Impact Assessment of the 2024 New Jersey State Development and Redevelopment Plan

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> *[By the year 2020] "cities, towns, older metropolitan suburbs and even its older rural towns—have become vibrant places of prosperity and vitality. More and more people are now choosing to live in urban areas in order to better enjoy the many educational, cultural, economic, social, and recreational benefits derived from an urban lifestyle. We have revitalized our cities and towns in ways that not only meet immediate needs for housing, jobs, education and safety but also in ways that have made them more enjoyable and economically, environmentally and socially sustainable."* (NJ State Development and Redevelopment Plan 2001).

INTRODUCTION

This passage from the last New Jersey State Plan update projected its vision and impact forward two decades to the year 2020. That future vision is, as of this writing, now five years in the past. As we assess the impact of the 2024 State Development and Redevelopment Plan draft, we begin by asking "how did we do?" We look at evidence of the impact of previous drafts and what occurred during their tenure to assess potential future impacts of the pending 2024 update.

The New Jersey State Development and Redevelopment Plan (SDRP) was brought about by the State Planning Act of 1985 which created the New Jersey State Planning Commission and the Office of State Planning. The first SDRP was officially adopted on June 12, 1992 as an ambitious vision for the nation's most densely populated state. One of only a handful statewide planning programs nationwide, the SDRP set out to create a guiding document of principles and policies for how to reign in the sprawling development and urban disinvestment patterns that emerged in the latter decades of the 20th century. New Jersey comprises 564 municipalities, each of which operate as a discrete unit managing its own services and municipal land use (i.e.. home rule). Without coordination, the individual decisions within this diverse mosaic may produce what looks like dispersed development with disproportionate economic, social and environmental impacts. The enabling legislation of the State Plan required an Impact Assessment so that stakeholders could have a basis for understanding the SDRP's potential impact on land use, the economy, housing and the environment (see Section 15:30-4.7). Though the enabling act also requires a regular update to the SDRP every three years, an official update has not occurred since 2001. The degree to which the State Plan has affected land development patterns in a home-rule state is complex and nuanced making it a challenge to comprehensively assess the land use impact.

ABOUT THIS REPORT

The 2024 revision of the State Plan represents the fourth iteration of New Jersey's efforts to guide state-wide comprehensive planning. When referring to the Plan in general regardless of which version, this document will use the abbreviation SDRP. When referring to specific drafts, the document will use the following acronyms:

- **SDRP1992** refers to the first plan that was officially implemented with the 1992 State Development & Redevelopment Plan;

- **SDRP2001** refers to update of the SDRP1992 which was adopted in 2001;
- **SDRP2009Draft** refers to a third iteration of the SDRP that was drafted in 2009 but never implemented, meaning the 2001 SDRP remains in effect;
- **SDRP2024** refers to the preliminary draft of the NJ SDRP approved by the State Planning Commission on December 4, 2024.

To project the impact of the proposed SDRP2024 on land use and the related socioeconomic implications, this analysis begins with an examination of how the originally implemented SDRP1992 and the updated SDRP2001 have shaped development growth since their respective implementations. We then extrapolate patterns forward under the proposed SDRP2024 out to the year 2050. In former Impact Assessment reports produced in 1992, 2001, and 2009Draft, the analysis framed land development under two scenarios: 1) TREND - sprawling development patterns that would likely continue if the State Plan was not in place versus; 2) PLAN - smart growth development patterns that should hopefully happen if the specific SDRP is followed. The analysis in this impact assessment continues in that tradition, but the framework is broadened to recognize the reality of more than three decades of state planning. That history of planning makes the “no plan” scenario less analytically meaningful than it was when the first SDRP was adopted. As a result, this impact assessment conceptualizes PLAN-ALIGNED development—growth that supports the plan’s goals—and PLAN-ADVERSE development—growth that contradicts them.

In addition rather than simply replicate the report structure and variables of the previous impact assessments (much of which are still relevant and informative in 2025) we provide an impact evaluation that examines the growth that happened during the tenure of the SDRP to date and use that as a lens in which to assess the potential land use patterns and related socio-economic implications that may be projected forward to 2050 under the proposed SDRP2024.

The impact assessment of the 2024 preliminary draft SDRP was initiated by New Jersey’s Office of Planning Advocacy (OPA) in June 2024 via a collaborative and equal effort with faculty and staff contributions from the Geospatial Research Lab and the Department of Geography, Planning, & Sustainability at Rowan University and the Voorhees Transportation Center in the Edward J. Bloustein School of Planning and Public Policy at Rutgers University.

WHAT'S NEW IN THIS REPORT

SDRP2001 envisioned 2020 as the year by which the successes of the state plan would be evidenced, as quoted above. Now that that year has passed, a wealth of land use data collected during and after that time frame allows analysis of the degree to which the past 25 years of land development patterns have been PLAN-ALIGNED or PLAN-ADVERSE. The assessment then projects the PLAN-ALIGNED versus PLAN-ADVERSE patterns forward to extrapolate outcomes under SDRP2024 to the year 2050. This assessment report is also different from previous impact assessments in that climate change is now a foundational reality. Climate vulnerability and resilience are new elements in SDRP2024.

New Jersey is on the front line of climate vulnerability. Major climate impacts—such as temperature extremes, more frequent and intense heavy rainfalls and flooding events, and rising sea levels —are now evident realities experienced by all New Jerseyans. Climate vulnerability will

continue to become an increasingly critical factor impacting all aspects of life in the coming decades. Coordinated, collaborative and sound planning is essential to foster resilience and protect life and property across the state, especially where flood hazard areas will become increasingly at risk. This impact assessment examined land use change and flood vulnerability mapping to identify examples of PLAN-ALIGNED and PLAN-ADVERSE growth and used those data as bookend metrics for projecting out possible land use outcomes if future growth followed either scenario to 2050.

Further, a new and essential lens of equity is now a significant part of the SDRP update, reflecting broader trends in American planning practices that seek to address the impacts of racism. The SDRP2024 includes for the first time equity as a specific evaluative framework for all planning activities undertaken within the state. This approach reframes planning in New Jersey to explicitly consider how decisions affect historically underserved populations, address structural inequality, and promote inclusive access to opportunity. As such, the Impact Assessment (IA) explicitly discusses the possible impact of the SDRP on equity across New Jersey communities within the qualitative section.

MIXED-METHODS APPROACH

The impact assessment SDRP2024 draft utilizes both quantitative and qualitative methods:

Quantitative Analysis — The IA conducted a quantitative assessment of land use changes in New Jersey since 1986 using authoritative, statewide GIS data from the New Jersey Department of Environmental Protection (NJDEP). This analysis examined patterns in development growth rates, spatial distribution, density, redevelopment activity, infrastructure alignment, and associated environmental impacts. The primary objective was to assess how effectively the SDRP has influenced land use outcomes over the 24 years since its adoption. To do so, the IA evaluated eight spatial metrics that capture historical development trends. These metrics were then used to calibrate eight projective indicators designed to model the potential impacts of future growth scenarios, with and without alignment to the SDRP's goals for smart growth, infrastructure efficiency, and environmental conservation. The metrics are offered not as predictions but as preliminary visualization tools that can be adjusted, further developed and refined to track the trajectory of land use as technology and circumstances change in the coming years. The preliminary metrics developed in this IA are as follows:

1. Growth in Smart Growth Planning Areas
2. Growth in Centers-based Locations
3. Growth as Redevelopment & Renewal
4. Compact Growth
5. Infrastructure Supported Growth
6. Low Environmental Impact Development

7. Climate Resilient Growth
8. Protection of Open Space and Natural Resources

Qualitative Analysis — Following the quantitative assessment of projected development patterns through 2050, we provide a qualitative framework to explore the broader implications of these trends under the **SDRP2024**. This second phase of the impact assessment applied a **meta-analytical approach**, drawing on an extensive review of contemporary planning and policy literature. The purpose of qualitative analysis is to evaluate how the projected growth patterns identified in the quantitative phase align with the major goals and strategies outlined in the SDRP2024. By synthesizing insights from peer-reviewed academic sources, planning reports, and best practices, we examine the likely outcomes of future development scenarios when guided—or not guided—by the principles of the State Plan. We present academic evidence regarding the impacts that PLAN-ALIGNED development growth is likely to have through the qualitative lens of six perspectives:

1. Economy
2. Land Use and Environment
3. Climate Change and Resilience
4. Equity
5. Infrastructure
6. Health

The IA utilized an adapted Health Impact Assessment methodology, which involved an exhaustive review of major planning journals for content related to the six specified areas above. The analysts then isolated relevant concepts from the literature and applied these concepts to understanding PLAN-ALIGNED development in New Jersey. Because the SDRP itself is written in a narrative style, the analysts operationalized the SDRP's text into 22 summary policy statements that were subsequently subjected to the qualitative analysis. (See section entitled **SUMMARY POLICIES AND LINKAGE TO SDRP** for more information). The major journals reviewed were as follows: *Journal of the American Planning Association*, *Journal of Planning Education Research*, *Urban Studies*, *Urban Affairs Review*, *Environment and Planning A: Economy and Space*, and *Urban Geography*.

The analysis proceeded in a table format (see Tables 1 through 6 in the **QUALITATIVE DATABASE / TABLES** section of the IA**)** in which the analysts utilized the concepts derived from the literature to identify relative indicators to be used in the assessment, an explanation of terms included in the indicator and a discussion of the logic behind the assessment mechanism, a review of the benefits and disbenefits of adoption, and finally a discussion of the trend outcome in the event the SDRP is not implemented. In addition to these tables, the analysts generated more in-depth, narrative documents that include citations and references to the planning literature. These documents, each of which is designed to be a comprehensive, discrete unit, discuss contemporary planning concepts vis-a-vis the 22 summary policy statements mentioned above.

Each document also includes a table at the beginning that assesses the amount of available evidence in the planning literature analyzed for each summary policy statement, as well as one to two sentence summaries of the findings. These tables are designed to provide a very brief, scannable overview of the subsequent in-depth content. In some instances, there was insufficient literature available to study some of the SDRP policies. This is noted in the summary table found at the beginning of the narrative documents and in the narrative itself.

The report concludes by discussing the broader implications of the findings, placing them in context with results from previous impact assessments, and outlining key conclusions and guiding principles for ongoing monitoring by the Office of Planning Advocacy. This final discussion also identifies additional factors that may influence the effectiveness and reach of the **SDRP2024** as New Jersey approaches the year 2050. Particular focus is given to the growing importance of climate resilience, the accelerating pace of warehouse and logistics development, and the critical need for integrated planning approaches that balance housing production and economic growth with open space preservation and environmental protection. These dynamics underscore the SDRP2024's role in ensuring equitable, sustainable development across the state. With robust intergovernmental coordination and alignment with the SDRP's goals, the state of New Jersey and its many communities are poised to become stronger, more resilient, and better places to live, work, and thrive in the decades ahead.

SUMMARY POLICIES AND LINKAGE TO SDRP

The draft SDRP is presented in a narrative style, outlining policies, strategies, and goals for future state development and redevelopment. Our objective is to evaluate their possible impact, which requires a targeted approach. Given the long-range scope of the SDRP, the Plan's goals and strategies are broadly formulated to encompass overlapping topics. Moreover, the SDRP's goals and strategies do not specify exact steps, leaving room for interpretation and flexibility on how to achieve those goals. To provide a framework for understanding the SDRP's impacts in a variety of topic areas, the research team has summarized the intention behind the text in a more accessible format. Most, if not all, of these goals will require cross-sector collaboration, and embracing a more integrated and collaborative approach among agencies. We link those summary statements to the relevant portions of the draft SDRP below.

Summary Policy Statement	**Linkage to SDRP**
(1) Encourage center-based, compact, mixed-use development while protecting and preserving critical environmental resources and high-value agricultural lands.	Links to and summarizes the: ● "Revitalization and Recentering" Goal ● "Natural and Water Resources" Goal Minimizing sprawl (by encouraging compact center-based development) is a crucial tool in habitat preservation. The relationship is reflected in the summary statement (1).
(1A) Facilitate growth in Planning Areas 1, 2 and 3, and accommodate growth in Planning Areas 4-5 in centers.	Summarizes the guiding principles within the State Plan Policy Map.
(1B) Recenter, redesign, and rebuild underutilized areas.	The "Revitalization and Recentering" Goal calls for the redevelopment of underutilized areas.
(1C) Protect habitat of resident and migratory threatened and endangered species.	Links to the "Natural and Water Resources" Goal, which calls for habitat preservation and restoration.

(2) Foster greater diversity in the State's housing stock and reduce housing cost burden.	Links to and summarizes the: ● "Housing" Goal ● "Housing Stock Diversity" sub-goal ● "Reducing Barriers to Development" sub-goal

Summary Policy Statement	Linkage to SDRP
	• "Equity" Goal Fostering greater diversity in the State's housing stock also links to economic development and transportation goals, strategies, and policies throughout the SDRP.

(3) Increase access to opportunity and remove barriers to mobility in overburdened communities by investing in transit and making walking and biking easier and safer.	Links to: • "Equity" Goal • The vision of a "stronger and fairer New Jersey" • "Housing" Goal • "Infrastructure" Goal Planners contribute to equity by designing spaces that facilitate access to opportunities and reduction of harm, including rectifying past injustices. The location, type, and quality of housing affects access to opportunities and the feasibility of transit services. Improvements to / creation of transit, walking, and biking require both infrastructure creation and upgrades.

(4) Protect, maintain, restore, and enhance the State's natural resources.	Links to and summarizes the: • "Natural and Water Resources" Goal • "Habitat Preservation and Restoration" sub-goal • "Agriculture and Food Production" sub-goal • "Air Quality" sub-goal • "Water Quality" sub-goal • "Historic and Scenic Resources" Goal
(4A) Protect and restore wetlands and river and stream corridors.	Links to and summarizes the: • "Climate Change" Goal

Summary Policy Statement	Linkage to SDRP
	• "Natural and Water Resources" Goal • "Pollution and Environmental Clean-Up" Goal These two goals call for the protection and restoration of water resources, including degraded freshwater bodies, lands, and natural systems in public and private ownership.
(4B) Protect and restore forest resources.	Links to and summarizes the: • "Natural and Water Resources" Goal • "Pollution and Environmental Clean-Up" Goal • "Historic and Scenic Resources" Goal Forests are a natural resource and thus are included under the Natural and Water Resources Goal. They are also a component of ecosystems and thus play a role in environmental cleanup. Finally, forests are also an important component of open space and the state's scenery, and they thus play a role in both public health and in tourism.

(5) Mitigate climate change by decarbonizing New Jersey's economy.	Links to the "Climate Change" Goal. This Goal specifically links decarbonization with the broader economic activities conducted within the state.
(5A) Transition to 100% renewable energy.	Links to: • "Climate Change" Goal • "Economic Development" Goal • "Pollution and Environmental Clean-Up" Goal Renewable energy sources are needed to mitigate climate change, and the SDRP specifically calls for the State to endeavor to transition to a 100% clean energy system.

Summary Policy Statement	Linkage to SDRP
	The SDRP's economic development strategies call for the growth of renewable industries within the state, and the use of renewable materials within all industries.
(5B) Reduce vehicle miles traveled and expand the use of zero emission modes of transportation.	Links to the "Comprehensive Planning" Goal, which calls for designing communities and infrastructure that allow for the reduction in vehicle miles traveled as well as the expansion of other forms of mobility, such as walking and biking.

(6) Adapt infrastructure to contend with climate change, especially impacts that disproportionately affect vulnerable populations.	Links to and summarizes: • "Climate Change" Goal • "Pollution and Environmental Clean-Up" Goal • "Equity" Goal
(6A) Eliminate combined wastewater sewer systems and associated overflow.	Links to: • "Climate Change" Goal • "Natural and Water Resources" Goal • "Infrastructure" Goal Adaptation of communities and infrastructure is needed as sea levels rise and there are greater amounts of precipitation at irregular intervals. The SDRP seeks wastewater management that is sensitive to local geology and local watersheds. Eliminating overflow and creating new, and improving existing wastewater, treatment infrastructure supports public health.
(6B) Eliminate lead pipes.	Links to the "Infrastructure" Goal, which calls for the elimination of lead pipes to improve public health.
(6C) Invest in nature-based solutions that expand tree canopy and create more urban blue and green spaces.	Links to: • "Natural and Water Resources" Goal

Summary Policy Statement	Linkage to SDRP
	• "Historic and Scenic Resources" Goal
(6D) Expand the use of green infrastructure and green building materials.	Links to the "Infrastructure" Goal's policy of all new buildings in the state being energy efficient and old buildings being retrofitted and weatherized to reduce energy demand.
(6E) Strictly limit development in floodplains.	Links to the "Climate Change" Goal, which promotes smart growth by implementing DEP floodplain regulations.
(6F) Implement mandatory flood mitigation standards in new construction and restrict development in high-risk zones.	Links to: • "Housing" Goal • "Climate Change" Goal • "Hazard Mitigation" sub-Goal • "Natural and Water Resources" Goal The SDRP recognizes that climate change will also expand floodplains and put more locations at risk of flooding. Housing and other development must be limited in these locations.
(6G) Advance brownfield remediation.	Links to: • "Pollution and Environmental Clean-Up" Goal • "Brownfields and Lead" sub-goal • "Revitalization and Recentering" Goal • "Equity" Goal Many brownfields are in overburdened communities; thus, remediation becomes an equity issue. All communities deserve healthy and safe environments. As brownfields are remediated, they create vacant spaces that can then be prioritized in community revitalization development.

Summary Policy Statement	Linkage to SDRP
(7) Encourage sound and integrated planning.	Links to: ● "2024 Comprehensive Planning" Goal ● "Revitalization and Recentering" Goal All goals, policies, and strategies within the SDRP encourage sound and integrated planning at some level.
(7A) Integrate land use and transportation planning.	Links to: ● "2024 Comprehensive Planning" Goal ● "Housing" Goal ● "Infrastructure" Goal

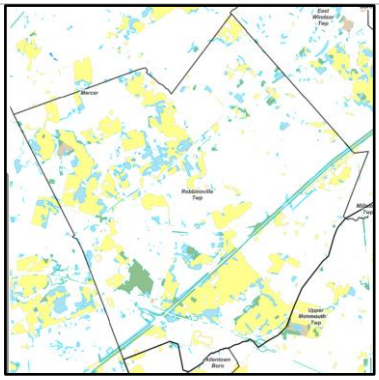
QUANTITATIVE ANALYSIS OF PAST AND FUTURE DEVELOPMENT UNDER THE STATE PLAN

1. Using Retrospective Data for Future Projections

Three decades into the implementation of the New Jersey State Development and Redevelopment Plan (SDRP), we now have access to an extensive archive of statewide geospatial data and high-resolution land use/land cover (LU/LC) mapping derived from aerial imagery collected by NJDEP at approximately five-year intervals since 1986. These datasets, analyzed using GIS tools, offer a rare longitudinal perspective on how New Jersey's development patterns have evolved over the lifespan of the State Plan. Between 1986 and 2020, developed land in New Jersey expanded from 1.2 million to 1.6 million acres—a net gain of approximately 445,534 acres, equivalent to adding 27 football fields of new development every day for 34 years. This growth came primarily at the expense of farmland, forests, and wetlands throughout all of New Jersey as figure 1.1 depicts an area of Mercer County.

Importantly, these data reveal not only the extent of development but also its location, density, and form—key spatial characteristics that are central to evaluating consistency with the State Plan's smart growth principles. By examining these patterns, we can assess whether growth has been concentrated in designated centers and redevelopment areas, or whether it has contributed to sprawl and rapid resource consumption. This analysis provides critical insights into the effectiveness of the State Plan over the past three decades and serves as a foundation for projecting future development trajectories. As the SDRP2024 update is implemented, these insights can guide policymakers in shaping land use decisions that promote sustainability, equity, and resilience for the decades to come.

Development Growth 1986-2020



Land Resource Loss 1986-2020

Figure 1.1 - Three Decades of Development Growth in Mercer County
Robbinsville Twp, Mercer County illustrates previously undeveloped lands converted to urban development during the 1986-2020 time period. *Left:* Lands in red illustrate new development with building footprints, pink is land developed prior to 1986. *Right:* Lands in yellow were formerly farmland, green represents lost forest land, and light blue are encroached wetlands. Explore Land Resource Impacts and Urban Growth in NJ.

2. Three Decades of Development Growth Under the State Plan

The State Plan Policy Map categorizes New Jersey into five distinct Planning Areas (PAs) that serve as a framework for guiding growth and conservation decisions based on existing infrastructure, development patterns, and environmental sensitivity. These include Metropolitan (PA1), Suburban (PA2), Fringe (PA3), Rural (PA4), and Environmentally Sensitive (PA5) areas. Each planning area has tailored goals designed to promote smart growth, encourage redevelopment in appropriate locations, and preserve vital natural and agricultural resources.

The land use mapping dataset can be evaluated by each planning area to summarize how much development growth has taken place within each zone of the State Plan Policy Map. Table 2.1 presents the total number of acres of previously undeveloped land—primarily forests, farmland, and wetlands—that were converted to developed use within each planning area over three time periods. While the dates of the land use mapping do not align exactly with the SDRP draft dates, we choose the closest available dates. We begin with available 1986 mapping data which precedes the adoption of the original State Development and Redevelopment Plan (SDRP1992) and we aggregate map data to 2002 which is close to the date of the SDRP2001. Since SDRP2001 has subsequently been in place for 24 years, the table distinguishes between development that occurred during what we have labeled as SDRP2001 Phase I (2002–2007) and Phase II (2007–2020), reflecting the significant slowdown in growth following the 2007-2008 Great Recession. This is illustrated, for example, in the annual growth rate in PA1 of 3,118 acres per year throughout 1986-2002 dropping to 1,106 acres per year by the time we reach 2007-2020. Similar drops in acres of growth per year are evident throughout all planning areas after 2007.

Table 2.1 Development growth in each SDRP Planning Area 1986-2020. Growth occurred across all planning areas. There was a significant slowdown in acres of new growth after 2007 reflected in the acres per year which dropped substantially 2007-2020.

total acres of growth over annual acres of growth over % of total developed acres	**1986-2002** *SDRP1992*	**2002-2007** *SDRP2001 Phase I*	**2007-2020** *SDRP2001 Phase II*	**1986-2020 Total Growth, Average Annual**
PA1 - METRO	49,902 acres *3,118 ac/yr* *21.9% of total*	14,100 acres *2,820 ac/yr* *21.5%*	14,382 acres *1,106 ac/yr* *23.5%*	78,384 acres *2,305 ac/yr*
PA2 - SUBURBAN	75,097 acres *4,693 ac/yr* *33.0%*	22,787 acres *4,557 ac/yr* *34.8%*	21,538 acres *1,657 ac/yr* *35.2%*	119,422 acres *3,512 ac/yr*
PA3 - FRINGE	16,209 acres *1,013 ac/yr* *7.1%*	4,236 acres *847 ac/yr* *6.5%*	3,260 acres *251 ac/yr* *5.3%*	23,70 acres *697 ac/yr*
PA4 - RURAL	31,033 acres *1,939 ac/yr* *13.6%*	9,698 acres *1,940 ac/yr* *14.8%*	8,693 acres *669 ac/yr* *14.2%*	49,424 acres *1,454 ac/yr*
PA4B - RURAL ENV SENS	20,005 acres *1,250 ac/yr* *8.8%*	5,835 acres *1,167 ac/yr* *8.9%*	4,902 acres *377 ac/yr* *8.0%*	30,742 acres *904 ac/yr*

PA5 - ENV SENS	26,640 acres *1,665 ac/yr* *11.7%*	6,955 acres *1,391 ac/yr* *10.6%*	6,278 acres *483 ac/yr* *10.3%*	39,873 acres *1,173 ac/yr*
PA 5B - ENV. SENS. BARRIER IS.	528 acres *33 ac/yr* *0.2%*	63 acres 13 ac/yr 0.1%	90 acres *7 ac/yr* *0.1%*	681 acres *20 ac/yr*
PARKS & OPEN SPACE	7,946 acres *496 ac/yr* *3.5%*	1,789 acres *358 ac/yr* *2.7%*	2,083 acres *160 ac/yr* *3.4%*	11,818 acres *348 ac/yr*
TOTAL GROWTH UNDER STATE PLAN	227,360 acres *14,210 ac/yr*	65,463 acres *13,093 ac/yr*	61,226 acres *4,710 ac/yr*	354,049 acres *10,413 ac/yr*

The final column of table 2.1 summarizes the total growth observed over the full 34-year period and average annual growth within each Planning Area. The table also illustrates that the distribution of acres of development among the planning areas shifted slightly after 2007 toward the smart growth planning areas of PA1 and PA2 in their percent of the total statewide development footprint. The Smart Growth Planning Areas (PA1-PA3) cumulatively absorbed 63% of the development acres, indicating that ⅔ of New Jersey's development growth occurred in smart growth planning areas during 2007-2020 consistent with smart growth principles, a positive indicator of PLAN-ALIGNED growth. Conversely, that also indicates a substantial 37% of the development footprint took place in PA4 and PA5—rural and environmentally sensitive areas—signaling PLAN-ADVERSE growth that diverges from the State Plan's core objectives. Clearly growth in Smart Growth PAs does not mean that it can't be sprawling and some growth outside of smart growth PAs is inevitable and can be done in smart growth, center-based form. Furthermore, this metric looks only at acres of development, not type of development (which we get to later). An acre of growth in rural PAs is typically less dense with fewer units per acre whereas an acre of redevelopment in smart growth PAs is not reflected by any acres of growth at all in this metric. Nonetheless, the location of acres of growth in the appropriate planning areas is a meaningful indicator for viewing an important goal and objective of the SDRP to guide development into smart growth locations. This locational assessment of growth underscores the importance of aligning future development with the planning areas of the SDRP2024 to better protect New Jersey's natural resources and steer growth toward appropriate, infrastructure-ready areas.

3. Shifting Patterns of Development: 2002–2020

We have seen in table 2.1 that 37% of acres of development 2007-2020 occurred outside of Smart Growth planning areas suggesting that ⅓ of New Jersey's recent growth has been PLAN-ADVERSE, at least in location. It should be noted, however, that in the previous period 2002-2007 the rate was 40%, an indication that recent growth is trending toward smart growth planning areas more than it has in the past. More significantly, the rate of acres developed per year throughout non-smart growth planning areas dropped substantially. For example, RURAL PA4 grew at 1,940 acres per year during 2002-2007 but dropped to 669 acres per year during 2007-

2020, roughly one-third the average rate from 1986 to 2002. These figures indicate a meaningful slowdown in the rate of rural sprawl.

It is important to note, however, that Table 2.1 does not capture development density, typology, or the extent of redevelopment occurring within each Planning Area—key indicators for evaluating alignment with the State Plan's goals. Subsequent analysis reveals that development in PA1–PA3 (Metropolitan, Suburban, and Fringe areas) not only occurred at substantially higher densities but also included an increasing share of redevelopment activity, especially in regions of the state that are nearing full build-out. This trend supports the State Plan's emphasis on reusing and reinvesting in existing developed areas rather than expanding into undeveloped areas.

