials** in new construction, increasing **tree canopy**, and installing **rain gardens, planter boxes, and bioswales**, especially as part of the street network and in parking areas, to help manage stormwater runoff. Planted medians should also be implemented where feasible. Distribution of green infrastructure investments should be equitable and should prioritize disadvantaged areas.
- b. Encourage **sustainable development and clean, renewable energy**. This can be done by implementing a city-led **community solar program**, installing **solar canopies** over existing parking and on commercial/industrial rooftops, implementing **green building practices** in public buildings and schools, installing **electric vehicle (EV) charging infrastructure** throughout the city. The city should also promote the use of green building practices in new development by incentivizing the construction of LEED-certified buildings with expedited permitting.

3. Implement healthy and vibrant community programming.

- a. Repurpose vacant land into **community-activated green and recreational spaces** to enhance and connect Southeast Gateway's green network. This can include play spots, places for quiet reflection and respite, as well as community gardens and

farmer's markets to promote access to fresh food. The transformation of vacant lots to green community spaces should be planned with active community engagement, input and participation. High-visibility locations can be prioritized to build awareness and showcase transformation.

- b. Establish a **neighborhood health station** in Southeast Gateway to provide health and community services such as low- and no-cost health services to address gaps in access to healthcare and serve residents without medical insurance, childcare, and flexible community meeting spaces to accommodate other types of community programming such as book readings, support groups, social gatherings, etc. In the short term, it may be possible to program existing community spaces to provide for these functions.

4. Promote equitable land use and development.

- a. Transform the proposed **Southeast Gateway retail center into a community anchor** by amending the plan to allow for mixed use, align with walkability principles and incorporate more community-serving functions. This can be accomplished by expanding community spaces at the site to incorporate the neighborhood health station, allowing up to three stories to accommodate residential uses on the upper floors, adding better bicycle and pedestrian connections to the site, and reducing the amount of the site dedicated to parking and converting some of the parking area to public green space and bicycle parking.
- b. Establish a public-private partnership (PPP) program to foster **remediation and redevelopment of existing brownfield sites**. Brownfields are a significant problem for Bridgeton generally, and the Southeast Gateway specifically. Five of the city's 16 brownfields are in the neighborhood, and another three are within a ¼ mile. These sites represent a mix of vacant lots and former industrial sites. From economic, health and justice lenses, remediating these sites should be a priority. PPPs can help spread risk, reduce costs, and make sites more viable for redevelopment. The State's Brownfield Impact Fund can provide grants and loans both to private entities, and local governments for this purpose.
- c. Empower residents to maintain their historic homes through a designated **Historic Preservation Loan Fund**. The Bridgeton Historic District is an important part of the city's identity and can serve as a tourist attraction for visitors. A section of the district is located in the Southeast Gateway and contains numerous beautiful structures. However, some of these buildings have fallen into disrepair, and have even become abandoned. The establishment of a loan fund which provides interest free loans to residents for the purpose of maintaining and renovating their historical homes would help empower residents to stay in their homes and maintain their structural and aesthetic integrity. Priority should be given to low-income residents and should be open to both renters and homeowners. The state and federal government maintain

historical preservation funds which can be used to help offset the cost of loans. In the short term, the program will be centered on the Southeast Gateway and expanded over time to other parts of the City.

- d. Implement **zoning changes to encourage mixed-use and small-scale commercial development** in Southeast Gateway. Southeast Gateway is mostly zoned for single family and industrial uses. This discourages the building of amenities/desired destination uses within a reasonable walk distance of where residents live. To address this issue, the Mixed-Use Overlay District which is just on the neighborhood's edge should be expanding to include more area in the Southeast Gateway neighborhood and amended to allow multi-family dwellings. The C-4 district should be expanded to include the undeveloped lots along Southeast Avenue and Pamphylia Street. This will not only expand the opportunity for commercial activities, but it will also correct an existing non-compliance in the neighborhood at Sal's Market.

More detail, including illustrations, visualizations, and maps showing the location of specific recommendations can be viewed on the [project website](#).

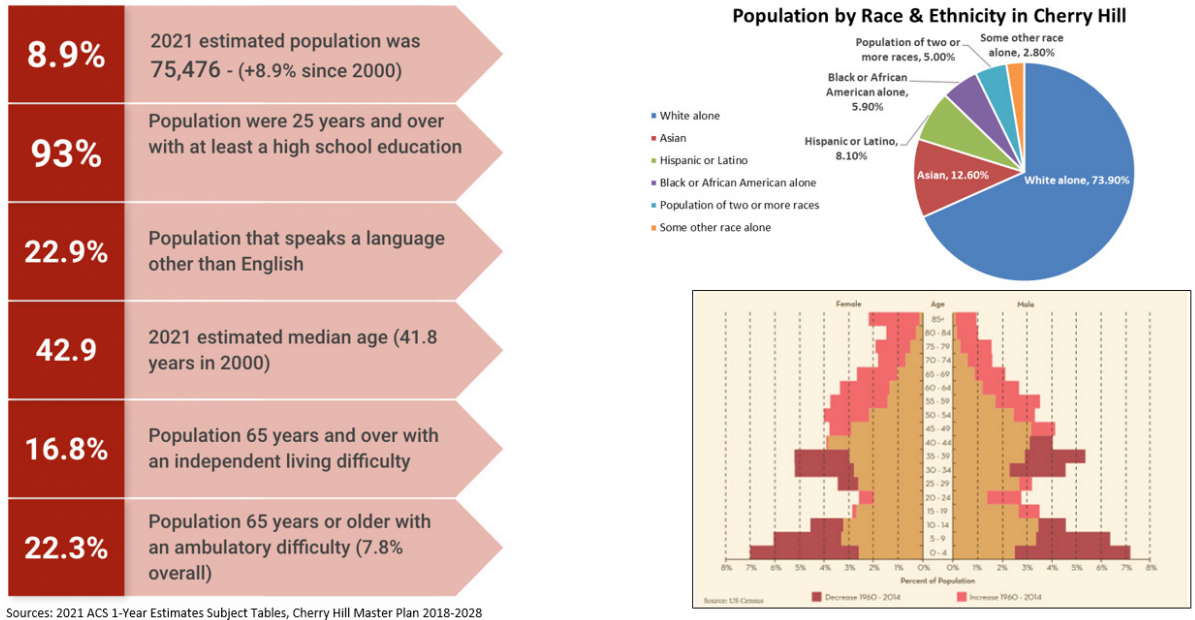
Cherry Hill Case Study

History and current conditions

Cherry Hill is a township in Camden County, in southern New Jersey, just under ten miles east of Philadelphia. Cherry Hill's development was spurred by its proximity to Philadelphia and Camden. The construction of the Benjamin Franklin Bridge in 1926 was one of the first major catalysts for population growth. The bridge reduced travel times to about a 20-minute drive from Philadelphia, and even shorter to Camden. After WWII, Cherry Hill's population soared as urbanites flocked to the suburbs due to government subsidies and programs, leading to more than a 1000% increase in population from the 1940s to the 1970s. In 1961, the first enclosed, air-conditioned shopping mall in the northeast, the Cherry Hill Mall, opened. It was the largest mall in the world at the time, cementing the township as a center for regional commerce.

As shown in Figure 16 (pg. 72), Cherry Hill's population has remained relatively steady in recent years. The township has a large and growing older adult population. Cherry Hill's median income of \$107,341 is much higher than the state or county medians of \$70,957 and \$89,703, respectively. There is some economic inequality evident in the township. Most racial groups within Cherry Hill, excluding Black or African American residents, experience lower rates of poverty than the same racial group county-wide. However, about 20 percent of Black Cherry Hill residents experience poverty, which is greater than the Cherry Hill average of 6.6 percent. These patterns are similar to national wealth divides. Ninety-six percent of households in Cherry Hill have access to a vehicle with the notable exception of the Colwick neighborhood near the Cherry Hill Mall, where over 20 percent of households lack vehicle access.

Figure 16. Cherry Hill population highlights

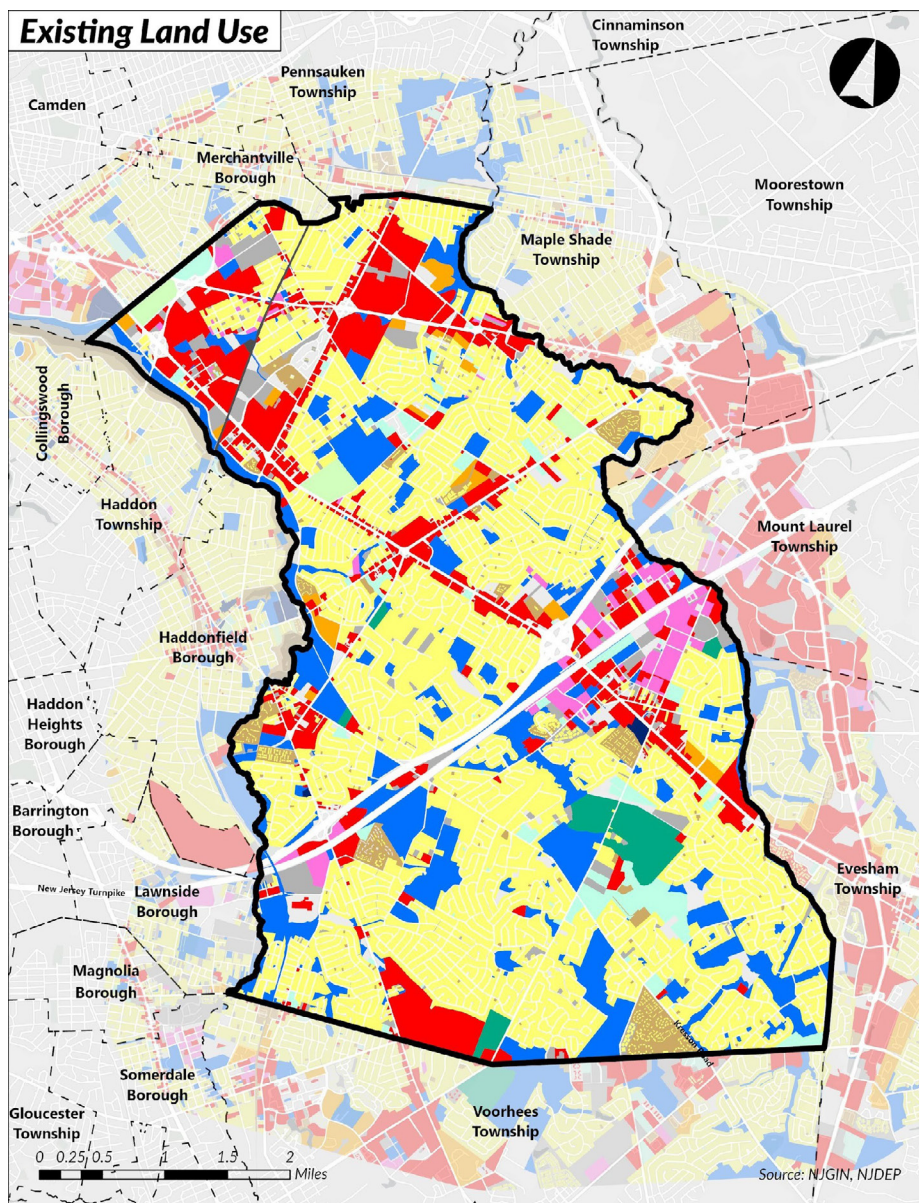


As shown in Figure 17 (pg. 73), most of Cherry Hill is zoned for single-family residential uses. Commercial and Industrial zones line the major roadways running through the Township, including I-295/NJ Turnpike, Route 70, Route 38, Haddonfield Road, and Kings Hwy. The distribution of zones is representative of the townships “East-West Divide” which is demarcated by the NJ Turnpike. The Township’s zoning map consists of 6 overlay zones:

- Two overlays permitting transit-oriented development (TOD) at the Garden State Pavilions along Route 70 and at Woodcrest PATCO Station along Melrose Avenue,
- Two overlay zones targeting senior housing,
- One inclusionary residential overlay zone at the Township’s southern boundary, and
- One Industrial Restricted Business Overlay Zone along I-295.

Finally, there are 11 redevelopment areas and one rehabilitation area in the township, mostly concentrated along main commercial and industrial thoroughfares. The redevelopment plans for these areas vary in their purpose, with some facilitating the construction of multi-family housing while others focus on commercial development.

Figure 17. Cherry Hill land use/land cover



LEGEND

Land Use Type

- | | |
|--|------------------------------------|
| Vacant Land | Public Property |
| Residential | Private or Charter School Property |
| Apartment | Church & Charitable Property |
| Commercial | Cemeteries & Graveyards |
| Industrial | Farm |
| Machinery, Apparatus, or Equipment of Petroleum Refineries | Other Tax Exempt Properties |
| Railroad Property | |
| Personal Property Telephone | |

Proximity and accessibility analysis results

The results of the measured accessibility analysis for Cherry Hill shows that approximately 40 percent of residents live within a 20-minute walk, bike, or e-bike ride of a supermarket, while more than 60 percent can access childcare, schools, pharmacies and parks in that time. Walk access is the most constrained travel option. As shown in Figure 18, residents living in just a few areas of the township can theoretically access all amenities in under a 15-minute walk. While as shown in Figure 19 (pg. 75), a much greater share of residents could theoretically access desired amenities within a 15-minute e-bike ride.

About 50 percent of Cherry Hill residents must walk between 30 and 146 minutes in order to access all amenities from their census block. Interestingly, both the maximum and minimum x-minute statistics were for the farmer’s market, of which there are only two in Cherry Hill. When there are so few of certain amenities in a municipality as large as Cherry Hill, which is over 24 square miles, travel times for census blocks furthest away from that amenity will be large and skew the data, especially when traveling by foot. While the x-minute statistic is very high for this mode, the northwest sector of the Township is the most comprehensively accessible area within the Township, which is more densely developed.

Figure 18. Cherry Hill walk access

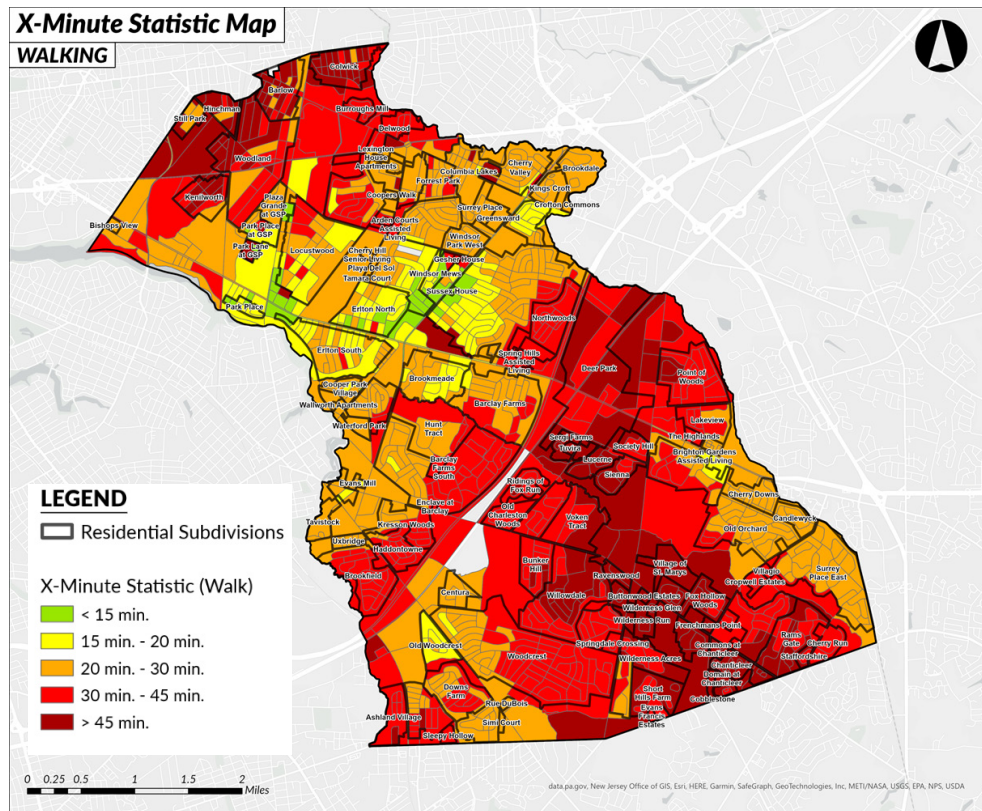
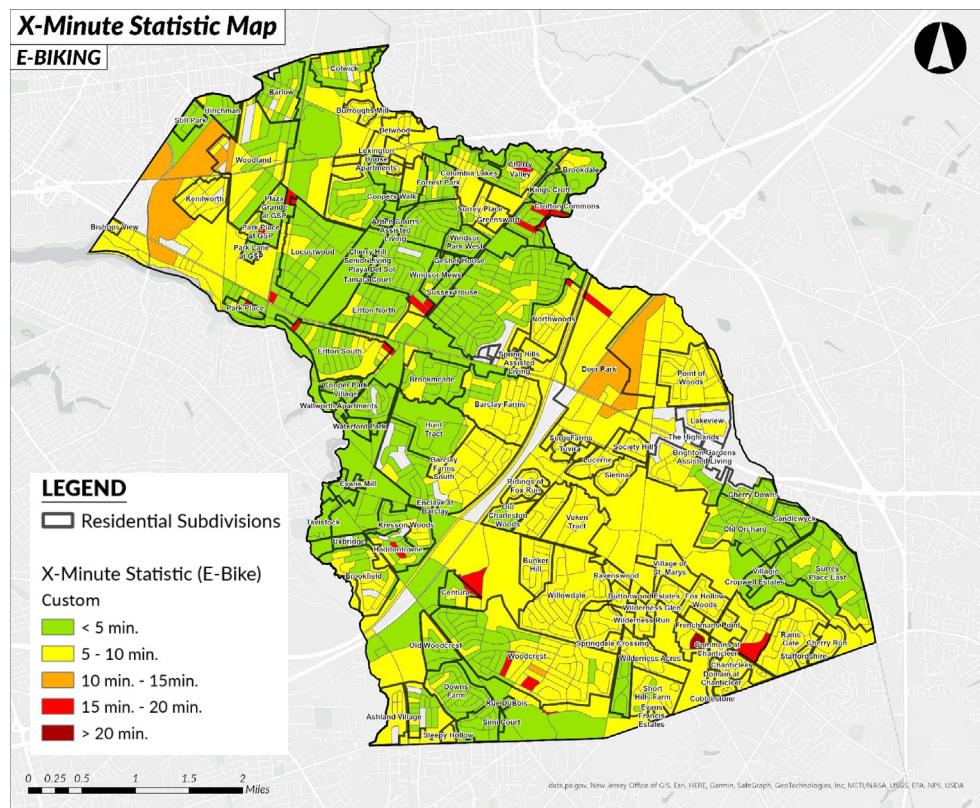


Figure 19. Cherry Hill e-bike access



The results of the amenity isochrone mapping analysis are presented in Table 4 (pg. 76). As shown in the table, the least accessible amenities by walking are parks, followed by supermarkets, childcare facilities, and pharmacies. Only three percent of residents can access a park within a 15-minute walk. The amenity with the highest walk access was schools, with 89 percent of residents living within a 15-minute walk of a primary school. The biggest gaps in accessibility were found in the eastern portion of Cherry Hill, which is mostly low-density residential.