Within PA3 (Fringe Areas), modest overall growth continued, but recent years saw a shift from traditional low-density formats toward more compact residential types as we explore next, suggesting an evolving development signature. Meanwhile, the environmentally sensitive and rural planning areas (PA4, PA4B, PA5) saw their collective share of statewide development decline as noted above—a positive sign of greater conformance with smart growth principles. These emerging patterns point to a meaningful shift away from sprawl and toward more sustainable, PLAN-ALIGNED growth under the post 2007 phase of SDRP2001.

4. Development Growth Statewide by Land Use Type Categories

The analysis of development growth over time by panning area (Table 2.1) clearly illustrates the dramatic slowdown in annual development acreage following 2007, coinciding with the great recession. While the economy recovered over subsequent economic cycles, the rate of new acres developed remained relatively low up through 2020. There was, however, a significant shift in the types of development that occurred. A complementary perspective is provided in Table 4.1, which highlights the evolution of development types over time, particularly within the residential category. One of the most notable trends is the increase in higher-density residential development as a share of the total development footprint. During 1995-2002, high-density residential land development comprised just 7.6% of total acres of growth, whereas by 2015-2020, it had grown to nearly 19.6%, reflecting a significant shift in New Jersey's newly built housing stock toward more compact and efficient residential land use.

Conversely, low-density exurban residential development declined from 31.9% to 19.2% of total development over the same period and its rate of land consumption dropped dramatically from 5,089 acres per year in 1995-2002 to only 759 acres per year 2007-2020. This shift provides compelling evidence that residential growth has become increasingly more aligned with the smart growth principles of the State Development and Redevelopment Plan (SDRP)—emphasizing higher densities, walkability, and infrastructure efficiency. Additional land use trends further support this transition. For example, commercial land development dropped from approximately 1,500 acres per year (1995–2002) to just 500 acres per year (2015–2020), indicating a decline in land-intensive commercial sprawl. In contrast, industrial development—particularly warehousing—has continued to grow, reaching 500 acres per year by the 2015–2020 period. This surge highlights the increasing role of the logistics sector in shaping New Jersey's land

development footprint and underscores the importance of managing this growth in a way that supports the State Plan's goals of environmental stewardship, infrastructure coordination, and sustainable economic development. It should be noted that the most recent GIS mapping data available is 2020 and does not capture the monumental shift toward online commerce which occurred with the COVID 19 pandemic. We anticipate dramatic post 2020 land use trend shifts, especially in the proliferation of warehousing and logistics.

Table 4.1 Types of Development Growth 1995-2020 Statewide (includes Pinelands and Highlands). The dates represent the dates of the underlying GIS land use/land cover dataset.

Urban Land Type	1995-2002	2002-2007	2007-2012	2012-2015	2015-2020
 **Res. High Density**	8,510 total acres 1,215 acres/yr 7.6% of total	5,784 total acres 1,156 ac/yr 6.9% of total	1,923 total acres 384 acres/yr 7.5% of total	1,639 total acres 546 acres/yr 15.2% of total	3,866 total acres 773 acres/yr 19.6% of total
 **Res. Med. Density**	20,068 total acres 2,866 acres/yr 17.9% of total	11,763 total acres 2,352 ac/yr 14.1% of total	3,926 total acres 785 acres/yr of 15.3% total	1,766 tot acres 588 acres/yr 16.4% of total	2,359 total acres 471 acres/yr 11.9% of total
 **Residential Low Density**	17,394 total acres 2,484 acres/yr 15.6% of total	9,767 total acres 1,953 ac/yr 11.7% of total	2,200 total acres 440 acres/yr 8.6% of total	969 tot acres 323 acres/yr 9.0% of total	1,871 total acres 374 acres/yr 9.5% of total
 **Residential Rural (Ex urban)**	35,629 total acres 5,089 acres/yr 31.9% of total	23,248 total acres 4,649 ac/yr 27.8% of total	6,377 total acres 1,275 acres/yr 24.9% of total	2,363 tot acres 787 acres/yr 21.9% of total	3,795 total acres 759 acres/yr 19.2% of total
 **Commercial**	10,518 total acres 1,503 acres/yr 9.4% of total	8,505 total acres 1,701 ac/yr 10.2% of total	4,443 total acres 889 acres/yr 17.3% of total	1,297 tot acres 432 acres/yr 12.0% of total	2,528 total acres 506 acres/yr 12.8% of total
 **Industrial**	3,270 total acres 467 ac/yr 2.9% of total	1,214 total acres 243 ac/yr 1.5% of total	553 total acres 111 acres/yr 2.2% of total	157 tot acres 52 acres/yr 1.5% of total	2,494 total acres 499 acres/yr 12.6% of total
 **Transportation & Utility**	1,619 total acres 231 ac/yr 1.4% of total	1,020 total acres 204 ac/yr 1.2% of total	1,918 total acres 384 acres/yr 7.5% of total	1,552 tot acres 517 acres/yr 14.4% of total	2,147 total acres 429 acres/yr 10.9% of total

 **Other Urban Uses**	14,844 total acres 2,121 ac/yr 13.3% of total	22,287 total acres 4,457 ac/yr 26.7% of total	4,281 total acres 856 acres/yr 16.7% of total	1,056 tot acres 352 acres/yr 9.8% of total	704 total acres 141 acres/yr 3.6% of total
 **Total Development**	111,852 total acres 15,979 ac/yr	83,587 total acres 16,717 ac/yr	25,621 total acres 5,124 ac/yr	10,799 total acres 3,600 ac/yr	19,764 total acres 3,953 ac/yr

New Jersey's spatial development pattern by land use category from 1995 to 2020 revealing significant shifts in land use suggests both successes and limitations of the SDRP. Tracking development types through each iteration of land use mapping by going from left column to right column in table 4.1 reveals many interesting trends. Commercial land development, once a prominent factor of land consumption for shopping centers, experienced a marked decline in growth rates after 2002. This slowdown may reflect broader economic shifts, changing consumer behavior, or an increased emphasis on infill and mixed-use development in established centers, in line with the SDRP's smart growth principles. In contrast, industrial development—particularly warehousing—expanded significantly during this period. Between 2002 and 2020, land consumption for industrial uses nearly doubled, highlighting the growing demand for logistics infrastructure. This trend underscores the need for continued coordination between land use planning and transportation infrastructure, especially as warehousing often involves large footprints and can conflict with environmental and community goals if not strategically sited.

Post-2007 development trends began to align more closely with the SDRP's smart growth goals. As noted, the share of development occurring in high-density residential areas increased, particularly in urban and suburban locations with existing infrastructure. At the same time, the overall rate of land consumption declined, and the proportion of development in rural and environmentally sensitive areas decreased. While it is challenging to isolate causality due to the influence of economic cycles, market demand, and local zoning decisions, these emerging patterns suggest that the SDRP2001 has arguably played a significant role in a shift toward more efficient, center-based development. Going forward, strengthening the integration between the SDRP2024 guidance and local land use decision-making will be critical to fully realizing the Plan's vision of sustainable, equitable, and resilient development across New Jersey.

5. Center-focused Growth

Center-based development is the concept that land use development can benefit from focused organizational design in compact, mixed-use, and walkable neighborhoods. Centers serve as an identifiable place where future growth and redevelopment should be encouraged due to the presence of existing infrastructure, public services, and transportation access enabling efficient public investment while reducing the environmental and fiscal costs associated with scattered, low-density development. The concept of centers is a core theme in the SDRP which encourages the general concept of center-based development as a goal as well as offers an official

designation of centers such as cities, towns, villages, or hamlets—where growth and development are fostered. By concentrating development in centers, the State Plan seeks to revitalize communities, reduce sprawl, preserve open space and farmland, and promote equitable access to housing and jobs. Table 5.1 provides a summary of the land use types and the acres of growth from 1986-2020 that occurred within and outside of designated centers.

Table 5.1 Acres of Development Growth that occurred within Centers, Nodes and Corridors from 1986 - 2020 as delineated in the NJ DEP Land Use/Land Cover geospatial dataset.

LU20	Land Use Label	Acres In Center	Acres Not In Center	Total Acres	PCT in Center
1110	RESIDENTIAL, HIGH DENSITY OR MULTIPLE DWELLING	2,217	25,214	27,432	8.10%
1120	RESIDENTIAL, SINGLE UNIT, MEDIUM DENSITY	3,535	56,584	60,119	5.90%
1130	RESIDENTIAL, SINGLE UNIT, LOW DENSITY	2,161	53,456	55,617	3.90%
1140	RESIDENTIAL, RURAL, SINGLE UNIT	1,677	136,371	138,048	1.20%
1150	MIXED RESIDENTIAL	6	81	87	7.20%
1200	COMMERCIAL/SERVICES	3,149	26,350	29,499	10.70%
1211	MILITARY INSTALLATIONS	3	1,918	1,922	0.20%
1214	NO LONGER MILITARY	1	17	18	3.30%
1300	INDUSTRIAL	1,566	16,413	17,979	8.70%
1400	TRANSPORTATION/COMMUNICATION/UTILITIES	1,118	12,054	13,172	8.50%
1410	MAJOR ROADWAY	171	2,961	3,132	5.50%
1411	MIXED TRANSPORTATION CORRIDOR OVERLAP AREA	5	5	10	45.60%
1419	BRIDGE OVER WATER	34	198	232	14.50%
1420	RAILROADS	375	3,131	3,506	10.70%
1440	AIRPORT FACILITIES	88	464	552	15.90%
1461	WETLAND RIGHTS-OF-WAY	61	3,274	3,335	1.80%
1462	UPLAND RIGHTS-OF-WAY DEVELOPED	32	616	648	4.90%
1463	UPLAND RIGHTS-OF-WAY UNDEVELOPED	181	4,944	5,124	3.50%
1499	STORMWATER BASIN	722	13,359	14,081	5.10%
1500	INDUSTRIAL AND COMMERCIAL COMPLEXES	22	441	463	4.80%
1600	MIXED URBAN OR BUILT-UP LAND	11	24	36	32.20%
1700	OTHER URBAN OR BUILT-UP LAND	2,774	37,233	40,007	6.90%
1710	CEMETERY	113	976	1,088	10.40%
1711	CEMETERY ON WETLAND	3	107	110	2.70%
1741	PHRAGMITES DOMINATE URBAN AREA	3	29	32	10.10%
1750	MANAGED WETLAND IN MAINTAINED LAWN GREENSPACE	177	2,490	2,667	6.60%
1800	RECREATIONAL LAND	1,509	26,629	28,137	5.40%
1804	ATHLETIC FIELDS (SCHOOLS)	353	2,793	3,146	11.20%
1810	STADIUM, THEATERS, CULTURAL CENTERS AND ZOOS	390	443	833	46.80%
1850	MANAGED WETLAND IN BUILT-UP MAINTAINED REC AREA	130	2,318	2,448	5.30%
Grand Total		22,586	430,895	453,481	5.00%

Officially designated centers can be procedurally added and over time some have lost their designation when they are not renewed. It's difficult to assess the impact of past center-based

development with land use mapping data because it often occurs as redevelopment. Data metrics other than land use need to be developed evaluating the impact of centers within the SDRP.

6. Patterns of Redevelopment

Given the high population density and continued development pressure, New Jersey's limited land base—approximately 5 million acres in total—makes land use efficiency a salient component of the State Development and Redevelopment Plan (SDRP). As development of previously undeveloped land becomes less possible with shrinking availability, redevelopment becomes more essential for maintaining economic growth while balancing it with the protection of environmental resources. Redevelopment enables growth without further consuming the state's remaining open spaces, forests, wetlands, and farmland—resources that the SDRP seeks to protect through its smart growth framework. Especially as New Jersey moves closer to a statewide buildout scenario, anticipated within the next two to three decades, a strategic focus on redevelopment is essential for achieving long-term economic and environmental sustainability. Assessing the certificate of occupancy versus acres developed over time provides a tangible means of evaluating the effectiveness of the State Plan for fostering redevelopment.

Table 6.1 Certificates of Occupancy per New Acre Developed by county (1996-2020). Higher values indicate more growth as redevelopment.

County	COs per Acre 1996-2001	COs per Acre 2002 - 2007	COs per Acre 2008 - 2020
Atlantic	0.93	1.67	1.36
Bergen	2.82	4.52	8.52
Burlington	1.28	1.25	1.01
Camden	1.68	2.17	2.41
Cape May	2.45	4.52	3.78
Cumberland	0.63	0.95	0.50
Essex	4.36	11.76	10.74
Gloucester	0.95	1.20	1.00
Hudson	5.74	10.13	35.38
Hunterdon	0.48	0.54	0.44
Mercer	1.09	1.97	1.22
Middlesex	1.49	1.89	2.11
Monmouth	1.07	1.24	2.00
Morris	1.17	1.63	2.00
Ocean	1.58	2.50	3.18
Passaic	2.06	4.01	3.58
Salem	0.32	0.73	0.44
Somerset	1.06	1.22	1.09
Sussex	0.48	0.76	0.44
Union	2.07	10.64	12.59
Warren	0.76	0.77	0.55

This trend is particularly evident in northern New Jersey, where many municipalities are already at or near buildout, yet development has not slowed in these areas. Instead, it has increased in pace in the form of redevelopment and infill projects, as confirmed by the increase in certificate of occupancy data from northern counties (table 6.1). Redevelopment trends are not only in the north. Downtown revitalization projects such as Rowan Boulevard in Glassboro, Gloucester County (figure 6.2) exemplify the benefits of redevelopment for creating vibrant, centers-based growth. These redevelopment projects often involve reusing or repurposing previously developed parcels—such as aging commercial corridors, underutilized industrial sites, or disparate, poorly connected residential areas as in the case of Glassboro—and transforming them into higher-density, mixed-use, transit-accessible neighborhoods and hubs of activity.

Central Glassboro circa 2007

Central Glassboro circa 2020

Figure 6.2 - Glassboro's Rowan Boulevard redevelopment project
Glassboro, Gloucester County, exemplifies the possibilities of redevelopment with its Rowan Boulevard redevelopment project. While Rowan University closely collaborated, lent its name and leases building space, the project was entirely a product of municipal redevelopment. Glassboro commissioned a master developer on behalf of the borough.

7. Development Growth and Infrastructure

An essential principle of the New Jersey State Development and Redevelopment Plan (SDRP) is that development growth should occur in areas already supported by adequate infrastructure, particularly sewer service areas. Sewer infrastructure plays a crucial role in promoting efficient, compact, and environmentally responsible growth. Development that occurs within designated sewer service areas generally indicates alignment with the SDRP's goals, as it leverages existing public investments, reduces the cost of public service delivery, and helps minimize the

environmental impacts associated with septic systems, such as groundwater contamination and habitat disruption. In contrast, development outside of sewered areas often leads to sprawling, low-density growth that strains limited infrastructure, requires costly extensions of public services, and encroaches on farmland and environmentally sensitive areas.

Table 7.1 highlights the importance of utility infrastructure by showing that a significant portion of new development occurred within sewered areas, reinforcing the SDRP's objective to guide growth into places already equipped with essential public services. The top four rows of table 7.1 contrast the residential development types with sewer service. The vast majority of development that was not in alignment with infrastructure area was attributable to Residential Rural Single Unit (1140) which imposed 110,999 acres of growth into areas not covered by sewer service. This contrasts with the two highest density residential types (1110,1120) which were over 94% within sewer service areas.

Table 7.1 Acres of Development Growth that occurred within Sewer Service Areas 1986 - 2020 as delineated in the NJDEP Land Use/Land Cover geospatial dataset.

LU20	Land Use Label	Acres Not Sewer	Acres Sewer	Total Acres	% in sewer
1110	RESIDENTIAL, HIGH DENSITY OR MULTIPLE DWELLING	7,732	26,700	27,432	97.3%
1120	RESIDENTIAL, SINGLE UNIT, MEDIUM DENSITY	3,267	56,852	60,119	94.6%
1130	RESIDENTIAL, SINGLE UNIT, LOW DENSITY	18,204	37,413	55,617	67.3%
1140	RESIDENTIAL, RURAL, SINGLE UNIT	110,999	27,049	138,048	19.6%
1150	MIXED RESIDENTIAL	2	85	87	97.3%
1200	COMMERCIAL/SERVICES	4,318	25,182	29,499	85.4%
1211	MILITARY INSTALLATIONS	1,370	552	1,922	28.7%
1214	NO LONGER MILITARY	11	6	18	35.2%
1300	INDUSTRIAL	3,056	14,923	17,979	83.0%
1400	TRANSPORTATION/COMMUNICATION/UTILITIES	6,347	6,825	13,172	51.8%
1410	MAJOR ROADWAY	1,414	1,719	3,132	54.9%
1411	MIXED TRANSPORTATION CORRIDOR OVERLAP AREA	3	7	10	72.9%
1419	BRIDGE OVER WATER	210	22	232	9.6%
1420	RAILROADS	1,715	1,791	3,506	51.1%
1440	AIRPORT FACILITIES	262	290	552	52.5%
1461	WETLAND RIGHTS-OF-WAY	2,700	635	3,335	19.0%
1462	UPLAND RIGHTS-OF-WAY DEVELOPED	284	364	648	56.2%
1463	UPLAND RIGHTS-OF-WAY UNDEVELOPED	3,716	1,409	5,124	27.5%
1499	STORMWATER BASIN	4,246	9,834	14,081	69.8%

Table 7.1 Acres of Development Growth that occurred within Sewer Service Areas 1986 - 2020 as delineated in the NJDEP Land Use/Land Cover geospatial dataset.

LU20	Land Use Label	Acres Not Sewer	Acres Sewer	Total Acres	% in sewer
1500	INDUSTRIAL AND COMMERCIAL COMPLEXES	55	408	463	88.0%
1600	MIXED URBAN OR BUILT-UP LAND	9	27	36	76.1%
1700	OTHER URBAN OR BUILT-UP LAND	15,211	24,795	40,007	62.0%
1710	CEMETERY	583	505	1,088	46.4%
1711	CEMETERY ON WETLAND	55	55	110	49.8%
1741	PHRAGMITES DOMINATE URBAN AREA	18	14	32	44.3%
1750	MANAGED WETLAND IN MAINTAINED LAWN GREENSPACE	1,224	1,443	2,667	54.1%
1800	RECREATIONAL LAND	14,763	13,374	28,137	47.5%
1804	ATHLETIC FIELDS (SCHOOLS)	430	2,715	3,146	86.3%
1810	STADIUM, THEATERS, CULTURAL CENTERS AND ZOOS	181	652	833	78.3%
1850	MANAGED WETLAND IN BUILT-UP MAINTAINED REC AREA	1,358	1,090	2,448	44.5%
Grand Total		**196,743**	**256,738**	**453,481**	**56.6%**

Focusing future growth within sewered and previously developed areas, rather than expanding into undeveloped areas, is a critical strategy for balancing economic development with New Jersey's vibrant open space preservation and climate resilience goals.

By examining the number of acres developed inside versus outside of sewer service areas, planners and policymakers can assess how well recent development patterns conform to the smart growth principles of infrastructure-supported growth. Development occurring within sewered areas typically reflects PLAN-ALIGNED growth, as these locations are better suited to accommodate higher-density, mixed-use, and transit-accessible development. Meanwhile, growth outside of sewer service areas—particularly in rural or environmentally sensitive zones—tends to indicate PLAN-ADVERSE patterns, undermining goals for open space preservation, climate resilience, and infrastructure efficiency.

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8. Climate Resilience: Development within Flood-Vulnerable Locations

Since the release of the 2001 State Development and Redevelopment Plan, climate change and resilience have now become a central challenge for multiple aspects of land use planning. As a front-line state with two-thirds of its border consisting of tidal waters, New Jersey is increasingly

vulnerable to climate hazards such as sea-level rise, coastal flooding, and extreme weather events— exemplified by Hurricane Sandy and record-breaking increases in temperature year over year.

Climate resilience has been elevated to a core element of the SDRP2024. While there are many dimensions by which the warming climate will impact New Jersey's economy, agriculture and ecosystems as well as the health and safety of the state's population, we focus on flood vulnerability of development growth as an essential indicator. Three recently developed GIS datasets allow a window into where development is at risk of potential flooding. The FEMA + 3 feet elevation dataset provides an enhanced delineation of where inland streams run the risk of flash flooding given projected increases in precipitation events. The CAFE + 5 feet storm surge dataset provides a modeling of coastal storm surge flood vulnerability. And Sea Level Rise 5 feet mapping produced by Rutgers University depicts the area of inundation that will occur with the five-foot sea-level rise projection possible by the turn of the century.

Table 8.1 demonstrates the significant flood vulnerability of New Jersey's built landscape. Hundreds of thousands of acres of development that occurred before 1986 are in flood vulnerable areas. And in the 34 years since the first draft of the SDRP there has been over 54,000 acres of development in what is now mapped as FEMA + 3 Feet Stream Flood zones, 25,000 acres of development in what is mapped as Coastal Storm zones and 9,000 acres of development in areas projected to be impacted by a five-foot sea-level rise. While nearly all of this flood-vulnerable past development occurred before the mapping was available, the data highlights the substantial vulnerability that a substantial amount of existing development has to future increasing flooding events. For example, 11.1% of post 1986 development growth is in the newly mapped FEMA + 3 Feet stream flood zone. There is high inevitability that future flooding events will impact some of these vulnerable built areas.

Table 8.1 Acres of development within flood-vulnerable areas
Statewide (includes Pinelands and Highlands)

Total acres over annual acres	**Pre 1986 Development** *No State Plan*	**1986-2002** *SDRP1992*	**2002-2007** *SDRP2001 Phase I*	**2007-2020** *SDRP2001 Phase II*	**Total Growth flood risk areas 1986-2020**
FEMA +3ft Stream flood	223,718 acres *18.3% of total*	36,159 acres *2,260 ac/yr* *11.5% of total*	8,369 acres *1,674 ac/yr* *9.3% of total*	9,790 acres *753 ac/yr* *11.7% of total*	54,318 acres *1,598 ac/yr* *11.1% of total*
CAFE +5ft Storm Surge	125,973 acres *10.3% of total*	16,250 acres *1,016 ac/yr* *5.2% of total*	4,287 acres *857 ac/yr* *4.8% of total*	4,720 acres *363 ac/yr* *5.6% of total*	25,257 acres *2,236 ac/yr* *8.9% of total*
SLR +5ft Sea Level Rise 5ft	54,107 acres *4.4% of total*	6,406 acres *400 ac/yr* *2.0% of total*	1,222 acres *244 ac/yr* *1.4% of total*	1,550 acres *119 ac/yr* *1.9% of total*	9,178 acres *270 ac/yr* *2.9% of total*

Notes: The above metrics are derived from GIS datasets from NOAA and/or FEMA data and further modeling was performed by Rutgers Center for Remote Sensing and Spatial Analysis in order to inform guidance from the Inland Flood Protection rule adopted, July 17, 2023

9. Coordinating the State Plan with Land Conservation

Amid intense development pressures, New Jersey has maintained a strong tradition of land conservation spanning several decades. To realize the SDRP vision for New Jerseyans to enjoy clean air and water, abundant farmland, and large swaths of natural lands and forests and for Rural and Environmentally Sensitive planning areas (PA4, PA4B and PA5) to retain their rural and environmental integrity, land conservation needs to be firmly coordinated with planning at multiple scales. A broad coalition of public agencies and nonprofit organizations continues to work collaboratively to protect the state's open spaces and natural resources. Table 9.1 presents the statewide inventory of protected lands as of the latest geospatial datasets available in January 2025. New Jersey's farmland preservation program is among the most successful in the nation, having preserved 278,162 acres to date. The Garden State Preservation Trust supports long-term open space funding through a dedicated portion of the corporate business tax that funds the state's Green Acres, Farmland Preservation, Blue Acres and Historic Preservation programs.

Table 9.1 Protected Lands in New Jersey circa 2025	
State, Local and Nonprofit Open Space (NJDEP)	1,085,918 acres
Farmland Preservation (SADC)	278,162 acres
Other Open Space	259,578 acres
Total Estimated Protected Lands 2025	1,623,658 acres
Notes: These metrics are derived from the best available data sources including the NJDEP statewide open space GIS dataset, county GIS datasets, and the State Agricultural Development Committee's GIS dataset as of spring 2025.	

As of 2025, the NJDEP State, Local and Nonprofit Open Space GIS database includes over one million acres of protected land, including more than 681,000 acres of open space funded by programs affiliated with Green Acres. An additional 259,578 acres have been preserved through a variety of mechanisms, including municipal and county ownership, NRCS easements, land trusts, and transfer of development credits. Progress in open space protection continues to evolve, particularly in efforts to safeguard the state's most vulnerable natural resources and prime agricultural lands. The State Agriculture Development Committee (SADC) has recently revised its preservation program to better align with its goal of doubling farmland preservation acreage in the coming decades. Similarly, the New Jersey Conservation Foundation's *Nature for All* vision sets an ambitious target of preserving 50% of the state's most critical remaining lands by 2050. Achieving these conservation goals will require close coordination with development planning, guided by the principles and policies of the SDRP2024.

10. Projecting Future Growth to 2050

At current rates of development in each Planning Area (see Table 1.1), New Jersey is rapidly consuming its remaining undeveloped land. Table 1.7 provides a breakdown of land categories across the state, including land still available for development, land protected as open space, environmentally constrained or regulated land, and land already developed. Within the State Plan's Smart Growth Planning Areas—PA1 (Metropolitan), PA2 (Suburban), and PA3 (Fringe)—only about 110,000 acres of undeveloped, unconstrained land remain available for future development. Specifically, PA1 (Metro) has just 27,609 acres of such land. At the most recent 2007-2020 development rate of 1,106 acres per year, this planning area will reach buildout within 25 years. If development occurred at the faster 1986-2002 rate of 3,118 acres per year, PA1 would be fully built out in just 9 years.

These figures underscore the inevitability of shifting toward redevelopment as the primary form of growth, particularly in the state's already urbanized and infrastructure-rich areas. Many mature municipalities in PA1 and PA2 have already reached buildout and rely entirely on redevelopment and infill to accommodate new growth. Meanwhile, approximately 70% of New Jersey's remaining undeveloped land lies within PA4, PA4B, and PA5, which include rural and environmentally sensitive regions. Under the PLAN-ALIGNED vision of the SDRP, growth in these areas should be concentrated within designated centers, while surrounding lands are protected for agriculture, open space, and environmental integrity. As developable land continues to dwindle across all regions, the competition for land will intensify, reinforcing the need for coordinated redevelopment strategies and creative open lands protection. By 2050, New Jersey is likely to be functionally built out, and nearly all future growth will need to occur through redevelopment, adaptive reuse, and infill development, making the guidance of the State Plan paramount for a vibrant social, economic and environmental landscape.