Table 4. Amenity access in Cherry Hill based on isochrone mapping

Amenity/Details	% of residents with 15-minute access		
	Walk	Bike	E-Bike
<p>Supermarkets</p> <ul style="list-style-type: none"> • Nine supermarkets located along the periphery of Cherry Hill, and one farmer’s market in the eastern section. • There are several seasonal farmer’s markets, and they were excluded from this analysis. • Only 36 percent of the population is within a 15-minute bike ride of the farmer’s market. 	19%	77%	99%
<p>Pharmacies</p> <ul style="list-style-type: none"> • Fifteen major pharmacies, mostly in the western part of Cherry Hill. • Only three pharmacies are located east of the NJ Turnpike, making it difficult to access by walking. 	38%	92%	99%
<p>Schools</p> <ul style="list-style-type: none"> • Cherry Hill is a popular school district, having 33 primary schools within the Township. • The schools are evenly distributed across Cherry Hill, and most residents could be within a 15-minute walk of a school. • The biggest walkability gaps are east of the NJ Turnpike. 	89%	98%	99%
<p>Childcare facilities</p> <ul style="list-style-type: none"> • Nineteen childcare centers in Cherry Hill. • Not as evenly distributed as primary schools. • Eastern Cherry Hill has a slight edge over the western portion, with ten childcare centers. 	36%	97%	99%
<p>Parks</p> <ul style="list-style-type: none"> • Only two major parks classified as parks. • Both parks are in the western part of Cherry Hill, and they are within about ½ mile of each other. • Most of the eastern part of Cherry Hill cannot reach a park within a 15-e-bike ride. 	3%	36%	70%

SWOT analysis results

Choosing a neighborhood focus area in a suburban environment such as Cherry Hill was difficult because traditional neighborhood definitions, like those often found in cities, were not present. Rather, residents tended to define neighborhoods in terms of residential subdivisions which are often, but not always, smaller than traditionally defined neighborhoods. In addition, focusing on a single subdivision would exclude nearly all amenities. Given these constraints and based on the results of the back group research, the Cherry Hill team focused their detailed local

planning efforts on an area in eastern Cherry Hill, comprising of several subdivisions, and major employment centers and redevelopment areas, including the Garden State Park and the Kings Highway corridor. See Figure 20.

Figure 20. Cherry Hill planning area focus

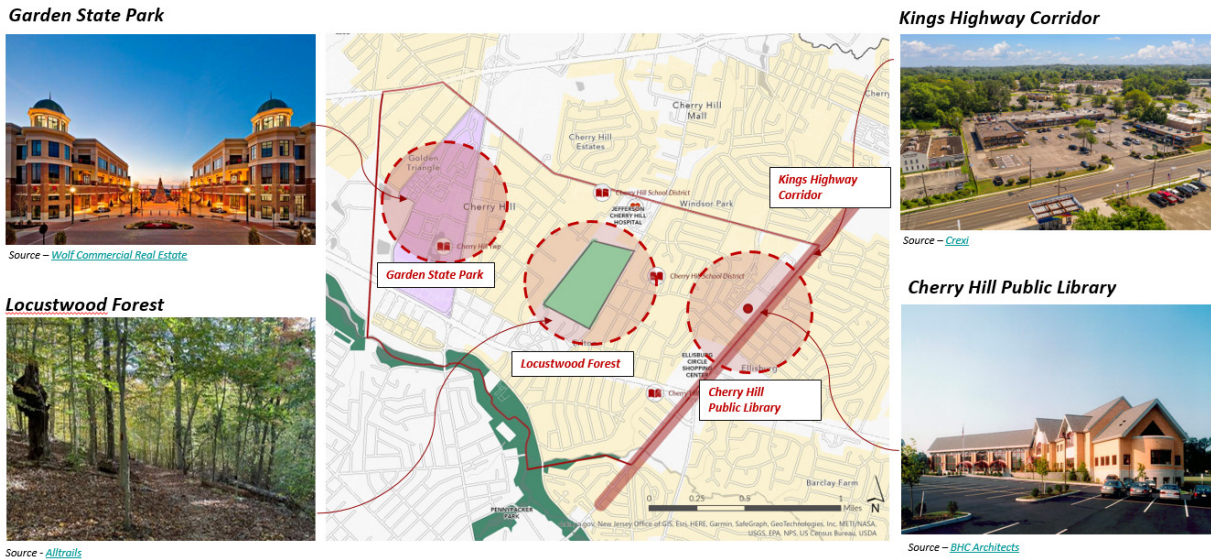


Figure 21. SWOT analysis results for Cherry Hill

Cherry Hill SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> • Education system- proximity to schools • Open space • Regional shopping and jobs center • Amenities available 	<ul style="list-style-type: none"> • Mostly single-use, low-density development pattern • Car-centric • Constrained environment for TOD
Opportunities	Threats
<ul style="list-style-type: none"> • Transforming Garden State Park <ul style="list-style-type: none"> • Create conventional main street/downtown • Improve mobility connections • Focus design and development on alternative modes of transit • Incorporate green infrastructure and reduce impervious cover • Connecting recreational spaces across the township 	<ul style="list-style-type: none"> • Lack of community desire and political will to change status quo • Decreasing amount of undeveloped sites • Lifestyle preferences of future homebuyers

- **Strengths** – Cherry Hill has a high-performing public school district with 33 primary schools across all neighborhoods, and six schools located in the planning focus area. In the focus area, 99 percent of the population is within a 15-minute walk of schools and childcare centers. Proximity of schools encourages children to walk and bike and research studies have shown that properties located near high-quality schools or childcare centers tend to have higher values and sell at a premium compared to properties located farther away.

Cherry Hill Township is home to the Cherry Hill Mall, which is one of the largest shopping centers in the region, attracting shoppers from throughout southern New Jersey and beyond. The mall, along with other commercial centers in the township, can be a significant source of employment for residents. The industrial and retail trade cluster at Cherry Hill Mall has a significant potential to impact the growth of the regional economy.

Cherry Hill Township has several parks and green spaces, including the Cooper River Park, which offers over 300 acres of open space for outdoor recreation and exercise. These parks have the potential to provide residents with a greater opportunity for outdoor activities and social interactions. Additionally, the proposed implementation of the Camden Greenway Circuit Trails Plan has the potential to enhance the accessibility and connectivity of the pedestrian and cycling network within the region. The plan envisions the development of an extensive 128-mile network of bike lanes and pedestrian walkways, alongside open spaces that could potentially lead to improved air quality, thereby contributing towards the overall betterment of the quality of life for the community.

- **Weaknesses** – While the existing transit network connects Cherry Hill to Camden and Philadelphia, it does a poor job connecting neighborhoods within Cherry Hill. Bus Route 406 is the only line connecting the east and west sides of Cherry Hill, making it inconvenient for people to use a bus to get between points within the town. Furthermore, most people in Cherry Hill (96 percent) have a car, making transit a less attractive travel mode. While Cherry Hill Mall has more bus connections than some parts of the township, the bus routes still don't connect to the eastern half of the Township.

Cherry Hill is a car-centric community, and the presence of two major interstates bisecting it makes walking or biking between the two sides of town difficult. Pedestrian crossings are rare, as observed along a 2.2-mile segment of Highway 70 in the focus area where there are only six marked pedestrian crossings, and the sidewalk network is very fragmented. Not only is this distance between crossings inconvenient, it has also led to dangerous behavior by pedestrians trying to cross midblock, leading to NJDOT install cement barriers and fences to prevent crossing. This car-centricity has also led to large areas of impervious surface dedicated to roads and parking.

- **Threats** – There is currently lack of political will or community consensus regarding changes to the status quo. While Cherry Hill is a town where residents take an active

interest in local government affairs, in the past there has been pushback against infill and redevelopment. The presence of environmentally constrained land in Cherry Hill can also pose challenges to development within the municipality. A large body of wetlands in the planning focus area could impact where new development can be proposed. Cherry Hill has a limited amount of vacant land available for new development. The urbanization process has consumed much of the town's land, leaving few areas to be developed from scratch. These constraints will require a focus on redevelopment and retrofitting existing development and streets, which may or may not be supported by residents.

- **Opportunities** – Cherry Hill’s largest multi-use development project, the Plaza at Garden State Park presents an important opportunity to facilitate potential change. The original intention of the space was to cultivate this downtown feeling with increased accessibility, especially along Haddonfield Road, but implementation of the vision has fallen short in the eyes of some. As new phases of the development are built, special attention can be given to how new spaces connect with one another. Infill development should be connected across the space by modes other than car, to encourage more walking and biking. Clustering future parking into decks can reclaim space for other purposes as well. Garden State Park is the main shopping center in our focus area and still an option for establishing a conventional main street. The Garden State Park area represents a great option to center 15-minute design plans. Fifteen-minute neighborhoods can also be planned around the Townships transit stations.

Another opportunity is connecting the recreation spaces across the township. Parks and swim clubs are two strengths of Cherry Hill, offering residents public and private space for recreation and connection. However, most of these only have one point of entry, primarily accessible by automobile. This is especially evident when considering the east/west divide and the barrier that the NJ Turnpike has on the township. Establishing greater connection to these important amenities can have numerous positive effects including health and community development. Fortifying alternative modes of transit to these locations could further encourage their uses, while doubling down on recreation.

Recommendations

Recommendations for transforming the study area in Cherry Hill into a complete, 15-minute neighborhood, and eventually all of Cherry Hill into a 15-minute township include the following:

1. **Increase connectivity and diversify travel modes.**
 - a. **Implement a comprehensive network of bike lanes and pedestrian paths** connecting amenities within the neighborhood focus area. The team identified high-priority corridors and intersections for the implementation of protected bike lanes and pedestrian walkways based on data on traffic volume, crash history, pedestrian pathway gap analysis, and community input. While Haddonfield Road, Chapel Ave, Kings Highway, and Cooper Landing Road are identified as the main corridors to

improve biking infrastructure, several other streets are recommended for improved pedestrian pathways. Three different bike infrastructures should be adopted along the priority corridors. **Protected bicycle lanes**, which offer great protection from cars, can encourage risk-averse cyclists to ride on the road, and physical barriers would improve actual and perceived safety on busy streets. **Slow or shared streets** reserved for local traffic only with vehicle speeds up to 5 mph. These streets would include things such as street furniture, barricades, and temporary installments warning drivers to drive cautiously; and **off-road bike paths** can be implemented to improve access to nature by connecting the parks and trails in various neighborhoods. Fully separated bike paths would also bypass intersections to quickly get between nodes of activity while reducing conflicts between drivers, cyclists, and pedestrians.

- b. **Improve transit stop amenities and visibility.** Currently, NJ TRANSIT bus stops are poorly marked, and most lack benches, garbage receptacles, and shelter. The safety and access of bus stops could be improved by installing protected shelters, which could incorporate a green roof for pollinators (as has been done in nearby Philadelphia). Vehicle lanes adjacent to the stops should be narrowed to permit the addition of a bus pullout on Haddonfield Road. Improved signage should be added that draws attention to the stops and includes wayfinding and transit service information.
- c. **Redesign pedestrian crossings to promote safety.** Redesign measures can include installing high-visibility crosswalks and improving lighting at intersections, installing median refuge islands where feasible at the existing crosswalk locations, increasing the number of pedestrian crossings in potential high walk volume locations such as along Haddonfield Road with signs and signals to warn motorists about pedestrian crossing activity, and constructing curb extensions for all existing and proposed crossing points.
- d. **Invest in bicycle infrastructure.** Investments in bicycle infrastructure as described in recommendation one should be prioritized. These investments will improve connectivity to destinations and amenities for bike and e-bike riders. In addition, secure bicycle parking, including lockers for e-bikes should be installed at key destinations.
- e. **Implement a micro-mobility pilot program.** Along with bicycle infrastructure improvements, the township should plan and implement an e-bike/e-scooter share program to increase the availability and accessibility of diverse travel modes. Short-term actions could include encouraging private companies to set-up and expand e-bike and scooter-sharing programs into underserved areas and low-income communities and provide tax credits or grants.

2. Promote equity.

- a. **Create mobility hubs.** Mobility hubs that integrate bike-sharing and e-bike into and also includes transit, ride-sharing, and other modes of transportation can become community focal points. Establishing a mobility hub and creating a mobility Innovation Fund that provides seed funding to pilot and test new technologies and services can help to drive innovation and the introduction of new mobility options for all residents, especially if program subsidies are provided to lower-income residents and/or those that lack access to cars.
- b. **Diversify housing options.** Housing options in the focus area are limited, including senior active housing, and there is an opportunity to add housing that is community-building and transit-accessible. Developing additional housing types designed for older adults, single-person households and young families, like pocket homes or dorms, along with community centers and outdoor spaces, could facilitate Cherry Hill's older adults, in particular, to be more social and healthier. Many seniors want to be able to age-in-place in their own homes, which highlights the importance of having safe connections to the library and parks where seniors can continue leading active lifestyles and partake in both planned activities and impromptu visits.

3. Improve safety for vulnerable road users.

- a. **Implement complete streets policies.** Complete streets prioritize the needs of all road users in transportation planning and design, not just cars. Complete streets approaches should be integrated in all new road projects as well as maintenance activities such as restriping and repaving projects. Further, implementing a Complete Streets Retrofit Program that targets existing roads that need improvements to accommodate all modes of transportation can speed up establishing a safer network.
- b. **Encourage Safe Routes to School and Transit.** Safe routes to schools provide improved infrastructure and enforcement to promote walking and biking to school and improve access to transit stations.
- c. **Adopt a Vision Zero policy.** Vision Zero policies seek to eliminate all fatal and serious injury crashes. Vision Zero strategies prioritize safety over speed and create a road environment that caters to all road users. To support these policies, designated bike lanes should be installed, clearly marked, and separated from motor vehicle traffic using physical barriers like curbs or bollards. Clear signage and wayfinding should also be implemented to aid cyclists in navigating the road network and finding bike facilities.

4. Create central, vibrant places.

- a. **Encourage human-scaled mixed-use development** within key redevelopment areas such as Garden State Park. One of the strategies for implementing this recommendation involves incentivizing the development of a wider amenity mix for establishments in Garden State Park beyond retail. Siting establishments such as grocery stores, childcare centers, and health clinics in Garden State Park could attract repeat visits from residents needing access to essential services. Other strategies include amending the zoning code to reduce minimum setbacks (for example, the current front yard setback of the B-4 zone is 30 feet; this could be reduced to improve walkability on the site) and codifying design and streetscape standards.
- b. **Conduct a parking study aimed at right-sizing parking requirements.** Such a study should reevaluate parking minimums and identify opportunities for reducing minimum requirements, potentially setting parking maximums, and identifying opportunities to take back surface parking for other uses. For example, much of the land area in Garden State Park is occupied by surface parking, which hinders its capacity as a walkable and bike-friendly center. Where feasible, the township can prioritize the redevelopment surface parking lots, which can be achieved through infill development and by condensing parking into shared parking structures tucked behind retail. By increasing the amount of developable land freed up by removing surface parking, amenity mix can be maximized while also increasing revenue-generating uses for the township. Space currently occupied by surface parking could also be utilized as community green spaces and/or public plazas that can be programmed to encourage social interaction and gathering. The township might also consider implementing a parking benefit district that charges for parking and uses the revenue to add green infrastructure and other enhancements.

5. Prioritize sustainability and resilience.

- a. **Make use of innovative materials.** Materials such as permeable pavement can reduce runoff and help to manage stormwater flooding. Permeable paving materials that incorporate turf or other vegetation can also reduce the urban heat island effect.
- b. **Incorporate green infrastructure in streets and parking.** As New Jersey is likely to experience more significant rain events, it is important to reduce impervious surfaces quickly to protect people and the buildings that we occupy. Best management practices such as bioswales, rain gardens, and landscaping with indigenous vegetation will help to reduce runoff, lower ambient temperatures, and even sequester carbon.

More detail, including illustrations, visualizations, and maps showing the location of specific recommendations can be viewed on the [project website](#).

Newark Case Study

History and current conditions

Newark was founded by Puritan settlers from Connecticut in 1666 and became officially incorporated as a city in 1693, originally covering most of modern-day Essex County. The city had fewer than 10,000 residents until the mid-19th century when new infrastructure like the Morris Canal and train lines were built, making the port of Newark an important trade center. This shipping advantage turned Newark into an industrial city, well known for leather and shoe production through the 20th century. The final annexation of land into Newark was the Vailsburg section in 1904, and in 1928 the first commercial airport in the New York metro area opened.

The population of Newark peaked in the 1930s at about 440,000 and then slowly declined thereafter, experiencing significant white flight following the Newark rebellion in 1967. In 1950, the population was 20 percent Black, compared to 1990, when it was 60 percent Black. As Italian and Jewish population moved out, Black people and other immigrants, particularly those from Portugal and Brazil, moved in. Today, Newark is a majority-minority population with 48 percent of its population identifying as Black, Hispanic, or non-Hispanic ethnicities.

Newark experienced disinvestment throughout the 1980s and its effects have been long-lasting. Newark is one of the region's poorest and least educated cities and is largely disproportionate to both Essex County and New Jersey as a whole. Only 16 percent of Newark's population has a college degree, compared to the 42 percent in New Jersey. Thirty-three percent of Newarkers live with less than \$25,000, compared to 21 percent in Essex County, and 14 percent in New Jersey.

As shown in Figure 22 (pg. 84), Newark's land use is that of an urban setting that has served as an industrial hub, with 43 percent of the land exempt from property taxes despite only making up 11 percent of the city's parcels. These are mostly occupied by the Port of Newark and Newark Liberty International Airport. In the zoning code, large portions of the city are dedicated to residential uses ranging from single-family homes to high-density towards the core of the city. There are several identifiable commercial corridors, and 12 percent of the city has been officially designated as redevelopment areas under the State's Housing and Redevelopment law, see Figure 23 (pg. 85).

Newark has a well-connected street grid in the western two-thirds of the city, with a high density of intersections. Newark is well-connected to the world via Newark Liberty International Airport and the broader region through the Northeast Corridor rail line, and many state and federal highways, including I-78, I-280, US 1, US 9, the Garden State Parkway, and more, see Figure 24 (pg. 86). However, these highways isolate many neighborhoods from the rest of the city, notably Dayton, the Ironbound, the North Ward, Vailsburg, and Weequahic, as shown in Figure 25 (pg. 86), Newark is served by an extensive transit network, with NJ TRANSIT providing bus, rail, and light rail service within the city. The transit network gets commuters to and through Newark but is less effective at moving Newarkers around the city, with some communities underserved, and residents want more frequent, more reliable service with fewer required transfers. This is important in Newark, where 44 percent of bus riders don't own a car, 58 percent have household incomes below \$35,000, and 80 percent ride the bus five or more times per week.

Figure 22. Newark land use/land cover

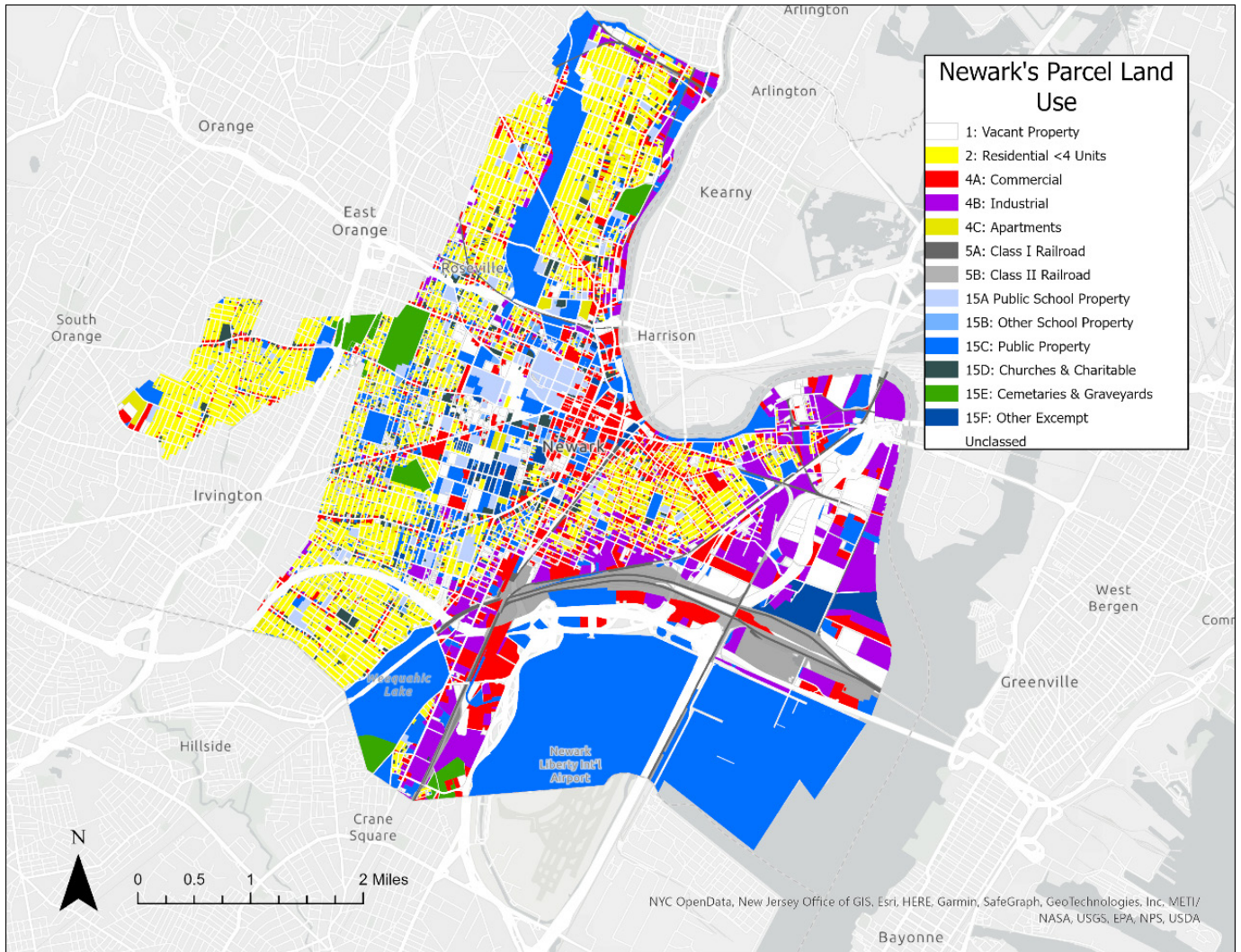


Figure 23. Newark redevelopment areas

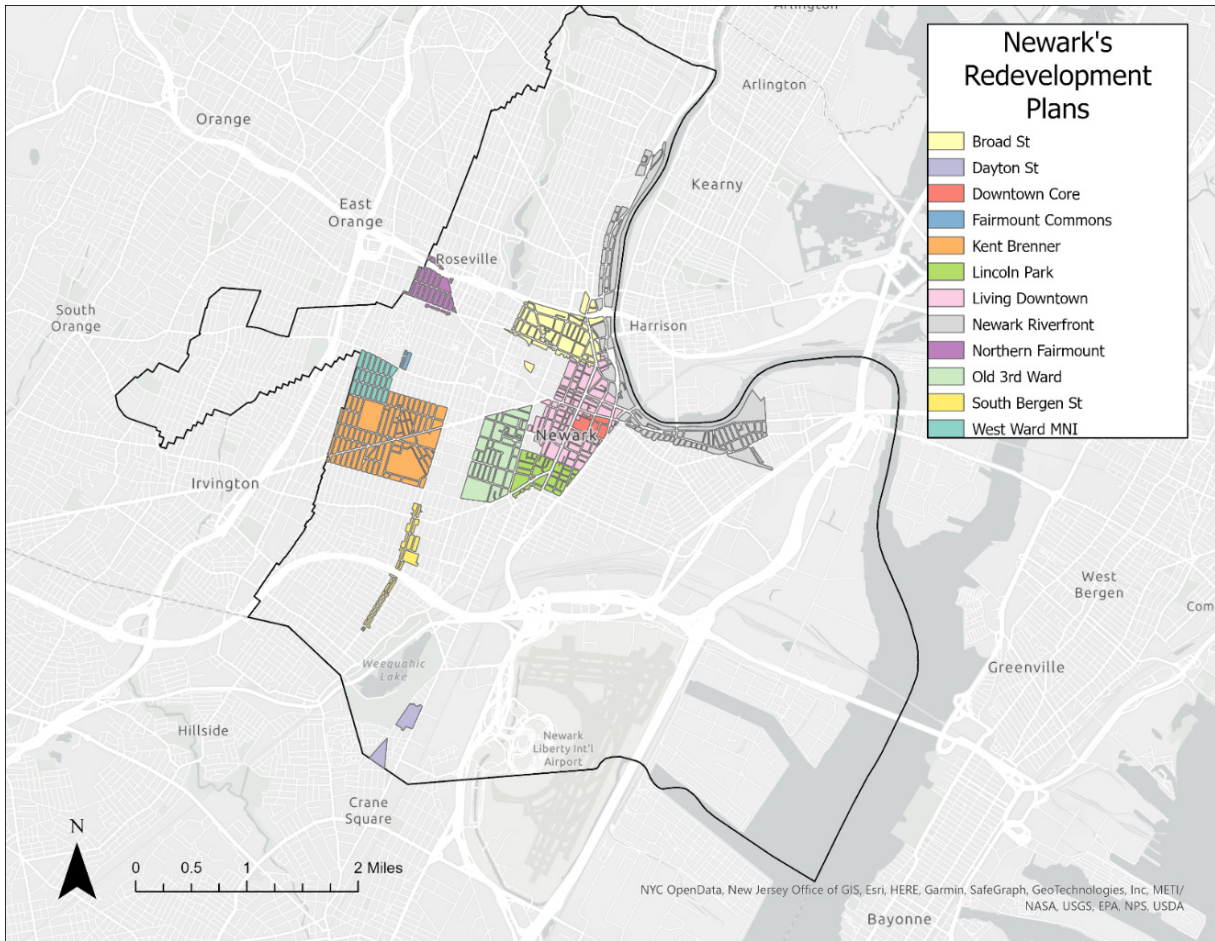
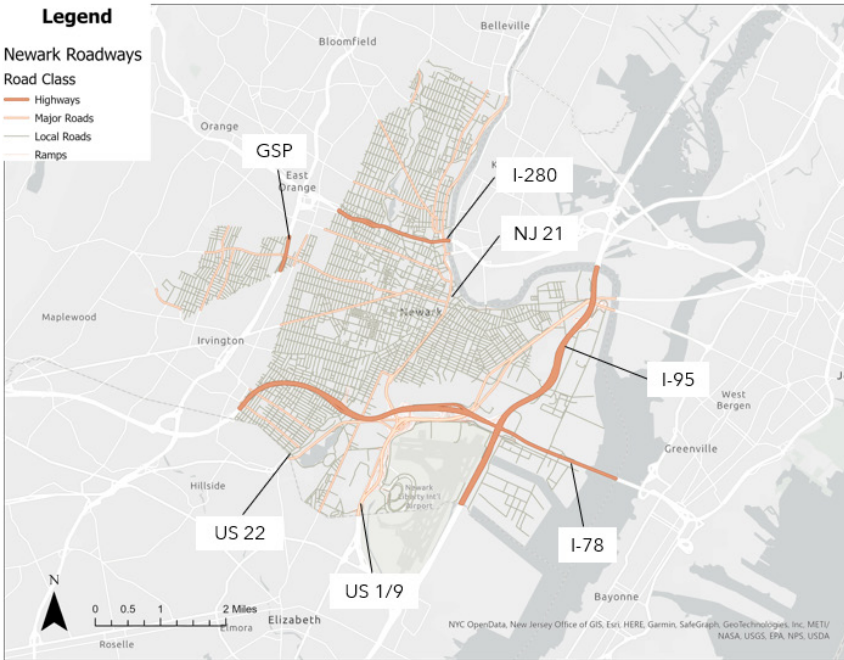


Figure 24. Newark's transportation network



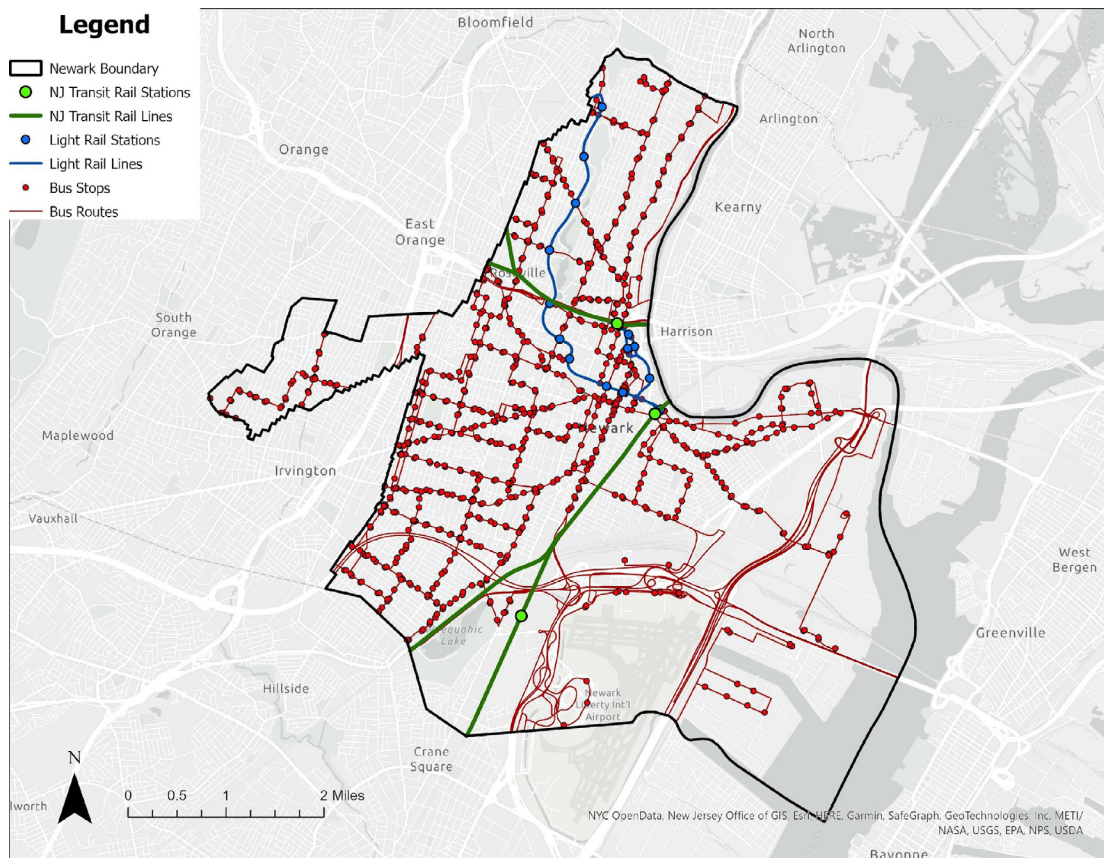
Major Regional Roads

- Interstate 78
- Interstate 95
- Interstate 280
- Garden State Parkway
- US Highway 1/9
- US Highway 22
- NJ Route 21

Major Newark Streets

- Broad Street
- Broadway
- Central Avenue
- South Orange Avenue
- Springfield Avenue

Figure 25. Newark public transit network



Proximity and accessibility analysis results

The proximity and accessibility analysis for Newark found that 13 percent of the census blocks have access to all amenities within a 15-minute walk. Bicycles increase the proportion of residential areas within 15-minutes travel time to all amenities to 95 percent. The entire city of Newark has 15-minute access to the analyzed amenities within a 15-minute e-bike ride. Figure 26 shows the parts of the city with the greatest walk access. These areas are depicted in green. The results of the amenity isochrone mapping analysis are presented in Table 5 (pg. 88). As shown in the table, the least accessible amenities by walking were farmers markets. Only about 14 percent of residents can access a farmer’s market within a 15-minute walk. Ninety-five percent of residents or more had 15-minute walk access to all the other amenities analyzed.

Figure 26. Newark walk access x-statistic

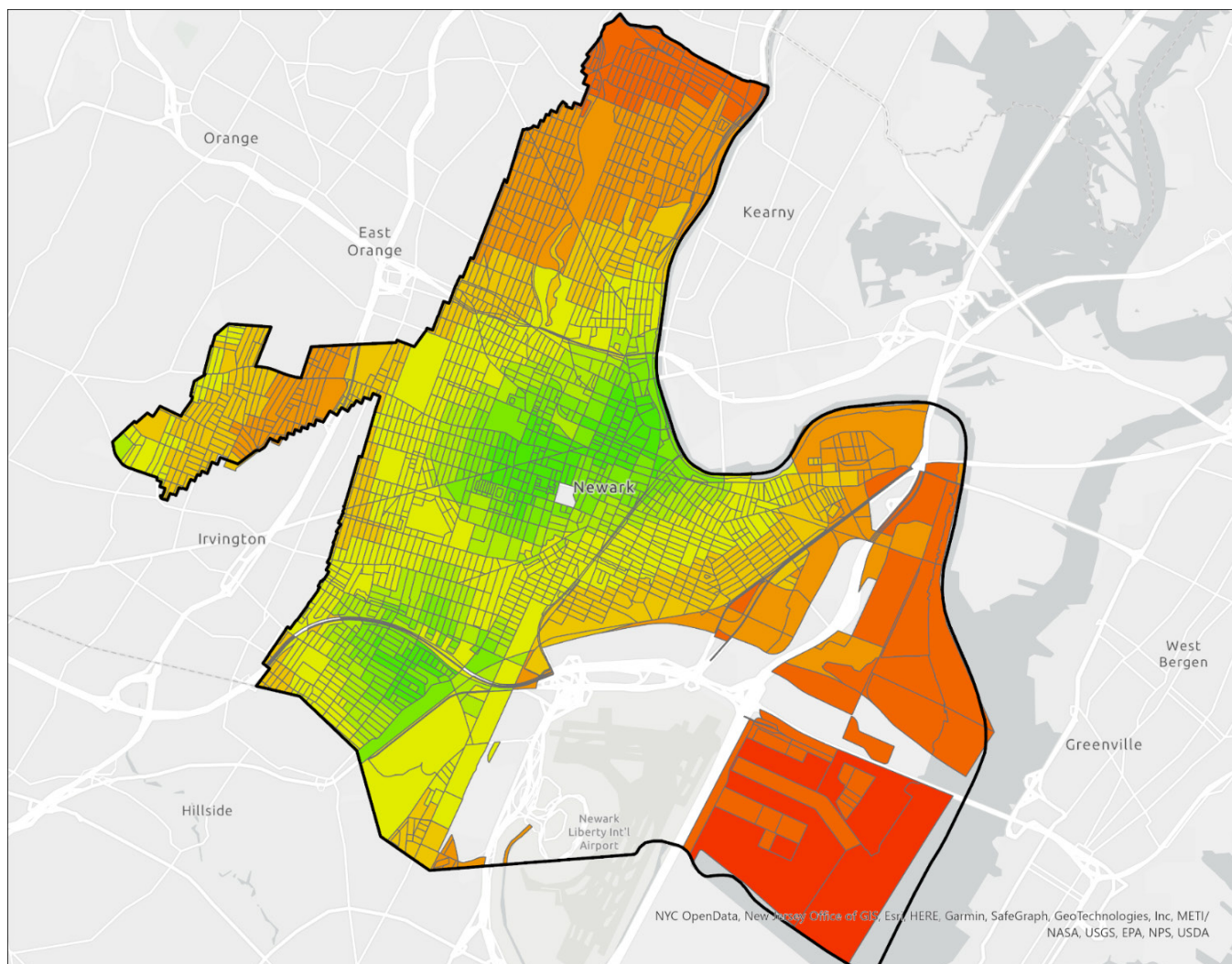


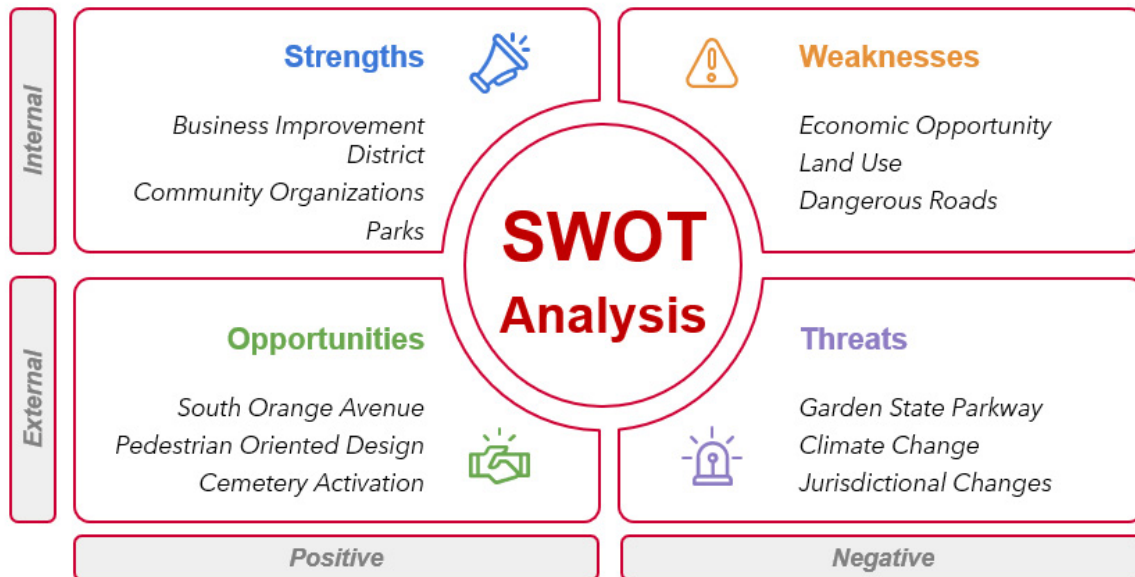
Table 5. Amenity access in Newark based on isochrones mapping

Amenity/Details	% of residents with 15-minute access		
	Walk	Bike	E-Bike
<p>Supermarkets</p> <ul style="list-style-type: none"> • Twelve full-service supermarkets in Newark, but several smaller bodega-style neighborhood stores. • Downtown Newark, Dayton, and Forest Hill are not within a 15-minute walk of a supermarket. 	95%	98%	100%
<p>Pharmacies</p> <ul style="list-style-type: none"> • Newark has several pharmacies, all of which are evenly dispersed throughout the city. • Fairmount has no pharmacies, but there are two near its borders. • The eastern part of Newark, near the port, remains a difficult area to serve. 	96%	98%	98%
<p>Schools</p> <ul style="list-style-type: none"> • One hundred twenty-two schools in Newark, 56 of which are located near high emission roads. • Dayton has no schools in or near its boundaries. • There are fewer schools in the North Ward than the rest of Newark. 	96%	98%	100%
<p>Childcare facilities</p> <ul style="list-style-type: none"> • No childcare facilities in Downtown Newark or Dayton. • Most of the gaps in coverage for walking are parks or cemeteries. 	96%	98%	100%
<p>Parks</p> <ul style="list-style-type: none"> • Biking increases access for areas near the port and other places impacted by barriers such as highways. • E-biking maximizes coverage so that all census blocks are within a 15-minute ride of a park. • Dayton and Vailsburg stand out as having poor access to parks. 	97%	98%	100%
<p>Farmer's Markets</p> <ul style="list-style-type: none"> • Three farmer's markets in Newark, two of which are centrally located and near each other. • Only Central Ward neighborhoods (Downtown, University Heights, Belmont) can access by walking, but bicycles and e-bikes greatly expand access. • There are farmer's markets in neighboring municipalities, but those are not considered in this analysis. 	14%	89%	100%

SWOT analysis results

The Newark team focused their detailed local planning efforts on the Vailsburg Neighborhood. The results of the SWOT analysis are depicted in Figure 27 and summarized below.