Table 10.1 Remaining Landscapes - As the nation's most densely populated state, land is at a premium. A snapshot of the current state of land remaining in each planning area (in acres) (Hasse & McCarthy 2025)

	PA1 METRO	**PA2** SUBURB	**PA3** FRINGE	**PA4** RURAL	**PA4B** RURAL ENV SENS	**PA5** ENV SENS	**PA5B** ENV. SENS. BARR IS.	PARKS & OPEN SPACE
Developed Unconstrained	355,801	173,699	31,243	58,852	36,059	54,093	1	7,626
Developed Constrained	126,380	41,908	6,256	15,416	10,024	33,519	10,058	6,300
Undeveloped Unconstrained	27,609	63,700	17,776	122,842	64,227	51,910	0	11,195
Undeveloped Constrained	60,686	69,608	17,271	94,097	51,403	135,990	2,311	25,949
Water		7,861	1,689	10,455	3,380	34,579	1,868	23,290

	14,489							
Protected Areas	50,274	41,077	15,556	164,013	70,543	136,882	3,474	235,472
Military	1,134	86	0	12	171	8,099	0	0
Roads ROW	131,028	52,124	6,359	17,584	8,923	26,046	5,334	6,758

Developed Unconstrained Lands - Land that has been previously developed on in some way; potentially redevelopable land
Developed Constrained Lands - Previously developed lands that have potential limitations for redevelopment due to environmental vulnerability and flooding conditions
Undeveloped Unconstrained Lands - Indicates farmland and forest and barren land areas
Undeveloped Constrained Lands - Indicates farmland, forest, and barren lands that may have limitations for re/development due to environmental vulnerability/conditions
Water - Water bodies (ponds, lakes, rivers) as identified in NJDEP Land Use 2020 geospatial analysis
Protected Areas - Lands held in fee or easement that not able to be developed
Military - Lands used for Department of Defense installations, ranges, training areas etc.
Roads Right of Way - Illustrates the legal cartway for NJ road network, including highway medians, jughandles, cloverleafs etc.

Quantitative Geospatial Indicators for SDRP2024 Impact

The above sections of this report provide a quantitative lens to assess a selected cross section of land-related impacts of previous drafts of the SDRP that can be revealed from the state's extensive GIS data. We focused our analysis on factors that could be assessed against the geography of the State Plan Map planning areas. In the following section we employ the analysis to create a set of indicators for how future development may result in potential future impacts of the proposed SDRP2024. We outline the following eight geospatial indicators for gauging the alignment of future growth with key SDRP2024 planning goals. We use these indicators as conceptual metrics for glimpsing into the future that can be further refined and calibrated in the coming years as the SDRP2024 is guiding and responding to the evolution of events and histories yet to be unfolded ahead.

1. **Growth in Smart Growth Planning Areas**
2. **Growth in Designated Centers**
3. **Growth as Redevelopment and Renewal**
4. **Compact, Mixed-Use Development**
5. **Infrastructure-Connected Growth**
6. **Environmentally Low-Impact Development**
7. **Climate Resilient Development**
8. **Protection of Open Space and Natural Resource**

These indicators are not intended to be exhaustive of all the possible impacts of the SDRP2024 but instead a cross-section of quantitatively measurable land use-based metrics that may serve as an evaluative lens for assessing how well New Jersey's future growth is achieving the vision of the SDRP2024 for smart growth planning, economic vibrance, sustainability, equity, and resilience out to 2050.

1. Growth in Smart Growth Planning Areas

SDRP2024 element: growth channeled into **PA1**, **PA2** and **PA3** regions.

Metric: Ratio of total acres developed in PA1-PA3 versus acres developed in PA4-PA5

Sections Referenced: section 2, table 2.1, section 3

PLAN-ALIGNED growth at 2050	**PLAN-ADVERSE** growth at 2050
OUTCOME: by 2050 the majority of development has occurred in PA1, PA2 or PA3 with far fewer acres of growth in PA4, PA4b, PA5	**OUTCOME:** by 2050 development has been dispersed across all planning areas
IMPACT: Development growth in Planning Areas PA1 (Metropolitan), PA2 (Suburban), and PA3 (Fringe) is consistent with the State Plan's **smart growth principles** and is generally encouraged. These areas **already have** substantial or emerging **infrastructure**, including transportation, utilities, and public services, making them **more suitable** for **accommodating new development** and **redevelopment**. Growth in these regions supports **revitalization of existing communities**, more efficient land use, and **reduced environmental impact**. It also aligns with the goals of **recentering development** in walkable, mixed-use areas where **people can live, work**, and access services without relying heavily on automobiles. Investing in PA1, PA2, and PA3 **fosters economic development, housing diversity**, and improved **quality of life**, particularly in areas that can benefit from reinvestment and modernization.	**IMPACT:** Growth spreading into Planning Areas PA4 (Rural), PA4B (Rural/Environmentally Sensitive), and PA5 (Environmentally Sensitive) is problematic due to their **limited infrastructure** capacity, **ecological importance**, and potential for sprawl. These areas often include **farmland**, **critical habitats**, and **natural resources** that the Plan aims to preserve. Development here can **fragment ecosystems**, **increase costs** for extending public services, and **degrade environmental quality**. Moreover, it may conflict with long-term sustainability and equity objectives by **diverting resources away from areas better suited for growth**. The State Plan emphasizes that these planning areas are better suited for conservation, resource protection, and low-impact uses rather than major development activity.

Notes: If the trend of the acreage of development within the rural, environmentally sensitive area (PA4, PA4B and PA5) continued at the PLAN-ADVERSE 1986-2002 annual rate, it would consume 121,350 acres of additional land by 2050. If it grew at the slower 2007-2020 rate, it would consume far fewer – 38,225 acres by 2050. Cutting in half the rate from the 2007-2020 (PLAN-ALIGNED) would result in consumption of only 19,113 acres by 2050 potentially keeping 100,000 acres of undeveloped land intact.

2. Center-based Development

SDRP2024 element: growth channeled toward, oriented around and coordinated with designated and/or functional centers

Metric: Ratio of total acres developed within a center, node or corridor versus acres developed outside of a center, node or corridor for a given municipality.

Sections Referenced: section 1 & section 5

PLAN-ALIGNED growth at 2050	**PLAN-ADVERSE** growth at 2050
OUTCOME: by 2050 the majority of growth within a municipality is within or oriented around or in relationship to the municipality's functional center	**OUTCOME:** by 2050 development has occurred piecemeal throughout a municipality with little relationship to an identifiable structural center
IMPACT: Development occurs within **centers, nodes, and cores**—as promoted by the **(SDRP)**. Communities are **compact, mixed-use, and transit-accessible**, allowing for efficient land use and the effective delivery of public services. Concentrating growth in centers supports **reinvestment in existing infrastructure**, revitalizes underutilized urban and suburban areas, and encourages **walkable**, **livable communities** with access to **jobs**, **housing**, and amenities. It also minimizes environmental impacts by **preserving open space and reducing vehicle miles traveled**, helping to meet the state's climate and environmental goals. Moreover, development within centers supports **social equity**, by making it easier to provide **affordable housing**, **transit access**, and **essential services** in places where people already live and work.	**IMPACT:** Growth occurs **outside of designated centers** leads to **uncoordinated, sprawling development** that **fragments landscapes**, weakens community cohesion, and **increases public costs**. Such growth typically requires **expensive extensions of roads, utilities, and services**, placing a **financial strain** on local governments and taxpayers. It often results in the **loss of prime farmland, forests, and sensitive environmental areas**, and can exacerbate **car dependency**, air pollution, and greenhouse gas emissions. Additionally, sprawling growth can reinforce **exclusionary zoning patterns**, limiting access to affordable housing and further **segregating communities**. **Unmanaged growth outside of centers undermines the state's long-term goals**, including land conservation, climate resilience, fiscal responsibility, and equitable access to opportunity.

Notes: The State Plan has gone through various phases of the "centers" concept regarding identified centers versus designated centers. The concept has expanded to include **cores** and **corridors**. The official designation of centers must be maintained by a municipality and a number of core designations have recently lapsed leaving the inventory of designated centers significantly fewer at the current moment than in years past. In order for the concept of cores to reach its potential for synergistically focusing growth under the SDRP2024, the momentum for core designation must expand. Core designation in compact forms especially in rural areas is the means by which PA4, PA4B and PA5 can maintain rural environs' value rather than become low density sprawling bedroom communities. As development occurs over the next 25 years, centers-based approach will result in a landscape with identifiable communities and activity centers. Even if the number of officially designated centers under the state plan remains below what would be ideal, municipalities should at least orient their master plans and zoning ordinances around centers-based planning.

Quantitative assessment of core impact is beyond the scope of this study but has potential for future further indicator development.

3. Growth as Redevelopment and Renewal

SDRP2024 element: growth fostered as redevelopment and revitalization of previously developed lands, areas in need of redevelopment, blighted areas and brownfields rather than development of open lands.

Metric: Ratio of the number of certificates of occupancy per acre of newly developed land for a given municipality.

Sections Referenced: section 1, section 6, table 6.1

PLAN-ALIGNED growth at 2050	**PLAN-ADVERSE** growth at 2050
OUTCOME: by 2050 the majority of growth has occurred on previously developed lands, areas in need of redevelopment, blighted areas and brownfields leaving open lands intact	**OUTCOME:** by 2050 much of the growth has occurred in undeveloped areas and in areas subject to increased climate risks consuming open lands while areas in need of redevelopment, blighted areas and brownfields remain underutilized
IMPACT: Development growth occurs largely through **redevelopment** and **revitalization** of previously developed lands, including **blighted areas**, **brownfields**, and **designated redevelopment zones**, leaving **open lands intact**. This approach **focuses growth** in areas that already have access to **public infrastructure**, such as **roads**, **transit**, **water**, and **sewer systems**, making it more **cost-effective** and **environmentally sustainable**. It also reduces pressure on undeveloped land, helping to preserve natural habitats, agricultural areas, and critical environmental resources. Redevelopment **revitalizes underperforming economic assets** and enhances livability. Redevelopment can improve **economic opportunities**, **housing options**, and quality of life for residents, particularly in overburdened communities that have historically suffered from disinvestment.	**IMPACT:** Development **consumes** remaining **open lands**, often referred to as “greenfield development,” in a sprawling pattern, which is typically **auto-dependent**, **infrastructure-intensive**, and **environmentally disruptive**. Sprawling growth occurred at the loss of farmland, forests, and other ecologically sensitive areas, and **exacerbating stormwater runoff**, **habitat fragmentation**, and greenhouse gas emissions. New **public investments** are necessary in roads, **utilities**, and **schools**, increasing municipal costs and taxes. Social and economic inequities have been **worsened** by drawing resources away from urban and older suburban communities.

Notes: As development in the coming decades shifts to emphasize redevelopment over development in formerly undeveloped areas, certificates of occupancy per acres developed will be proportionally increasing. Once a community is built out, there will only be certificates of occupancy for redevelopment. The SDRP recognizes that redevelopment revitalization and infill development—particularly in compact, walkable, and transit-oriented centers—are key to achieving smart growth, environmental sustainability, and equitable community development throughout New Jersey.

4. Growth in Compact Patterns

SDRP2024 element: growth fostered as compact community neighborhoods rather than sprawling low-density subdivisions.

Metric: Ratio of acres of high and medium density residential development versus acres of low density and exurban residential development.

Sections Referenced: section 2, section 4, table 4.1

PLAN-ALIGNED growth at 2050	**PLAN-ADVERSE** growth at 2050
OUTCOME: by 2050 the majority of a municipality's residential units are built in well-designed compact neighborhood communities	**OUTCOME:** by 2050 a large portion of a municipality's residential units exist as dispersed, low-density subdivisions
IMPACT: Development growth occurs in the form of **compact community neighborhoods** that encourage **walkability**, efficient land use, and **stronger social** and **economic cohesion**. These communities typically feature a **mix of housing types**, **commercial uses**, **public amenities**, and **transportation options** within close proximity, **reducing** dependence on **automobiles** and **vehicle miles traveled**. Compact development supports public transit and makes **better use** of existing **infrastructure**, **lower costs** of delivering public services such as water, sewer, emergency response, and schools. It also contributes to a **healthier environment** by reducing greenhouse gas emissions and protecting open space. In New Jersey, compact, center-based development aligns with State Plan goals by promoting smart growth, revitalizing older communities, and fostering inclusive, economically vibrant neighborhoods.	**IMPACT:** development growth occurs in **sprawling low-density large lot subdivisions** resulting in inefficient consumption of land and the **fragmentation of natural resources**. These patterns of development typically require more extensive road networks, utilities, and public service delivery, which can be **financially burdensome** for municipalities and the state. Low-density development is typically on **septic systems** and **private wells** with consequent impacts on ground water resources. Sprawl tends to **isolate residents**, **limit access** to **jobs**, **schools**, and **services**—especially for non-drivers—and can reinforce **socioeconomic segregation**. Additionally, sprawling growth patterns contribute to the loss of farmland and ecologically sensitive areas, increase stormwater runoff, complicate emergency response situations and exacerbate traffic congestion and air pollution.

Notes: As the state develops under the SDRP2024 we project the degree of compact development by measuring the ratio of higher-density residential growth to lower-density residential growth. If the state continues on the trend of higher density to lower density development demonstrated from 2012 to 2020 with a linear projection to 2050 it will create 2,377 acres of additional residential land. If residential growth densities reverted to 1995-2002 level, there will be 11,654 acres of residential at 2050 housing the same number of residents as the higher-density growth. Linear growth on undeveloped land until 2050 is not realistic and intended to only demonstrate magnitude. As described in the previous discussion about buildout, growth on green fields will likely continue to slow as land becomes more scarce, transitioning to primarily redevelopment and infill as the state nears buildout. Nonetheless, the ratio of density of residential units under development and redevelopment is a significant indicating factor.

5. Infrastructure Supported Growth

SDRP2024 element: growth fostered in areas that have appropriate water, sewer and transportation infrastructure.

Metric: Ratio of acres of development within sewer service areas versus acres of development not in sewer service areas.

Sections Referenced: section 7, table 7.1

PLAN-ALIGNED growth at 2050	**PLAN-ADVERSE** growth at 2050
OUTCOME: by 2050 the majority of NJ's developed landscape will be within sewer service areas.	**OUTCOME:** by 2050 large portions of developed land will not be served by sewer requiring on site septic systems.
IMPACT: Development growth occurs in areas that **have appropriate infrastructure** creating **efficient**, **cost-effective**, and **environmentally responsible** built landscapes. The resultant communities are able to accommodate higher populations and activity without requiring major new investments. Utilizing existing infrastructure **maximizes return on public investments** and **reduces the fiscal burden** on municipalities and taxpayers. Infrastructure-supported development also **minimizes environmental disruption** by concentrating growth where services already exist, **supports compact**, **walkable communities**, **promotes transit** use and shorter vehicle trips. This approach is fully aligned with the SDRP's goals of smart growth, equity, and sustainability, especially in revitalizing urban centers and underutilized developed areas.	**IMPACT:** Development growth occurs in areas **lacking** proper infrastructure resulting in significant **financial**, **environmental**, and **social costs**. This kind of growth typically leads to **sprawl**, **degrades natural resources**, and may promote **car-dependent, low-density development** patterns. Inadequate infrastructure can also **compromise public health** and **safety**, especially if it leads to **failing septic systems** or unsafe road conditions. Development is inconsistent with efficient land use, **exacerbating inequalities** in service access and quality of life.

Notes: This metric looks at acreage of development within versus outside sewer service areas. Looking at development growth during the 1986-2020 period of the state plan 56.6% of the acres developed occurred in sewered areas. Looking at growth outside of sewered areas 43.4% of the growth. The vast majority of that non-sewered growth was attributable to single unit low density residential development.

6. Low Environmental Impact Growth

SDRP2024 element: growth fostered in areas that avoid land resources such as prime farmland, wildlife habitat, and wetlands and that minimizes impervious surface.

Metric: Calculation of Land Resource Impact Indicators (Hasse & Lathrop 2003) measure loss of prime farmland, forest core, wetlands and impervious cover by municipality.

Sections Referenced: section 9, *Land Resource Impact Indicators*, Hasse & Lathrop 2003

PLAN-ALIGNED growth at 2050	**PLAN-ADVERSE** growth at 2050
OUTCOME: by 2050 land development within a municipality has avoided prime farmlands, wildlife habitats, wetlands and minimized watershed degradation by limiting increases in impervious surfaces.	**OUTCOME:** by 2050 land development within a municipality has resulted in the significant loss of prime farmlands, wildlife habitats, wetlands and added excessive impervious surface to watersheds.
IMPACT: Development growth occurs in a manner that **avoids consuming critical land resources** such as **prime farmland**, **forest core**, and **wetlands**—and that **minimizes impervious surface coverage.** Protection of these land resources helps to ensure the **environmental integrity**, **resilience**, and long-term **sustainability** of New Jersey's **natural landscapes**. These land resources provide vital **ecosystem services** such as food production, **flood mitigation**, **water filtration**, **biodiversity** preservation, and carbon sequestration. Furthermore, **minimizing impervious surfaces** reduces **stormwater runoff**, which helps **prevent flooding**, **lowers pollution** in waterways, **replenishes aquifers** and **protects aquatic ecosystems**.	**IMPACT:** Development occurs in locations and configurations that **consume critical land resources** resulting in the **degradation** of **environmental** quality, undermining **agricultural viability**, and increasing the **risks of flooding** and **habitat loss**. Wetlands and prime farmland, and forest cores have been lost, **disrupting ecosystems** and diminishing the land's **ability to absorb rainwater**, **increasing stormwater runoff** and **polluting local waterways**. Fragmented wildlife habitats face population decline and **biodiversity loss**, while communities nearby may suffer from increased heat island effects, and **diminished quality of life**. Such development patterns contribute to long-term environmental and economic costs that are **difficult to reverse.**

Notes: New Jersey exceptionally rich digital mapping GIS data makes this metric possible. This metric evaluates development footprints against maps of prime farm soils, forest cores, wetlands and impervious cover. The calculation can be carried out after development occurs but also before pending development occurs, such as with a preliminary site plan, in order to design alternatives that minimize site-specific land resource impacts.

7. Climate Resilient Growth

SDRP2024 element: Growth that minimizes flood hazard vulnerability.

Metric: Ratio of acres of development within flood hazard areas (FEMA +3ft, Coastal Storm Surge or 5ft Sea Level Rise) versus acres of development not in flood hazard areas.

Sections Referenced: section 8, table 8.1

PLAN-ALIGNED growth at 2050	**PLAN-ADVERSE** growth at 2050
OUTCOME: by 2050 the majority of land development will have avoided flood vulnerable areas or will have been built with adequate flood hazard design.	**OUTCOME:** by 2050 a significant amount of development will have been built in flood-vulnerable areas with inadequate designs for flood hazard events.
IMPACT: Development growth occurs in a manner that is adequately designed to withstand or that altogether **avoids flood hazard vulnerable areas**, including those at risk from **sea level rise**, **storm surges**, and/or **inland stream flooding**. By steering growth away from these high-risk zones, communities have **avoided property damage, infrastructure failures, and the displacement of residents** during extreme weather events. Climate resilient development patterns are safer, more predictable and do not overburden emergency services or require costly flood protection and mitigation infrastructure.	**IMPACT:** A significant amount of development with inadequate design occurs in areas that face heightened **risks from rising sea levels**, inland flooding from more **frequent and severe storm** events, and **flash flooding**—all of which **threaten homes**, **businesses**, and **critical infrastructure**. Building in these zones with inadequate designs can **strain public resources, reduce property values**, and create long-term vulnerabilities that disproportionately impact overburdened communities. Moreover, such development often **disrupts natural floodplains** and **wetlands**, further **reducing** the landscape's **capacity to manage floodwaters**

Notes: Sea level rise, storm surges and inland stream flooding events are expected to increase in frequency and magnitude due to anthropogenic stressors to the climate (Angarone et al 2021). Looking back from 1986 to 2020 there has been development growth occurring within 9,178 acres of sea level rise areas, 25,257 acres of storm surge areas (see table 8.1) and 54,318 acres of development in locations now mapped as vulnerable to inland stream flooding. While the three flood maps do have some overlap double counting where there is confluence, the magnitude of flood-vulnerable development is substantial.

Looking forward at the 2007-2020 rates of development within these zones projected to 2050, would result in 595 acres of additional development in locations vulnerable to sea level rise, 1,815 acres of development in storm surge locations and 3,765 acres of development in inland stream flood vulnerable areas. While projecting linear growth in flood-vulnerable areas until 2050 is unrealistic, it nonetheless has value since it gives a sense of future pressure on coastal areas for development to occur alongside the increasing risk of flood hazards.

8. Protection of Open Space and Natural Resources

SDRP2024 element: development growth is balanced and coordinated with rigorous conservation of the most significant natural resources and farmland preservation.

Metric: Remaining undeveloped lands are identified and assessed for their conservation value using science-based metrics such as the New Jersey Conservation Blueprint.

Sections Referenced: section 9, table 9.1, section 10, table 10.1

PLAN-ALIGNED conservation 2050	**PLAN-ADVERSE** conservation 2050
OUTCOME: by 2050 NJ will have accomplished the target of protecting 50% of its most significant remaining lands in a comprehensive interconnected network that keeps the best natural resources intact. Conservation of land is intimately integrated with NJ's built environment in smart growth communities.	**OUTCOME:** by 2050 NJ has failed to achieve the target of protecting 50% of its remaining most significant open lands. Sprawling development has fragmented ecosystems and created conflicts for farming viability. Open spaces will be insufficient and isolated.
IMPACT: Development has occurred in **synergistic coordination** with prudent **land conservation**. Protection of significant **natural resources,** sensitive landscapes and **farmland preservation** has resulted in long-term **environmental sustainability**, **food security**, and community resilience. By integrating land use planning with conservation goals, **ecologically valuable areas** such as forests, wetlands, and habitats are safeguarded. Farmland preservation maintains the viability of **New Jersey's agricultural economy**. Coordinating conservation and development growth preserves **biodiversity**, and **supports ecosystem services** like clean air and water, carbon sequestration, and flood mitigation. **Local food production remains viable** and accessible for future generations.	**IMPACT:** Development that is poorly coordinated with or **disregards land conservation** and **sprawls into rural areas** resulting in the **loss of productive farmland**, **diminishment of farming viability**, **degradation** of **natural resources**, and **long-term economic and environmental costs**. Disconnected planning and insufficient open space can result in **habitat destruction**, **reduced water quality**, and **lack of recreational lands**, which affects both **ecological health and community quality of life**. Without coordinated conservation, prime agricultural land will be lost to low-density subdivisions, **undermining regional food systems** and **increasing reliance on imported food**. Fragmentation of natural systems results in loss of ecosystem services.

Notes: In the next few decades as open land becomes increasingly scarce the competition for the remaining undeveloped properties will make conservation increasingly more challenging and expensive. Rates of Green Acres acquisition and SADC farmland preservation have dropped over the past decade due in part to the increasing real estate valuation of land for development. While NJ has a robust conservation community and stable funding through the Garden State Preservation Trust, much of the conservation actions happen piecemeal, in isolation and in competition with development resulting in a sprawling and fragmented landscape. By emphasizing comprehensive conservation planning with the synergistic coordination of development and redevelopment under the SDRP24, NJ's 2050 landscape will be far more intact and functional than a piecemeal approach will achieve.

NARRATIVE 1: ECONOMY

Topic Overview: Economy

The State Development and Redevelopment Plan's economic development goal aims to streamline intergovernmental coordination to tackle several issues affecting businesses and the workforce, including reducing regulatory delays and promoting collaborative efforts between the public and private sectors to focus on urban revitalization projects, as well as increasing infrastructure efficiency. The plan seeks to retain and expand existing businesses and workforces while attracting new businesses. Public agencies should be encouraged to provide businesses with financial incentives and technical support assistance to provide job training and employment opportunities in underserved and under- or unemployed communities.

Summary Table of Economy Strategies

	Strategy	**Evidence in Planning Literature**	**Summary**
1	**Encourage center-based, compact, mixed-use development while protecting and preserving critical environmental resources and high-value agricultural lands.**		
1A	Facilitate growth in Planning Areas 1, 2 and 3, and accommodate growth in Planning Areas 4-5 in centers.	Low/Medium	Promoting conservation and farming preservation policies will facilitate sustainable agrotourism activities within their growth parameters.
1B	Recenter, redesign, and rebuild underutilized areas.	High	Enacting adaptive reuse policies will promote infill and rehabilitation projects of vacant buildings to meet current needs. Designating buildings and/or neighborhoods can help preserve regional identity and guide development in a manner suitable for local needs. Buildings and properties designated as historic generally

			appreciate in value more than similar properties in non-historic areas.
1C	Protect habitat of resident and migratory threatened and endangered species.	Medium/High	Restoring natural habitats of endemic flora and fauna through habitat restoration projects on public lands could be achieved by facilitating and promoting labor-intensive farming systems and permaculture approaches to maintain soil fertility and return it to levels that promote endemic species.
2	**Foster greater diversity in the State's housing stock and reduce housing cost burden.**	High	Reducing housing costs can have profound effects on communities by allowing money to be spent on other goods and services. Diversifying housing types can help prevent displacement and offer upward mobility to low-income families and individuals by providing them access to more and better services.
3	**Increase access to opportunity and remove barriers to mobility in overburdened communities by investing in transit and making walking and biking easier and safer.**	High	Establishing high-quality transit service (both bus and rail) can be a powerful tool for improving the lives of low-wage workers who are more likely to rely on public transit. Increasing transit availability and reliability can enable more people to forgo car ownership and the high costs associated with owning and maintaining it. Transit agencies throughout the state should aim to connect more New Jersey municipalities to each other, rather than solely focusing on connecting transit to New York City. Doing so could enable more New Jerseyans to replace commuting trips and other car trips.
4	**Protect, maintain, restore, and enhance the State's natural resources.**		
4A	Protect and restore wetlands and river and stream corridors.	Medium/High	See strategy 1C.

4B	Protect and enhance forest resources.	Medium/High	See strategy 1C.
5	**Mitigate climate change by decarbonizing New Jersey's economy.**		
5A	Transition to 100% renewable energy.	Medium	Transitioning to renewable energy would not only create construction jobs but would also mitigate the negative impact of the ongoing shift in jobs from mining and manufacturing towards services and agriculture. Government agencies can facilitate or encourage the transition by eliminating incentives for fossil fuel-related projects and reallocating them towards renewable energy.
5B	Reduce vehicle miles traveled and expand the use of zero emissions modes of transportation.	Medium	Areas with high rates of unemployment and low-wage workers would greatly benefit from a well-connected and reliable transit system by increasing access to jobs and other opportunities. Studies have shown that transit service is a provider of economic opportunities for all workers, but especially low-wage workers.
6	**Adapt infrastructure to contend with climate change, especially impacts that disproportionately affect vulnerable populations.**		
6A	Eliminate combined wastewater sewer systems and associated overflow.		After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.
6B	Eliminate lead pipes.		After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.
6C	Invest in nature-based solutions that expand tree canopy and create more urban blue and green spaces.		After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

6D	Expand the use of green infrastructure and green building materials.		After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.
6E	Strictly limit development in floodplains.		After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.
6F	Implement mandatory flood mitigation standards in new construction and restrict development in high-risk zones.		After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.
6G	Advance brownfield remediation.	High	Brownfield and former brownfield sites can return to productivity by siting solar panel projects and/or by siting other locally unwanted land uses on them. In addition to providing renewable energy, solar projects provide benefits such as land rent payments to private or public agencies. Agrivoltaics design guides can help incorporate green infrastructure (exclusive of agriculture) in solar projects, which could further help restore former brownfields.
7	**Encourage sound and integrated planning.**		
7A	Integrate land use and transportation planning.	Medium/High	Incentivizing public-private partnerships to expand multimodal transportation options in real estate development projects can help directly shape the transportation network around new developments. State agencies could adopt specific authorization and guidelines for the use of joint development to encourage local governments to integrate transit joint development possibilities in their long-term comprehensive plans.