Figure 27. SWOT Analysis results for Newark



- **Strengths** – One of the Ivy Hill-Vailsburg neighborhood’s greatest strengths are its parks, the Business Improvement District, and its community organizations, which are dedicated to improving the neighborhood. Vailsburg Park is a 30-acre park located in northeastern Vailsburg that runs along the Garden State Parkway and sits at the intersection of Oraton Parkway and South Orange Avenue. It is the 10th largest park within the Essex County Park system and is complete with restrooms, a basketball court, a baseball field, benches, water fountains, and a playground. A second major park, Mt. Vernon Park, is located on the westernmost border of Newark, between Seton Hall University and Mt. Vernon Place. It has tennis and basketball courts, a playground, baseball fields, and trails.

Vailsburg’s business improvement district (BID) is Partnership West, Inc. (PWI), a public-private partnership founded in 2016. PWI makes sure curbs and sidewalks are clean and safe, public spaces are well maintained and planted, and it helps current and new businesses with their marketing and strives to improve the quality of life in the West Ward, a “small town” within a big city. PWI is run by a professional manager, and their

revenue is raised by a special assessment on commercial properties and residential properties with four or more units within its boundaries.

Ivy Hill-Vailsburg has four community organizations that strive to improve the quality of life in the neighborhood through a variety of means. The Boylan Street Recreation Center offers residents an affordable entry pass to a facility with a fitness center, a playground, basketball courts, a pool, and a variety of classes and programs to keep the community active and in a safe environment. The United Vailsburg Services Organization offers programs that include affordable units to rent, early head start, after-school programs, teen center, and community outreach, among others, striving to create a stable and compassionate community in the Vailsburg neighborhood. The West Ward Victims Outreach Services and Crime Prevention Initiative began as a collaboration between the Office for Victims of Crime and the Office of Juvenile Justice and Delinquency Prevention to enhance the services available to male survivors of violence, particularly boys and men of color, and their families. Finally, the Urban League of Essex County offers a variety of programs that aim to assist disadvantaged residents achieve economic and social advancement.

- **Weaknesses** – Ivy Hill-Vailsburg functions partly as a bedroom community to Newark and the region, meaning that there are few job opportunities for residents. As result most residents must commute to other areas within and outside the city for work. Major roads such as South Orange Avenue transect the neighborhood and numerous parking lots and car-oriented uses like drive-thus are present along these corridors. These uses break up the pedestrian realm, create conflict points with pedestrians and bicycles. South Orange Avenue is a high crash corridor with four travel lanes and parking. Other major roads in the area with high numbers of crashes are 18th Avenue, Sanford Avenue, and Stuyvesant Avenue. Overall, despite having wide sidewalks in several areas, sidewalk and crosswalk conditions are often poor quality, and bicycle infrastructure is mostly absent. These conditions contribute to the neighborhood feeling less walkable than might be expected.
- **Threats** – One of the biggest threats to Ivy Hill-Vailsburg neighborhood is the Garden State Parkway, which forms the eastern border of the neighborhood and cuts it off from the rest of Newark, isolating residents from other neighborhoods and the resources of the city. As a result, Vailsburg is better connected to neighboring communities like Irvington, Maplewood, and East & South Orange than to the rest of Newark. There are also physical health threats posed by major roadways, including air and noise pollution from traffic.

Another threat is the prevalence of pavement and lack of street trees and other vegetation that contribute to the city being the ranked the second-worst city for the heat island effect in the United States. In 2022, Newark set a record when there were five consecutive days with temperatures over 100 degrees. While Ivy Hill and Vailsburg are not at the highest risk in the city, in part due to the parks mentioned earlier, there are parts of the area that are still high risk. The areas near the Garden State Parkway are particularly

vulnerable to heat-island, while the area near Ivy Hill Park is at a higher risk due to several factors, most prominently the distance from cooling stations like the library that are in the center of the neighborhood. Other climate threats that impact Ivy Hill-Vailsburg include flooding, as parts of the area are at the bottom of a hill that collects stormwater runoff. This makes it particularly vulnerable during extreme weather events like intense precipitation events, as well as even minor rainstorms.

Many residents feel that the flooding in the neighborhood has gotten worse over time due to the build out of Seton Hall University which sits adjacent to the neighborhood. The build out the campus has increased the amount of impervious surface. This circumstance highlights how the neighborhood is surrounded by four other jurisdictions that may choose to do what they view as best for their communities without concern for Ivy Hill-Vailsburg residents and could hinder efforts to improve neighborhood conditions.

- **Opportunities** – South Orange Avenue and 18th Street are two of the major streets in the neighborhood that could be prioritized for enhancements such as bike and pedestrian infrastructure, including protected bike lanes, traffic calming, trees, and better lighting, things which have been shown to have a significant impact on reducing crashes and improving quality of life in neighborhoods. Ivy-Hill-Vailsburg’s three cemeteries are another potential opportunity. These spaces which are technically private are or could provide public access to open and green space. They can serve as a series of pleasant walking paths between Newark and East Orange requiring few infrastructure changes, as they would only need light path upkeep and new lighting. Cemeteries can also be activated as running paths in or around the greenery itself. Both Holy Sepulchre and Fairmount are still interring people today, so these cemeteries serve as connections to not only to the founding of Newark, but to the families of locals from today.

Finally, there are great opportunities for placemaking along Ivy Hill-Vailsburg’s main corridors, including South Orange Avenue, Stuyvesant Street, and 18th Street. Existing zoning allows for relatively dense development, but nobody has taken advantage of that. There are currently busses along South Orange Avenue, but they are limited in frequency and destination, which is an opportunity to increase public transit service and bring more people into the neighborhood to live, work, and play. South Orange Avenue can also be used as an opportunity to highlight neighborhood history, like the late nineteenth and early twentieth century architecture. The existing building improvement district and guidelines from the local historic preservation society could be used to foster preservation sensitive redevelopment. The corridors and parcels along the corridor could also be used to host local pop-up shops, music events, and the like on currently vacant lots, while street signage and decorations can help give the area a sense of identity and place.

Recommendations

Recommendations for transforming Ivy Hill-Vailsburg into a complete 15-minute neighborhood and eventually Newark into a 15-minute city include the following:

1. **Increase accessibility for all neighborhood residents.**
 - a. **Increase the frequency and reliability of transit service.** Most of the public bus stops in Ivy Hill-Vailsburg are accessible within a 15-minute walk of residents. However, this bus service is infrequent and does not provide good connections to the rest of Newark. For example, there are no direct bus connections to the North Ward. All trips require a transfer and take approximately one hour to travel five miles. This can be addressed in part by implementing NJ TRANSIT's NewBus Bus Newark Redesign recommendations for Newark⁶⁵ which seek to improve frequency on select routes (in this area, Routes 1 and 361) to increase ridership.
 - b. **Provide transit amenities.** Most existing bus stops lack amenities such as seating, shelter, trash collection, and route information. Providing these amenities is a straightforward way to dignify public transit as a travel option, boost ridership along existing corridors, help residents navigate the bus system, and greatly improve the transit travel experience. Curb extensions (a.k.a. bus bulbs) that align the bus stop with the parking lane, allowing buses to stop and board passengers without ever leaving the travel lane, should also be installed to delineate space and prevent parking in front of the bus stop, thus making it easier for customers to board the bus, preserve on-street parking and sidewalk width, and shorten the distance pedestrians have to navigate when crossing the street. Bus bulbs help buses move faster and more reliably by decreasing the amount of time lost when merging in and out of traffic.
 - c. **Implement "Complete Streets" strategies.** Complete Streets are streets designed for all users, all modes of transportation, and all ability levels. They balance the needs of drivers, pedestrians, bicyclists, transit riders, emergency responders, and goods movement based on the local context. Actions such as repairing sidewalks, adding street trees and other vegetation and street furniture, and creating safer crosswalks improve walkability and safety. The city should also add bicycle infrastructure to streets such as Mt. Vernon, Eastern Parkway, and Route 619. Complete streets improvements can help improve conditions in high-crash corridors. Along some corridors, this will involve multijurisdictional coordination, since routes are either county-owned roads, or serve as the functional border between Newark and adjoining municipalities.
 - d. **Extend the existing bicycle network.** Existing bicycle lanes and routes currently end before reaching the Ivy Hill-Vailsburg neighborhood. These should be extended to

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<https://www.njtransit.com/newbus>

better connect the neighborhood to the rest of Newark. The city should extend two existing bike lanes along South Orange Avenue and 18th Avenue through Ivy Hill-Vailsburg and potentially other locations.

- e. **Expand the use of micro-mobility options.** In conjunction with improved bicycle and pedestrian infrastructure, city officials should seek to expand use of city's existing e-scooter and e-bike, to address the first- and last-mile problem associated with transit. Micromobility devices help increase the catchment area for bus routes and serve harder-to-reach destinations. Furthermore, the city should consider subsidizing the service for low-income residents which may be out of reach for lower-income residents. Targeted subsidies could improve the reach of the service and increase access for those who need it most.
 - f. **Improve intersections and implement road-diets where feasible.** The city can add or include proven safety countermeasures such as high visibility crosswalk treatments, and pedestrian beacons at key intersections. Road diets should also be considered, where feasible, along the entire length of South Orange through the Ivy Hill-Vailsburg neighborhood to reduce traffic speed and increase space for bike lanes and wider sidewalks. For most of its length, the roadway is currently 50 feet wide, which mostly consists of two traffic lanes and two parking lanes. Elements of the road diet should include narrowing travel lanes, adding bike lanes and street trees, and installing enhanced pedestrian safety features such as clearly marked crosswalks and wider, well-maintained sidewalks.
 - g. **Address real and perceived safety concerns with improved community design.** Real and perceived personal safety concerns can be an impediment to walking and biking. Such concerns include the need for improved property maintenance, better lighting, litter and graffiti removal, and other design treatments that increase visibility of the street and sidewalks. Improved lighting, particularly on South Orange Avenue and 18th Avenue, would also improve the perception of safety, as well-lit streets have been shown to positively reduce crime. (41) Lighting also helps pedestrians to be fully aware of their surroundings and to improve their visibility by drivers, residents, business owners and visitors.
- 2. Incorporate green buildings and infrastructure.**
- a. **Address climate risks by expanding green spaces and infrastructure.** One way to reduce stormwater runoff and heat island effects is to implement green infrastructure best practices, including pervious pavement, green roofs, rainwater harvesting, rain gardens and bioswales. Transportation infrastructure represents the best opportunity to introduce green infrastructure, for example, in street design and construction as well as greening parking lots and vacant lots. City officials can also work with Seton Hall University, a large institutional user in adjacent South Orange Township, to

deploy green infrastructure best practices that address issues with stormwater runoff from the university that negatively impact Ivy Hill Park and the surrounding area.

- b. **Plant street trees and vegetation.** Trees and plants absorb stormwater and pollutants and help to cool ambient temperatures. Foliage also provides shade for those walking and biking. The city should commit to planting additional street trees along corridors that lack them and commit to increase Newark’s tree canopy like other cities such as Chicago and Philadelphia have done.

3. **Embrace placemaking.**

- a. **Create one or more public plazas.** Public squares or plazas provide space for events and building social capital for community residents. Well-tailored spaces and events can draw people from the neighborhood together. Neighborhood plazas do not need to be elaborate to attract people. For example, Highland Park, NJ holds farmer’s markets, movie nights, and other events on a municipal parking lot when it is not in use, showing that public spaces can be successful even absent significant investment.

One possible location for a central gathering place in the neighborhood is at the intersection of South Orange Avenue and South Clinton Street, near the Boylan Street Recreation Center. The vacant lot across the street would be ideal but is technically in the municipality of East Orange. This location has the advantage of being near the Recreation Center, which has a pool, playground, and basketball courts. These amenities could be incorporated into community events, offer a play space for children, and provide an opportunity for cooling during the summer. Another possible location is the vacant lot located in the northeast quadrant at the intersection of South Orange Avenue and Grand Avenue. This lot is larger than the parking lot next to the recreation center and roughly square. The disadvantage of this location is that it is further from the main retail stretch of South Orange, though there are plenty of nearby businesses. Events in these locations can benefit businesses on South Orange and nearby that will have opportunities to participate as vendors, or just benefit from increased foot traffic. Hosting an inaugural event could help establish the plaza for the years to come as people learn about its existence and potential.

- b. **Create a common brand around Ivy Hill and Vailsburg.** Unlike other parts of Newark such as Ironbound, downtown and University Heights, the Ivy Hill-Vailsburg neighborhood lacks a unique and identifiable brand. Branding can foster a sense of neighborhood pride and provide opportunities for marketing neighborhood businesses. Neighborhood branding could be achieved with a common color scheme and logo that make the area recognizable. The brand could also include elements residents are familiar with, such as borrowing the “West Side” identity, colors, and mascot of the West Side High School. Another potential way to brand the neighborhood could be to highlight the area’s history, such as Vailsburg’s past as a political powerhouse over 100 years ago.

Gateway signage can be installed to help establish neighborhood identity and may make people passing through curious to learn more. Lastly, the neighborhood can install basic information kiosks that highlight landmarks, such as the parks and historical sites and including estimates for walking and biking time. Research has shown that people tend to overestimate how long it takes to walk or bike between places and that wayfinding materials that provide accurate times can make people more likely use active transportation. These can be particularly useful for neighborhood residents who may not be using services like Google Maps that automatically estimate times.

- c. **Promote the use of public art.** Public art can be used to express a community's values, enhance the built environment, and transform neighborhoods. Public art can be installed with relatively small investments that enhance the sense of place and make it a more pleasant place to walk and bike around. Public art can be related to the branding discussed previously or highlight other notable parts of neighborhood history and the people that live in Ivy Hill-Vailsburg. Examples of public art include murals, sculptures, and even creative crosswalks, which refashion cross walks with artistic elements that enliven roads for both pedestrians and drivers.

4. **Boost the local economy.**

- a. **Activate vacant properties with public investment.** Vacant properties (buildings and lots) are a detriment to neighborhood cohesion and wellbeing. They are also an opportunity to foster change. The City and community partners should work together to activate the properties to help boost the local economy. One successful model for doing this is to offer new businesses rent subsidies for some start-up period to help them become established. The Invest Newark program is another vehicle to create corridor centric loans and grants to encourage local business creation in vacant storefronts and assist in the development of desirable uses and hiring locally as Newark.
- b. **Embrace the recommendations in the Newark 360 Plan.** The city should utilize programs like the State's Food Desert Relief Program to partner with a full-service supermarket or even utilize city capital to create an at-cost municipal run supermarket or open-air market on a public plaza or within a central public building. This has been done as far back as the early 20th century in the City of Milwaukee, and as recently as the past few years where municipalities in Kansas and Florida that saw private supermarkets leave their community and the cities in turn created their own. Initially, this could be run from the Boylan Street Recreation Center, the Lincoln School, or the Ivy Hill Elementary School as an end of day and weekend programming for public space. The eventual goal would be to make these markets a potential use for public plazas on vacant properties.
- c. **Create great places to visit and work.** Hosting events such as neighborhood-focused

restaurant weeks, small business Saturdays, and other events that highlight existing businesses and community assets create opportunities to expand economic activity in the neighborhood. Ideally these events can be anchored around neighborhood plazas.

- d. **Revise zoning to increase population density near commercial corridors.** To increase the customer base for neighborhood businesses, the city should consider allowing greater density in the blocks immediately adjacent to business corridors. This zoning should be reflective of the city's existing code with R-4 being for all properties within a block of the corridor and R-3 within a quarter mile of the Corridor. The remainder of Vailsburg and Ivy Hill that's R-1 should shift to R-2. This rezoning would provide that needed density to support the commercial districts but would not shift away from the existing typology of building types found throughout the city.

More detail, including illustrations, visualizations, and maps showing the location of specific recommendations can be viewed on the [project website](#).

Summary Findings from the Case Studies

The following common themes and observations emerged from the three case studies:

- **Active transportation and complete streets** – Many residents in the three case study communities live within a 15-minute walking distance from amenities and desired destinations and almost all residents live within a 15-minute bike or e-bike ride of those destinations. However, safe, convenient, well-maintained, and inviting pedestrian and bicycle infrastructure was lacking in all three communities. Sidewalks, crosswalks, and ADA accessible curb ramps were nonexistent, incomplete and/or in poor condition in many locations. Similarly, there was a general lack of adequate bicycle infrastructure and almost no dedicated bicycle lanes in the three communities. Lack of street trees and other amenities such as street furniture and traffic calming further discourages walking and biking. The lack of street trees makes walking on hot days very unattractive.

These conditions limits both real and perceived accessibility to desired destinations. This was true in urban, suburban, and rural settings. In addition, in all three case study communities, road widths, and travel lanes in many locations were observed to be too wide and designed to accommodate only cars. These instances were identified as an opportunity for a “road diets” that could right size and reallocate road space. All three teams identified Complete Streets strategies as way to improve pedestrian and bicycle access safety and provide needed connectivity for pedestrians and cyclists.

- **New transportation technologies and modes** – All three teams recognized the need to accommodate new transportation technologies and modes. These technologies and modes have emerged over the past several years, but existing infrastructure is not designed well

to accommodate these options. E-bikes and e-scooters were seen as a way of addressing first- and last-mile mobility gaps and increasing accessibility for all residents, while reducing emissions and vehicle miles traveled in single-occupant vehicles. All three teams recommended ways to address current infrastructure deficiencies and promote the use of e-bikes and e-scooters.

- **Green infrastructure and nature-based solutions** – A significant amount of impervious surface was observed in all three case study locations. In addition, climate hazards including flooding from stormwater runoff and/or sea-level rise and extreme hot temperatures caused by urban heat island effects were identified as risks facing all three communities. This was particularly true in Bridgeton and Newark, but to a slightly lesser extent in Cherry Hill. The implementation of green infrastructure best practices such as using pervious paving materials, tree planting, rain gardens, green roofs, rain harvesting, bioswales and other nature-based solutions were recommended as strategies to help mitigate these threats. In Cherry Hill, green infrastructure received almost unanimous support from participants in a public workshop conducted to support the planning process.
- **Redevelopment** – Existing zoning requirements were identified as an impediment to redevelopment and creating complete, 15-minute neighborhoods in all three communities. In Bridgeton and Cherry Hill, restrictions on mixed-use development limited opportunities for redevelopment. In Newark, density restrictions were identified as a constraint. In all three communities, restrictions on multifamily housing were an impediment to creating a wider mix of housing types at densities that support more walking, biking, and transit use. Existing retail corridors, office complexes, and shopping centers were identified as prime locations for rezoning. In Bridgeton, redevelopment of brownfield sites was identified as a priority. In Newark, addressing vacant properties was identified as a priority.
- **Placemaking and activity programming** – All three case study teams recommended activity programming such as movie screenings, cultural nights, farmer’s markets, public art, historic tours, and others to increase economic activity, recreation, and entertainment opportunities closer to neighborhood residents, promote a sense of community, and foster active mobility and living. In Newark and Bridgeton, vacant and underutilized properties were identified as potential opportunities to sites for community programming.
- **Coordination and partnerships** – All three teams identified the need for coordination and partnerships between jurisdictions, levels of government and with the private sector as important to advancing recommendations. In Bridgeton, partnerships between government, property owners, private investors and community organizations will be critical for successful implementation. In Newark, cross-border coordination is needed with neighboring jurisdictions where flooding and zoning conflicts are an issue. In Cherry Hill, cooperation and partnership with developers will be key, and in all three communities, coordination between municipal, county and state officials will be needed to implement recommended pedestrian and bicycle improvements.

- **Details regarding our built environment matter** – What was also made clear by the three case studies is that details matter. Most importantly, it is not enough to be theoretically able to walk or bike between an origin and a destination. People must feel safe and empowered to drive less and walk, bike, and take transit more. This means having well-designed streets with safe and well-maintained sidewalks, safe and protected bike lanes, frequent, clearly marked crosswalks, ADA-accessible curb ramps, amenities such as street trees and furniture, well-lit streets and bus stops with shelters, a variety of mobility options available, a mix of housing types and destinations located proximate to one another. Mobility options must also be affordable and accessible to people of all incomes and abilities.

Chapter 3. A Vision for the Future

To provide a framework for setting aspirational goals and recommendations, the project team drafted a series of vision statements that reflect the finding from our research and input received from various stakeholders and individuals throughout the planning process. The following statements describe a state made better by the planning and investments pursued between now and 2050.

Healthier

New Jersey's residents are healthier than they were three decades ago. Rates of physical activity are high because people are walking and biking more. Obesity rates have declined dramatically, which prompted a decline in chronic conditions, such as diabetes, high blood pressure, heart disease and others. Air quality is healthier too because people are driving less and investments in green infrastructure has expanded tree canopy in every community, especially in urban areas. Asthma rates are down statewide. Trees have also helped to cool air temperatures during the summer, so vulnerable populations like older adults are able to withstand successive days of extreme heat.



Resilient

New Jersey communities are ready for adverse events—extreme weather, climate change, or other major set-backs—and can quickly bounce back from them. Wetlands and other important ecosystems are protected and restored. Investments that expanded green infrastructure, including tree canopy, rain gardens, green streets, and other nature-based solutions have paid off. There is less impervious surface, stormwater is well managed, temperatures are tolerable even on very hot days, air quality has improved and so has quality of life throughout New Jersey. Conditions for socially vulnerable populations have improved.



Effective Governance

None of these accomplishments would have been possible without extensive public engagement and significant coordination and cooperation among jurisdictions, between levels of government, and in partnership with the private and non-profit sectors. The great gains made over the past thirty years would also not have been possible without the thoughtful, innovative, and well-planned investment of State and Federal funding, especially funds made available by the federal Bipartisan Infrastructure Law passed by Congress in 2021. Without the political leadership and courage to chart a course different from business as usual, state, and local leaders would not have been able make this vision a reality.

More Just

New Jersey residents in all age and income groups in communities statewide have access to affordable, convenient, and safe transportation options, including an extensive network of well-maintained sidewalks, an interconnected system of protected bicycle lanes and paths, expanded transit options and transit stops and stations that have the amenities needed to make riding comfortable, safe, and pleasurable. The e-bike incentive program put in place in 2024 dramatically expanded the number of e-bikes used in the state and e-bikes have become the mode of choice for short local trips and some longer regional trips. These options make accessing jobs, essential services, healthy food, recreation, and other amenities easy for everyone.



Sustainable

Greenhouse gas emissions are down substantially from where they were in 2020. New Jersey just achieved its target of reducing emissions by 80 percent. An accomplishment that was only possible due to the planning and investments that started in the early 2000's and were reinvigorated in the 2020's. Emission reductions from the transport sector are a particular bright spot. Nearly 100 percent of the vehicle fleet transitioned to EVs and VMT is down by more than 50 percent. Green streets and a vastly expanded tree canopy statewide contribute to removing pollution from the air and sequestering carbon. Green streets have also reduced stormwater runoff and flooding and helped to improve water quality in the State's streams, rivers, lakes, and bays.



Aspirational Goals and Targets for 2050

There are many factors that may make now an excellent time to advance a new vision for the future. Examples include potentially “game changing” new transportation technologies such as electric vehicles, bikes and scooters that have the potential to significantly enhance mobility and accessibility and reduce pollution from transportation. App-based, on-demand micro-transit is also a new mobility option that has been successfully deployed around the world. New Jersey’s focus on building healthy, equitable, and climate resilient communities and new federal funding streams to improve transportation, broadband, and water infrastructure provide opportunities for investment at a scale not seen in a generation.

Much like a compass that helps us navigate which direction we need to travel, aspirational goals and targets can guide future decisions by providing a “magnetic north” that helps keep everyone focused on what we hope to achieve together. In planning and public policy, aspirational targets can help governments move beyond what might seem possible given current resources and allow them to better understand what needs to happen to make the goals and targets a reality.

A good example in New Jersey can be found in the late 1980s and early 1990s when the state was experiencing a significant wave of suburban development that was rapidly converting farmlands and forests to developed land. In 1986, approximately one quarter of New Jersey’s land area was developed and approximately one third was permanently preserved or regulated to prevent future development. This left about 40 percent undeveloped and subject to extreme development pressure. Within this context, then Governor Christine Todd Whitman articulated the goal of preserving *one million acres of open space*.⁶⁶ At the time, the goal was thought to be extremely aggressive, and some thought unrealistic. In the years and decades that followed, new laws were passed, and programs established to help achieve this vision. By 2015, developed land in the state accounted for 33 percent of the state’s total land area, while 53 percent was preserved or constrained. Only 14 percent remained developable. Between 1986 and 2015, the state preserved 950,400 acres of open space.⁶⁷

The following goals and targets are proposed in the spirit of inspiring bold action like that achieved in open space preservation over the past 30 years. These targets can help the state achieve its vision of becoming a healthier, more just, resilient, and sustainable New Jersey.

66 Chalfin, Aaron, Benjamin Hansen, Jason Lerner, and Lucie Parker. Reducing Crime Through Environmental Design: Evidence from a Randomized Experiment of Street Lighting in New York City. *Journal of Quantitative Criminology*. 2022, Vol. 38.

67 Ibid.



Healthy. Improve health outcomes for people and communities by improving air quality and making it easier and safer to walk and bike.



Just. Promote equity by making travel by transit more reliable and convenient and by enhancing access to opportunity for marginalized groups.



Efficient. Increase transportation system efficiency by reducing vehicle miles traveled and integrating advanced and emerging transportation technologies and modes.



Resilient. Enhance the resilience of transportation systems by adapting infrastructure to climate hazards.



Carbon Neutral. Reduce energy use and emissions of all kinds by facilitating a transition to carbon-neutral transportation.

A multi-goal framework for achieving a healthier, more just, resilient, and sustainable New Jersey

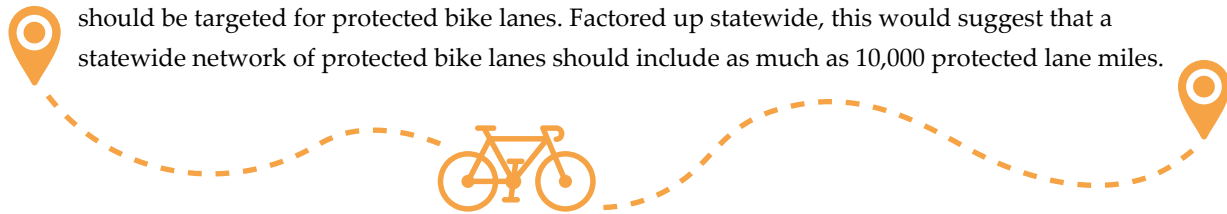
Create conditions that allow 80% of NJ residents to live in complete, 15-minute neighborhoods.

Description: In 2012, when Portland, OR made complete, 20-minute neighborhoods a centerpiece of the city’s comprehensive plan, planners estimated that approximately 45 percent of the city’s residents lived in neighborhoods where they could access important amenities and desired destinations within a 20-minute walk or bike ride. At the time, city officials established a target that would increase that number to 80 percent of city residents. Since then, the city has made significant investments in pedestrian and bicycle network improvements, added green spaces where they were lacking, attracted new businesses to fill gaps in the amenities available, expanded the availability of affordable housing in some neighborhoods, promoted community programming and taken other steps. When last measured in 2016, the number of residents living in “complete” neighborhoods had increased to 53 percent. In addition to Portland, several cities participating in the C40 CITIES initiative have adopted similar targets. C40 CITIES is a group of nearly 100 mayors of the world’s leading cities acting to “confront” the climate crisis. U.S. participating cities include Austin, Boston, Chicago, Houston, Los Angeles, Miami, New Orleans, New York City, Philadelphia, Phoenix, Portland, OR San Francisco, Seattle, and Washington, D.C.



Build 10,000 miles of protected bicycle lanes statewide.

Description: The average cycling speed of a beginner cyclist on a normal bike is around 12mph while e-bikes can increase speeds up to 20mph depending on traffic and road conditions. Traveling by bicycle can significantly expand the number of destinations potentially available to residents within the same amount of time. With adequate infrastructure, bike and e-bikes could become an attractive choice for many local trips which are usually under three miles. Cities around the world have or are developing and implementing comprehensive bicycle mobility plans. Key strategies include reallocating road space, reducing vehicle speeds, building protected bike lands, making intersections safer, and creating comprehensive networks. In New Jersey, leading examples include Jersey City and Hoboken. Most comprehensive bicycle mobility plans and all three of our case studies recommended the identification of shared use roads, striped bike lanes and the construction of protected bike lanes to improve safety and make it easier and more attractive for people to bike more. Data from the Jersey City Bicycle Plan and our case study concept plans, suggests that a somewhere in the range of 5-15 percent of roadway centerline miles should be targeted for protected bike lanes. Factored up statewide, this would suggest that a statewide network of protected bike lanes should include as much as 10,000 protected lane miles.



Expand the number of NJ households with e-bikes by 1.5 million while providing 500,000 working age (16-64), low-income residents incentives worth 50 percent of the e-bike purchase price.

Description: Over the past decade, e-bike purchase incentive programs have been implemented throughout North America. These programs, which are most often structured as either point-of-sale vouchers or post-sale rebates are administered by a range of jurisdictions and organizations, including local, county and state government agencies, universities, and others. As of April 2023, seven states (California, Colorado, Connecticut, Hawaii, Massachusetts, Rhode Island and Vermont) have already implemented statewide e-bike incentive programs, 16 additional states have introduced legislation to create or renew funding for e-bike incentive programs. Funding for these program ranges from \$100,000 in Vermont to \$10 million or more in Colorado and California. Subsidies range from \$100 to full purchase price and many programs scale subsidies based on income. This long-term target seeks to expand the number of households in New Jersey that have access to e-bikes by 1.5 million households. This represents about ½ of all NJ households. Market forces may drive much of this increase, however, because the purchase price of e-bikes can be cost-prohibitive for low-income residents, this target also seek to make subsidized purchase available to up to 500,000 working age low-income residents who would each receive a 50 percent of purchase price (\$500) incentive. 500,000 is roughly the estimated number of working aged people 18-64 living below 100 percent of the Federal Poverty Line.

Reduce per driver VMT 30 percent by 2035 and 50 percent by 2050.

Description: The states of Maryland and Washington have set aggressive per capita VMT reductions (30 percent by 2035 and 50 percent by 2050) to meet GHG emission goals. Other states with targets include California (15 percent reduction by 2050), Connecticut (5 percent reduction by 2030), Delaware (10 percent reduction by 2030), Maine (20 percent reduction by 2030), and Minnesota (20 percent per capita reduction by 2050). In 2019, pre-COVID, annual VMT in NJ was estimated to be 78.2 billion. This equates to 8,435 miles per year per licensed driver and 236 miles per week on average per driver. According to the FHWA, non-work trips account for approximately 72 percent of all travel. This means on average; NJ drivers travel approximately 170 miles per week for non-work purposes. Assuming no change to work travel, drivers, to meet this target in New Jersey, NJ drivers would need to drive about 70 less miles per week by 2035 and 118 miles less miles per week by 2050, a 40 percent reduction by 2035 and a 70 percent reduction by 2050.



Increase transit ridership 15 percent by 2035 and 50 percent by 2050 and increase the percentage of residents that have access to high-frequency transit service to 40 percent by 2035 and 60 percent by 2050.

Description: NJ TRANSIT provides over 260 million passenger trips each year on its buses, trains, light rail and Access Link services. PATH, PATCO, SEPTA and other transit operators provide millions more. However, this represents only a fraction of the overall number of trips taken each year by New Jersey residents and visitors. In 2020, NJ TRANSIT published its first ever Strategic Plan, aimed at ensuring reliable and safe services, a high-quality experience for NJ TRANSIT customers, powering a stronger and fairer economy for all communities in the state, and a sustainable future for our planet.⁶⁸ NJ TRANSIT's strategic plan sets a target of increasing system-wide ridership by 15 percent by 2030 and increasing the percentage of New Jersey residents with access to high-frequency transit from 27 percent to 40 percent by 2030. Over the longer term, New Jersey's 80x50 Global Warming Response Act report projected GHG emissions savings from increasing bus ridership 15-200 percent and increasing rail ridership from 30-200 percent with a 54 percent increase in both as the middle-high scenario.⁶⁹

⁶⁸ U.S. Department of Energy, Vehicle Technologies Office. Office of Energy Efficiency & Renewable Energy . Vehicle Technology Office Fact of the Week. [Online] U.S. Department of Energy, March 21, 2022. <https://www.energy.gov/eere/vehicles/articles/fotw-1230-march-21-2022-more-half-all-daily-trips-were-less-three-miles-2021>.

⁶⁹ Evans, Tim. New Jersey's supply of developable land is shrinking- As a result of both development and preservation. New

Reduce impervious cover by 10 percent statewide.

Description: Reducing the area of a watershed covered by impervious surfaces such as parking, roads, driveways, and roof is a common strategy use to address stormwater runoff, flooding and water pollution. Several jurisdictions have targeted a 10 percent reduction in impervious surface. These include Lake George Association and New York City in New York, the Long Island Sound Study in New York, and Connecticut, Washtenaw County in Michigan, and Manchester, England to name just a few examples. The City of Philadelphia targets a 30 percent reduction. Reductions can be achieved by using pervious materials, constructing narrower streets, smaller cul-de-sacs, and smaller parking areas as well as “greening” existing paved areas by installing planted median, rain gardens, bioswales, planted roofs, and other green infrastructure. There are more than 562,000 acres of impervious surface in New Jersey. Municipal totals range from approximately 10 acres in Tavistock Borough to more than 11,600 acres in Newark. To achieve this target, communities statewide would need to convert approximately 60,000 acres from grey to green.



Expand tree canopy cover to 40 percent in every municipality.

Description: Trees provide many health and environmental benefits. The C40 CITIES mentioned above have set a tree canopy goal of 40 percent. Currently, New Jersey has an estimated 2.4 million acres of area covered by tree canopy. Municipalities average about 38 percent tree cover with some communities having as little as 2.4 percent, while others have almost 80 percent tree cover. Three hundred four of the state’s 564 municipalities falls below the 40 percent target. Raising tree cover in every municipality in the state to a minimum of 40 percent would add the equivalent of an additional 140,000 acres of tree canopy. This would require planting an estimated 7 million trees in those 304 communities.

Jersey Future Blog. [Online] New Jersey Future, February 17, 2020. <https://www.njfuture.org/2020/02/17/new-jerseys-supply-of-developable-land-is-shrinking-as-a-result-of-both-development-and-preservation/>.

Chapter 4. Planning and Policy Recommendations

Creating a healthier, more just, resilient, and sustainable New Jersey will require a myriad of actions by government, the private sector, and individuals. All have a significant role to play. The choices we make about how we build and maintain our communities matters and the choices we as residents and visitors make terms of how we travel will profoundly impact whether the vision described earlier can be achieved. It is clear from this research that transportation networks, the relationship between transportation and land use, and the interface between our natural and built environments are essential to achieving the state's climate, equity, and health goals. The availability of affordable, convenient, safe, and clean transportation options that provide access to opportunities such as well-paying jobs, schools, parks, essential services, healthy food, recreation, and other amenities is key to healthy living, economic justice, community resilience, and reducing of GHG emissions.

What we also learned is that the 15-minute neighborhood planning model can be adapted to New Jersey's landscape but details regarding how the model is implemented matter. One size will not fit all. We found that existing plans and zoning requirements can be an impediment to implementing desirable strategies, and we learned that there is more to building healthier, more just, resilient, and sustainable communities than land use transportation, and green infrastructure alone. Creating opportunities for social connection is also important. Finally, we discovered that coordination and partnerships across jurisdictions, between levels of government, and with the private and non-profit sectors will be needed to achieve the state's long-term objectives. In this spirit, we propose the following suite of recommendations:

1. Embrace the 15-minute neighborhood planning model.

Practice and research suggest that the elements of "complete" 15-minute neighborhoods include:

- Land uses and infrastructure that are human-scale and pedestrian-oriented.
- Mixed-use development that fosters a density and diversity of desired destinations near housing.
- A mix of housing types that are affordable to a range of incomes, including young families and older adults who wish to "age in place."
- Community design that includes nature, green spaces, and water, including parks, street trees, vegetation, lakes, streams, and shorelines.

- Places for people to gather and interact such as community schools, parks, and public plazas.
- Enough density that encourages people to walk, bike, and use public transit.
- A robust, safe, and convenient network of pedestrian and bicycle infrastructure.
- A variety of convenient and affordable shared-use mobility options such as public transit, bike- and scooter-share, ride-share services, community shuttles, and micro-transit.

While some residents may live and work in the same 15-minute neighborhood others may have to travel longer distances to reach their job locations. That is okay, because the vast majority (more than 70 percent) of trips are for non-work purposes. Most of these trips are less than five miles. Evidence from our three case studies indicates that virtually all residents in the three case study communities could potentially reach most desired destinations within a 15-minute walk, bike, or e-bike ride of their homes. For this reason, the 15-minute planning model holds great promise as an organizing framework for making New Jersey communities healthier, more just, resilient, and sustainable.

While similar to other planning approaches, such as smart growth, center-based development, transit-friendly planning and others, a unique feature of the 15-minute neighborhoods model is its orientation toward people, community, and meeting human needs rather than focusing on more abstract notions of land use, infrastructure, and regulation. This person-centric orientation is potentially more relatable to the public.

The 15-minute planning model appears to be adaptable to most land use settings. With that said, we need not strive to make every place into a 15-minute neighborhood, especially in the more rural parts of the state. The model is most appropriate for urban and suburban communities and town centers and villages located in rural settings. In addition, some planners suggest that there are important benefits to be derived from creating an interconnected network of 15-minute neighborhoods that form the fabric of 15-minute towns and cities. This is the approach Portland, OR and other cities worldwide are taking.

Making It Happen:

The **Office of State Planning** and **State Planning Commission** should consider:

- **Adopting the 15-minute neighborhoods planning model as a central theme of the 2023-2024 State plan update process.** The principles of complete 15-minute neighborhoods, including an emphasis on 15-minute accessibility by walking, biking, e-bikes, and e-scooters should be incorporated in the Plan's statewide goals, policies, and strategies. Municipalities and counties should be encouraged to consider and incorporate the 15-minute planning model in their local planning processes as part of the State Plan cross-acceptance process.

The **Governor’s office and relevant state agencies** can:

- Encourage, require, and support municipalities to integrate the principles of 15-minute neighborhood planning into upcoming Mount Laurel Fourth Round Fair Share plans and Housing Elements, which will drive the bulk of residential development in NJ over the coming decade.