Plan Impacts by Strategy (Economy)

1. Encourage center-based, compact, mixed-use development while protecting and preserving critical environmental resources and high-value agricultural lands

1A. Facilitate growth in Planning Areas 1, 2 and 3, and accommodate growth in Planning Areas 4-5 in centers

While New Jersey already has robust farmland preservation and other similar programs to maintain undeveloped land, policies at all levels of government should allow and facilitate preservation projects and allow for uses that can spur economic growth while preserving the land. Some such programs include sustainable agrotourism activities which have been successfully implemented in other locales and have proven to be effective at meeting a variety of goals (Byrd, 2021). Examples have shown that earnings from agroecotourism sites can be reinvested into programming and infrastructure so that sites can continue to operate while improving members' lives (Moon et. al, 2021).

1B. Recenter, redesign, and rebuild underutilized areas

There are existing federal and state programs dedicated to historic preservation that allow for historic properties to be rehabilitated and converted into new productive uses. Properties in designated historic districts often appreciate more than similar properties in non-designated areas, which provide benefits for property owners and, ultimately, the tax coffers. Additionally, adaptive reuse projects can meet other State Plan goals by potentially saving time and decreasing waste by retrofitting existing buildings to serve new purposes. In addition to the direct monetary benefits, historic preservation projects can lead to increased tourism, education opportunities, and other related events by highlighting and preserving cultural identity.

1C. Protect habitat of resident and migratory threatened and endangered species

Natural resource and habitat restoration projects can be effective tools to create jobs directly tied to restoration projects, but also create jobs once completed, such as tourism-related jobs or jobs restoring soils and land for agricultural purposes. Additionally, repopulating endemic species in areas for farming can lower operational costs, as they typically require fewer resources. Restoring and/or maintaining healthy soil fertility is also an effective tool to mitigate coastal erosion.

Labor-intensive farming could help create local and regional jobs while simultaneously helping return soil fertility to its normal/native/endemic state. This type of intensive agriculture relies heavily on human labor rather than mechanization or automation to produce crops or raise livestock and is commonly employed in organic farming. Labor-intensive farming requires a larger

workforce, smaller land area, and lower capital investments compared to capital-intensive farming while allowing for a greater diversity of crops. Some drawbacks include a lower output per hour, higher vulnerability to climate patterns and a limited scalability when compared to mechanized farming.

However, restoration projects can be labor intensive to prepare for and may require multiple years of closing certain locations off to the public (NJDEP). Removal of existing vegetation and/or soil may be required for certain projects, with additional resources needed if any physical structures need to be removed. Routes to and from the site could become congested with large dump trucks to remove the debris. Depending on the size and scale of the restoration site, the project can be staggered in phases if the site is a popular attraction such as a beach or other recreational area.

2. Foster greater diversity in the State's housing stock and reduce housing cost burden

However well-intentioned, there are policies in place that contribute to the high cost of housing and the scarcity of certain types of housing, such as three- or more bedroom units for families, or studio units for very low-income residents. Local restrictions on space-efficient housing types, such as accessory dwelling units or duplexes, work to exacerbate the costs of housing for residents. Additionally, many housing laws have parking requirements of at least one parking spot per unit, which in many cases might go unused, such as in urban areas or in developments for low-income families who are less likely to have a vehicle.

By providing more diversity in the housing stock, the cost of housing will decrease. As a result, New Jerseyans are more likely to find housing that meets their needs while having more money to spend on other goods and services within their communities. These factors have been shown to contribute to economic mobility for disadvantaged populations throughout the US (McKinsey, 2025).

3. Increase access to opportunity and remove barriers to mobility in overburdened communities by investing in transit and making walking and biking easier and safer

Establishing high-quality transit service (both bus and rail) can be a powerful tool for improving the lives of low-wage workers who are more likely to rely on public transit. Studies have shown large areas of accessibility gains found along bus routes that connect with a new light rail (Fan, et al, 2012). Increasing transit availability and reliability can enable more people to forgo car ownership and the high costs associated with ownership and maintenance.

Many New Jersey Communities are not well-connected via public transit and inequitable allocation of funding projects could exacerbate negative impacts to communities who would benefit the most from a robust transit system (NJTPA Housing Stakeholder Roundtable, 2025). Transit agencies throughout the state should aim to connect more New Jersey municipalities to each other, rather than solely focusing on connecting transit to New York City. Doing so could enable more New Jerseyans to replace commuting trips and other car trips. Since constructing new rail networks and stations is time intensive and can require significant amounts of capital, these investments should not be viewed as revenue-generating operations, as government agencies or other transit providers may not see returns on investment for decades.

4. Protect, maintain, restore, and enhance the State's natural resources

4A. Protect and restore wetlands and river and stream corridors

See strategy 1C.

4B. Protect and enhance forest resources

See strategy 1C.

5. Mitigate climate change by decarbonizing New Jersey's economy

5A. Transition to 100% renewable energy

Transitioning to all-electric developments can reduce utility costs and create job opportunities both within and outside the energy sector, including legal experts, taxation, logistics, safety and environment, and skilled laborers, such as truck and crane drivers (Khalili, 2025; UNDP, 2025). The creation of new jobs in the renewable energy sector can help mitigate the impacts of the downturn in manufacturing employment in the United States since the 1980s (Bureau of Labor Statistics). Municipalities and other agencies can review and revise their codes to account for new construction types that are more efficient to construct and compatible with renewable energy power systems, and agencies can begin by scaling back or eliminating incentives for non-renewable energy sources and shift them to projects supporting renewable energy. Other municipalities have taken a more incremental approach by requiring all new development be electric-ready so as to reduce the cost of switching to electric power in the future.

5B. Reduce vehicle miles traveled and expand the use of zero emission modes of transportation

Areas with high rates of unemployment and low-wage workers would greatly benefit from a well-connected and reliable transit system by increasing access to jobs and other opportunities. A study on a new light rail line in Minnesota has shown that transit service has been a provider of economic opportunities for all workers, but especially low-wage workers since its construction.

6. Adapt infrastructure to contend with climate change, especially impacts that disproportionately affect vulnerable populations

6A. Eliminate combined wastewater sewer systems and associated overflow

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

6B. Eliminate lead pipes

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

6C. Invest in nature-based solutions that expand tree canopy and create more urban blue and green spaces

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

6D. Expand the use of green infrastructure and green building materials

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

6E. Strictly limit development in floodplains

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

6F. Implement mandatory flood mitigation standards in new construction and restrict development in high-risk zones

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

6G. Advance brownfield remediation

The U.S. Environmental Protection Agency defines a brownfield as “A property, the expansion, redevelopment or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant or contaminant.” Brownfield and former brownfield sites can return to productivity by siting solar panel projects and/or by siting other locally unwanted land uses on them. Solar projects can create a variety of economic benefits in addition to job creation and local business cash injection, such as the reuse of former brownfield sites that might not be attractive sites for development, land rent to private or public property, environmental benefits from the reduction of traditional energy sources (including reduced emissions and improved soil quality), and reduced energy costs over time during the transitional period.

While most solar projects can create permanent local jobs for managing and maintaining the operations, officials may be faced with tradeoffs with land that could otherwise become farmland or other public green space. To mitigate these negative impacts, projects can consider adopting solar facilities that incorporate pollinator-friendly and native vegetation throughout the facility or providing wildlife-friendly fencing (Gomez, n.d.).

7. Encourage sound and integrated planning

7A. Integrate land use and transportation planning

Incentivizing public-private partnerships (PPPs) to expand multimodal transportation options in real estate development projects can help directly shape the transportation network around new developments. PPPs are a value capture strategy because the agreement partially captures the private benefits created through infrastructure improvements, similar to how existing Payment In Lieu of Taxes (PILOT) or other tax incentives work. Through PPPs, public agencies could play a more active role and may be better positioned to directly shape the projects. However, several public agencies might be subject to policies that limit their ability to engage in joint development (Zhao et al, 2012). Governments should consider a long-term time horizon in using joint development to capture the value of their transportation investments and avoid granting variances and bonuses for developer-driven projects that provide little-to-no public benefit.

At present, municipalities struggle to reconcile zoning and land uses with their neighbors, which has contributed to siting incompatible land uses along municipal boundaries. This offers a chance for regional agencies, such as MPOs, counties, and other organizations to play a role in convening and facilitating interactions between municipal officials to reconcile incompatible land uses. A more proactive approach could involve developing a menu of options permitted by state, county, and regional plans to inform rezoning and other development decisions.

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NARRATIVE 2: LAND USE AND ENVIRONMENT

Topic Overview: Land Use and Environment

All the State Development and Redevelopment Plan's goals, strategies, and policies involve land use and interrelate to sustain our environment. At the heart of the SDRP is a primary goal of encouraging center-based, compact, and mixed-use development, while also allowing for a range of other environments within the framework of articulated planning areas. Through this goal, sound and integrated planning principles are applied to protect, maintain, and restore the state's natural, historic, and water resources, to advance its economy, and to foster an inclusive society. Strategies to establish green infrastructure, to create a transportation system inclusive of all modes, and to clean up and prevent pollution are utilized to prepare the state for climate change and reduce its carbon footprint.

Summary Table of Land Use and Environment Strategies

	Strategy	**Evidence in Planning Literature**	**Summary**
1	**Encourage center-based, compact, mixed-use development while protecting and preserving critical environmental resources and high-value agricultural lands.**	High	Center-based, compact, and mixed-use developments are widely documented in the planning literature as core strategies towards achieving a range of environmental benefits and outcomes, including reduction in air pollution due to reduced VMT, less sprawl and inefficient use of infrastructure, and more inclusive communities, especially across income ranges.
1A	Facilitate growth in Planning Areas 1, 2 and 3, and accommodate growth in Planning Areas 4-5 in centers.	High	There are many benefits that occur with increased development in centers, including reductions in VMT, lower-carbon travel patterns among residents, enhanced ability to transition to sustainable energy systems, increased perceptions of security, reduction in food deserts, and greater satisfaction with one's neighborhood.

1B	Recenter, redesign, and rebuild underutilized areas.	High	See strategies 1 and 1A.
1C	Protect habitat of resident and migratory threatened and endangered species.	High	Compact development prevents sprawl, which is well documented in the planning literature to consume land and damage animal habitats. In addition, sprawl leads to greater use of automobiles and thus air pollution, creates more impervious surfaces that cause harmful runoff, and contributes more light pollution which disturbs nocturnal habitats.
2	**Foster greater diversity in the State's housing stock and reduce housing cost burden.**	High	The quality and type of housing stock is directly related to land use policy. Policies such as inclusionary zoning and zoning for high density can create more options for a range of households.
3	**Increase access to opportunity and remove barriers to mobility in overburdened communities by investing in transit and making walking and biking easier and safer.**	Medium	Land use plays a considerable role in accessibility, particularly the location and type of infrastructure investments. Policy beyond land use is also needed, including for transit and micro mobility as well as safe and connected streets that enable walking.
4	**Protect, maintain, restore, and enhance the State's natural resources.**	High	Planning is the primary way to protect, maintain, and restore natural resources. The NJ-specific data show that prior SDRPs have led to considerable land conservation and protection of natural resources.
4A	Protect and restore wetlands and river and stream corridors.	High	See strategy 4.
4B	Protect and enhance forest resources.	High	See strategy 4.
5	**Mitigate climate change by decarbonizing New Jersey's economy.**	Medium	Land use planning plays an important role in decarbonization, particularly vis-à-vis promoting compact, center-based development that reduces vehicle miles traveled and encourages multi-modal transport options. In addition, land use

			planning can support zero emission energy infrastructure development.
5A	Transition to 100% renewable energy.	Low	The transition is mostly a policy outcome. However, as mentioned in strategy 5, planners can support the growth of spaces for zero emission energy infrastructure in appropriate locations.
5B	Reduce vehicle miles traveled and expand the use of zero emissions modes of transportation.	High	Planning is the primary way that a landscape / community can be put together in a way that vehicle miles traveled will decline. In addition, the micro-environments of the street can be designed in ways that support zero emission modes, such as walking, scooters, and biking.
6	**Adapt infrastructure to contend with climate change, especially impacts that disproportionately affect vulnerable populations.**	High/Medium	Land use planning plays a core role in reducing pollution by encouraging compact design, greater building efficiencies, and lower VMT. The latest planning strategies involve utilizing green infrastructure to solve environmental problems. Targeted planning, especially around housing and land use, can lead to greater inclusiveness while restrictive land uses (such as in changing flood plains) can help communities prepare for climate change.
6A	Eliminate combined wastewater sewer systems and associated overflow.	Low	This is a policy goal not specific to land use.
6B	Eliminate lead pipes.	Low	This is a policy goal not specific to land use.
6C	Invest in nature-based solutions that expand tree canopy and create more urban blue and green spaces.	High	Sound and integrated land use planning will limit impervious coverage and include sufficient parkland. In addition, current planning trends seek to design with nature, offering nature-based solutions to a variety of environmental problems.

6D	Expand the use of green infrastructure and green building materials.	Medium	Building codes are the primary method to achieve reductions in pollution via energy consumption of structures. Land use planning influences and in some instances can define building codes, but policy is also needed.
6E	Strictly limit development in floodplains.	High	Land use planning can directly and effectively restrict development in designated floodplains.
6F	Implement mandatory flood mitigation standards in new construction and restrict development in high-risk zones.	High	See strategy 6C.
6G	Advance brownfield remediation.	Medium	Land use planning can identify brownfields for redevelopment and support the process, particularly within overburdened communities. Additional policies are needed, such as funding mechanisms and developer incentives, to bring about the remediation.
7	**Encourage sound and integrated planning.**	High	Comprehensive planning offers a host of benefits, including more functional, beautiful, and successful places that are environmentally sustainable and inclusive.
7A	Integrate land use and transportation planning.	High	Outcomes include more compact development that supports transit, and less suburban sprawl. Higher levels of integration are expected, as are a reduction in existing locally unwanted land uses (especially in overburdened communities).

Plan Impacts by Strategy (Land Use / Environment)

1. Encourage center-based, compact, mixed-use development while protecting and preserving critical environmental resources and high-value agricultural lands

Encouraging center-based, compact, and mixed-use development is a core planning principle, widely recognized as aiding in the preservation of critical environmental resources and high-value agricultural lands. The SDRP, if adopted, is highly likely to increase development in centers, increase mixed-use developments, and reduce vehicle miles traveled. These outcomes are inter-related; accomplishing one affects the accomplishment of the others (Parker, 2024). The SDRP seeks to foster development and re-development in city centers, both of housing and economic activities, which in turn will lead to less need for residents to drive to activity sites. The result will be more options for zero emissions mobility, such as walking and biking, more efficient use of transit, and lower vehicle miles traveled overall. As development is concentrated, fewer undeveloped areas will be consumed for new land uses, such as housing and businesses, as well as infrastructure to serve them.

1A. Facilitate growth in Planning Areas 1, 2 and 3, and accommodate growth in Planning Areas 4-5 in centers

The SDRP encourages increased development in PA 1 – Metro and PA 2 – Suburban and associated core areas, and less development in PA 3 – Fringe, PA 4 – Rural, PA 4B – Rural Environmental Sensitive areas, PA 5 – Environmental Sensitive areas, and PA 5B – Environmentally Sensitive Barrier Islands. Zoning for high density and tracking / limiting acreage of developable land in green fields leads to compactness (Tsai, 2014). There are many benefits that occur with increased development in centers, including reductions in vehicle miles traveled(Ewing and Hamidi, 2014), lower-carbon travel patterns among residents (Liu et al., 2016), enhanced ability to transition to sustainable energy systems (Dodson, 2014), increased perceptions of security (Zandiatashbar and Laurito, 2023), reduction in food deserts (Hamidi, 2019), and greater satisfaction with one's neighborhood (Mouratidis, 2017).

1B. Recenter, redesign, and rebuild underutilized areas

Significant infrastructure exists in urban communities around the state, some of which have experienced significant disinvestment since the last SDRP update. The current draft SDRP focuses growth back into these urban centers, and it promotes re-imagining them and rebuilding them to prevent sprawl while also limiting construction costs for new infrastructure in outlying areas. Policy-induced improvements to the physical environment will stimulate both new construction and refurbishment activity (Ploegmakers et al., 2017). Urban policy tailored to the neighborhood level will be needed to manage heterogenous growth so that its outcomes are

desirable and do not overwhelm local communities. Policy needs to also take into consideration the existing built environment and analyze the costs and benefits of altering it versus leaving it as is.

1C. Protect habitat of resident and migratory threatened and endangered species

The SDRP encourages compact development, which prevents suburban sprawl. Sprawl is well documented in the planning literature to consume land and damage animal habitats. In addition, sprawl leads to greater use of automobiles and thus creates air pollution, creates more impervious surfaces that cause harmful runoff, and contributes more light pollution which disturbs nocturnal habitats. Increasing the compactness of suburbs (PA 2) supports smart growth strategies as well as center-based development. Compact suburbs are better able to support future transit options for residents (Parker, 2024), which will be needed to accommodate aging residents who do not wish to move, people with disabilities (Biglieri and Dean, 2022), and to support the state's sustainability goals (including decarbonization of the economy through reductions in VMT, in part (Millard-Ball et al., 2021). Suburban sprawl is the result of local planning practices, and higher-level institutions, such as the state plan, can play a role in containment (Pagliarin, 2018).

Encouraging more compact development in the suburbs (PA 2) yields several benefits, including: (1) greater capacity to support transit systems (both existing and future); (2) reduction in sprawl; (3) more walkable communities with more activity sites to which one might walk (Adkins et al., 2017); (4) preservation of open space and green spaces; and (5) more opportunities for mixed-use and economic development. These outcomes will reduce the pressures to consume green fields for development and will thus help protect the habitats of a variety of species, including those that are endangered.

2. Foster greater diversity in the State's housing stock and reduce housing cost burden

Restrictive land policies and lower densities result in higher rents and a reduction in units affordable to middle-income earners (Stacy et al., 2023). Increasing allowable housing density is an important component of fostering housing affordability (Manville et al., 2020). Inclusionary zoning is a planning policy that requires developers to include affordable housing in new developments. Inclusionary zoning (IZ) is an important tool in providing housing options and reducing the housing cost burden (Garde and Song, 2021). Increased housing density is often a corollary of IZ. IZ reduces eviction rates (Dawkins, 2022). As IZ implementation rises across the state, there will be a growth in affordable units as well as a reduction in eviction rates. Adding some flexibility in IZ policies regarding the income levels that qualify a resident is needed (Wang and Fu, 2022). Absent adoption and implementation of IZ policies, the state can expect to see continued segregation, particularly by income. In addition, eviction rates will remain static or increase.

3. Increase access to opportunity and remove barriers to mobility in overburdened communities by investing in transit and making walking and biking easier and safer

Environmental justice frameworks seek to prevent current harm from environmental sources in overburdened communities while also ameliorating past harms. However, most plans have focused on the former, with little accomplished in addressing the latter (Brinkley and Wagner, 2024). Barriers to economic, social, and environmental resources are disproportionately found in black and brown overburdened communities. Though many of the worst effects of environmental justice have been borne by people of color, race is often not explicitly discussed within plans focused on improving conditions in overburdened communities.

Changes to the infrastructure to create a more supportive environment are needed. These changes can include more designated bike paths and supporting infrastructure to encourage biking, contiguous, intact sidewalks to facilitate walking (Adkins et al., 2017), and more transit service. Further, these same improvements will provide benefits to older people, which are particularly important as the baby boom generation advances in retirement (Hartt et al., 2023). More diverse walkable communities may lead to more eyes on the street, which could reduce crime (Zandiatashbar and Laurito, 2023). More biking leads to greater mental health and life satisfaction, particularly amongst women and older adults (Ma and Ye, 2022). Walkability also improves life satisfaction (Pfeiffer et al., 2020). Research also connects improvement in the built environment with improved social environments (Hartt et al., 2023), and more compact development supports transit usage (Parker, 2024).

4. Protect, maintain, restore, and enhance the State's natural resources

Land preservation is an important component of preparing for a changing climate and mitigating the effects of increased flooding and other extreme environmental events (Kim et al., 2024). Greater land preservation will result in lower costs after extreme weather events by limiting the number of structures in harm's way. Land preservation will improve residents' satisfaction with their communities by providing more opportunities for them to engage with nature. Finally, preservation of agricultural land will ensure that the state can continue to meet the sustenance needs of its residents, as well as providing an important economic resource. Absent land preservation, there will be accelerating loss of agricultural land and its decline as a share of the economy. There will also be accelerated loss of green spaces, as well as buffer zones around blue spaces. Economic losses during extreme weather events will increase, and residents will report lower satisfaction with their communities.

Historic preservation is the process by which New Jersey can maintain its significant historic resources. Both planning and historic preservation are enhanced by cross-dialogue (Minner, 2016). Preservation also advances sustainability by understanding how significant historic

structures can be sustained as well as how such historic structures can inform the social dimensions of current efforts towards sustainability (Avrami, 2016). Preservation and sustainability are most effective when they are informed by public participation and input, and when they are continually engaged as part of the planning process (Liao et al., 2020).

4A. Protect/restore wetlands and river/stream corridors

See strategy 4.

4B. Protect and enhance the state's forest resources

See strategy 4.

5. Mitigate climate change by decarbonizing New Jersey's economy

Planners can contribute to New Jersey's effort to decarbonize its economy via strategies for creating more compact communities that require less driving, and which support more zero emission modes of transportation, such as walking and biking. Further, planners can preserve land for renewable energy infrastructure, such as windmills, and revise building codes to include more energy efficient standards. Compact urban places are an increasingly sought after living environments, and these places facilitate more walking to services and employment and thus help reduce vehicle miles traveled(Hamidi and Ewing, 2020). In addition, urban environments increase transit usage (Parker, 2024). Planners can encourage other forms of zero emission transportation by intentionally creating built environments that are supportive of bicycling, which result in a host of psychological and mental health benefits (Honey-Rosés and Zapata, 2021). Amenity richness and land use diversity are needed together to reduce perception of crime (Zandiatashbar and Laurito, 2023), which is an important outcome needed before people will populate urban spaces by walking and biking.

Finally, building codes are an important component of facilitating the transition to renewable energy. However, code officials do not enforce newer energy codes as rigorously as they do the older life-saving codes (Andrews et al., 2016), suggesting a need for improved training. Policy can also Integrate LEED-ND into form based codes (Garde et al., 2015), making increased building energy efficiency the standard in a community. Further, emphasizing the regional approach such as through the SDRP, and more public participation, will help to achieve green goals in planning (Goh, 2020). The regional approach will also help ensure congruence across municipalities, so that some do not become inordinately expensive.

5A. Transition to 100% renewable energy

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

5B. Reduce vehicle miles traveled and expand the use of zero emission modes of transportation

Creating more compact urban centers will reduce VMT, make it easier for people to bike and walk, and it will improve residents' satisfaction with their communities. Reductions in VMT also lead to cleaner air, more efficient transportation, and less congestion. Increases in zero emission transportation will result in a decrease in energy consumption. The residents of compact urban spaces are also more likely to have lower perceptions of crime, and thus higher usage of public spaces. Revising building codes to require more energy efficient materials and systems will further reduce New Jersey's energy demands and facilitate the transition to a carbon-neutral economy.

6. Adapt infrastructure to contend with climate change, especially impacts that disproportionately affect vulnerable populations

Land use planning plays a core role in reducing pollution by encouraging compact design, greater building efficiencies, and lower vehicle miles traveled. The latest planning strategies involve utilizing green infrastructure to solve environmental problems. Targeted planning, especially around housing and land use, can lead to greater inclusiveness while restrictive land uses (such as in changing flood plains) can help communities prepare for climate change.

6A. Eliminate combined wastewater sewer systems and associated overflow

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

6B. Eliminate lead pipes

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

6C. Invest in nature-based solutions that expand tree canopy and create more urban blue and green spaces

Growth in acreage devoted to parkland will help support more resilient growth, which is needed in response to expected impacts from climate change (Kim et al., 2024). Greenspaces also impact the perception of pleasantness (Sousa et al., 2022). When they are located with new development around metro stations, they may result in increased transit usage (Ma and Jin,

2018). Growth in community satisfaction and behaviors that support sustainability are expected. Absent investments in creating and preserving parks, New Jersey communities will experience a decline in park quality and access, with a similar decline in perception of community satisfaction, public health, and behaviors that support sustainability.

6D. Expand the use of green infrastructure and green building materials

Building codes are the primary method to achieve reductions in pollution via energy consumption of structures. Revising building codes to require more energy efficient materials and systems will further reduce New Jersey's energy demands and facilitate the transition to a carbon-neutral economy. Land use planning influences and in some instances can define building codes, but policy is also needed.

6E. Strictly limit development in floodplains

State planning can exert a strong influence on hazard planning (Berke et al., 2014), which may be needed as many municipal plans are inadequate in this area (Kim et al., 2024). Designating floodplains and restricting development within them will mitigate the effects of sea level rise and associated flooding from increasingly severe storms. Limiting development in floodplains will reduce damage to property and threats to life during floods, which are expected to increase in New Jersey as the climate changes. In addition, there will be significant fiscal savings to municipal services. Those services will not need to be marshalled to respond to flood emergencies induced by people living or working within a floodplain, nor to rebuild afterwards. Absent strict limitations on development in floodplains, some growth will continue to happen in these areas. The result will be increases in property damage and associated costs for losses, as well as a variety of municipal response costs. Harm to humans or loss of life due to flooding will also rise.

6F. Implement mandatory flood mitigation standards in new construction and restrict development in high-risk zones

See strategy 6C.

6E. Advance brownfield remediation

Brownfields are problematic sites in a community: they are toxic and can cause health problems; they carry stigma that affects surrounding parcels; and the expense to clean them as well as associated regulations create substantial barriers to most developers. The State Development and Redevelopment Plan intends to decrease the number of brownfield sites through remediation. The sites can subsequently be used for societal goals (such as housing and commerce). Reducing the presence of these sites in New Jersey will help economic revitalization within communities, will enhance public health, and will in some instances provide much needed land

for development. In addition, brownfield sites can be intentionally redeveloped in ways that advance environmental justice (Solis, 2020). If brownfields are not remediated, the communities in which they exist will continue to suffer from public health issues, environmental injustice, as well as difficulty attracting and sustaining population growth and economic development.

7. Encourage sound and integrated planning

Sound and integrated planning involves planning in ways that reduce sprawl, encourage usage of a variety of transport modes, is inclusive, and supports economic development. Increasing the compactness of suburbs (PA 2) supports smart growth / sprawl reduction strategies as well as center-based development. Compact suburbs are better able to support future transit options for residents (Parker, 2024), which will be needed to accommodate aging residents who do not wish to move, people with disabilities (Biglieri and Dean, 2022), and to support the state's sustainability goals (including decarbonization of the economy through reductions in VMT, in part (Millard-Ball et al., 2021). Suburban sprawl is the result of local planning practices, and higher-level institutions, such as the state plan, can play a role in containment (Pagliarin, 2018). Encouraging more compact development in the suburbs (PA 2) yields several benefits, including: (1) greater capacity to support transit systems (both existing and future); (2) reduction in sprawl; (3) more walkable communities with more activity sites to which one might walk (Adkins et al., 2017); (4) preservation of open space and green spaces; and (5) more opportunities for mixed-use and economic development.