Municipalities can:

- **Integrate the 15-minute neighborhood concept into local plans and processes** such as municipal master plan updates, redevelopment plans, and zoning ordinances, as well as fair share plans and housing elements required for the upcoming fourth round Mount Laurel affordable housing requirements.
- **Engage residents in a 15-minute neighborhood planning process.** Ask them questions like:
 - How do you currently think about and identify neighborhoods? In some places this might be historic definitions, in other places it might be residential subdivisions, and in others based on geographic or demographic features.
 - What destinations and community amenities are most important to you, and which would you like to have within an easy walk or bike ride?
 - What real and perceived barriers prevent you from walking, biking, and using other shared-mobility options to get where you need to go?
 - What types of community gathering places and activities would encourage you to interact with your neighbors?
 - What other neighborhood features are important?
- **Map neighborhood boundaries and important destinations and amenities.** Reimagine your community as a network of interconnected activity centers and neighborhoods. Each community may have one or more focal points of activity depending on its size. These could be a traditional downtown, main street, or business district, a community school, a neighborhood shopping center, or an employment node. Each activity center should over time have a strong sense of place that eventually includes a mix of uses and be well connected with roadways, bike paths, sidewalks, and transit routes where appropriate and feasible.
- **Analyze how accessible destinations and amenities are to residents in each neighborhood or area of your municipality.** Remember, not all destinations need to be nearby. For example, while some residents may work at local businesses, not everyone needs to work within a 15-minute walk or bike ride of their residence and regional destinations like hospitals need not be in every neighborhood.
- **Inventory and assess existing pedestrian and bicycle infrastructure conditions.** Where is it safe to walk and bike? Where do conditions need to change? What connections need to be made?

- **Expand the mix of housing types available in each neighborhood, especially proximate to desired destinations and amenities.** Adjust zoning to allow for accessory dwelling units, duplexes, and even higher densities where feasible in more areas. Consider incentives or requirements such as inclusionary zoning ratios which ensure some portion of new units remain affordable and have accessibility features to accommodate people with all abilities.
- **Assess which areas have the best and worst accessibility and take steps to improve conditions.** This might include adding destinations and amenities closer to where people live or incorporating housing near destinations and amenities. It will likely also include investing in infrastructure that makes it easier, safer, and more attractive to walk, bike and use transit.

Metropolitan Planning Organizations can:

- **Incorporate 15-minute accessibility planning into their unified planning work programs** and provide technical assistance and funding support to municipalities and counties to develop 15-minute neighborhood/city plans.
- Work with **counties, Transportation Management Associations, and transit providers to identify existing transit services, transit stop locations, frequency of service and the availability and condition of transit amenities such as signs, benches, shelters, lighting, and information.** Consider where and when there are gaps in service, how the gaps can be filled, and what transit stop amenities will make people feel safe and comfortable using transit.

2. Develop and implement a statewide Vehicle Miles Traveled (VMT) reduction strategy.

Before the global pandemic, New Jersey drivers travelled an estimated 78 billion miles per year. This number dropped to 66 billion during pandemic shutdowns in 2020 but climbed back up to nearly 74 billion in 2021, the last year for which data is available. While transitioning vehicles to zero emissions technology like battery electric will reduce energy consumption and GHG emissions, the negative impacts associated with billions of VMT—traffic congestion, reliance on cars for most travel, land dedicated to parking, the cost of road upkeep and maintenance and the increasing share of family income required to pay for transportation will not be improved. Creating healthier, more just, resilient, and sustainable communities will require us to reduce the number of miles driven in New Jersey each year. A few states have developed VMT reduction targets and strategies, including Maryland, Washington, and others and many more have strategies forthcoming. Significant reductions in VMT will require a strong policy context, incentives, and a range of programs to encourage New Jersey residents to drive less.

Making It Happen:

The **New Jersey State Legislature** should consider:

- **Passing legislation that establishes a VMT reduction target** and direct the NJDOT and partner agencies to assess current policies to identify which potentially impact VMT and develop a comprehensive VMT reduction strategy to meet the targets. The strategy should include policies, programs, and incentives to empower New Jersey residents to drive less, encourage transit-oriented development and transit-friendly land use and design, and shift goods movement from highway and to freight rail. The legislations could also:
 - Create the position of *Healthy & Sustainable Mobility Officer* within the **New Jersey Department of Transportation** to serve as the coordinating officer for state agency efforts to reduce VMT. This position could play a liaison role on the Office of Planning Advocacy’s State Plan Implementation State Agency Partnership.
 - Require that any extension of the road network for new development or redevelopment increases the connectivity of the local street network with increased intersection density and smaller block lengths.
 - Require **New Jersey Department of Transportation** to adopt VMT reduction as an explicit criterion for decision-making and a method and procedures for estimating the VMT impact of all planning, programming, and permitting decisions.
 - Require **New Jersey Department of Transportation** to review and revise roadway design standards for lane widths, travel speeds, intersection geometry, turning lanes, curb cuts, crosswalks, traffic signal timing, and other related features to require the prioritization of pedestrian and bicycle safety and accessibility in environments that support pedestrian, bicycle, and transit travel, consistent with the Department’s Complete and Green Streets design guidelines. The Department should also be required to amend its Complete Streets Policy to reflect these guidelines.
 - Direct the **NJ TRANSIT Office of Real Estate** and the **Transit-Friendly Planning Program and NJDOT Transit Village staff** to develop and implement a strategy to decrease surface parking lots and increase residential and commercial development adjacent to the state’s transit station assets. The strategy should include a monitoring and evaluation component that includes biannual progress reporting.
 - Require the **New Jersey Economic Development Authority, New Jersey Housing and Mortgage Finance Agency, the New Jersey Redevelopment Agency, and the Department of Community Affairs** to incorporate a

VMT assessment for all new residential and commercial development and redevelopment projects with a construction value \$5 million or more that apply for state financial assistance. Priority should be given to projects that reduce VMT and shift mode share toward active transportation and transit. These agencies should also create prioritization plans for the proximity to transit and compact, walkable places goals. The agencies and department should identify specific procedural and decision-making changes they will make to incorporate this directive.

- Require the **Department of Community Affairs** and the **Site Improvement Advisory Board** to review and revise the Residential Site Improvement Standards to make changes that will advance VMT reduction and increase active transportation and transit mode share.
- Direct the **State Planning Commission** and the **Office of Planning Advocacy** to develop state planning and municipal guidance that highlights leading practices for reducing VMT and implementing 15-minute neighborhoods at the local level.
- **Reauthorize the New Jersey Transportation Trust Fund with a focus on mobility management and VMT reduction.** The legislation should set a revenue target commensurate with meeting VMT reduction and other targets recommended herein, including a significant increase in dedicated funds to support complete streets implementation that dramatically improves and expands pedestrian and bicycle infrastructure statewide and implementation of micromobility solutions that make it easier to get around without driving. The reauthorization legislation should also **transition from the current motor fuels tax structure to mileage-based user fees** by 2035. This structure will incentivize driving less.

3. Encourage active transportation and expand the availability of micromobility options.

Active transportation such as walking and biking, as well as micromobility options such as e-bikes and e-scooters can expand accessibility to desired amenities and destinations and help people live active healthier lifestyles. These forms of transportation may also be the only viable way people that lack access to personal vehicle can get around. Further, walking, biking, and travel using micro mobility options reduce GHG emissions and other pollution that harms the environment and human health. For these reasons, empowering people to drive less and to walk and bike more is critical to advancing healthier, more just, resilient, and sustainable communities in the state.

One of the best ways to empower people to drive less is to make it easier, safer, and more attractive to walk and bike more. This will require a significant increase in investment aimed at creating better connections between neighborhoods and desired destinations, improving pedestrian and bicycle infrastructure condition, addressing gaps in sidewalk networks, dramatically expanding the presence of protected bicycle lanes, expanding the availability of

features such as street furniture, lighting, secure bike parking, e-bike and e-scooter sharing programs and pedestrian and bicycle oriented signage that will help people navigate an expanded and improved network of facilities.

Making It Happen:

Municipalities and counties should consider:

- **Adopting and implementing complete streets policies**, including taking the steps necessary to incorporate complete streets improvements in local roadway construction and maintenance programs. Every effort should be made to ensure that implementation of complete streets preserves as much existing tree canopy as possible.
- Partnering with Transportation Management Associations (TMAs) to **conduct jurisdiction-wide road safety and walkability/bikability audits** to assess pedestrian and bicycle infrastructure conditions and identify high crash locations and infrastructure gaps and deficiencies. The audits should also identify potential interventions to improve conditions.
- Using the findings of the audits to **develop Vision Zero action plans** that seek to eliminate ALL fatal and serious injury crashes within their jurisdictions and a multi-year capital program to implement the Vision Zero recommendations. This should include taking full advantage of all available State and Federal funding resources.
- **Revising local development regulations to incorporating complete streets and bicycle and pedestrian friendly design standards** and use the local land development process to advance recommended improvements.
- **Engaging private vendors to expand the availability of e-bike and e-scooter programs.** Several models exist for engaging private vendors to run share programs, including the Veo scooter share program operating in the greater New Brunswick area, Link Scooter Sharing in Asbury Park, NewarkGo, and Citi Bike NJ in Hoboken and Jersey City. In addition, incentive programs designed to subsidize e-bike purchases (see Recommendation 5), like the one recently implemented in Bridgeton, NJ, can make privately owned e-bikes and e-scooters available to low-income individuals.

The **New Jersey Department of Transportation** can:

- **Continue to implement the NJDOT complete streets policy** through both capital projects and maintenance projects associated with the state highway network.
- **Continue to increase the amount of funding available through the agency's Local Aid and Economic Development grant programs**, including the Safe Routes to School, Municipal Aid, Bikeways, Safe Routes to Transit and Transit Villages, and Transportation Alternatives Set-Aside programs.

- **Prioritize implementation of complete streets improvements**, including green street components, through these programs and **double the amount of funding available specifically for complete and green streets** implementation.
- **Dedicate funds to enable local governments to do the planning and feasibility studies** necessary to access state and federal transportation grants, in part through an expansion of the department's popular but oversubscribed on-call consulting services.

4. Create the first-in-the-nation, statewide network of protected bicycle lanes designed to improve safety, increase access to local destinations, and facilitate longer trips that connect to regional destinations.

Cities around the world have or are developing and implementing comprehensive bicycle mobility plans. Key strategies include reallocating road space, reducing vehicle speeds, building protected bike lanes, making intersections safer, and creating comprehensive networks that interconnect where people live with the places they need to go. Leading practice cities include Munich, Germany, New York City, Minneapolis, Davis, CA, San Francisco, Seattle, and Philadelphia.⁷⁰ Closer to home, Hoboken and Jersey City are notable examples.

The Federal Highway Administration defines separated bike lanes as “an exclusive facility for bicyclists that is located within or directly adjacent to the roadway and that is physically separated from motor vehicle traffic with a vertical element. Separated bike lanes are differentiated from standard and buffered bike lanes by the vertical element. They are differentiated from shared use paths (and side paths) by their more proximate relationship to the adjacent roadway and the fact that they are bike-only facilities. Separated bike lanes are also sometimes called cycle tracks or protected bike lanes.”⁷¹ Examples of vertical elements include plastic posts, bollards, curbs, planters, raised bumps or parked cars. Protected bike lanes can be at street level or raised, either to sidewalk level or a level in between street and sidewalk level. They define and allocate street space exclusively for people on bikes, and maybe on or adjacent to but separated from roadways. This physical separation is important to making less-skilled cyclists feel safe and confident enough to bike more.

Most bike lane planning is done at the municipal and/or county-level. Some states also identify bicycle facilities along state highway networks. While planning at the local level brings important context to the process in terms of resident and business community input and understanding of local needs and desires, the result at a regional- or statewide-scale can be fragmented. In a densely populated state like New Jersey, where origins and destinations don't always respect local government boundaries, it would be beneficial to develop a more comprehensive approach.

⁷⁰ Evans, Tim. New Jersey's supply of developable land is shrinking- As a result of both development and preservation. New Jersey Future Blog. [Online] New Jersey Future, February 17, 2020. <https://www.njfuture.org/2020/02/17/new-jerseys-supply-of-developable-land-is-shrinking-as-a-result-of-both-development-and-preservation/>.

⁷¹ State of New Jersey. New Jersey's Global Warming Response Act 80x50 Report. Trenton, NJ : State of New Jersey, 2020.

A more comprehensive approach that includes planning for facilities along municipal, county, and state-owned roadways at the same time can make it more efficient and effective to prioritize investments where needed most.

Currently bike lane implementation relies on actions at three levels of government depending on which jurisdiction owns, operates, and maintains each roadway. This leads to disjointed infrastructure with varying design approaches which can make navigating to destinations difficult and unsafe for cyclists. For these reasons, New Jersey should plan and implement the first ever statewide network of interconnected protected bike lanes on municipal, county, and state roadways. This will require significant coordination and cooperation among jurisdictions and between levels of government. It will also require commitment to significant and coordinated capital investment and maintenance over time. To be effective, it will take leadership at all levels of decision-making.

Making It Happen:

Municipalities and counties can:

- **Inventory and map current bicycle facilities** including both on- and off-road lanes and paths.
- **Develop a bicycle level of stress/comfort map** using existing metropolitan planning organization (MPO) resources or using one of several successful methodologies used by jurisdictions in New Jersey and nationally.
- **Identify critical gaps in the bicycling network**, especially areas with a history of traffic crashes.
- **Identify potential off-road corridors** including properties owned by utility companies and railroads.
- **Map recommended future bicycle routes**, including on- and off-road facilities that provide connectivity between municipalities and essential destinations, such as schools, parks, libraries, colleges, job centers, and transit.
- **Document pavement widths and existing roadway cross-sections** and develop concept plans for adding the recommended bicycle facilities.
- **Develop a prioritization plan** for implementing the identified improvements.
- **Adopt local Bicycle and Pedestrian Master Plans** and work with the planning board to adopt the plan as an element of the municipal comprehensive plan.
- **Ensure that the normal repaving and restriping maintenance cycle incorporates recommendations** and implements bicycle lanes.

- **Identify innovative sources of funding** and apply for county, state, and federal grants as they are made available.
- Ensure municipal staff and outside consultants are trained in the latest bicycle infrastructure guidelines.

Metropolitan Planning Organizations can:

- **Collect and compile local bicycle facilities maps** into a region-wide inventory/database that can be used by municipalities, counties, and the NJDOT to identify network gaps and make sure routes connect across jurisdictional boundaries to create a more seamless statewide network.
- **Host meetings between neighboring jurisdictions** to coordinate bicycle plans beyond local boundaries.
- **Collect and maintain a database of regional bicycle traffic counts.**
- **Provide a reliable mechanism for the public to report pedestrian and bicyclist infrastructure issues** on state, county, and municipal facilities and provide recommendations to improve reporting methods or increase the awareness of available reporting methods.

The NJ Department of Transportation can:

- **Update NJ's statewide bicycle and pedestrian master plan** and ensure it is connected to long-range transportation plans.
- **Update the NJDOT ADA transition guide** to address e-mobility.
- **Update the NJ straight-line diagram database** to include comprehensive bicycle and pedestrian infrastructure data.
- **Create a New Jersey bicycle facilities planning, engineering, and construction management corps** that will lead efforts to identify, construct and maintain a statewide network of bicycle facilities, including protected bike lanes on municipal, county, and state-owned roadways. This state funded corps should be directed to work with municipalities and counties to create the statewide bicycle network system to ensure accessible and affordable transportation connects people to jobs, schools, health services, retail, and other amenities in all part of New Jersey.
- **Work with utility companies to maximize the use of utility corridors statewide for bicycle travel.**
- **Incorporate protected bicycle facilities into all bridge replacement projects.**
- **Incorporate protected bicycle facilities into regional road and highway improvements.**

- **Elevate the visibility and stature of NJDOT's bicycle and pedestrian program coordinator's office and the Complete Streets program** to have equal influence as other divisions and programs within the department.
- **Review agency manuals, policies, and other documents**, including the Roadway Design Manual, to incorporate the latest design recommendations for protected bicycle lanes, as developed by outside manuals (NACTO).
- **Work with New Jersey Department of Community Affairs to update the Residential Site Improvement Standards** to accommodate complete streets.
- **Review the state highway access code** and identify opportunities to strengthen it to provide greater pedestrian and bicycle safety.
- **Review the Municipal Land Use Law** and provide recommendations to strengthen it to enhance pedestrian and bicycle safety.
- **Work with the NJ Department of Environmental Protection (NJDEP) to update the 2009 NJ Trails Plan** to ensure a seamless statewide network of facilities that connect to on-road facilities and address the need for midblock trail crossings.

5. Create a statewide e-bike incentive program.

E-bikes are increasingly popular as a mode of transportation as they help riders reach their destination faster and, often, more conveniently than a traditional bicycle. They are especially appealing to users with physical limitations due to age, fitness levels, injuries, or disabilities. They are also popular among road users who cannot get a driver's license or do not want to drive a motor vehicle. A recent analysis conducted for the Bureau of Transportation Statistics found that more than half of all trips taken in the U.S. were less than three miles.⁷²

E-bikes, which travel up to 20 miles per hour, are well suited for everyday short trips to many desired destinations. For this reason, e-bikes have the potential to significantly expand destination accessibility, especially for low-income residents. In fact, as evidenced by the three case studies, nearly 100 percent of residents could potentially access destinations, such parks, schools, full-service grocery stores, and pharmacies within a 15-minute e-bike ride, often in less than a 10-minute e-bike ride.

E-bikes are inexpensive to operate and more affordable than other travel options. E-bike users can save on gas, parking, car payments, repairs, fees, and rideshare costs. E-bikes can also provide health benefits. They can improve fitness, strength and mobility and can help to reduce stress. E-bikes are zero emission vehicles, so, they are good for the environment and help to improve

⁷² Evans, Tim. New Jersey's supply of developable land is shrinking- As a result of both development and preservation. New Jersey Future Blog. [Online] New Jersey Future, February 17, 2020. <https://www.njfuture.org/2020/02/17/new-jerseys-supply-of-developable-land-is-shrinking-as-a-result-of-both-development-and-preservation/>.

air quality. Finally, e-bikes can help to bridge first- and last-mile connectivity to and from transit stations and stops.

The purchase price of e-bikes in the U.S. ranges from slightly less than \$1,000 to more than \$5,000 for bikes with advanced or specific features (e.g., cargo bikes). This price can be prohibitively expensive for some purchasers. Comparatively however, as noted above, the cost of purchasing, operating, and maintaining an e-bike is far less than owning a private motor vehicle. To address cost barriers to purchasing e-bikes and to facilitate a transition to e-bikes to reduce transportation-related GHG emissions, some jurisdictions have introduced e-bike purchase incentive programs.

A recent study⁷³ conducted by researchers at Portland State University, University of Tennessee, Knoxville and Valdosta State University documented more than 50 active, pilot, or past e-bike incentive programs. Over the past decade, e-bike purchase incentive programs have been implemented throughout North America. The programs, which are most often structured as either point-of-sale vouchers or post-sale rebates are administered by a range of jurisdictions and organizations, including local, county and state government agencies, universities, and others. As of April 2023, seven states (California, Colorado, Connecticut, Hawaii, Massachusetts, Rhode Island, and Vermont) have already implemented statewide e-bike incentive programs, 16 additional states have introduced legislation to create or renew funding for e-bike incentive programs.

Making It Happen:

The **New Jersey State Legislature** should consider:

- **Adopting legislation that directs the NJ Board of Public Utilities or other state agency to create and implement a statewide e-bike incentive program** that provides a sliding-scale point-of-sale incentive for up to 50 percent of the purchase price based on income eligibility.

With or without a statewide program, municipalities, counties, and non-profit organizations can also allocate funding for and implement local e-bike incentive programs of their own.

6. Make it more convenient and attractive to use public transit and expand transit service where feasible.

NJ TRANSIT operates the most geographically expansive public transportation system in the U.S., covering 5,000 square miles in New Jersey and the surrounding New York and Philadelphia metropolitan areas. NJ TRANSIT provides over 260 million passenger trips each year on its buses,

73 State of New Jersey. New Jersey's Global Warming Response Act 80x50 Report. Trenton, NJ : State of New Jersey, 2020.

trains, light rail, and Access Link services. In addition, the agency's community transportation programs provide more than 10,500 additional daily trips across each county of the state, serving areas where fixed-route services are not available.⁷⁴

Reasons people often cite for not using public transit include negative past experiences, lack of information, difficulty in trip planning and navigating the system, services are too infrequent or not available where people need them, transit stops are too far from where people start and end their trips, transit trips take too long, bus stops lack amenities and feel unsafe among others. A number of these deficiencies were found to be present in our three case studies, including service deemed to be too infrequent, lack of amenities, limited information on what services are available, and transit stops being too distant from origins and destinations to be practical.

Equitable and just mobility means that all New Jersey residents regardless of ability or resources should have safe, convenient, and affordable travel options that allow them to reach the places they need to go. New Jersey leaders should imagine a new mobility future for the state that includes a network of designated *mobility corridors* that speed travel for transit customers and connect them to a constellation of high-amenity *mobility hubs* where residents can access a range of shared mobility services.

- **Mobility Corridors** – Mobility corridors should generally serve multiple bus routes with high-frequency service, offer transfer opportunities for travelers, and/or connect travelers between central places and major trip generators. Transportation systems management, transit priority treatments, transit stop spacing requirements, pedestrian and bicycle improvements, and transit amenity enhancements in these corridors have the potential to make delivery of transit services more efficient, to speed travel for transit users and make traveling by transit more convenient.
- **Mobility Hubs** – A mobility hub is a place where people can make a seamless connection between fixed-route transit services and other travel options, including microtransit, ride-hailing services (Uber, Lyft, Taxi), walking, biking, e-bikes and scooters, neighborhood electric vehicle car share, and other modes. Mobility hubs are designed to have characteristics and amenities that make waiting and transferring between modes safe, convenient, and comfortable. They can also provide features that can enhance operational efficiency and performance for mobility providers. For example, designated pick-up and drop-off locations, managed curb space, and in some cases vehicle parking for layovers. Mobility hubs need not include all amenities at the station/stop locations but include desirable features and amenities within a safe and convenient short walking distance. Mobility hubs can be flexibly designed to fit in with the surrounding community and the unique needs and character of each location. Figure 28 (pg. 118) illustrates typical mobility hub features.

74 U.S. Department of Energy, Vehicle Technologies Office. Office of Energy Efficiency & Renewable Energy . Vehicle Technology Office Fact of the Week. [Online] U.S. Department of Energy, March 21, 2022. <https://www.energy.gov/eere/vehicles/articles/fotw-1230-march-21-2022-more-half-all-daily-trips-were-less-three-miles-2021>.

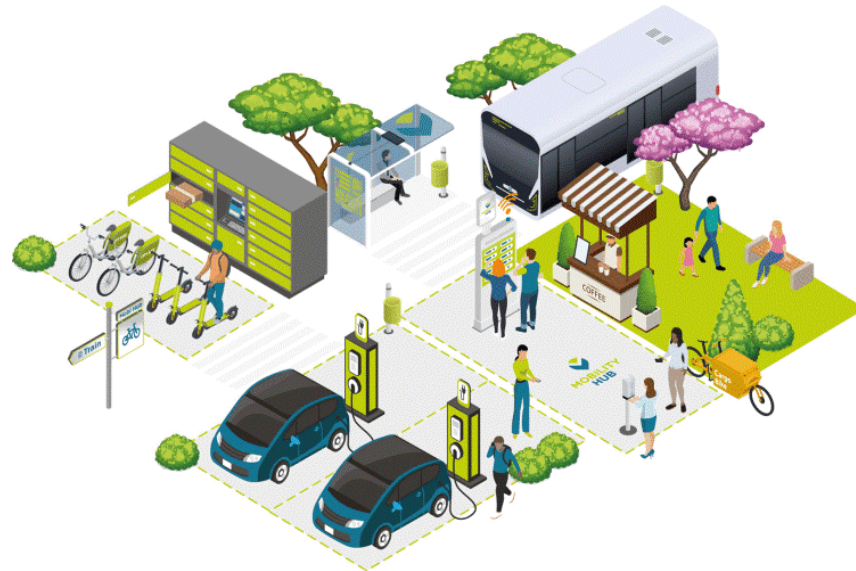
Figure 28. Mobility Hub Features

Image credit: Eltis, The Urban Mobility Observatory

Mobility hubs can provide important community benefits, including:

- **Mobility and Accessibility** – Mobility hubs provide a place for multiple modes of travel to converge, and the amenities needed to make waiting for mobility services more comfortable and convenient. Mobility hubs allow transit customers to travel more easily to and from desired destinations. They also provide a way to address first-/last-mile access challenges typically associated with fixed-route transit by giving travelers multiple potential options to travel safely between origins, transit stops/stations, and their final destinations.
- **Equity** – Mobility hubs can provide more seamless connections between places with higher-than-average concentrations of low-income residents, older adults, persons with disabilities, and veterans to jobs, services, educational opportunities, and other amenities.
- **Climate and Environment** – By making travel by non-driving modes safer and more convenient, mobility hubs help to empower residents to drive less which reduces vehicle miles traveled, greenhouse gas emissions, and other pollution. If equipped with EV chargers, mobility hubs can also address the need for public charging infrastructure in key locations and in neighborhoods with multifamily housing, where private charging is more difficult.
- **Economic** – Mobility hubs are a focal point of activity that can support adjacent and nearby businesses.

- **Safety** – Waiting area amenities and enhanced walking and biking infrastructure at mobility hubs and in surrounding neighborhoods can improve safety for transit riders, pedestrians, and bicyclists.

Making It Happen:

NJ TRANSIT and other regional transit operators, including PATH, PATCO, SEPTA, private ferry operators and Amtrak can:

- **Identify and designate a network of mobility corridors statewide** that meet the criteria referenced above. Once the list of corridors is identified, develop corridor enhancement strategies for each corridor that include service changes, changes to bus stop spacing, and other operational changes. Work with NJDOT, local governments and other partners as needed to make appropriate investments in physical infrastructure, including but not limited to complete streets improvements and bus priority treatments. Prioritize corridors with the highest ridership and need while considering equity and environmental justice.
- **Work with local governments (municipalities and counties) to complement and supplement the identified mobility corridors with an overlay of mobility hub locations**, including existing rail and light rail stations, bus terminals, and new hubs as appropriate. Hubs should be identified as regional, central, or local based on the level of transit service available at the hub location. See Appendix 1 (pg. 141) for a recommended list of amenities for each type of mobility hub.
- **Modernize bus services to improve service quality.** This should include regularly assessing and making changes to existing bus routes and services to meet current and future market demands and customer needs. Fully implement the recommendations from NJ TRANSIT's Newark and Camden New Bus studies and other similar studies as they become available.
- **Introduce new and more frequent service in underserved areas.** This should include increasing service on existing bus routes and light rail lines where appropriate and expanding services in strategic locations, including but not limited to constructing the Northern Branch Corridor and Westside extensions of the Hudson-Bergen Light Rail, the extension of PATH service to Newark Liberty International Airport, and expanding capacity at terminals such as Hoboken Terminal, New York Penn Station, Port Authority's Midtown Bus Terminal, and others where necessary.
- **Address first- and last-mile transit service gaps.** This should include expanding the availability of micro mobility options at transit stops, stations and hubs as well as innovative service models such as partnerships with transportation network company (TNCs) like Uber, Lyft and others, on-demand micro transit, and even autonomous vehicle shuttle pilot projects.

- **Work together to expand Trans-Hudson rail capacity by fully implementing the Gateway program of projects.** The Gateway program is critical to ensuring the long-term economic competitiveness of the region and the nation. Additional capacity into and out of Manhattan are central to expanding rail service in New Jersey.

The **New Jersey State Legislature** should consider:

- **Adopting legislation that provides NJ TRANSIT with the authority to regulate the spacing and location of bus stops along designated mobility corridors** and responsibility for maintaining bus stops in designated mobility corridors with appropriate levels of amenity based on adopted minimum standards.
- **Adopting legislation to establish an adequate, stable source of on-going funding to support NJ TRANSIT operations and maintenance.** Funding should be indexed to accommodate increases in inflation.
- **Adopting legislation that establishes statewide minimum standards for transit stop design and amenities.** Direct NJ TRANSIT and the NJ Department of Transportation to develop and disseminate guidelines and standards for designing and maintaining bus stops. Require municipalities and counties to upgrade bus stops to the defined standards by 2035. The standards and required minimum amenities should be commensurate with utilization levels at each stop. At a minimum, all bus stops should meet ADA accessibility requirements, have visible signage, a shelter with seating, trash receptacles, lighting, and service information. Station/stop standards should include solar canopies and green infrastructure such as green roofs, trees, rain gardens, and other sustainability features where appropriate and feasible. The legislation should also establish a dedicated pool of funding for local governments to raise the standard of amenities available at bus stops statewide. Priority should be given to stops with the highest ridership first, while also considering equity and environmental justice.

7. Integrate nature and green infrastructure in community design.

As the effects of climate change worsen, we must start investing in and more aggressively promoting green infrastructure as a climate resilience strategy. New Jersey is already experiencing the effects of climate change, as evidenced by rising sea levels, more frequent and intense rain events, and more frequent high heat days. Substantial amounts of impervious surface statewide, especially in the State's cities, exacerbates flooding and raises ambient temperatures in many locations. Flooding causes loss of life, destruction of homes and disrupts business activity and essential services. Urban areas are heavily impacted by the rising temperatures. Newark, for example, has the second-highest urban heat island index in the United States.⁷⁵ Nature, vegetation,

⁷⁵ <https://www.njspotlightnews.org/2023/08/feeling-urban-heat-island-effects-in-newark-nj-and-fighting-them-mental-health-redlining/>

green spaces, and green infrastructure mitigate some of the effects of climate change, while helping to beautify communities, making places more enjoyable for residents and visitors. This is especially true in overburdened communities, where residents are more likely to experience negative impacts from climate change and other environmental hazards.

Green infrastructure has become a vital component of plans to address combined sewer overflows in New Jersey and other jurisdictions and there are many other examples in New Jersey and elsewhere that demonstrate green infrastructure implementation at the project- and municipal-scale. Some examples include initiatives in Camden, Newark, Paterson, Perth Amboy, Hoboken, Jersey City, Highland Park, and others. Leading green infrastructure practices and nature-based solutions encompass a range of strategies, including but not limited to:

- **Parks and preserved open spaces** – Well designed, operated, and maintained parks and preserved open spaces are type of green infrastructure that provide important ecological functions as well as recreational, social, and economic benefits. Parks often already include green spaces that provide environmental benefits as well as opportunities for a variety of active and passive recreation activities. However, they also often include impervious surface for pathways, play courts, roads, and parking as well as large areas of mowed turf. Well-designed parks should include a landscape design that enhances aesthetic, recreational, and ecological value with trees and native plantings, rain gardens, water features, and pervious pavement.
- **Trees and vegetation** – Tree canopy and other vegetative cover captures rainwater and air pollutants and helps to cool ambient air temperatures through transpiration and by providing shade. Tree pits/boxes and planting beds provide soil and breaks in impervious surface that can also absorb water and help to filter pollution from stormwater. Finally, trees and vegetation have been found to increase property values and improve perceptions of safety.
- **Green streets and parking** – Green streets and parking is a stormwater management approach that incorporates trees and vegetation, soil, and engineered systems of permeable pavement to slow, filter, and clean stormwater runoff from impervious surfaces such as street, sidewalks, and parking. Green streets and parking are designed to capture rainwater where it falls, rather than direct runoff into storm sewer systems.⁷⁶ Examples include installation of rain gardens, converting pavement to planted medians and islands, replacing traditional pavement with porous materials along shoulders or for parking, and replacing curbs, drains and pipes with bio retention and bioswales that use an open plated channel to slow runoff and filter pollutants.
- **Green roofs** – Another way to mitigate stormwater runoff and the urban heat island effect is to install a green or vegetated roof. Green roofs can be installed on a wide variety of structures, including residential, commercial, and industrial buildings, as well as smaller

structures like garages and bus shelters. The basic components of a green roof include a layering of materials, typically involving some means of structural support, a vapor barrier, thermal insulation, root barrier, a drainage layer, filtering membrane, growing medium and vegetation. In addition to capturing rainwater and their cooling effect, green roofs can help beautify an area by adding green space where there previously was none.

- **Living shorelines and riparian buffers** – Living shorelines and riparian buffers are a green alternative to restores, enhances, or introduces natural features to protect water edges instead of engineered solutions such as bulkheads, seawalls, riprap, and other stabilization methods. Living shorelines and riparian buffers use grading, biodegradable materials and/or vegetation to naturalize water edges, filter stormwater runoff before it enters a larger body of water. Nature-based practices protect and restore natural ecological functions, slow, or prevent coastal and streambank erosion, and can provide shade, shelter, and food for wildlife. When used along tidal water bodies, living shorelines can also mitigate the impacts of storm surge and sea level rise.
- **Rainwater harvesting** – Rainwater harvesting conserves water, lowers demand on drinking water resources, can slow erosion, and reduce flooding. Rain harvesting systems generally capture runoff from roofs and other impervious surfaces and stores the water in above or below ground cisterns or tanks. Depending on the design of the system, it may include filtration, and or wells that allow recharge into groundwater. Harvested water can be used for watering lawns and gardens, car washing, clothes washing, and even toilet flushing. A simple example of rainwater harvesting is a rain barrel attached to a gutter downspout.

Making It Happen:

Municipalities and counties can:

- **Assess green infrastructure needs, goals, and opportunities.** This should include consideration of what challenges the community is trying to address and what the community hopes to achieve, (e.g., heat island, flooding, combined sewer overflow, stormwater management) what may impede successful implementation (e.g., knowledge, expertise, cost), and what opportunities might support implementation (e.g., public interest, planned capital improvements, available grant funding).
- **Engage the public and potential partners** in the green infrastructure planning and implementation process. Identify potential partners that may have an interest in green infrastructure planning and implementation (e.g., water utilities, environmental and conservation groups, chambers of commerce, transportation advocates, watershed managers, residents that are frequently flooded, environmental justice advocates, commercial property owners). Invite these stakeholders to participate in the planning and implementation process. Inform and educate the public and stakeholders about

the benefits of green infrastructure and provide meaningful opportunities for them to provide input regarding green infrastructure needs, goals, and the types of solutions they would like to see.

- **Conduct a green infrastructure inventory and analysis.** The best solutions will derive from good data and analysis. Mapping and assessing existing green infrastructure assets, their condition, and ecological value can help to identify gaps and can lead to well-informed decisions about what interventions may work best to address needs and challenges. Mapping and analysis can also highlight potential implementation sites for diverse types of green infrastructure.
- **Develop a green infrastructure implementation plan.** The plan should be based on the results of the green infrastructure analysis and incorporate public and stakeholder input. Recommendations should prioritize actions that facilitate implementation and address procedural and other barriers to implementation such as conflicting ordinances, policies, and design criteria. Projects should provide high impact and value and where feasible integrate with existing infrastructure systems such as streets, onsite stormwater management, flood control, parks and open space, and water utilities. Recommendations should also prioritize equity to ensure the challenges being address and the benefits likely to accrue are shared among population groups and different parts of the community, especially overburdened neighborhoods and groups. The plan should identify potential funding resources, such as utility fees, grant programs, developer contributions, and others.
- **Implement green infrastructure projects and programs.** Once the plan is in place, local governments should advance the recommendations by applying for grants, budgeting resources to support implementation, adopting or amending policies and regulations as needed, regularly monitoring, and assessing progress, and investing in green infrastructure upkeep. The later may require training and acquiring new equipment and/or sharing services with other jurisdictions and organizations to ensure green infrastructure is maintained and functioning properly.
- **Establish stormwater utilities.** One way to advance green infrastructure projects and programs is to establish a stormwater utility. In March 2019, the *Clean Stormwater and Flood Reduction Act* was signed into law. The Act authorizes local and county governments and authorities to create stormwater utilities, assess fees, and use the revenue collected from the fees to construct and maintain infrastructure designed to control stormwater flooding and reduce pollutants from entering waterbodies. This includes green infrastructure.
- **Encourage/require property owners and developers to incorporate green infrastructure in site development.** There are a variety of ways local governments can require and or encourage property owners and developers to implement green infrastructure. First, local governments should adopt planning documents that incorporate green infrastructure

goals and policies. Plans to update or create include comprehensive plans, including land use elements, conservation elements, circulation and right-of-way elements and sustainability and green building elements, stormwater management plans, and others as appropriate. These plans provide the rationale for incorporating green infrastructure in local land development ordinances and regulations. Under New Jersey's laws and regulations, the State's Stormwater Management rules (N.J.A.C. 7:8), are implemented by the NJ Department of Environmental Protection through its various permitting processes, municipalities under the Municipal Land Use Law (N.J.S.A. 40:55D), and counties under the County Planning Act (N.J.S.A. 40:27.1). Municipalities and counties can adopt land development ordinances and standards that require or encourage the use of green infrastructure practices to manage stormwater runoff associated with development and redevelopment projects. Local governments can also offer incentives such as density bonuses, exempting green roofs and pervious pavement from impervious cover calculations, and fee discounts to encourage the use of green infrastructure.

New Jersey Department of Environmental Protection can:

- **Work with the New Jersey Department of Community Affairs to plan and implement a stormwater utility pilot program.** The pilot program should identify willing local partners and provide financial assistance, guidance, and technical assistance to participating municipalities and counties for establishing stormwater utilities, setting fees and credits, developing stormwater system asset management programs, and public education and outreach.

New Jersey Department of Community Affairs should consider:

- **Amending the Residential Site Improvement Standards (RSIS) to incorporate green infrastructure** practices consistent with NJDOT's 2019 Complete and Green Streets for All: Model Complete Streets Policy and Guide, as well as within NJDEP's 2021 NJ Climate Resilience Strategy. The RSIS apply anytime a municipality requires the control of runoff from a site that is the subject of a site or subdivision application. The amendment process should include public facing process that engages planners, engineers, community groups, and other interested parties in a dialogue regarding potential revisions and updates.

8. Plan and zone for people and place.

As noted above, to achieve a healthier, more just, resilient, and sustainable future, the state must embrace ambitious policies to reduce driving and enable more transit, biking, and walking. Sustainable transportation policies are critical but without reforms to how we plan and zone our communities, they will be less effective. Complete, 15-minute neighborhoods include

transportation infrastructure and mobility choices that empower residents to drive less. They also include:

- land uses that are pedestrian-oriented and human-scale,
- a compact mix of uses that create a rich tapestry of desirable destinations proximate to one another and within an easy walk or bike ride,
- densities that support local businesses and public transit service,
- diverse housing options that meet the needs of residents at all stages of life and with a wide range of incomes, and
- green space, parks, and public gathering places that encourage a connection to nature and interaction with neighbors.

To create people-centered quality places like this, residents and local leaders must reimagine their communities and adopt policies and regulations that create interconnected centers of activity with a diversity of destinations, density that is appropriate to context, and community design that fosters a sense of place and reflects the unique character and history of their communities.

Making It Happen:

Municipalities can:

- **Embrace placemaking as a central theme of community planning and development.** There is consensus that placemaking “is a process of creating *quality places* that people want to live, work, play and learn in.” Standard placemaking involves an incremental approach that seeks to “improve a location over a long period of time through many separate small projects or activities.” Specialized types of placemaking (i.e., strategic, creative, and tactical) focus on “specific quality of life improvements, achieving outcomes at specific scales and time periods, and/or ways to assess strategies before committing significant money and other resources.” All forms of placemaking rely on significant public and stakeholder engagement to develop a vision and identify potential projects and strategies that reflect community needs and desires. Municipalities should embrace placemaking as a way of engaging residents in a dialogue about how to transform neighborhoods into the highest quality spaces and places that meet the current and future needs of community members.
- **Adopt zoning standards and design guidelines that encourage compact mixed-use development, create a strong sense of place, and promote walking, biking, and transit use.** Blending housing, office uses, and commercial areas, such as cafes restaurants, and neighborhood retail, attracts people and can make an area safer and friendlier.