Sound and integrated planning is inclusive. Municipal zoning and housing plans have exacerbated segregation in the past (Monkkonen et al., 2024; Fischer et al., 2018), yet it is zoning that also holds the solution to segregation in part (Whittemore and Curran-Groome, 2022). State governments may need to guide local governments to create more affordable housing (Gabbe, 2019), which leads to more integration. Sound and integrated planning will increase the levels of integration amongst diverse socio-demographic and income groups, as well as concomitantly decrease segregation. Reducing segregation and increasing integration will serve environmental justice and equity goals, as well as contribute to healthier communities. With greater integration, New Jersey can expect reductions in concentrations of existing locally unwanted land uses, which are disproportionately concentrated in segregated communities (Solis, 2020). Reducing segregation will also reduce the exposure of low-income communities to the worst effects of climate change (Pendall, 2019).

Existing Locally Unwanted Land Uses are disproportionately located in low-income communities of color (Solis, 2020). These communities are segregated, largely as a result of land use policy and zoning (Monkkonen et al., 2024). Reducing ELULUs will improve residents' community satisfaction, it may provide an opportunity for redevelopment that meets a community need, and it is often a matter of environmental justice. ELULUS are often noxious facilities.

Zoning that opens more urban land to housing is often a strategy adopted by planners seeking to reduce housing costs (Whittemore and Curran-Groome, 2022). Industrial zones are an important

part of urban economic health, though they can be lost in urban industrial rezonings to accommodate housing (Grodach, 2022). Sound and integrated planning should not result in the displacement of residents or businesses. Displacement of residents runs counter to the SDRP's other goals of preserving housing and increasing affordability, while retention of business and industries are necessary for a healthy economy. In addition, preservation of businesses, including middle-class incomes, is necessary for the goals of ensuring affordability within communities. Absent efforts to coordinate and preserve industrial zones within communities, the trend of loss of industry within some of these communities will continue. Industries will locate outside of the communities in search of upgraded buildings, lower costs, and more favorable zoning, or they may seek these qualities in another state altogether.

Absent efforts to prevent displacement of residents, communities will become less diverse, income and racial segregation is expected to increase, as will sprawl as people search for more affordable development that consumes lower cost land and results in low density housing.

7A. Integrate land use and transportation planning

Urban sprawl originates from the practices of local planning authorities (Pagliarin, 2018). Transit Oriented Development (TOD) encourages higher density, mixed use development that can support transit systems, particularly light rail. This type of development is usually more compact, and thus it helps limit suburban sprawl. However, most communities do not typically develop plans that support TOD (Soliz et al., 2024). TOD will result in a variety of benefits. More household pedestrian and transit trips should occur in communities with plans that encourage TOD than in those without TOD development, and there will be a slower rise in vehicle miles traveled (Ewing and Hamidi, 2014; Parker, 2024). The evidence shows that supportive built environments encourage more walkability, but the effect is almost twice as large for advantaged groups than it is for disadvantaged groups (Adkins et al., 2017). These outcomes support public health, sustainability goals, and conservation of open space. If a policy favoring growth in TOD remains unadopted, most New Jersey communities will continue to develop in a way that is not conducive to supporting future transit systems, particularly light rail systems. In addition, people will take fewer trips by walking or transit, and sprawling landscapes will continue to increase.

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NARRATIVE 3: CLIMATE AND RESILIENCE

Topic Overview: Climate Change and Resilience

If fully implemented, the strategies outlined in New Jersey's State Development and Redevelopment Plan (NJSDRP, or The Plan) could significantly strengthen the state's climate resilience. The Plan will also continue to improve the state's housing stability, environmental quality, and long-term community sustainability. The Plan's focus on compact, mixed-use development in designated growth areas aligns with research evidence and literature, showing that coordinated land use and transportation planning reduces sprawl, lowers vehicle emissions, and preserves critical farmland and ecological systems, ultimately contributing to the state's climate resilience.

Climate resilience will be further reinforced by infrastructure modernization and nature-based investments. Eliminating combined sewer overflows, remediating brownfields, and expanding green infrastructure will reduce flood vulnerability, manage stormwater more effectively, and protect communities from climate-driven hazards. Urban tree planting, stormwater improvements, and expanded blue-green spaces will help manage extreme heat and rainfall, strengthen natural buffers, and increase the adaptive capacity of urban areas.

The state's goals to expand renewable energy and zero-emission transportation are critical steps toward reducing greenhouse gas emissions, improving energy security, and building systems less vulnerable to climate and energy disruptions. Simultaneously, strict limits on floodplain development and strengthened flood mitigation standards are supported by growing evidence as some of the most effective strategies for reducing future disaster losses and preserving the protective functions of natural landscapes.

Overall, the NJSDRP presents a sound and integrated framework for advancing climate resilience across ecological, infrastructural, and community dimensions. Its success, however, depends on consistent, equity-focused implementation and proactive hazard mitigation. Without these actions, New Jersey will face escalating climate risks, greater infrastructure strain, and deepening social and economic vulnerability.

Summary Table of Climate Change and Resilience Strategies

	Strategy	Evidence in Planning Literature	Summary
1	**Encourage center-based, compact, mixed-use development while protecting and preserving critical environmental resources and high-value agricultural lands.**	High	Current urban planning literature strongly supports center-based, compact, mixed-use development as a strategy to promote sustainable growth, reduce sprawl, and enhance accessibility while minimizing environmental impacts. Research highlights that concentrating development in existing centers protects critical natural resources and agricultural lands by limiting outward expansion, while also fostering economic vitality, walkability, and social equity.
1A	Facilitate growth in Planning Areas 1, 2 and 3, and accommodate growth in Planning Areas 4-5 in centers.	High	Preserving agricultural land and ecosystems in Planning Areas 4 and 5 can enhance food security and maintain biodiversity, contributing to a healthier environment and stronger local economies.
1B	Recenter, redesign, and rebuild underutilized areas.	High	Transforming vacant properties into mixed-use developments can enhance community vibrancy by increasing local business activity and providing residents with greater access to amenities and services. There can be a potential risk of gentrification, displacing long-time residents and altering community dynamics.
1C	Protect habitat of resident and migratory threatened and endangered species.	High	Protecting the habitats of resident and migratory threatened and endangered species strengthens regional climate resilience by preserving biodiversity, supporting ecosystem stability, and enhancing

			the natural systems that help communities adapt to environmental change.
2	**Foster greater diversity in the State's housing stock and reduce housing cost burden.**	High	Fostering greater diversity in the housing stock and reducing housing cost burdens strengthens climate resilience by enabling a wider range of residents to live closer to jobs, services, and transit, reducing carbon emissions and enhancing community stability during climate-related disruptions. Affordable, diverse housing options help ensure that vulnerable populations are not displaced by climate pressures and can access the resources needed to adapt and recover.
3	**Increase access to opportunity and remove barriers to mobility in overburdened communities by investing in transit and making walking and biking easier and safer.**	High	Investing in transit and improving walking and biking infrastructure are proven strategies to increase access to opportunity, reduce mobility barriers in overburdened communities, and promote greater social, economic, and climate resilience.
4	**Protect, maintain, restore, and enhance the State's natural resources.**	High	Protecting, maintaining, restoring, and enhancing natural, historic, and water resources is essential for strengthening climate resilience, preserving cultural identity, ensuring long-term ecosystem services, and supporting sustainable community development.
4A	Protect and restore wetlands and river and stream corridors.	Medium	Protecting and restoring wetlands and river corridors is vital for enhancing climate resilience by improving flood protection, water quality, biodiversity, and the natural systems that help communities adapt to extreme weather and environmental change.
4B	Protect and enhance forest resources.	High	Protecting and enhancing forest resources is a cornerstone of climate resilience, as forests sequester

			carbon, regulate water cycles, protect biodiversity, and buffer communities against the impacts of extreme weather.
5	**Mitigate climate change by decarbonizing New Jersey's economy.**	High	Decarbonizing the economy is fundamental to achieving climate resilience, reducing greenhouse gas emissions, minimizing future climate risks, and building a more sustainable, equitable, and competitive economic future.
5A	Transition to 100% renewable energy.	Medium	Transitioning to 100% renewable energy is a cornerstone of climate resilience, reducing greenhouse gas emissions, stabilizing energy systems against climate risks, and promoting cleaner, more equitable communities.
5B	Reduce vehicle miles traveled and expand the use of zero emissions modes of transportation.	High	Reducing vehicle miles traveled and expanding zero-emission transportation are critical for cutting greenhouse gas emissions, improving air quality, and strengthening communities' resilience to climate and energy disruptions.
6	**Adapt infrastructure to contend with climate change, especially impacts that disproportionately affect vulnerable populations.**	High	Reducing pollution and mitigating climate change impacts are essential for advancing climate resilience, especially in socially vulnerable communities that face disproportionate environmental and health risks.
6A	Eliminate combined wastewater sewer systems and associated overflow.	Medium	Eliminating combined wastewater sewer systems and associated overflows can be critical for improving water quality, protecting public health, reducing flood risks, and strengthening community resilience to climate-driven extreme weather events.
6B	Eliminate lead pipes.		After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

6C	Invest in nature-based solutions that expand tree canopy and create more urban blue and green spaces.	Medium	Investing in green infrastructure and nature-based solutions can strengthen climate resilience by reducing urban heat, managing stormwater, improving air and water quality, and creating healthier, more adaptive communities.
6D	Expand the use of green infrastructure and green building materials.	Medium	Expanding the use of smart and green building materials may enhance climate resilience by improving energy efficiency, reducing carbon emissions, and creating structures better able to withstand climate stresses.
6E	Strictly limit development in floodplains.	High	Strictly limiting development in floodplains is essential for protecting lives, reducing property damage, maintaining natural flood mitigation functions, and strengthening community resilience to worsening climate-driven flood risks.
6F	Implement mandatory flood mitigation standards in new construction and restrict development in high-risk zones.	High	Implementing mandatory flood mitigation standards in new construction and restricting development in high-risk zones are proven strategies for reducing long-term disaster losses, enhancing community resilience, and adapting to escalating climate-driven flood risks.
6G	Advance brownfield remediation.		After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.
7	**Encourage sound and integrated planning.**	Medium	Encouraging sound and integrated planning strengthens climate resilience by coordinating land use, infrastructure, environmental management, and hazard mitigation to reduce risks and build more adaptive, sustainable communities.
7A	Integrate land use and transportation planning.	High	Integrating land use and transportation planning strengthens climate resilience by promoting

			compact, connected communities that reduce vehicle dependence, lower emissions, and enhance access to jobs, services, and safe mobility options.

Plan Impacts by Strategy (Climate)

1. Encourage center-based, compact, mixed-use development while protecting and preserving critical environmental resources and high-value agricultural lands

Urban planning literature increasingly supports center-based, compact, mixed-use development as a critical strategy for advancing climate resilience and protecting valuable environmental resources. Concentrating growth within existing urban footprints reduces vehicle miles traveled (VMT) and associated greenhouse gas emissions while preserving critical natural systems and agricultural lands needed for carbon sequestration and climate adaptation (Boyd & Juhola, 2014; Long & Rice, 2018).

Research also emphasizes that compact development, green infrastructure, and resource conservation strengthen communities' capacity to withstand climate-related hazards like extreme heat, flooding, and drought (Berke & Stevens, 2016). These strategies align with sustainable development principles by integrating land use, transportation, and environmental stewardship goals (Berke et al., 2014) to support climate resilience.

1A. Facilitate growth in Planning Areas 1, 2 and 3, and accommodate growth in Planning Areas 4-5 in centers

Preserving agricultural land and ecosystems in Planning Areas 4 and 5 plays a critical role in advancing climate resilience by safeguarding natural carbon sinks, maintaining biodiversity, and securing local food systems that are less vulnerable to supply disruptions (Hou, 2018). Protecting these lands enhances regional capacity to absorb climate shocks, while supporting local economies through sustainable agriculture and ecosystem-based industries.

Although development restrictions may raise concerns about housing supply and economic growth, strategic regional planning can direct compact, resilient development to more suitable areas, balancing climate adaptation goals with community needs (Dubois & Krasny, 2016).

1B. Recenter, redesign, and rebuild underutilized areas

Transforming vacant properties into mixed-use developments can contribute to climate resilience by promoting more efficient land use, reducing urban sprawl, and creating walkable, service-rich neighborhoods that lower transportation-related emissions (Cunningham & Fairburn, 2019; Meerow & Woodruff, 2019). Revitalizing underutilized spaces strengthens local economies, improves access to amenities, and can help communities better withstand environmental and economic shocks. Integrating affordable housing and community needs into redevelopment plans is essential to ensure equitable climate resilience benefits are shared (K. B. Best et al., 2023; Brennan et al., 2022; Brennan et al., 2021; Mehta et al., 2020).

1C. Protect habitat of resident and migratory threatened and endangered species

Protecting habitats for resident and migratory threatened and endangered species is essential for maintaining biodiversity, ecosystem services, and long-term ecological resilience, especially as climate change accelerates habitat loss and species decline (Connolly, 2019; Lele et al., 2018). Conservation planning research emphasizes that preserving interconnected and climate-adaptive habitats strengthens species' ability to survive environmental shifts and supports broader regional resilience goals (Angelo & Wachsmuth, 2020).

2. Foster greater diversity in the State's housing stock and reduce housing cost burden

Fostering greater diversity in housing stock and reducing housing cost burdens are key strategies for advancing climate resilience. These strategies help promote compact, accessible, and socially stable communities. Diverse and affordable housing options enable more residents, particularly vulnerable populations, to live near jobs, transit, and essential services, reducing transportation-related emissions and strengthening adaptive capacity during climate-related disruptions (Berke et al., 2019; Shi, 2020).

Research also shows that housing affordability is critical for community resilience, as cost-burdened households are less able to prepare for, withstand, and recover from environmental hazards (K. Best et al., 2023; K. B. Best et al., 2023; Brennan et al., 2022; Brennan et al., 2021).

3. Increase access to opportunity and remove barriers to mobility in overburdened communities by investing in transit and making walking and biking easier and safer

Expanding public transit and active transportation infrastructure significantly improves access to jobs, education, and services for historically overburdened communities, while also reducing household transportation costs and supporting social equity (Karner & Niemeier, 2013). Safe, accessible options for walking and biking not only enhance mobility but also contribute to lower greenhouse gas emissions and better public health outcomes (Litman, 2025).

Research emphasizes that equitable investment in multimodal transportation is critical for building inclusive, resilient communities in the face of climate and economic challenges.

4. Protect, maintain, restore, and enhance the State's natural resources

Safeguarding natural, historic, and water resources is critical for enhancing a region's climate resilience, sustaining ecosystem services like clean water and flood protection, and preserving cultural assets that reinforce community identity and social cohesion (Appler & Rumbach, 2016; Deslatte, 2022; Potter, 2019). Research highlights that proactive conservation and restoration efforts also help communities better adapt to climate change impacts by buffering environmental shocks and maintaining vital natural infrastructure (Chitra, 2021; Kim et al., 2024; Newman et al., 2022).

4A. Protect and restore wetlands and river and stream corridors

Well-restored wetlands and river corridors can adapt to and mitigate the impacts of climate change, ultimately enhancing the environment's overall sustainability and functionality (Dyckman, 2016; Freitag et al., 2015; Yu et al., 2020; Yu et al., 2023). Wetlands and river/stream corridors play a critical role in climate resilience by naturally absorbing floodwaters, filtering pollutants, supporting biodiversity, and buffering communities against the impacts of extreme weather events. Restoring and protecting these ecosystems strengthens adaptive capacity by enhancing water security, reducing urban heat, and preserving critical habitats under changing climate conditions. Investments in natural infrastructure are increasingly recognized as cost-effective strategies for sustainable and climate-resilient community development (Narain & Ranjan, 2023).

4B. Protect and enhance forest resources

Forests and trees are critical to climate resilience because they sequester carbon, regulate local and regional climates, stabilize soils, and provide essential ecosystem services that reduce vulnerability to climate change impacts (Abramson, 2019; Angelo et al., 2024; Gabbe et al., 2024; Stone et al., 2019). Protecting and restoring forest resources also safeguards biodiversity, improves watershed health, and strengthens the capacity of both human and natural systems to adapt to more frequent and intense climate stresses. Strategic forest conservation and management are essential components of resilient land use planning.

5. Mitigate climate change by decarbonizing New Jersey's economy

Decarbonizing the economy is essential for mitigating the root causes of climate change, reducing long-term environmental and public health risks, and creating more resilient energy, transportation, and industrial systems (IPCC, 2022). Transitioning to a low-carbon economy not only cuts emissions but also fosters innovation, improves air quality, and enhances economic stability in the face of climate-related disruptions (Finn & Cobbinah, 2022). Strategic investments in clean energy, electrification, and green infrastructure are critical to securing a resilient and prosperous future (McGuirk & Dowling, 2014; Moss & ̈esker, 2017; Rocher, 2016).

5A. Transition to 100% renewable energy

Achieving 100% renewable energy is critical for mitigating climate change, enhancing energy security, and reducing communities' vulnerability to fossil fuel price volatility and extreme weather disruptions (Moss & ̈esker, 2017). Renewable energy systems, particularly when paired with distributed generation and storage, build resilience by decentralizing energy infrastructure and ensuring more reliable access during climate emergencies (Jacobson et al., 2015). A full transition to clean energy also offers co-benefits, including improved air quality, public health, and economic innovation.

5B. Reduce vehicle miles traveled and expand the use of zero emission modes of transportation

Reducing vehicle miles traveled and promoting zero-emission transportation modes are essential strategies for lowering transportation-related greenhouse gas emissions, improving public health, and building more climate-resilient communities (Creutzig et al., 2015). Encouraging public transit, walking, biking, and electric vehicle adoption reduces reliance on fossil fuels, enhances energy security, and makes transportation networks less vulnerable to climate-related shocks like extreme weather and fuel supply disruptions (Karner & Niemeier, 2013). Integrated land use and

transportation planning are key to achieving these outcomes (Berke et al., 2015; Woodruff, 2022; Yu et al., 2023).

6. Adapt infrastructure to contend with climate change, especially impacts that disproportionately affect vulnerable populations

Addressing pollution and mitigating climate change impacts are critical strategies for building equitable climate resilience, as socially vulnerable populations often experience greater exposure to environmental hazards and have fewer resources to adapt (Berke et al., 2019; K. Best et al., 2023). Reducing emissions and investing in climate adaptation not only improves overall public health but also helps correct long-standing environmental injustices, ensuring that the benefits of resilience planning are distributed more fairly across all communities (Nance et al., 2022; Shi et al., 2015).

6A. Eliminate combined wastewater sewer systems and associated overflow

Improved water quality in local waterways enhances public health and supports aquatic ecosystems (Iuchi, 2014; Lele et al., 2018; Shinde, 2016; Wainger et al., 2017). Combined sewer overflows (CSOs) pose major risks to water quality, public health, and ecosystem health, especially as climate change increases the frequency and intensity of heavy rainfall events. Eliminating or upgrading these systems through green infrastructure, stormwater separation, and resilient design strategies significantly reduces pollution, mitigates urban flooding, and builds long-term adaptive capacity (Council, 2009). Hence, literature points to addressing CSOs as foundational to creating sustainable and climate-resilient urban water systems.

6B. Eliminate lead pipes

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

6C. Invest in nature-based solutions that expand tree canopy and create more urban blue and green spaces

Green infrastructure and nature-based solutions are proven strategies for enhancing urban climate resilience by reducing flooding, lowering urban heat island effects, and improving water and air quality (Barthel et al., 2013; Cunningham & Fairburn, 2019; Shi, 2020). Expanding tree canopy, restoring permeable landscapes, and creating more blue and green spaces also improve public health, strengthen biodiversity, and support social cohesion, making communities better equipped to adapt to climate-related stresses (Kabisch et al., 2017; Kim et al., 2024; Newman et al., 2022).

6D. Expand the use of green infrastructure and green building materials

Using smart and green building materials is a critical strategy for advancing climate resilience, as these materials improve energy efficiency, lower greenhouse gas emissions, and enhance buildings' durability against extreme weather events (Clar & Steurer, 2023; Kabisch et al., 2017). Incorporating sustainable, adaptive materials into construction reduces the environmental footprint of buildings while creating healthier indoor environments and lowering long-term operational costs (Stone et al., 2019).

6E. Strictly limit development in floodplains

Strictly limiting development in floodplains is a critical strategy for advancing climate resilience, reducing community exposure to increasing flood risks, and preserving the natural capacity of floodplains to absorb and slow floodwaters (Berke & Stevens, 2016; Brody & Highfield, 2007). Recent studies show that communities that consistently apply floodplain management practices through ordinances, land use planning, and growth controls experience less floodplain development and lower long-term vulnerability (Agopian et al., 2024; Siders et al., 2024). Proactive floodplain protection remains one of the most effective and equitable tools for minimizing future climate-related damages (Hino et al., 2023; Matos et al., 2023).

6F. Implement mandatory flood mitigation standards in new construction and restrict development in high-risk zones

Mandatory flood mitigation standards for new construction significantly reduce future disaster losses by strengthening building resilience and lowering repair and recovery costs (Berke et al., 2015; Mehta et al., 2020; Olshansky & Johnson, 2014). Recent studies show that communities that consistently enforce floodplain management policies through land use plans, ordinances, and program implementation experience far lower development in high-risk areas and better adapt to growing flood threats (Hino et al., 2023; Siders et al., 2024). These strategies are core to effective climate adaptation and risk reduction planning.

6G. Advance brownfield remediation

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

7. Encourage sound and integrated planning

Sound and integrated planning is essential for climate resilience because it coordinates land use, infrastructure investment, environmental protection, and hazard mitigation in ways that reduce long-term vulnerability and promote sustainable development (Berke et al., 2015; Conroy &

Wilson, 2023; Horney et al., 2017; Keith et al., 2023). Research shows that communities with integrated, high-quality plans are better able to align resources, anticipate climate risks, and implement effective adaptation strategies (Lyles et al., 2018; Yu et al., 2020).

Effective planning frameworks support both risk reduction and the creation of more equitable, livable communities under future climate scenarios (Kang et al., 2004; Karner & Niemeier, 2013; Matos et al., 2023; Woodruff, 2022; Woodruff et al., 2018).

7A. Integrate land use and transportation planning

Integrating land use and transportation planning is a critical strategy for climate resilience because it promotes compact development, reduces vehicle miles traveled, and supports multimodal mobility systems that are less vulnerable to climate disruptions (K. Best et al., 2023; Karner & Niemeier, 2013).

Research shows that coordinated planning enhances access to opportunities, lowers greenhouse gas emissions, and improves public health outcomes, while creating more adaptive, sustainable urban forms (Brand et al., 2021; Walker et al., 2014). The integration will be essential for managing growth, reducing environmental impacts, and enhancing community resilience to extreme weather and energy challenges.

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NARRATIVE 4: EQUITY

Topic Overview: Equity

The strategies outlined in the State Plan aim to improve equity by addressing long-standing disparities in housing, transportation, infrastructure, and environmental quality, particularly in historically underserved communities. Revitalizing underutilized spaces, such as vacant lots and brownfield sites, is designed to stimulate economic activity and improve living conditions. Similarly, diversifying housing options and placing affordable units in high-opportunity areas can dismantle patterns of segregation and increase access to essential services like education and healthcare. These efforts, when thoughtfully implemented, foster inclusive development and support upward mobility.

Transportation and infrastructure improvements are central to removing barriers to opportunity. Investing in reliable transit, safe active transportation, and eliminating outdated sewer systems and lead pipes directly enhances public health and mobility. By integrating land use and transportation planning, the plan promotes efficient, affordable, and accessible living environments. Initiatives such as expanding green spaces and transitioning to renewable energy further aim to reduce environmental burdens while offering economic benefits, particularly for low-income populations. These efforts not only build resilience against climate impacts but also improve quality of life.

However, implementing these strategies poses several challenges. Redevelopment efforts are often hampered by private ownership disputes, environmental contamination, and lack of funding. Achieving zoning reform, equitable transit access, and widespread infrastructure upgrades require sustained political will, community engagement, and careful coordination across agencies. Without these commitments, well-intended actions risk exacerbating displacement, reinforcing historical inequities, or failing to reach the most vulnerable populations. Success depends on a holistic, inclusive approach that centers equity at every stage of planning and implementation.

Summary Table of Equity Strategies

	Strategy	Evidence in Planning Literature	Summary
1	**Encourage center-based, compact, mixed-use development while protecting and preserving critical environmental resources and high-value agricultural lands.**		

1A	Facilitate growth in Planning Areas 1, 2 and 3, and accommodate growth in Planning Areas 4-5 in centers.		After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.
1B	Recenter, redesign, and rebuild underutilized areas.	High	Transforming vacant lots into vibrant, equitable spaces can address housing, employment, and community needs in underserved areas. Challenges such as private ownership, environmental contamination, and infrastructure issues complicate redevelopment efforts. Successful revitalization requires intentional design, long-term investment, and a commitment to equity to avoid perpetuating cycles of disinvestment and inequality.
1C	Protect habitat of resident and migratory threatened and endangered species.	Medium	Promising practice but insufficient data and methods available in the equity domain/research area for impact assessment.
2	**Foster greater diversity in the State's housing stock and reduce housing cost burden.**	High	Locating affordable housing in high-opportunity areas helps reduce cost burdens and expands access to quality education, healthcare, and jobs for marginalized communities. Achieving this requires zoning reforms, streamlined regulations, and targeted subsidies to support mixed-income developments and overcome barriers to equitable housing distribution. Without these efforts, segregation and poverty will persist, deepening existing disparities and weakening community resilience.
3	**Increase access to opportunity and remove barriers to mobility in overburdened communities by investing in transit and making walking and biking easier and safer.**	High	Investing in reliable, accessible transit and active transportation options can significantly reduce commute times and improve access to jobs, education, and healthcare for low-income and minority communities. Overcoming barriers like historical disinvestment and misaligned priorities requires

			coordinated funding, planning, and community engagement. Without action, mobility inequities will persist, limiting opportunity and reinforcing cycles of disadvantage.
4	**Protect, maintain, restore, and enhance the State's natural resources.**		
4A	Protect and restore wetlands and river and stream corridors.		After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.
4B	Protect and enhance forest resources.		After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.
5	**Mitigate climate change by decarbonizing New Jersey's economy.**		
5A	Transition to 100% renewable energy.	Medium	Expanding access to renewable energy through community-based programs can lower utility costs for low-income households and reduce dependence on fossil fuels. Ensuring equity in this transition requires meaningful community participation, safeguards against displacement, and support for workers affected by the shift. When implemented responsibly, this approach promotes environmental sustainability while advancing economic and social justice.
5B	Reduce vehicle miles traveled and expand the use of zero emissions modes of transportation.	Medium	Shifting to zero-emission transportation and reducing vehicle miles traveled can lower costs and pollution while improving mobility for low-income communities. Equitable implementation depends on inclusive planning, safe and accessible infrastructure, and prioritizing investments in underserved areas. Without these measures, the transition risks reinforcing existing

			disparities instead of delivering broad public health and economic benefits.
6	**Adapt infrastructure to contend with climate change, especially impacts that disproportionately affect vulnerable populations.**		
6A	Eliminate combined wastewater sewer systems and associated overflow.	High	Replacing outdated sewer systems that cause overflow during storms is essential to protecting public health in communities historically exposed to untreated wastewater. Green infrastructure and real-time control technologies can reduce these risks, but their success depends on equitable implementation and sustained community involvement. Without targeted investment and maintenance, vulnerable neighborhoods will remain at heightened risk from pollution and climate-related flooding.
6B	Eliminate lead pipes.	High	Removing lead pipes in high-risk neighborhoods is essential to protecting vulnerable communities from long-term health impacts, especially for children. Equitable implementation requires targeted data collection, community engagement, and infrastructure upgrades that improve—rather than reduce—access to safe drinking water. Without a careful, inclusive approach, efforts risk repeating past patterns of neglect and leaving marginalized populations exposed to preventable harm.
6C	Invest in nature-based solutions that expand tree canopy and create more urban blue and green spaces.	High	Expanding tree canopy and green spaces in low-income neighborhoods can significantly reduce heat exposure, improve air quality, and support better public health. To ensure long-term impact, these investments must include community

			participation, ongoing maintenance, and amenities tailored to local needs. Without equitable planning, green infrastructure may reinforce existing disparities rather than address them.
6D	Expand the use of green infrastructure and green building materials.		After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.
6E	Strictly limit development in floodplains.		After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.
6F	Implement mandatory flood mitigation standards in new construction and restrict development in high-risk zones.		After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.
6G	Advance brownfield remediation.	High	Cleaning up brownfield sites in historically overburdened neighborhoods reduces exposure to harmful pollutants and helps improve public health outcomes. Successful remediation requires clear communication, community engagement, and sustained investment to build trust and ensure long-term benefits. Without these measures, environmental and health disparities will continue to burden vulnerable communities.
7	**Encourage sound and integrated planning.**		
7A	Integrate land use and transportation planning.	High	Locating affordable housing near transit improves access to jobs, education, and services for marginalized communities while reducing transportation costs. To prevent displacement from rising demand in transit-rich areas, planners must prioritize inclusive engagement and implement protections like rent control and housing quotas. A balanced, community-centered approach

			ensures that increased connectivity also promotes long-term affordability and equity.