Conventional zoning usually focuses on use types (e.g., residential, commercial, industrial) rather than building form, function, scale, and mass. This focus on use type typically prohibits the mixing of land uses and segregates them into single-use zones. Conventional zoning often also requires uniform setbacks, building heights, and densities within each zone, which can contribute to an uninteresting built environment. There are alternatives to conventional single-use zoning such as form-based codes that can provide site design flexibility, create greater sense of place, and a land use pattern that encourages walking, biking, and transit, especially in activity centers. Form-based codes deemphasize the regulation of land use and focus instead on the physical form, placement, size, and mass of buildings within a particular area, the size and configuration of blocks, and the relationship between buildings and adjacent streets. Form-based codes need not be applied everywhere in a community but can be useful in specific neighborhoods or districts to create or enhance local identity, promote redevelopment, mixed-use development, and infill housing. They can also include landscaping, lighting, building material and design, open- and or public-space, signage, and other requirements. Redevelopment plans and overlay zones can provide similar flexibility.

- **Encourage transit-friendly planning and design and transit-oriented development.** NJ TRANSIT works with municipalities to advance transit-friendly planning that creates an environment around transit facilities that supports and encourages transit use. Transit-friendly planning requires that municipalities take proactive steps to encourage a pattern of development, density, and circulation that supports pedestrian activity, a sense of place, and local economic growth. This includes making development and redevelopment decisions that encourage residents to use transit for everyday trips and transit-oriented, context-sensitive development where transit facilities already exist. Transit-friendly land use planning around transit facilities can help to ensure that new development integrates well into the local community fabric.⁷⁷ Municipalities should adopt transit-friendly plans and regulations to encourage a mix of uses near transit facilities, require transit-supportive densities, reduce the amount of off-street parking required, and limit surface parking within 0.5 miles of transit stops, stations, and terminals. They should also require that a minimum of 20 percent of new residential units be affordable, development be oriented in a way that transit facilities are a focal point, and roadways are designed to accommodate and encourage walkability, biking, and transit use.
- **Build more diverse housing affordable to a broader range of families.** According to a recent analysis, single-family detached homes make up greater than 80 percent of available housing in one-third of New Jersey municipalities and the proportion exceeds the national average of 61 percent in 361 municipalities. That means in more than two-thirds of New Jersey municipalities less than 40 percent of available housing is single-

⁷⁷ United States Environmental Protection Agency. Learn about green streets. [Online] October 26, 2022. <https://www.epa.gov/G3/learn-about-green-streets>.

family.⁷⁸ Single-family homes are usually larger and therefore often more expensive than multifamily housing units⁷⁹ and newer single-family housing developments are often built at lower densities and in configurations that discourage walking, biking, and transit use. What is less available in many New Jersey communities, especially newer suburbs, is a range of multiunit residential dwellings such as duplexes, triplexes, fourplexes, “cottage court” homes, and live-work spaces. These housing options are sometimes referred to as “missing middle” housing.⁸⁰ Municipalities should increase the supply and diversity of housing options available by amending plans and zoning regulations to permit the construction of missing middle housing types in more districts, including as accessory dwelling units (ADUs). This may require changes that expand permitted uses, increase allowable density, reduce lot size requirements, limit building width and depth, reduce minimum square footage requirements, reduce open space requirements, allow more lot coverage, and others. By permitting missing middle housing in single-family and other zones, especially in areas located near transit and out of harm’s way of future climate threats, municipalities can expand housing opportunities while also reducing the need to drive.

- **Adopt anti-displacement policies to guard against gentrification.** Many of the recommendations in this report are aimed at community transformation. Without careful planning and deliberate action, infrastructure investment, and changes in policy designed to foster economic development, redevelopment, and revitalization can lead to higher costs of living and rents, which may result in displacement. As communities change and thrive, they become more attractive. This is especially true when planning and investment targets disadvantaged communities. To combat gentrification and protect lower income and other vulnerable residents from displacement municipalities should adopt policies that promote inclusive development, housing affordability, and economic stability. Examples include local hiring mandates, rent control and other renter protections, inclusionary housing requirements such as low-income set-asides, community land trusts that own and manage lands where affordable housing is constructed, housing trust funds, development bonuses tied to affordable housing production, business assistance programs, affordable housing rehabilitation programs, and others.
- **Utilize schools as a community focal point.** In New Jersey, primary schools are often well-dispersed throughout communities and a central orientation for families with school-aged children at least during the school year. Some jurisdictions have organized 15-minute neighborhood planning around the idea that elementary/primary schools are a well-located space resource that can be utilized for more than just education. The schools

78 NJ TRANSIT. *Transit Friendly Planning: A Guide for New Jersey Communities*. Newark, NJ : NJ TRANSIT, 2022.

79 Evans, Tim. *Single-Family Zoning: An Idea Whose Time Has Passed?* New Jersey Future Blog. April 12, 2021.

80 Why are small and medium multifamily properties so inexpensive? An, Brian, Raphael Bostic, Andrew Jakabovics, Anthony Orlando, and Seva Rodnyansky. 62, s.l. : *Journal of Real Estate Finance and Economics*, 2019.

become a focal point of community. The modern conception of a “community school” as a strategy for strengthening communities and families dates to the early 1990s. There is consensus among education policy makers is that successful community schools provide: 1) integrated student supports; 2) expanded learning time and opportunities; 3) family and community engagement; and 4) collaborative leadership and practice.”⁸¹ Community schools are more than bricks and mortar and traditional educational programming. They also meet other essential needs such as after-care programs, counseling, recreation activities, and social services. Municipalities and school boards should explore the feasibility of partnerships that can transform school buildings and grounds into a community resource that meet the unique needs of the neighborhood(s) and families they serve.

- **Repurpose road space and parking.** Roads and parking make up a significant share of land cover in most communities. Since private automobiles became the dominant form of personal travel, public road space has been allocated primarily for use by motor vehicles. Implementation of complete streets policies has changed the formula in some locations with fewer and narrower through lanes, more bicycle facilities, wider sidewalks, and the installation of traffic calming, but in most corridors vehicle drivers remain the primary beneficiary of roads as public infrastructure. While reclaiming and repurposing street space for people is not a new concept, especially in Europe, the idea was popularized and became more common in the U.S. during the COVID-19 pandemic when social distancing made walking, biking, outdoor gathering, and outdoor dining a necessity. Municipalities should consider where it is feasible and appropriate to take back street space temporarily and permanently to support community development goals. Successful strategies include implementing road diets, parklets in place of parking, living streets that use planting and vegetation to slow traffic and make it safer to walk and bike, car-free streets and community events like Ciclovía’s. In addition, some communities have found success by starting with tactical urbanism, a technique that involves the community in designing and constructing temporary repurposing using moveable bollards, planters, paint, and other low-cost materials.

9. Adapt communities and infrastructure for climate change.

As mentioned above, green infrastructure and the use of nature-based solutions to promote climate resilience are important strategies for promoting healthy and sustainable communities. In many instances however, additional adaptation will be needed, especially in terms of create resilient systems. Adaptation may require a range of planning, policy, and investment interventions, including but not limited to comprehensive vulnerability assessment, new

81 Opticos Design, Inc. Missing Middle Housing - The Types. Missing Middle Housing. [Online] 2023. [Cited: October 20, 2023.] <https://missingmiddlehousing.com/types>.

design and material standards, hardening and flood proofing of buildings facilities and other infrastructure and event retreat from some areas where risk is significant and adaptation costs too high. Where retreat is not feasible, community leaders and residents may need to learn to live with occasional or even frequent flooding.

In 2019, Governor Murphy issued Executive Order 89, which called on state departments and agencies to take coordinated action “to protect the public health and safety and to promote and protect the physical, economic, and social vitality and resilience of New Jersey’s communities from the current and anticipated impacts of climate change.” In response to E.O. 89, a coalition of agencies developed New Jersey’s first ever Climate Change Resilience Strategy, which was published in October 2021. The strategy presents a baseline understanding of how climate change is and will continue to impact New Jersey communities, residents, and businesses. The strategy also provides a framework of priorities designed to guide climate action by all levels of government in the state.

Making It Happen:

Consistent with New Jersey’s climate resilience strategy and existing laws, **municipalities and counties** should consider:

- **Integrating resilience into local and regional planning** by updating plans (e.g., master plans, redevelopment plans, hazard mitigation plans, capital plans, and others) to include a comprehensive vulnerability assessment that can inform decisions about zoning, redevelopment, housing, transportation, conservation, and infrastructure investment. As of February 2021, New Jersey’s Municipal Land Use Law requires municipalities to incorporate a climate change-related hazard vulnerability assessment into any Master Plan Land Use Element. There are many resources available to help inform local government decisions related to community resilience and climate adaptation. These include the NJ Office of Planning Advocacy’s Municipal Climate Resilience Planning Guide, Sustainable Jersey, New Jersey Future’s Guide to Local Climate Change Adaptation Planning, NJ ADAPT, the NJ Conservation Blueprint, The Nature Conservancy’s emerging Greenprint, and others.
- **Amend zoning and other regulations to address identified vulnerabilities.** Depending on potential climate impacts, this may include provisions that require elevation of structures, raising roadways, use of resilient materials, installation of flood proofing and other actions to reduce flood risk to buildings and infrastructure. In some case regulations may require restrictions on development and redevelopment within and encroachment on flood hazard areas.
- **Take action to retreat from and restore fluvial floodplains to their natural state.** In places where development has already occurred in flood vulnerable areas, jurisdictions

should educate property owners regarding the need to restore natural flood plain function and the options available to facilitate a retreat from these areas. Jurisdictions should work with property owners to plan for retreat, maximize the use of available funding to support relocation, and invest resources in restoration projects to ensure that retreat efforts provide intended flood protection and other ecosystem benefits.

- **Jurisdictions should work with state agencies and the public to “prepare for and facilitate the evolution of the coastal zone” over time.** This should include reframing the conversation around coastal resilience to make retreat a viable resilience strategy that allows moving populations to safer areas and limiting investments that will hinder that purpose.
- In places where retreat is not feasible, **jurisdictions should adapt infrastructure to be more resilient by hardening, flood proofing, and where feasible elevating critical roadways and facilities.**

State agencies can:

- **Expand grant funding to support integration of climate resilience into local plans and adapting infrastructure to address the impacts of climate change over time.** Grants should prioritize investments in underserved communities.
- **Provide guidance and technical assistance to municipalities and counties regarding how to integrate resilience into plans, regulations, and investment decisions.** Programs should prioritize capacity-building in underserved communities.
- In addition, the State Planning Commission and Office of Planning Advocacy can **make climate change, resilience, and adaptation a central focus of the 2023-2024 State Development and Redevelopment plan update process.**

10. Advance effective government decision making.

In New Jersey, planning and investment decisions related to land use, transportation, environmental protection and conservation, public health, and a range of other community development topics are the purview of hundreds of public sector jurisdictions, agencies, boards, and authorities, countless private entities such as property owners and developers, as well as many non-profit organizations. Government decision processes should be transparent, participatory, and inclusive. Decisions should be based on sound evidence-based policies, responsive to community needs, and consensus-oriented. Achieving the vision and implementing the recommendations described above will require greater planning capacity and effective government decision making at all levels. In some cases, structural changes to land use decision-making may be needed to remove traditional “home rule” considerations as an impediment to transformative change.

Making It Happen:

- **Foster horizontal and vertical consistency, coordination, and cooperation.** Fragmented decision making is one of the key impediments to implementation. Communities may not share the same vision for the future. Various levels of government and different agencies may have varying priorities. Decision timelines may be uncoordinated. However, there are ways to address fragmentation if there is political will to do so. Horizontal refers to coordination and cooperation between neighboring jurisdictions and/or departments and agencies in the same level of government, while, vertical refers to coordination and cooperation between levels of government (i.e., municipal, county, state and federal). Opportunities to advance consistency, cooperation, and coordination include:
 - **Municipal plan consistency** – New Jersey’s municipal land use law requires municipalities to examine consistency between local policies and priorities of adjoining municipalities, county plans, and the State Plan, among others. Compliance with this provision is often perfunctory but need not be. **Municipalities** can use the examination of related plans to identify impediments and opportunities for implementation and an opportunity to promote multijurisdictional dialogue about the important issues facing their community.
 - **Regional planning** – Most infrastructure systems are best planned at a scale larger than a municipality. For example, transportation and water resource planning are best accomplished at a regional scale. The New Jersey County Planning Enabling Act empowers county government to adopt a master plan for the physical development of the county, encourage cooperation of municipalities in master concerning the master plan, adopt an official map, and review all subdivisions and approve all subdivisions that affect county roads and drainage facilities. Other opportunities for regional-scale planning include watershed planning, wastewater management planning, and regional transportation planning processes undertaken by the state’s three metropolitan planning organizations. **Counties** can use the powers granted under that County Planning Enabling Act to provide needed leadership related to multimodal transportation planning, stormwater management planning, and flood protection. **Municipalities** can work with counties and other stakeholders to develop regional plans and adjust local plans to reflect the constraints and needs of regional systems.
 - **New Jersey’s State Plan** – New Jersey’s State Plan provides a vision for the future that will preserve and enhance the quality of life for all residents of New Jersey. The State Plan is the result of a cross-acceptance process that included thousands of New Jersey citizens in hundreds of public forums, discussing all the major aspects of the plan - its goals, strategies, policies, and application. The purpose of the State Plan is to: coordinate planning activities and establish

Statewide planning objectives in the following areas: land use, housing, economic development, transportation, natural resource conservation, agriculture and farmland retention, recreation, urban and suburban redevelopment, historic preservation, public facilities and services, and intergovernmental coordination (N.J.S.A. 52:18A-200(f)). The process of updating the state plan began in late summer 2023 and will continue through calendar year 2024. **Counties and municipalities** can use the state plan update process to ensure consistency between statewide and local policies. At the same time, New Jersey state agencies can use the state plan update process to ensure consistency across state agency functional plans and to align investment priorities.

- **Optimize capital planning and investment.** Infrastructure capital investments will be a key component of achieving a healthier, more just, resilient, and sustainable New Jersey. Transportation and green infrastructure investments will be essential. As noted previously, converging policy priorities related to climate change, equity, and infrastructure modernization present a generational opportunity to reshape our communities. Decision makers at all levels need to think creatively to take full advantage of the resources and flexibility provided by existing and new infrastructure investment programs.

The Governor should consider convening a “creative capital program” task force to figure out how to optimize use of funds from all federal and state sources. The committee should include representatives from NJDOT, NJ TRANSIT, MPOs, NJDEP, BPU, NJEDA, legislators and outside experts. The goal should be identifying how best to use available resources not just historic or traditional approaches, but to optimize outcomes. For example, using Bipartisan Infrastructure Bill and NJ Transportation Trust Fund resources to fund EV charging infrastructure to free up Regional Greenhouse Gas Initiative, Volkswagen settlement funds and other BPU resources for other GHG reduction priorities. In addition, the **NJDOT can use the 10-year Statewide Transportation Improvement Program to prioritize climate smart transportation investments** such as bicycle and pedestrian improvements.

- **Increase the technical capacity of local governments.** Many municipalities lack the expertise and capacity to develop and advance capital projects (transportation, green infrastructure, and others) that can create healthier, more just, resilient, and sustainable communities. The Governor should consider directing the NJ Office of Planning Advocacy, NJDOT, NJDEP, and NJDCA to set-aside financial resources to establish an engineering and design corps of on-call planning, engineering, and design consultants to fast-track green infrastructure, complete streets, safety, and other climate smart projects at all levels. Priority should be given to increasing the capacity of socially vulnerable, marginalized, and overburdened communities first.

Conclusion

Many of the recommendations suggested in this report require transformational change. Business-as-usual will not allow us where we need to go. Collectively, we must create a convincing case for why change is important and then public support for making the changes necessary. This report lays out a vision for a healthier, more just, resilient, and sustainable New Jersey and suggests some of the steps that are needed to achieve the vision.

To get started, New Jersey non-profit advocacy organizations should identify the agencies, organizations, entities, and individuals empowered to implement the recommendations presented in this report and those that can play a role as influencers. Next, we must build consensus around the vision and cultivate a network of champions that includes key decision makers and constituent groups. Finally, we must develop and implement a communications strategy that informs the public, educates policy makers, and tells a convincing story for why change is critical.

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Appendices

Appendix 1 – Mobility Hub Amenity Profile

The table on the following page summarizes the recommended features and amenities associated with each type of mobility hub. All hubs offer on-demand rideshare, enhanced waiting areas, traveler information, and pedestrian amenities and wayfinding in the surrounding area.

Mobility hubs vary in scale and amenities. Regional hubs provide connections for four or more routes and offer the largest array of features and travel modes. Central hubs connect a minimum of three routes with less comprehensive amenities and support services. Local hubs connect a minimum of two routes.

	Regional	Central	Local
Travel Modes			
Commuter Rail and/or Bus	✓	Optional	Optional
Local Bus / Shuttle	Min. 4 routes	Min. 3 routes	Min. 2 routes
On-demand rideshare (Taxi, TNC, Microtransit)	✓	✓	✓
Bikeshare/e-scooter share	✓	Optional	Optional
Neighborhood EV-share	Desirable	Optional	Optional
P&R parking	✓	Optional	Optional
Transit Amenities			
Enhanced waiting area – High Amenity	✓	Optional	---
Enhanced waiting area – Basic	---	✓	✓
Static traveler information	✓	✓	✓
Real-time traveler information	✓	Optional	Optional
Pedestrian Amenities			
Complete and well-maintained sidewalk network	Within ½ mile ✓	Within ½ mile ✓	Within ½ mile ✓
ADA accessibility	✓	✓	✓
Clearly defined crosswalks	✓	✓	✓
Bicycle Amenities			
Bikeways	Within 2 miles ✓	Within 2 miles ✓	Within 1 mile ✓
Bicycle parking	Enhanced	Enhanced	Basic
Bike repair station	✓	✓	Optional
Support Services & Amenities			
Designated shared ride pickup/drop	✓	✓	Optional
Wayfinding	Within 1 mile	Within 1 mile	Within ½ mile
Package delivery	✓	Optional	Optional
Convenience or mobile retail services	✓	Optional	Optional
Mobility kiosk (information, ride scheduling, fare payment)	✓	Optional	Optional
Active public space	Desirable	Optional	---
EV charging	Desirable	Desirable	Optional
Flexible/managed curb space	Desirable	Desirable	Optional

Source: Adapted from SANDAG Regional Mobility Hub Features Catalog. Notes: **High-Amenity enhanced waiting area** typical features include ADA accessibility, secure enclosed seating with climate control (preferred), lighting, and refuse cans, and regular maintenance, may have vending machines and comfort facilities; **Basic enhanced waiting area** typical features include ADA accessibility, sheltered seating, lighting, refuse cans, and regular maintenance; **Enhanced bicycle parking** = secure and weather-protected; **Basic bicycle parking** = bike rack.

The New Jersey State Policy Lab assists the State of New Jersey and its many communities in the design, implementation, and evaluation of state policies and programs by conducting rigorous evidence-based research that considers equity, efficiency, and efficacy of public policies and programs in holistic and innovative ways.

The lab leverages input from a robust network of multidisciplinary scholars, members of the community, and outside policy experts in New Jersey to craft innovative and equitable policy solutions that are sensitive to the needs of our state's diverse population.

By utilizing the combination of strong ties to New Jersey's diverse communities and significant expertise in collecting, cleaning, and analyzing data, the New Jersey State Policy Lab engages and collaborates with stakeholders such as community groups, the state government, and municipal governments to create high quality datasets and evidence that reflects our state's diversity and empowers state policy makers to address the needs of New Jersey communities more effectively, innovatively, and equitably.



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