Plan Impacts by Strategy (Equity)

1. Encourage center-based, compact, mixed-use development while protecting and preserving critical environmental resources and high-value agricultural lands

1A. Facilitate growth in Planning Areas 1, 2 and 3, and accommodate growth in Planning Areas 4-5 in centers

Promising practice but insufficient data and methods available in the equity domain/research area for impact assessment.

1B. Recenter, redesign, and rebuild underutilized areas

The strategy to recenter, redesign, and rebuild underutilized areas focuses on transforming vacant or neglected urban parcels into vibrant, equitable, and productive community spaces. These parcels, often concentrated in disinvested neighborhoods, present critical opportunities to meet the housing, employment, and amenity needs of underserved populations through infill development (Schilling; Sorrentino et al., 2019; Sorrentino et al., 2008; Sorrentino et al., 2014). Land use changes, such as the removal or reduction of minimum parking requirements, can lower development costs and increase affordability in high-density, transit-rich areas (Chester et al., 2015). While the potential benefits are significant, implementation challenges persist. Many underutilized lots are privately owned, limiting municipal action and requiring costly acquisition or legal tools to encourage redevelopment (Kim et al., 2020; Schilling). Environmental contamination and deteriorating infrastructure further complicate revitalization and may lead to increased project costs that must be balanced with equity and affordability goals.

Equity must also guide how new public spaces are distributed and designed. Historically, low-income and minority neighborhoods have had smaller, lower-quality parks compared to wealthier areas, a disparity that must be addressed through intentional design and long-term investment (Rigolon, 2016; Rigolon et al., 2018). Cities must prioritize permanent transformations that are equitably funded and consistently maintained. When successful, this strategy improves public health, fosters community pride, and strengthens resilience. Without it, cities risk deepening cycles of disinvestment, environmental harm, and social inequity (Chester et al., 2015; Heckert, 2012; Kim et al., 2020; Rahman et al., 2024; Rigolon, 2016; Rigolon et al., 2018; Schilling; Sorrentino et al., 2019; Sorrentino et al., 2008; Sorrentino et al., 2014).

1C. Protect habitat of resident and migratory threatened and endangered species

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

2. Foster greater diversity in the State's housing stock and reduce housing cost burden

Increasing access to high opportunity areas through affordable housing can mitigate the cycle where low-income families are forced to spend disproportionate portions of their income on housing, leaving limited resources for other necessities. Mixed-income developments, in particular, can offer long-term affordability while attracting private investment and public amenities (Glover et al., 2017). To facilitate this, local governments must reform exclusionary zoning laws and remove regulatory constraints to promote more equitable housing distribution (Garde & Song, 2022; Glover et al., 2017). These efforts not only expand the availability of affordable units but also address the spatial concentration of poverty by opening access to quality education, healthcare, and employment opportunities.

However, successful implementation of this strategy requires overcoming substantial logistical and financial challenges. Affordable housing developments can be delayed or derailed by complex inter-agency coordination and high regulatory burdens, which may deter private developers (Glover et al., 2017). Moreover, without careful site selection, new units may end up in environmentally unsafe areas, such as floodplains, posing risks to residents (Mehta et al., 2020). Increased flexibility in subsidy programs, increases in dedicated funding, and additional outreach can build support for mixed-income communities. These steps will help foster inclusive development and ensure that marginalized groups thrive in safer, resource-rich environments. Failure to adopt this strategy would reinforce patterns of segregation and poverty, perpetuate inequities in education and health, and undermine long-term community resilience (Martens et al., 2022; Sawicki & Moody, 2000).

3. Increase access to opportunity and remove barriers to mobility in overburdened communities by investing in transit and making walking and biking easier and safer

To increase access to opportunity and remove barriers to mobility in overburdened communities, the strategy should center on equitable investment in transit infrastructure and active transportation options, guided by the Transit Access Equity indicator. This indicator evaluates whether transit improvements are effectively reducing commute times for low-income and minority communities, ensuring their access to critical services and opportunities (Lempert et al., 2020; Randal et al., 2020). Reliable transit is especially vital for these groups, as barriers to mobility often translate into limited economic, educational, and health prospects. Assessing the effectiveness of such improvements involves tracking pre- and post-implementation commute

times, ridership trends, and service accessibility, while also incorporating community feedback to address real-world obstacles (Martens et al., 2022; Sawicki & Moody, 2000). Enhancing last-mile connectivity through safer walking and biking infrastructure, combined with expanded transit frequency, can meaningfully improve quality of life for disadvantaged populations and strengthen their access to opportunity (Hwang et al., 2024).

Despite its potential, this strategy faces several challenges. Historical disinvestment has left many marginalized communities disconnected from quality transit, and while decarbonization remains a crucial environmental goal, it must not sideline the urgent access needs of vulnerable populations (Randal et al., 2020). Misaligned priorities may result in underinvestment in existing networks that low-income communities depend on. Addressing these barriers requires substantial funding, cross-agency collaboration, and land-use planning that aligns transit with affordable housing development (Hwang et al., 2024). Innovative financing tools like public-private partnerships, along with phased rollouts that incorporate community input, can help manage costs and increase effectiveness. If left unaddressed, transit inequity will deepen existing disparities in health, education, and employment, preventing marginalized groups from participating fully in their communities (Martens et al., 2022; Sawicki & Moody, 2000). A robust commitment to Transit Access Equity can therefore play a transformative role in advancing mobility justice and inclusive economic growth.

4. Protect, maintain, restore, and enhance the State's natural resources.

4A. Protect and restore wetlands and river and stream corridors

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

4B. Protect and enhance forest resources

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

5. Mitigate climate change by decarbonizing New Jersey's economy

5A. Transition to 100% renewable energy

Transitioning to 100% renewable energy is a critical strategy for expanding access to affordable renewable energy, especially for low-income households historically excluded from sustainable energy solutions. By prioritizing community-based programs such as solar cooperatives, this

strategy ensures that underserved populations can benefit from clean energy while reducing reliance on volatile fossil fuel markets. Stabilizing energy prices through renewables can alleviate the financial burden faced by economically vulnerable groups, who are disproportionately affected by fluctuating utility costs (Zenghelis, 2019). Local governance and procedural equity are vital to ensure meaningful participation from marginalized communities in energy planning, which has often been limited or excluded in the past (Paquet et al., 2021). Tracking the availability, affordability, and uptake of renewable energy technologies within these households will be key to evaluating this strategy's success (Cranmer et al., 2023; Levenda et al., 2021).

To ensure equitable implementation, the strategy must also account for and mitigate potential environmental and social harms. Large-scale renewable infrastructure projects can lead to land loss, displacement, and ecological disruption if developed without proper community input and environmental safeguards (Levenda et al., 2021). To address these concerns, place-based employment transition programs and compensation strategies should be adopted, particularly in regions historically dependent on fossil fuels. These programs can provide training and economic support for affected workers and communities, promoting a just transition to renewable energy (Austin et al., 2018; Zenghelis, 2019). Additionally, planning for long-term sustainability requires managing issues like photovoltaic waste and protecting local ecosystems to avoid replacing one environmental burden with another. Ultimately, a just and inclusive approach ensures that the shift to renewable energy enhances social equity while advancing climate resilience and public health.

5B. Reduce vehicle miles traveled and expand the use of zero emission modes of transportation

Reducing vehicle miles traveled (VMT) and expanding the use of zero-emission (ZE) modes of transportation is a crucial strategy to advance equitable access to zero-emission transportation and achieve reduced transportation costs, particularly for low-income communities. This approach centers on urban planning that promotes high residential and employment density, integrated land use, and infrastructure designed for walkability and multimodal access (Ding et al., 2017; Holz-Rau et al., 2014). Investments in features like connected bike lanes, reduced speed zones, and clearly marked transit routes can create safer, more accessible environments that encourage use of electric buses and shared electric vehicles (Fonseca et al., 2022; Gossling & McRae, 2022; Milton et al., 2021; Mölenberg et al., 2019; Pucher & Buehler, 2008). To support this, local governments must implement experimental governance models that enable innovation and stakeholder engagement while tracking zero emission transportation availability in underserved areas (Bonfert et al., 2024). This effort should also be assessed through comprehensive frameworks that measure both direct savings in transportation costs and indirect benefits, such as improved access to jobs, healthcare, and education (Meenar, Flamm, et al., 2019; Randal et al., 2020).

A socially equitable implementation of this strategy requires more than technological deployment—it necessitates meaningful community engagement and long-term institutional

learning to ensure innovations scale inclusively (Bonfert et al., 2024; Bulkeley & Broto, 2013). Without deliberate efforts to address disparities, the rollout of zero emission transportation risks favoring affluent neighborhoods and reinforcing systemic inequities (Bonfert et al., 2024; Nielsen et al., 2013). Upfront infrastructure costs and competing policy priorities, if not managed equitably, may divert attention and resources from communities most in need. To mitigate these risks, local governments should adopt fairness-focused planning, prioritize low-income communities in zero emission transportation investments, and leverage collaborative networks to build shared capacity (Bonfert et al., 2024; Randal et al., 2020). Failure to adopt this strategy would deepen mobility inequities, increase pollution exposure, and perpetuate financial hardship for low-income households, whereas a well-executed transition could reduce transportation burdens, improve public health, and promote resilient, inclusive urban environments (Randal et al., 2020; Zenghelis, 2019).

6. Reduce pollution and mitigate the severity of climate change impacts, especially when impacts disproportionately affect socially vulnerable populations

6A. Eliminate combined wastewater sewer systems and associated overflow

Eliminating combined wastewater sewer systems and associated overflow is a critical strategy for improving public health and environmental resilience in marginalized communities. The Health Impact Reduction indicator will track decreases in waterborne illnesses and related conditions in areas disproportionately affected by combined sewer overflow (CSO) events. These overflows occur when aging sewer infrastructure is overwhelmed by stormwater, discharging untreated wastewater into nearby water bodies and exposing vulnerable populations to gastrointestinal, respiratory, and dermatological health risks (Haley et al., 2024; Heck, 2021). Historically underserved neighborhoods face higher exposure due to disinvestment and lack of protective infrastructure, making the elimination of combined systems vital for addressing inequities. The strategy includes implementing green stormwater infrastructure (GSI) and real-time control (RTC) technologies to manage runoff, while monitoring public health data to evaluate success (Li & Burian, 2023; Rodriguez et al., 2024). As climate change intensifies rainfall patterns, this dual approach provides immediate relief and long-term resilience.

However, the strategy must be carefully implemented to avoid reinforcing existing disparities. Challenges such as inconsistent community engagement, uneven distribution of GSI, and the technical limitations of RTC systems can limit effectiveness if not proactively addressed (Heck, 2021; Meenar et al., 2018; Meenar, 2019). GSI systems, while cost-effective, require high maintenance and may degrade under increased climate stress, and RTC performance can falter during back-to-back storm events (Li & Burian, 2023). To mitigate these risks, communities must be meaningfully involved in planning processes, ensuring infrastructure reflects local needs and builds trust. Retrofitting GSI and RTC across existing systems in underserved neighborhoods, paired with increased investment in technological innovation, can correct past inequities and create more adaptable, equitable water management. Without these efforts, the persistence of

outdated sewer systems will continue to expose marginalized communities to environmental health hazards, limit access to safe water, and erode resilience under growing climate pressures (Mandarano & Meenar, 2017; Meenar, 2019).

6B. Eliminate lead pipes

Eliminating lead pipes is a vital strategy for reducing lead exposure in vulnerable communities, especially in low-income and minority neighborhoods where aging water infrastructure and historical disinvestment have compounded health risks. Lead is particularly dangerous to children, as it interferes with neurological development by mimicking calcium and binding to receptors in the brain, leading to cognitive impairments and behavioral issues (Billings & Schnepel, 2018). This strategy emphasizes prioritizing lead pipe removal in high-risk areas and using targeted data collection such as blood lead level testing in children and water sampling to monitor reductions in exposure. It also incorporates “right-sizing” principles to tailor infrastructure to current population needs without diminishing service availability, ensuring that resources are directed where they are most needed (Forsyth, 2021; Morckel, 2020; Sadler et al., 2021). When implemented equitably, this approach promotes both health equity and more sustainable infrastructure planning.

At the same time, the strategy should avoid replicating patterns of neglect that have historically affected marginalized areas. In previous infrastructure modernization efforts, “right-sizing” has at times led to service reductions and further isolation of vulnerable neighborhoods (Sadler et al., 2021). To prevent this, infrastructure adjustments should enhance, not reduce, access to safe drinking water. Inclusive planning that centers robust community engagement is critical to ensuring residents have a say in where and how lead pipe removal occurs. This input can help guide effective project prioritization while building public trust. Moreover, recognizing the historical context of infrastructure inequality is essential to designing interventions that actively address, rather than perpetuate, past harms. Without this comprehensive and community-driven approach, municipalities risk reinforcing the very inequities they seek to resolve, and failing to act would leave underserved communities to shoulder the ongoing burden of toxic exposure and deteriorating water systems (Forsyth, 2021; Sadler et al., 2021).

6C. Invest in nature-based solutions that expand tree canopy and create more urban blue and green spaces

Investing in green infrastructure and nature-based solutions to expand tree canopy, reduce impervious coverage, and create more urban blue and green spaces is a strategy with profound implications for both environmental sustainability and social equity. One crucial indicator to assess the success of such investments is tree canopy expansion in low-income areas. Low-income and marginalized communities are disproportionately affected by the urban heat island effect, where lack of green spaces leads to significantly higher temperatures. This exacerbates health risks, particularly in areas with limited access to cooling resources, such as air conditioning (Ibsen et al., 2024; Meenar et al., 2023; Wilson, 2020). Expanding tree canopy in these neighborhoods can

mitigate the heat island effect, reduce air pollution, and improve overall public health outcomes by providing shade, enhancing air quality, and lowering temperatures. Importantly, investments in green infrastructure must be paired with ongoing maintenance and community involvement to ensure sustainable and equitable benefits (Meenar et al., 2022). Such efforts not only improve environmental conditions but also foster a sense of ownership, community cohesion, and long-term resilience.

Another important indicator to measure is equitable access to green spaces. Marginalized populations, including low-income and minority communities, often face limited access to high-quality urban green spaces (Fitzgerald, 2022; Kim et al., 2022). Historically, these communities have been excluded from well-maintained parks and green areas, which are linked to numerous health benefits, such as improved mental health, physical activity, and reduced risk of chronic diseases (Li & Burian, 2023). By prioritizing the creation of green spaces in these underserved areas, cities can help level the playing field, promoting not only better health outcomes but also social equity. However, simply increasing access to these spaces is not enough—ensuring that these spaces are equipped with the necessary amenities and are designed to meet the specific needs of local communities is vital. Engaging residents in the planning and development of these spaces is essential to ensure that investments result in meaningful, lasting improvements for all urban populations, particularly those historically excluded (Fitzgerald, 2022; Meenar, 2019). Without such targeted efforts, the benefits of green infrastructure may disproportionately favor already advantaged neighborhoods, further deepening existing inequities.

6D. Expand the use of green infrastructure and green building materials

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

6E. Strictly limit development in floodplains

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

6F. Implement mandatory flood mitigation standards in new construction and restrict development in high-risk zones

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

6G. Advance brownfield remediation

Advancing brownfield remediation is a critical strategy to improve public health, particularly in overburdened communities that have historically borne the brunt of environmental hazards. Brownfields, often contaminated with toxic substances like heavy metals and volatile organic

compounds, are frequently located in low-income and minority neighborhoods, exposing residents to significant health risks such as respiratory issues, skin disorders, and chronic diseases (Hou et al.). By remediating these sites, the strategy directly addresses the harmful effects of air and soil contamination, which disproportionately affect these vulnerable populations. In addition to reducing health risks, brownfield remediation can revitalize neglected urban areas, transforming them into safer, usable spaces for housing, community development, and economic growth (Morar et al., 2021). This holistic approach fosters social equity, ensuring that marginalized communities gain access to cleaner, healthier environments, thereby improving public health outcomes and enhancing the overall quality of life for residents.

To effectively measure the success of brownfield remediation, one essential indicator is health improvements in overburdened communities. This involves not only tracking reductions in diseases associated with contamination but also incorporating community insights to assess perceived health improvements (Meenar, Howell, et al., 2019). A critical challenge in this process, however, is the lack of transparent communication regarding site contamination and cleanup efforts. Without clear, accessible information, residents may distrust the remediation process, hindering its potential benefits (Berman et al., 2022). To address this, it is vital to ensure consistent access to understandable, risk-based data and to prioritize community engagement throughout the remediation process. Additionally, adequate funding for brownfield cleanup is necessary to address both environmental hazards and the broader pollution disparities faced by marginalized communities. Without such efforts, the cycle of environmental degradation and public health risks will persist, exacerbating existing inequities and stalling progress toward healthier, more equitable urban environments (Berman et al., 2022; Morar et al., 2021).

7. Encourage sound and integrated planning

7A. Integrate land use and transportation planning

Integrating land use and transportation planning is a powerful strategy for creating more equitable urban environments, especially through the promotion of affordable housing near transit. This approach is vital for addressing systemic inequities, ensuring that affordable housing developments are situated in areas with enhanced transit connectivity, which is key for providing marginalized populations with access to essential services, employment, and educational opportunities (Hwang et al., 2024). Transit-oriented development (TOD) embodies this integrated strategy by promoting mixed-use neighborhoods centered around transit stations, thus improving mobility and fostering urban integration (Ibraeva et al., 2020; Zhang et al., 2021). However, to fully realize these benefits, it is important to track the quantity and affordability of housing near transit hubs, alongside gathering qualitative data on the experiences of marginalized communities, ensuring that integrated planning genuinely addresses their needs and promotes social equity.

While TOD presents numerous advantages, such as reducing transportation costs and alleviating poverty through greater access to jobs and services (Kaniewska et al., 2024), it also raises challenges related to social equity. One such challenge is the potential for gentrification, which

can result from increased demand for housing in transit-rich areas, leading to displacement for long-time residents (Derakhti & Baeten, 2020; Kaniewska et al., 2024). To mitigate this, planners must prioritize inclusive decision-making and engage marginalized communities early in the process to ensure their needs are met and their voices are heard (Karner & Levine, 2021). Additionally, strategies such as affordable housing quotas and rental stabilization efforts can help counteract the financial pressures of gentrification, protecting low-income residents from displacement. By focusing on both affordable housing near transit and a transparent, equitable planning process, cities can foster communities that balance improved transportation access with the preservation of affordability and social equity.

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NARRATIVE 5: INFRASTRUCTURE

Topic Overview: Infrastructure

The strategies proposed in the State Plan support investment in New Jersey's infrastructure across a variety of contexts, including transportation, housing, wastewater and stormwater management, energy, and green building. By investing in active transportation infrastructure and implementing Transit-Oriented Development, New Jersey can improve the safety and accessibility of walking, bicycling, and transit while reducing travel costs. At the same time, prioritizing adaptive reuse and infill development can support efforts to provide more market rate and low-income housing.

Retrofitting and replacing aging infrastructure can also help mitigate the negative health, economic, and environmental impacts of CSOs and stormwater flooding. Additionally, shifting from fossil fuels to renewable energy will secure more sustainable, equitable, and prosperous futures for communities worldwide. Overall, a coordinated approach to infrastructure investment that coordinates land use and transportation decisions will ensure that communities benefit from more efficient infrastructure, as well as development patterns that align with broader regional and state goals.

Summary Table of Infrastructure Strategies

	Strategy	**Evidence in Planning Literature**	**Summary**
1	**Encourage center-based, compact, mixed-use development while protecting and preserving critical environmental resources and high-value agricultural lands.**		
1A	Facilitate growth in Planning Areas 1, 2 and 3, and accommodate growth in Planning Areas 4-5 in centers.	Medium	Communities should strive to embrace compact and walkable cities by promoting higher-density, mixed-use developments that meet current demands for affordable housing and accessible communities.
1B	Recenter, redesign, and rebuild underutilized areas.	Medium	Vacant, blighted, unused, and underutilized land may be more efficiently used to bolster productivity

			within a community. This can be achieved through redevelopment plans and overlays that prioritize adaptive reuse, infill development and retrofitted structures, and provision of market rate and low-income housing units.
1C	Protect habitat of resident and migratory threatened and endangered species.		After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.
2	**Foster greater diversity in the State's housing stock and reduce housing cost burden.**	Medium	Infrastructure plans can be used to tackle unmet housing needs by incorporating an affordable housing element that promotes investments to increase housing stock diversity and reduce housing cost burden. Policies should focus on removing barriers to development while prioritizing projects that address unmet housing needs, including affordable housing needs.
3	**Increase access to opportunity and remove barriers to mobility in overburdened communities by investing in transit and making walking and biking easier and safer.**	High	Investing in the safety and accessibility of walking, bicycling, and transit can improve safety and reduce travel costs, especially in overburdened communities with the greatest need. Investment in active transportation infrastructure may be supported by safety analyses and an approach that emphasizes Transit-Oriented Development.
4	**Protect, maintain, restore, and enhance the State's natural resources.**		
4A	Protect and restore wetlands and river and stream corridors.	High	Efforts to protect and restore wetlands and river corridors are critical because wetlands provide numerous ecosystem services, including humidity control, soil erosion prevention, and water purification. Wetland restoration should focus on reconnecting wetlands separated by human activity

			to more accurately replicate natural hydrology.
4B	Protect and enhance forest resources.	Medium	Maintaining healthy, resilient forests not only secures critical ecosystem services for present and future generations but also lays the groundwork for sustainable economic opportunities tied to forest products and carbon markets.
5	**Mitigate climate change by decarbonizing New Jersey's economy.**		
5A	Transition to 100% renewable energy.	Medium	Shifting from fossil fuels to renewable energy will require building a robust infrastructure of renewable energy power plants, transmission lines, and storage facilities to ensure a reliable and stable energy supply. By investing in, and thoughtfully managing, the switch to renewable energy, policymakers and industry leaders can secure more sustainable, equitable, and prosperous futures for communities worldwide.
5B	Reduce vehicle miles traveled and expand the use of zero emissions modes of transportation.	Medium	After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.
6	**Adapt infrastructure to contend with climate change, especially impacts that disproportionately affect vulnerable populations.**		
6A	Eliminate combined wastewater sewer systems and associated overflow.	Medium	Eliminating CSOs will involve infrastructure investment in new wastewater treatment plants, monitoring systems, and green infrastructure such as rain gardens. In addition to technological improvements, policies should work toward building awareness, strengthening coordination, and engaging communities to understand the benefits of eliminating CSOs.

6B	Eliminate lead pipes.	Medium	Although the process of replacing lead service lines can be labor-intensive and time-consuming, it remains the most effective long-term solution for safeguarding public health. By prioritizing full replacement and fostering transparent engagement with all involved parties, utilities and regulators can help protect public health and maintain trust in the water supply.
6C	Invest in nature-based solutions that expand tree canopy and create more urban blue and green spaces.	High	Green infrastructure and blue-green infrastructure can effectively reduce combined sewer overflow (CSO) volume, enhance water quality, reduce flood risk, and improve quality of life. By adopting a holistic, context-driven approach that prioritizes the most vulnerable communities, policymakers and urban planners can ensure that BGI's numerous benefits, ranging from improved stormwater management to enhanced social equity, are realized by all.
6D	Expand the use of green infrastructure and green building materials.	Medium	Widespread adoption of smart building practices promises significant reductions in energy consumption and carbon emissions, fostering the development of more sustainable, self-sufficient urban environments. Given high initial investment costs and technical complexity, smart building should be supported by partnerships among government agencies, businesses, and academic institutions, as well as complementary regulatory frameworks that motivate the construction and retrofit sectors to prioritize eco-friendly, technology-driven building solutions.
6E	Strictly limit development in floodplains.		After a comprehensive review of the planning literature, it has determined

			that there is insufficient research on this topic to effectively evaluate it.
6F	Implement mandatory flood mitigation standards in new construction and restrict development in high-risk zones.	Medium	By applying robust flood mitigation standards, such as raising the elevation of buildings, fortifying structures, and building levees or flood walls, communities can reduce their exposure to severe weather and flood events. Through thoughtful, holistic planning, communities can incorporate flood defenses that shield development while minimizing negative environmental impacts.
6G	Advance brownfield remediation.	Medium	Successful remediation can fulfill several objectives, including urban densification, sustainability, and the creation of new green infrastructure. Specifically, converting contaminated land into usable green space helps improve physical and mental well-being, mitigate urban heat islands, and bolster flood management efforts.
7	**Encourage sound and integrated planning.**		
7A	Integrate land use and transportation planning.	Medium	When land use and transportation decisions are made in tandem, communities benefit from more efficient infrastructure, as well as development patterns that align with broader regional and state goals, including those in the New Jersey Development and Redevelopment Plan.

Plan Impacts by Strategy (Infrastructure)

1. Encourage center-based, compact, mixed-use development while protecting and preserving critical environmental resources and high-value agricultural lands

1A. Facilitate growth in Planning Areas 1, 2 and 3, and accommodate growth in Planning Areas 4-5 in centers

Communities should strive to embrace compact and walkable centers, which were largely abandoned with the rise in private car use in favor of strip malls, office parks, big box stores, and other large-scale single-use developments. Thanks in part to a culture shift in recent years, coupled with rising costs and inflation, many of these developments are experiencing high vacancies and unproductive lots. By revising existing zoning ordinances and promoting higher-density, mixed-use developments, local authorities or developers can retrofit these former commercial developments to meet current demands for affordable housing and accessible communities (Sustainable Development Solutions Network Thematic Group on Sustainable Cities). This would allow for the provision of more housing units overall, which should include affordable and low-income units, an increase in accessibility and connectivity to essential amenities, and a decrease in car dependence.

When undertaking these types of projects, the municipal zoning review process could be cumbersome and lengthy. Additionally, parking requirements could be hard to fight against if the areas targeted for development or redevelopment are not currently served by public transit. There may also be pushback from existing local businesses who commonly fear that they will be priced or pushed out. To overcome these obstacles, higher-level organizations, including counties and MPOs, can develop model ordinances that are compatible with the State Plan and other regional plans as well as customizable redevelopment plans.

1B. Recenter, redesign, and rebuild underutilized areas

Vacant, blighted, unused, and underutilized land may be more efficiently used to bolster productivity within a community. This can be achieved through redevelopment plans and overlays that prioritize adaptive reuse, infill development and retrofitted structures, and provision of market rate and low-income housing units. For example, big box stores and malls could be retrofitted to include multi-family housing (Delouya/Business Insider). Redesign strategies may also incorporate stormwater management tools that alleviate flooding such as minimizing new impervious surfaces and replacing existing surfaces with permeable pavement and other green infrastructure solutions.

1C. Protect habitat of resident and migratory threatened and endangered species

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

2. Foster greater diversity in the State's housing stock and reduce housing cost burden.

Infrastructure plans can be used to tackle unmet housing needs by incorporating an affordable housing element that promotes investments to increase housing stock diversity and reduce housing cost burden. This may guarantee funding for housing projects such as housing construction, housing renovation, and repairs. These infrastructure projects present small business opportunities that benefit low-income residents through job opportunities and institutions that bring capital into local economies. However, policies that enable construction of more diverse housing, including infill projects, will not necessarily address housing supply or affordability concerns on their own. In addition to policy, complex market factors can govern whether and when developers build housing (Gilbert & Gurran, 2021). Therefore, policies should focus on removing barriers to development while prioritizing projects that address unmet housing needs, including affordable housing needs (Gilbert & Gurran, 2021).

3. Increase access to opportunity and remove barriers to mobility in overburdened communities by investing in transit and making walking and biking easier and safer

Investing in the safety and accessibility of walking, bicycling, and transit can improve safety and reduce travel costs, especially in overburdened communities with the greatest need. By offering low-cost mobility options that are integrated with established transportation systems, these investments expand both transportation and job accessibility. A critical step is to thoroughly assess pedestrian safety, sidewalk facilities, and ADA accessibility. Safety analyses must also address crash rates, injuries, and killed or seriously injured (KSI) data to pinpoint high-risk areas. Additionally, a Transit-Oriented Development (TOD) approach that emphasizes well-planned, high-density neighborhoods can help ensure new infrastructure supports transit and active modes of travel.

Without concerted investment in transit and active transportation infrastructure, marginalized communities will continue to bear the heaviest financial burden of mobility and endure the largest gaps in infrastructure, job access, and pedestrian or cyclist safety (Eric D., 2025). Alternatively, focusing resources on equitable transit and micromobility improvements can meaningfully

address these disparities, leading to more inclusive, safer, and healthier communities (Cheng J., Dec 2024; Eric D., 2025).

4. Protect, maintain, restore, and enhance the State's natural resources

4A. Protect and restore wetlands and river and stream corridors

Protection and restoration of wetlands and river or stream corridors involves a wide array of approaches ranging from preservation and conservation to reconstruction and the construction of entirely new wetland areas (Lin et al., 2022). These efforts are critical because wetlands provide numerous ecosystem services, including humidity control, soil erosion prevention, and water purification. Research suggests that constructed wetlands can maintain high levels of species diversity across trees, shrubs, and herbs, contributing substantially to ecological balance and resilience (Lin et al., 2022). A promising strategy for more holistic wetland restoration is the adoption of Operational Landscape Units (OLUs), which group interconnected landscape patches – both hydrologically and biologically – to restore larger portions of floodplains. This approach helps reconnect areas of the wetland separated by human activity and more accurately replicates natural hydrology (Verhoeven et al., 2008).

Urban wetlands face a unique set of challenges: barriers alter water regimes, contamination from wastewater is common, land-use changes drive habitat loss, and invasive species can outcompete native flora and fauna (Somayeh A., 2021). To overcome these obstacles, stakeholders must be engaged in sustainable urban wetland management, supported by public awareness campaigns that highlight the importance of wetland ecosystem services and benefits (Somayeh A., 2021). By prioritizing comprehensive restoration that avoids the pitfalls of rushed or poorly managed projects that risk introducing invasive species, communities can ensure healthier wetlands and waterways for present and future generations.

4B. Protect and enhance forest resources

Healthy forests provide a suite of essential ecosystem services, including carbon sequestration, biodiversity maintenance, and climate regulation, which are all critical components of global environmental stability. (See the Climate Change topic area for more detail.) Forests also ensure the ongoing availability of forest products such as energy resources, building materials, and food (S. Trumbore, 2015).

Failing to protect and enhance forest resources carries tangible consequences. Without proactive measures, forests may face increasing land-use pressures, higher risks of degradation, and uncertainty around evolving carbon credit regulations (S. Trumbore, 2015; Rattan L., 2007). By contrast, maintaining healthy, resilient forests not only secures critical ecosystem services for

present and future generations but also lays the groundwork for sustainable economic opportunities tied to forest products and carbon markets.

5. Mitigate climate change by decarbonizing New Jersey's economy

5A. Transition to 100% renewable energy

Shifting from fossil fuels to renewable energy is a critical strategy for mitigating climate change and addressing the state's growing energy needs. This transition requires building a robust infrastructure of renewable energy power plants, transmission lines, and storage facilities to ensure a reliable and stable energy supply (Lehmann et al., 2024). When executed effectively, the development of these renewable systems can deliver tangible local benefits, including meeting rising energy demands, boosting local power supply, generating tax revenues, and creating employment and development opportunities (Lehmann et al., 2024).

At the same time, renewable energy infrastructure can bring certain challenges. The construction and maintenance of energy installations and the associated infrastructure built during exploration can cause environmental degradation if not handled responsibly. Local communities may also grapple with noise pollution, altered landscape aesthetics, and shifts in property values (Kolati & Raghulta, 2025; Greiner & Klagge, 2024; Lehmann et al., 2024).

Nevertheless, advancements in renewable technology and infrastructure are improving energy affordability and accessibility for underserved populations—especially where modernized transmission and distribution networks are in place (Kolati & Raghulta, 2025). Through careful planning, ancillary energy infrastructure can yield widespread benefits for local populations by creating labor opportunities and adding long-term improvements like new roads and water systems. Long-range planning helps ensure that these infrastructure upgrades continue to serve communities even after construction is complete or the energy facilities have been decommissioned (Greiner & Klagge, 2024).

5B. Reduce vehicle miles traveled and expand the use of zero emission modes of transportation

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

6. Adapt infrastructure to contend with climate change, especially impacts that disproportionately affect vulnerable populations

6A. Eliminate combined wastewater sewer systems and associated overflow

A key step toward safeguarding New Jersey's natural, historic, and water resources involves eliminating combined wastewater sewer systems (CSOs) and the overflows they generate. The state's aging infrastructure is long overdue for replacement, creating an opportunity to address antiquated systems that pose significant public health risks. Health authorities should formulate policies that enhance environmental surveillance and enable real-time monitoring of sewer overflow. Soft infrastructures, optimized sewer maintenance, and prescreening of overflow can help reduce stormwater burdens on wastewater treatment plants, curtail pathogen transmission, and mitigate marine plastic pollution (Adebayo O. S., 2022).

Although the process of phasing out CSOs will require substantial investment—encompassing new wastewater treatment plants, monitoring systems, and green infrastructure such as rain gardens—failure to do so risks long-term environmental degradation and persistent threats to public health. Urban space constraints for implementing these infrastructure solutions, alongside ongoing maintenance costs, can further complicate progress (Adebayo O. S., 2022). Overcoming these challenges will demand both technological improvements and concerted efforts to cultivate public acceptance, which remains the most decisive driver of new infrastructure adoption (Krishna P. D., 2017). Policies aimed at building awareness, providing education, strengthening coordination, and engaging communities can help dismantle the barriers to eliminating CSOs.

6B. Eliminate lead pipes

In the context of drinking water infrastructure, removing lead service lines is a vital step in reducing exposure to harmful levels of lead. Although the process of replacing lead service lines can be labor-intensive and time-consuming, it remains the most effective long-term solution for safeguarding public health (Sweeney, 2020). While partial lead service line replacement (PLSLR) has historically been common practice, it can exacerbate corrosion and increase lead leaching into downstream water supplies (Locsin & Kutzing, 2024). In contrast, a carefully planned and executed full-service line replacement program can streamline the process. To ensure the public is well-informed and supportive, consistent communication with customers, elected officials, media, and healthcare professionals is essential (Sweeney, 2020).

6C. Invest in nature-based solutions that expand tree canopy and create more urban blue and green spaces

Blue-green infrastructure (BGI) and green infrastructure (GI) encompass a range of nature-based strategies to capture and filter stormwater runoff, thereby lessening reliance on traditional “gray” stormwater management systems (Pallathadka et al., 2022). Examples of BGI include both large-scale treatments (such as retention ponds and detention basins) and small-scale interventions (such as rainwater cisterns, green roofs, bioswales, and porous pavements). When combined thoughtfully, these methods can effectively reduce combined sewer overflow (CSO) volume, enhance water quality, reduce flood risk, and improve quality of life (Cavadini, Rodriguez, & Cook, 2024; Moghanlo & Raimondi, 2025). See Infrastructure Strategy 4A for more detail on CSOs.

Despite these benefits, green infrastructure investments often occur in wealthier or predominantly white neighborhoods, leaving low-income communities and communities of color underserved (Pallathadka et al., 2022). Yet these same communities are frequently the most at risk for stormwater flooding. Without deliberate planning to prioritize neighborhoods prone to flooding and those historically facing disinvestment, the social, environmental, and economic advantages of BGI may bypass the communities that need them most.

Additionally, while certain GI strategies can significantly mitigate stormwater runoff, they require careful design and ongoing maintenance. For instance, detention ponds may inadvertently prolong runoff inflow into sewer systems, potentially increasing the number of CSO discharge days (Cavadini, Rodriguez, & Cook, 2024). Strategic design, such as expanding pond storage capacity and implementing real-time monitoring systems, can alleviate these issues by controlling outflow more effectively (Cavadini, Rodriguez, & Cook, 2024).

Absent investment in blue-green infrastructure, excess stormwater from rain events will continue to overwhelm existing stormwater systems, perpetuating flood risks and related public health concerns. By adopting a holistic, context-driven approach that prioritizes the most vulnerable communities, policymakers and urban planners can ensure that BGI’s numerous benefits, ranging from improved stormwater management to enhanced social equity, are realized by all.

6D. Expand the use of green infrastructure and green building materials

Widespread adoption of smart building practices promises significant reductions in energy consumption and carbon emissions, fostering the development of more sustainable, self-sufficient urban environments. These practices span a variety of technologies, including power and lighting systems, building operation and maintenance tools, HVAC systems, and the smart management of appliances within buildings (Lee, 2024). In particular, HVAC technologies command a substantial portion of the market and show notable growth potential for improving overall efficiency and indoor environmental quality (Lee, 2024). Retrofitting existing buildings with insulation upgrades, modern windows, and green roofs can yield high energy savings, while implementation

of smart building materials can promote healthier indoor spaces (Silva et al., 2024; Lee, 2024; Kalani & Kalani, 2024).

Despite these advantages, high initial investment costs and the technical complexity of smart building systems pose implementation challenges (Lee, 2024; Silva et al., 2024). Overcoming these hurdles requires continued technology development through partnerships among government agencies, businesses, and academic institutions. Complementary regulatory frameworks and incentive programs can also motivate the construction and retrofit sectors to prioritize eco-friendly, technology-driven building solutions (Lee, 2024).

6E. Strictly limit development in floodplains

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

6F. Implement mandatory flood mitigation standards in new construction and restrict development in high-risk zones

Flooding poses significant risks to buildings, roads, and other infrastructure, leading to property damage and compromised transportation network performance (Lu et al., 2024). Targeted interventions, such as stream channel modifications, can help guide stormwater away from critical assets by enlarging and stabilizing channels near developed areas (Berke, Song, & Stevens, 2009). Likewise, protecting wetlands, conserving soil and natural contours, minimizing floodplain fill, and preserving floodplain vegetation can enhance the natural ability of landscapes to handle elevated water volumes (Berke, Song, & Stevens, 2009). See Infrastructure Strategy 4C for more detail.

By applying robust flood mitigation standards, such as raising the elevation of buildings, fortifying structures, and building levees or flood walls, communities can reduce their exposure to severe weather and flood events (Lu et al., 2024; Berke, Song, & Stevens, 2009). Restricting development in floodplains helps maintain the natural functionality of these areas, preventing unnecessary infrastructure from being placed in high-risk zones and allowing ecosystems to mitigate flooding more effectively (Berke, Song, & Stevens, 2009).

It is important, however, to apply solutions such as stream channel modifications with care, as these measures can inadvertently shift flood risks downstream (Berke, Song, & Stevens, 2009). Through thoughtful, holistic planning, communities can incorporate flood defenses that shield development while minimizing negative environmental impacts. Failing to implement or comply with comprehensive flood mitigation standards, including limiting floodplain development, ultimately exposes infrastructure to avoidable threats posed by floods and severe weather (Berke, Song, & Stevens, 2009).

6G. Advance brownfield remediation

Brownfields, which are defined by the US Environmental Protection Agency as “abandoned, idled, or underused industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination”, present environmental challenges and opportunities for urban revitalization. Successful remediation can fulfill several objectives, including urban densification, sustainability, and the creation of new green infrastructure. These projects, termed “brownfield greening,” transform once-polluted sites into green spaces, parks, or protected forest areas (Hou et al., 2021; Chen & Hashimoto, 2025; He, Zainol, & Azali, 2024).

By increasing the amount of accessible green space, brownfield remediation confers environmental and public health benefits. Specifically, converting contaminated land into usable green space helps improve physical and mental well-being, mitigate urban heat islands, and bolster flood management efforts (Chen & Hashimoto, 2025). However, the technological and operational complexities of remediation often pose obstacles, including identifying and safely disposing of pollutants, dealing with legacy infrastructure, and securing the necessary professional expertise can complicate each project’s execution (He, Zainol, & Azali, 2024).

Site-specific management strategies and decision-support systems offer pathways to navigate these technical challenges, ensuring sustainable outcomes for both communities and the environment (He, Zainol, & Azali, 2024). Conversely, failing to advance brownfield remediation deprives communities of the potential benefits of expanded green infrastructure, such as stormwater mitigation and improved climate resilience, and perpetuates the health risks linked with contamination. By investing in remediation, municipalities can transform underused, polluted sites into vibrant green assets that enhance quality of life and environmental stewardship.

7. Encourage sound and integrated planning

7A. Integrate land use and transportation planning

Land use and transportation are intertwined, with transportation infrastructure acting as a key driver of urban development and shifts in land use and land cover (Madahi et al., 2023). In particular, areas served by transit stations and airports often experience continuous urban growth. To encourage coordinated development, “policy packaging” has emerged as a valuable strategy, combining multiple cross-sector policies that bolster both policy implementation and overall effectiveness (Buser et al., 2025).

When land use and transportation decisions are made in tandem, communities benefit from more efficient infrastructure, as well as development patterns that align with broader regional and state goals, including those in the New Jersey Development and Redevelopment Plan. However, challenges persist due to sectoral and governance barriers; transportation infrastructure typically requires regional-scale planning, whereas land use oversight remains largely at the local level

(Buser et al., 2025). Clear delineation of roles across different levels of government, along with procedural guidance, can help bridge these gaps and foster collaboration.

Failing to integrate land use and transportation planning can lead to inefficient infrastructure deployment and missed opportunities. By contrast, thoughtful policy packaging at multiple scales creates a mutually supportive relationship between transportation networks and land use strategy, enabling economic development, improving mobility, and advancing the State's environmental and social objectives.

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NARRATIVE 6: HEALTH

Topic Overview: Health

If implemented, the strategies advanced by the State Plan will have net positive impacts on the public health of New Jersey residents. Several of the Plan's strategies support the reduction of emissions and greenhouse gases from both the transportation and energy sectors, which in turn mitigates the negative health impacts from air pollution and particulate matter. Efforts to promote increased walking, biking, micromobility, and transit use will not only reduce vehicle emissions, but increase opportunities for physical activity which benefits both physical and mental health.

Environmentally focused strategies to expand the use of green infrastructure, mitigate flooding, and remediate brownfields, coupled with the elimination of lead pipes and combined sewer overflows, will limit exposure to toxins and the spread of disease. In addition, the protection of New Jersey's forest resources will improve air quality and support cognitive and immune function. Diversifying the state's housing stock and reducing housing cost burden will reduce the stress associated with housing insecurity, as well as the health risks posed by poor quality housing.

When implementing these diverse strategies, it will be critical to focus investments to ensure the benefits to physical and mental health reach those living in communities with the greatest need.

Summary Table of Health Strategies

	Strategy	**Evidence in Planning Literature**	**Summary**
1	**Encourage center-based, compact, mixed-use development while protecting and preserving critical environmental resources and high-value agricultural lands.**		
1A	Facilitate growth in Planning Areas 1, 2 and 3, and accommodate growth in Planning Areas 4-5 in centers.		After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.
1B	Recenter, redesign, and rebuild underutilized areas.		After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

1C	Protect habitat of resident and migratory threatened and endangered species.		After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.
2	**Foster greater diversity in the State's housing stock and reduce housing cost burden.**	High	Inclusionary housing policies that diversify housing stock and reduce cost burden improve physical and mental health by reducing the stress associated with housing insecurity, as well as the health risks posed by poor quality housing. Policies aimed at eliminating residential segregation can increase access to green space and reduce exposure to air and noise pollution, which can have particular benefits for communities of color impacted by environmental racism.
3	**Increase access to opportunity and remove barriers to mobility in overburdened communities by investing in transit and making walking and biking easier and safer.**	High	Increasing the feasibility of walking, bicycling, and transit as modes of transportation can improve mental and physical health through reduced vehicle emissions and increased opportunities for physical activity. Strategies to increase active transportation should incorporate robust safety interventions that protect vulnerable road users, including physical design elements and lighting.
4	**Protect, maintain, restore, and enhance the State's natural resources.**		
4A	Protect and restore wetlands and river and stream corridors.	Medium	Protecting and restoring wetlands and river corridors will produce cleaner air, land, and water by removing contaminants, sequestering carbon, and increasing habitat connectivity.
4B	Protect and enhance forest resources.	High	Protection and enhancement of New Jersey's forest resources will result in physical and mental health benefits such as improved cognitive and immune function, pain relief, and

			reduced hypertension, anxiety, and depression.
5	**Mitigate climate change by decarbonizing New Jersey's economy.**		
5A	Transition to 100% renewable energy.	Medium	By transitioning to 100% renewable energy, New Jersey can reduce the use of fossil fuels and their associated negative health impacts. Fossil fuel-dependent technologies can release harmful levels of compounds like sulfur dioxide, nitrogen oxide, carbon dioxide, and heavy metal particulates into the atmosphere, water, and soil.
5B	Reduce vehicle miles traveled and expand the use of zero emissions modes of transportation.	High	Reduction of vehicle miles traveled and expansion of zero emission modes of transportation will reduce air pollution and greenhouse gas emissions, both of which have negative health impacts. The use of electric mobility such as e-bikes and e-scooters can increase access to active travel modes for the young, the elderly, and the mobility-impaired, shifting transportation mode share away from internal combustion engines and toward zero emission modes that can improve physical and mental health. Policies should focus on populations vulnerable to poverty, historically redlined communities, and vehicle-dependent individuals.
6	**Adapt infrastructure to contend with climate change, especially impacts that disproportionately affect vulnerable populations.**		
6A	Eliminate combined wastewater sewer systems and associated overflow.	High	Eliminating combined sewer overflows (CSOs) removes pathways through which pathogens can reach humans, reducing the risk of infection of gastrointestinal diseases. CSO

			elimination should be a strategic process focused on replacing combined sewer systems or implementing blue-green infrastructure in the places that need it most.
6B	Eliminate lead pipes.	High	Eliminating lead pipes reduces prenatal and neonatal health risks, including birth defects and neurological damage. Longer-term benefits include improved cognitive function and increased academic performance. Lead service lines should be fully replaced whenever feasible, as partial line replacement can carry health risks.
6C	Invest in nature-based solutions that expand tree canopy and create more urban blue and green spaces.	Medium	Investment in green infrastructure improves cardiovascular health by removing airborne and waterborne pollutants, increasing green space, and reducing impervious coverage. Green infrastructure also mitigates the urban heat island affect and reduces risk of heat-related illness.
6D	Expand the use of green infrastructure and green building materials.		After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.
6E	Strictly limit development in floodplains.		After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.
6F	Implement mandatory flood mitigation standards in new construction and restrict development in high-risk zones.	Low	Mandatory flood mitigation standards will increase the resiliency of critical infrastructure, mitigating the spread of diseases and risks associated with electrocution or drowning.
6G	Advance brownfield remediation.	High	Advancing brownfield remediation will reduce exposure to toxic metals such as lead and mercury, which in turn leads to reduced neurological damage, increased cognitive function, and reduced risk of kidney or cardiovascular disease. Brownfield

			remediation efforts should completely eliminate any form of contamination, especially for heavily polluted sites.
7	**Encourage sound and integrated planning.**		
7A	Integrate land use and transportation planning.	Medium	After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

Plan Impacts by Strategy (Health)

1. Encourage center-based, compact, mixed-use development while protecting and preserving critical environmental resources and high-value agricultural lands

1A. Facilitate growth in Planning Areas 1, 2 and 3, and accommodate growth in Planning Areas 4-5 in centers

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

1B. Recenter, redesign, and rebuild underutilized areas

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

1C. Protect habitat of resident and migratory threatened and endangered species

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

2. Foster greater diversity in the State's housing stock and reduce housing cost burden

Efforts to promote greater housing stock diversity and reduce housing cost burden will have positive impacts on New Jersey residents by reducing mental health risks and sleep disturbance associated with housing insecurity (Prasanth et al., 2024; Mason et al., 2024). Given that these risks are more pronounced for renters, younger people, and households with children, special attention should be given to these more vulnerable constituencies (Hess et al., 2024). For children

in particular, reduced housing cost burden can improve cognitive and behavioral health and academic performance. Higher-quality housing will also reduce the physical health risks associated with mold, pests, poor ventilation, and lead paint (Anyanwu & Beyer, 2024).

Greater housing diversity can also support reduced residential segregation, which decreases the risk of disease and lowers mortality for low-income individuals, primarily due to increased exposure to greenness and reduced exposure to nitrogen dioxide and road noise (Prasanth et al., 2024). Reduced residential segregation also aligns with other State Plan goals, such as those seeking to address environmental racism and the negative impacts of pollution, noise, and extreme heat which are concentrated in communities of color. To ensure that efforts to diversify housing and lower cost burden continue to align with environmental goals, inclusionary housing policies should focus on densification of housing as a means to promote affordability and preserve green space.

3. Increase access to opportunity and remove barriers to mobility in overburdened communities by investing in transit and making walking and biking easier and safer

Increasing the feasibility of walking, bicycling, and transit as modes of transportation can improve mental and physical health through reduced vehicle emissions and increased opportunities for physical activity. Research indicates that improvements to physical and mental health are especially pronounced among cyclists who show a reduced risk of cardiovascular disease, obesity, various types of cancer, type-2 diabetes, depression, and mortality (Gössling et al., 2019; Oja et al., 2011; Sommar et al., 2021; Avila-Palencia et al., 2018). In addition, increased use of active transportation has been shown to reduce air and noise pollution and greenhouse gas emissions, resulting in positive impacts on both human health and the environment (de Nazelle et al., 2011).

Importantly, however, those using active travel modes (such as walking or bicycling) are disproportionately affected by fatal and serious injury crashes with motorists. Cyclist-involved crashes in low-income neighborhoods are more likely to be fatal (Younes et al, 2023). Strategies to increase active transportation should therefore incorporate robust safety interventions, including physical design elements that protect vulnerable road users and lower speeds, to reduce the risk of fatality. Adequate lighting can also play a major role in reducing fatality risk for vulnerable road users (Younes et al, 2023). Safe bicycle infrastructure should be focused in low-income areas that are currently less likely to have it.

4. Protect, maintain, restore, and enhance the State's natural resources

4A. Protect and restore wetlands and river and stream corridors

Protecting and restoring wetlands and river corridors will produce cleaner air, land, and water. Constructed or restored wetlands can remove chlorine, heavy metals, herbicides, nitrogen, and other contaminants from the water supply. In addition, wetlands can capture and sequester carbon, reducing the greenhouse effect (Rogerson et al, 2022). Protecting and restoring wetlands and river corridors will also increase habitat connectivity that sustains ecological systems and biodiversity to support cleaner air, land, and water (Bowers and McKnight, 2012).

Protection of wetlands and natural ecosystems is preferred as reconstructed wetlands do not provide the same quality of ecosystem services that natural wetlands do. Site areas should be carefully studied to design effective wetlands given the particularities of each environment (Rahman et al, 2020).

4B. Protect and enhance forest resources

Protection and enhancement of New Jersey's forest resources will result in many physical and mental health benefits. Forests offer green scenery, soil, fresh air, sunlight, clean water, and the sounds of running water and bird song. Forest therapy can improve mental health, cognitive function, immune function, and pain relief, as well as mitigate hypertension (Le Gear et al, 2023). Exposure to forest environments is also associated with decreased anxiety and depression. Forests sequester nearly one-third of carbon dioxide, promoting physical health and well-being (Le Gear et al, 2023).

Public health crises like the COVID-19 pandemic can contribute to increased forest visitation as people seek the health, social, and recreational benefits of these natural resources (Cieselski et al., 2025). To manage this increased demand, forest managers should adapt by planning for adequate forest infrastructure that accommodates human activity and promotes health benefits while ensuring that forests are protected.

5. Mitigate climate change by decarbonizing New Jersey's economy.

5A. Transition to 100% renewable energy

By transitioning to 100% renewable energy, New Jersey can reduce the use of fossil fuels and their associated negative health impacts. Fossil fuel-dependent technologies can release harmful levels of compounds like sulfur dioxide, nitrogen oxide, carbon dioxide, and heavy metal particulates into the atmosphere, water, and soil (Zhu et al., 2022). Research indicates that

widespread transition to battery electric vehicles is associated with increased life expectancy, reduced noise pollution, and increased productivity and economic growth (Okesanya et al., 2024).

Battery energy storage systems (BESS), which are increasingly used to store energy in residential, commercial, and industrial contexts, are useful in stabilizing the power grid and providing emergency power, minimizing the chances of a power outage. The lithium-ion batteries used in BESS can be susceptible to fires due to overcharging, overheating, or mechanical abuse. However, battery management systems (BMS), which monitor and optimize battery performance and disconnect BESS modules if a problem is detected, can reduce the risk of a battery fire (Conzen et al., 2023).

5B. Reduce vehicle miles traveled and expand the use of zero emission modes of transportation

Reduction of vehicle miles traveled and expansion of zero emission modes of transportation will reduce air pollution and greenhouse gas emissions, both of which have negative physical and mental health impacts, including respiratory infections, low birth weight, cognitive impairment, and heightened risk of suicide (Gössling et al., 2019; Basu et al., 2014; Bakian et al., 2015). Additionally, the use of electric mobility such as e-bikes and e-scooters can increase access to active travel modes for the young, the elderly, and the mobility-impaired, shifting transportation mode share away from internal combustion engines and toward zero emission modes that can improve physical and mental health.

Low- and middle-income communities are most impacted by the negative impacts of emissions, including higher rates of respiratory disease, cardiovascular disease, and mortality (Huether, 2021). Transportation electrification has the potential to address disparities in health equity, though it will require utilities and providers of electric vehicle infrastructure to meaningfully engage with underserved communities to ensure the success of electric vehicle implementation. Policies should focus on populations vulnerable to poverty, historically redlined communities, and vehicle-dependent individuals (Huether, 2021; Baldwin et al., 2021).

6. Adapt infrastructure to contend with climate change, especially impacts that disproportionately affect vulnerable populations.

6A. Eliminate combined wastewater sewer systems and associated overflow

Eliminating combined sewer overflows (CSOs) reduces the risk of infection of gastrointestinal diseases by removing pathways through which pathogens can reach humans. People can contract these pathogens by inhaling droplets, ingesting them via hand-to-mouth contact, consuming contaminated drinking water, through the food chain, or by directly coming into contact

with polluted water during recreational activities (Aghdam et al, 2023; Zan et al, 2023; Sojobi & Tayed, 2022). Eliminating CSOs would also improve water quality in recreational spaces, such as lakes and rivers where people swim, affording the public opportunities to enjoy these resources with a decreased risk of infection (Zan et al, 2023).

Currently, combined sewer system replacement occurs opportunistically rather than strategically. As a result, the areas that are most in need of replacement or implementation of blue-green infrastructure often don't receive it in a timely manner (Petrucci et al, 2025). Strategically prioritizing the replacement of combined sewer systems can help identify and target the areas that are most vulnerable to the negative repercussions of CSO events. This approach allows for more efficient action to eliminate combined sewer systems or implement blue-green infrastructure in the places that need it most.

6B. Eliminate lead pipes

Eliminating lead pipes reduces prenatal and neonatal health risks, as well as risks among children. Maternal and childhood lead exposure can lead to serious consequences that have long-term impacts (Rahman et al, 2016; CDC, 2024). Immediate health benefits of lead pipe removal include reduced risks of birth defects among infants and neurological damage among children. Longer-term benefits include improved cognitive function and increased academic performance.

There are no known health issues with full line replacements; however, partial replacements of lead pipes can lead to temporary higher lead exposure in the water supply, which leads to elevated blood lead levels in children (Renner, 2010). Expanding awareness about how residents can help mitigate impacts from partial line replacement is crucial. There are many mitigation efforts to reduce lead exposure, such as flushing the tap prior to water use following partial line replacement, utilizing NSF/ANSI-certified point-of-use water filters, and applying orthophosphate to water treatment.

6C. Invest in nature-based solutions that expand tree canopy and create more urban blue and green spaces

Investment in green infrastructure will improve public health through the removal of airborne and waterborne pollutants. In both urban street and open road contexts, implementing green infrastructure such as hedges, street trees, and green walls can lead to improved air quality. Green infrastructure also mitigates the urban heat island affect and reduces risk of heat-related illness. In addition, increasing green space and reducing impervious coverage can improve cardiovascular health by decreasing the risk of developing cardiovascular disease, heart attack, and heart failure (Abhijith et al., 2017; Chen et al., 2020).

6D. Expand the use of green infrastructure and green building materials

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

6E. Strictly limit development in floodplains

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

6F. Implement mandatory flood mitigation standards in new construction and restrict development in high-risk zones

Mandatory flood mitigation standards will increase the resiliency of critical infrastructure to withstand potential damages (Dazzi et al, 2022). This, in turn, reduces the risk of physical injury or deaths by preventing the spread of zoonotic diseases and other water-borne illnesses through contaminated drinking water, as well as risks associated with electrocution or drowning (Subedi et al, 2022; Sojobi et al, 2022).

6G. Advance brownfield remediation

Advancing brownfield remediation will reduce exposure to toxic metals such as lead and mercury, which in turn leads to reduced neurological damage, increased cognitive function, and reduced risk of kidney or cardiovascular disease (Lodge et al, 2022). Brownfield remediation efforts should completely eliminate any form of contamination, especially for heavily polluted sites. Remediation efforts involving reclamation or reforestation should select appropriate species that will not be adversely impacted by soil toxicity or soil cap construction. For land remediated for use as public parks, architectural elements that prevent direct contact with polluted soil can mitigate health risks (Pecina et al, 2021).

7. Encourage sound and integrated planning

7A. Integrate land use and transportation planning

After a comprehensive review of the planning literature, it has determined that there is insufficient research on this topic to effectively evaluate it.

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TABLE 1 – ECONOMY

Economy

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
1	Encourage center-based, compact, mixed-use development while protecting and preserving critical environmental resources and high-value agricultural lands.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
1A	Facilitate growth in Planning Areas 1, 2 and 3, and accommodate growth in Planning Areas 4-5 in centers.	Conservation and farming preservation policies in NJ should allow and facilitate sustainable agrotourism activities within their growth parameters.	One successful example demonstrated how the agricultural diversity, divorced from the use of external resources such as fertilizers and pest controls, sped the rate of recovery following Hurricane Irma. Earnings from agroecotourism sites can be	Maintain productive farmland within parameters of farmland conservation and preservation efforts. Restore endemic flora and fauna (fewer resources needed to maintain compared to imported crops, which	Dedicating land to farmland preservation only allows land to be developed at the maximum allowable density for farmland, thus is not a strategy to be considered to increase housing supply.	Future conservation policies could consider defining and allowing clustered developments on large parcels as a way to consolidate infrastructure	● Sprawling suburban development in central and south Jersey. ● Increase in impervious surfaces. ● Low-density housing and suburban patterns enable car dependency.

			reinvested into programming and infrastructure so that it can continue to operate while improving members' lives. Vineyard and winery activities can maintain the productivity of farmland, employing local residents and possibly drawing in tourists. Successful operations could positively impact other local and regional businesses by increasing tourism and employment.	may require more water, land, fertilizers, etc.)	Conservation restrictions on deeds "run with the land," and are intended to prevent intensive development for the remote future.	needs, such as plumbing, roads, and electricity. This way, large tracts of land can remain undeveloped, while allowing for clustering of housing and other buildings that would otherwise exceed the maximum allowed density.	
1B	Recenter, redesign, and rebuild underutilized areas.	Adaptive reuse projects Buildings or areas designated as historically significant.	Properties in designated historic districts often appreciate more than similar properties in non-designated areas. Between 1984 and 1998, the Georgia Main Street Program created 8,100 jobs and saw nearly 2,500 new businesses start.	Highlighting and preserving cultural identity. Increased tourism, education opportunities, and other related events. Adaptive reuse can help save time and decrease waste by retrofitting existing buildings to serve new purposes.	Preservation efforts should be meaningful and avoid overburdening developers with review and permitting processes.	Local governments can identify and make readily available acceptable design standards for historic and/or overlay districts.	Underutilized and/or vacant properties can fall into disrepair if not properly maintained and become more difficult to rehab in the future. For vacant buildings located in desirable areas, local officials should facilitate rehabilitation and/or conversion into other uses as quickly as possible, particularly if housing is involved.

1C	Protect habitat of resident and migratory threatened and endangered species.	Variety of endemic flora species grown sustainably (with the existing resources/conditions) Land available for endemic fauna to flourish within the region, potentially within the bounds of any business operations. Restore endemic species' habitats to help bolster nearby farmlands.	The permaculture approach implements slow solutions to maintain soil fertility and environmental conditions. "Labor-intensive farming systems can help to reduce unemployment in the urban sector and thereby contribute to the demographic sustainability of rural society."	Restore and/or maintain healthy soil fertility (prevent another Dust Bowl) mitigate coastal erosion, highlight natural identity. Lower operational costs for farming endemic species, as they typically require fewer resources.	Natural resource and habitat restoration projects can be labor intensive to prepare for and may require multiple years of closing certain locations off to the public. Removal of existing vegetation and/or soil may be required for certain projects, with additional resources needed if any physical structures need to be removed. Routes to and from the site could become congested with large dump trucks to remove the debris.	Depending on the size and scale of the restoration site, the project can be staggered in phases if the site is a popular attraction such as a beach or other recreational area. Hauling of debris from sites in seasonal regions should be timed to occur during the off-season to minimize traffic congestion.	● Invasive species can be extremely difficult to eradicate, potentially becoming exponentially more difficult if left unmitigated. ● Like eucalyptus in California, New Jersey and the Mid Atlantic Coast were recently overrun by the spotted laternfly in 2020. Interstate travel along the I-95 corridor was a major contributor to the spread of the pest.
2	Foster greater diversity in the State's housing stock and reduce housing cost burden.	% of Income spent on housing Change in share of housing units by size	"Wages as a form of stimulus," ergo, reducing cost burden is a form of economic development. Need to create connected communities with more	If people spend less on housing, they'll have more money to spend in their community. Housing shapes its surrounding			

		Change in share of housing units by type Change in housing price relative to AMI	amenities within walking distance; spend less on transportation costs, lowering housing costs, more money in the community. “The 50 most housing-undersupplied US counties show rising home values and sustained high prices”.	environment; greater diversity in housing and affordability, can have positive impacts on the whole community.			
3	Increase access to opportunity and remove barriers to mobility in overburdened communities by investing in transit and making walking and biking easier and safer.	Establish and expand high-quality transit service. Connect existing stations and transit centers to each other, not just to New York City (NJTPA Housing Stakeholder project, 2025).	High-quality transit service (both bus and rail) can be a powerful tool for improving the lives of the poor, since low-wage workers are more likely to rely on public transit. Many New Jersey Communities are not well-connected via public transit, because much of the funding is directed at moving passengers to and from New York. The only option for many residents is to drive, despite the fact that some trips, such as in Newark, are under 3-miles.	Studies show large areas of accessibility gains found along bus routes that connect with a new light rail.	Constructing new rail networks and stations is time intensive and can require significant amounts of capital. Such an investment should not be viewed as a revenue-generating operation, and government agencies or other transit providers may not see returns on investment for decades. Inequitable allocation of funding projects could		● Inequities will persist, and may likely worsen. ● Expanding highways and roads for cars takes up valuable land that may be better suited to expanding rail, dedicated bus lanes, and walking and biking infrastructure. ● CO2 emissions will persist, as will other harmful particles.

					exacerbate negative impacts to communities who would benefit the most from a robust transit system.		
4	Protect, maintain, restore, and enhance the State's natural resources.						
4A	Protect and restore wetlands and river and stream corridors	See 1C					
4B	Protect and enhance forest resources	See 1C					
5	Mitigate climate change by decarbonizing New Jersey's economy.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
5A	Transition to 100% renewable energy	Shift in jobs from mining and manufactured fuels towards services	The shift would not happen overnight, so jobs in fossil fuel and related sectors would decline over time.	Colorado is adopting these policies to meet its 26% emissions reduction target by	The power grid would likely need to be overhauled	Agencies can begin by scaling back or eliminating	

		(consulting, planning, legal) and agriculture (forestry provides biomass and biofuel inputs). Encourage/facilitate all new residential and commercial development be 100% electric-powered. Adopt electric-ready building energy codes. Eliminate incentives for installing gas lines and other non-renewable energy utilities to new developments.	Transition-related job demand is expected to lead to 1% higher employment throughout the transition period. Job creation would also occur outside the energy sector, such as legal experts, taxation, logistics, safety and environment, and skilled laborers, such as truck and crane drivers. Crested Butte, CO, recently adopted a policy requiring all new commercial and residential development to be fully electric and forgoing gas for heating, hot water, and appliances. One notable example is a 27-unit net-zero affordable housing development in Basalt, CO that is powered entirely by solar panels. Other municipalities have taken a more incremental approach by requiring all new development be electric-ready so as to	2025, 50% by 2030, and 100% by 2050. Transitioning to all-electric developments can reduce utility costs; in fact, part of the impetus of the net-zero affordable housing subdivision in Basalt, CO arose because installing solar panels cost the same as extending the gas lines to the new subdivision.	entirely to achieve 100% renewable.	incentives for non-renewable energy sources and shift them to projects supporting renewable energy. Municipalities and other policy agencies can review and revise their codes to account for new construction types that are more efficient to construct and compatible with renewable energy power systems.	

			reduce the cost of switching to electric power in the future.				
5B	Reduce vehicle miles traveled and expand the use of zero emission modes of transportation	Transit service as a provider of economic opportunities for [all workers, but especially] low-wage workers. Fully-electric transit vehicles.	Analysis of before-after job accessibility changes shows that the Hiawatha light-rail line has generated significant job accessibility benefits for all workers, including low-, medium-, and high-wage workers.	Well-connected, reliable transit will attract riders irrespective of income levels. Ridership of connecting routes will also increase, if properly located.	Transit lines with poor connectivity will still require funding, but low ridership could further degrade overall system, along with the individual lines and vehicles. This could lead to higher fares, which could result in decreased ridership, thus having no effect on VMT, or at worst increasing VMT.		
6	Adapt infrastructure to contend with climate change, especially impacts that disproportionately affect	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

	vulnerable populations.						
6A	Eliminate combined wastewater sewer systems and associated overflow.	None found	None found	None found	None found	None found	None found
6B	Eliminate lead pipes.	None found	None found	None found	None found	None found	None found
6C	Invest in nature-based solutions that expand tree canopy and create more urban blue and green spaces.	None found	None found	None found	None found	None found	None found
6D	Expand the use of green infrastructure and green	None found	None found	None found	None found	None found	None found

	building materials						
6E	Strictly limit development in floodplains	None found	None found	None found	None found	None found	None found
6F	Implement mandatory flood mitigation standards in new construction and restrict development in high-risk zones	None found	None found	None found	None found	None found	None found
6G	Advance brownfield remediation	Siting solar panels on former brownfields. Siting locally-unwanted land uses on former brownfields	Solar projects can create a variety of economic benefits in addition to job creation and local business cash injection, such as: ● the reuse of former brownfield sites that might not be attractive sites for development ● Land rent to property owners (private or public) ● Environmental benefits from the reduction of traditional energy sources, including	Solar projects can create permanent local jobs for managing and maintaining the operations. Most large solar projects provide direct payment to local jurisdictions in the form of tax revenue or land rents.	Tradeoffs with land that could otherwise become farmland or other public green space. Proximity to cultural or historical sites need to be considered. Changes to existing landscape and views. Public opposition and negotiations could lead to	Consider adopting solar facilities that follow Agrivoltaics design guide for wildlife-friendly solar. This includes incorporating pollinator-friendly and native vegetation throughout the facility and/or providing wildlife-friendly fencing.	

			reduced emissions and improved soil quality. ● Reduction in energy costs over time during the transitional period.		unsustainable solar development.	Some projects have also designed the facility in a way that incorporates crops and provides adequate lighting and cover as needed.	
7	Encourage sound and integrated planning.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
7A	Integrate land use and transportation planning.	Incentivize Public Private Partnerships to expand (multimodal) transportation options in real estate development projects. State governments should adopt specific authorization and guidelines for the use of joint development. Encourage local governments to integrate transit joint	Public-Private Partnerships (PPPs) are a value capture strategy because the agreement partially captures the private benefits created through infrastructure improvements. Several public agencies might be subject to policies that limit their ability to engage in joint development. Governments should consider a long-term time	New development and redevelopment projects (retail, employment, housing, etc.) are suited to accommodate a wide variety of transportation options. Cohesive development patterns to maximize adherence to local, regional, and State Plan(s) and facilitate/measure future growth and needs.	While major changes to local roads might be feasible to develop Transit-Oriented Development and other multimodal projects, changing County, State, or Federal highways is unlikely. At present, municipalities struggle to reconcile zoning and land uses with their neighbors, which	Regional agencies, such as Municipal Planning Organizations, Counties, and other municipal official organizations can play a role in convening and/or facilitating interactions between municipal officials to reconcile incompatible land uses.	● Irregular development patterns can fragment communities. ● Limited developable land can lead to LULUs for abutting properties. ● Limited transportation options can exacerbate car dependency.

		development possibilities in their long-term comprehensive plans. Consolidate abandoned and/or unused railways throughout the state to expand rail network to accommodate Transit-Oriented Development.	horizon in using joint development to: 1. Capture the value of their transportation investments, and 2. Avoid granting variances and bonuses for developer-driven projects that provide little-to-no public benefit.		has contributed to siting incompatible land uses along municipal boundaries.	Regional agencies can develop a list or menu of options permitted by State, County, and regional plans to inform rezoning and other development decisions.	

TABLE 2: LAND USE AND ENVIRONMENT

No.	NJ SDRP Policy / Strategy	Indicators	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend Outcome
1	Encourage center-based, compact, mixed use development.	**Reduction in Vehicle Miles Traveled**	Reducing vehicle miles traveled helps improve environmental conditions by reducing pollution emitted by cars as well as improving public health by encouraging active transportation (such as walking). Reductions in vehicle miles traveled are facilitated by zoning to allow for compact design, mixed use, and higher densities. The state plan can be assessed via percentage of zoning possessing the qualities that encourage reductions in vehicle miles traveled.	Benefits of adoption include reductions in vehicle miles traveled, which correlates with reductions in noise and air pollution, fatalities from crashes, and increases in public health via usage of active forms of transportation (e.g., walking). Zoning to reduce vehicle miles traveled also facilitates implementation of transit systems. Other benefits to designing for vehicle miles traveled include less crime and improved mental health as people use active transportation modes more	There are no known disbenefits of reducing vehicle miles traveled, other than negligible / indiscernible possible impacts on automobile sales. Encouraging center-based, compact, mixed-use development, which supports vehicle miles traveled reductions, can result in more people using the streets, which in some instances results in a reduction of perceived quality of those street spaces. Overall, though, residents of compact, high-density neighborhoods report greater satisfaction with their communities than those living in	Planners can develop exploratory scenarios, particularly using computational methods, to understand how center-based, compact, and mixed-use development will impact vehicle miles traveled and others forms of transportation. The results of these analyses can inform zoning and land-use decisions to mitigate any disbenefits. There is also evidence that some suburbanization may reduce vehicle miles traveled when workplaces and residences are nearby / close together. However, such benefits	Absent growth in center-based, compact, and mixed-use development, vehicle miles traveled is expected to continue to rise. Growth in vehicle miles traveled means fewer trips on transit and subsequent decline of transit systems and of viable long-distance alternatives to the car. Increases in fatalities from crashes will occur, and public health issues, such as rising obesity and declines in mental health, will continue.

No.	NJ SDRP Policy / Strategy	Indicators	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend Outcome
					other neighborhood types. Higher densities and more mixed land use can also stimulate crime.	are difficult to secure and run contrary to other goals, such as preserving agriculture, securing green and blue spaces, and preserving the environment.	
		Increased Development in Centers	Increased development in PA 1 – Metro and PA 2 – Suburban and associated core areas. Less development in PA 3 – Fringe, PA 4 – Rural, PA 4B – Rural Environmental Sensitive areas, PA 5 – Environmental Sensitive areas, and PA 5B – Environmentally Sensitive Barrier Islands. Assessment mechanism for development is acreage of developed land and zoning for high density, as this leads to compactness.	There are many benefits that occur with increased development in centers, including reductions in vehicle miles traveled, lower-carbon travel patterns among residents, enhanced ability to transition to sustainable energy systems, increased perceptions of security, reduction in food deserts, and greater satisfaction with one's neighborhood.	Increased development in centers may unlock captured and latent development rights, especially if rezoning occurs. Growth may be limited by the existing built environment, especially the streetscape which affects land use patterns. Growth within a center can occur heterogeneously, depending on the form of the built environment. Altering	Policy-induced improvements to the physical environment will stimulate both new construction and refurbishment activity. Urban policy tailored to the neighborhood level will be needed to manage heterogenous growth so that its outcomes are desirable and do not overwhelm local communities. Policy needs to also take into consideration the existing built environment and analyze the costs and	Some increases in density will be observed in existing centers. However, absent an intentional, planned increase of development in centers, acreage of agricultural land and open space outside of centers will continue to decline. Sprawl will increase. Improvements to communities in centers with high vacancy levels and low levels of

No.	NJ SDRP Policy / Strategy	Indicators	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend Outcome
					the built environment to encourage new development may be costly. Greater density may also increase levels of crime, particularly near transit stops.	benefits to altering it versus leaving it as is.	investment will slow or halt.
		Growth of Mixed-use Developments	Mixed-use development is measured by the growth of different types of housing for a variety of income levels co-located in the same neighborhood, as well as commercial and civic uses nearby. It is also possible to create mixed-use industrial zones. Mixed-use development can also be measured by the prevalence of mixed-use zoning across the state.	Mixed-use development allows people to live and work in proximity, thus enabling transit and reducing vehicle miles traveled and pollution. Including housing options for different income groups allows for a variety of people at different stages of the life cycle to be in a community. In turn, the efficient use of resources leads to more equitable outcomes for people, attracts food retailers,	There are some benefits to intentional separation of nonprofit and for-profit land uses, which runs contrary to mixed-use approaches. Growth in density and mixed use may also lead to increased number of public users in residential neighborhoods that decrease perceived quality of the public spaces.	A variety of policies and conditions can affect the success of mixed-use zones, some of which are beyond the control of planners while others are squarely within it. The built environment—both newly constructed and legacy—affects the success of communities. This environment is subject to planners' intervention. Other conditions, such as macro-environmental contexts, are not.	New Jersey has had success increasing the number of townhomes and apartments in mixed-use settings. If these policies are not continued, growth in single-use zones will occur, resulting in more suburbanization and slowing or halting integration and equity goals. In addition, commute times will increase as will consumption of open and green spaces.

No.	NJ SDRP Policy / Strategy	Indicators	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend Outcome
				and increases social cohesion.			
2	Foster greater diversity in the State's housing stock and reduce housing cost burden.	**Adoption of Inclusionary Zoning Policies** **Growth in Housing Density**	Inclusionary zoning is a planning policy that requires developers to include affordable housing in new developments. Inclusionary zoning (IZ) is an important tool in providing housing options and reducing the housing cost burden. Increased housing density is often a corollary of inclusionary zoning. The State Plan can be assessed regarding the amount of inclusionary zoning policies adopted by each county, as well as targets for housing density.	Restrictive land policies and lower densities result in higher rents and a reduction in units affordable to middle-income earners. Increasing allowable housing density is an important component of fostering housing affordability. Inclusionary zoning reduces eviction rates. As inclusionary zoning implementation rises across the state, there will be a growth in affordable units as well as a reduction in eviction rates.	There is evidence that housing plans, including inclusionary zoning, can exacerbate patterns of segregation, including by income.	Adding some flexibility in inclusionary zoning policies regarding the income levels that qualify a resident is needed.	Absent adoption and implementation of inclusionary zoning policies, the state can expect to see continued segregation, particularly by income. In addition, eviction rates will remain static or increase.
3	Increase access to opportunity	**Increased Bike Infrastructure**	Environmental justice frameworks seek to prevent current harm	More diverse walkable communities may lead to more eyes on the	There are few disbenefits of adoption. Increasing	To mitigate the disbenefit of gentrification in	Absent investments in removing barriers to mobility in

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	and remove barriers to mobility in overburdened communities by investing in transit and making walking and biking easier and safer.	**Increased Transit Service** **Growth in Number of Pedestrians**	from environmental sources in overburdened communities while also ameliorating past harms. However, most plans have focused on the former, with little accomplished in addressing the latter. Though many of the worst effects of environmental justice have been borne by black and brown people, race is often not explicitly discussed within plans focused on improving conditions in overburdened communities. Barriers to economic, social, and environmental resources are disproportionately found in black and brown overburdened	street, which could reduce crime. More biking leads to greater mental health and life satisfaction, particularly amongst women and older adults. Walkability also improves life satisfaction. Research also connects improvement in the built environment with improved social environments, and more compact development supports transit usage.	mobility options improves life satisfaction and mental health, makes communities safer, and addresses historical discrimination. These benefits are so widely recognized and sought after that implementing them runs the risk of gentrifying a community, particularly when planners are unaware of this possible side effect.	overburdened communities in which investment is directed to remove barriers to mobility, systems to monitor community change must be created and implemented. If community change is noted in a negative direction, policies to ensure existing residents can stay, such as property tax incentives and rent control or assistance will be needed. Inclusionary zoning policies can also help ensure the community remains available to a range of households.	overburdened communities, these communities will continue to report lower levels of mental health, life satisfaction, lower incomes as well as lower performance on a range of health indicators.

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			communities. Changes to the infrastructure to create a more supportive environment are needed. These changes can include more designated bike paths and supporting infrastructure to encourage biking, contiguous, intact sidewalks to facilitate walking, and more transit service. Further, these same improvements will provide benefits to older people, which are particularly important as the baby boom generation advances in retirement.				
4	Protect, maintain, restore, and enhance the	**Use of Public Participation in Historic Preservation Projects**	Historic preservation is the process by which New Jersey can maintain its significant historic resources. Both	There are both tangible and intangible benefits to historic preservation. Preserving historical	Intangible benefits from historic preservation include fostering discussion and awareness of	Robust public participation in planning and historic preservation activities, including intentionally	Absent public participation in historic preservation the following can be expected: (1)

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	State's natural resources.		planning and historic preservation are enhanced by cross-dialogue. Preservation also advances sustainability by understanding how significant historic structures can be sustained as well as how such historic structures can inform the social dimensions of current efforts towards sustainability. Preservation and sustainability are most effective when they are informed by public participation and input, and when they are continually engaged as part of the planning process. The impact of the state plan can be assessed by the amount of public engagement required for historic preservation projects,	sites allows people to understand, remember, and (re)interpret the past in ways that help understand the present. Preservation can involve physical structures and their sites, or the sites where structures used to exist but have been destroyed, as well as traditions and practices rooted in places. Historic preservation can contribute to economic revitalization, and it can also affect growth coalitions that might otherwise prioritize economic development harmful to a community's interests.	history, cultural dialogue and identifying and preserving the practices and cultures of different groups, including of those whose physical structures may have been destroyed (due to being on the margins of society; not having wealth for upkeep). Historic preservation has frequently focused on the physical structure, which is costly to preserve but also relatively straightforward to implement once funding is secured. Preserving cultures and practices connected to people or groups historically on the margins of society is more	seeking out and privileging diverse perspectives and those of minorities, will help ensure that outcomes advance a comprehensive understanding of history. Economic impacts can be addressed via inclusionary zoning policies, as discussed above.	outcomes of historic preservation continue to reflect relatively empowered populations within history and current society; (2) fewer sites are identified for preservation; (3) less community interest in preservation; and (4) economic harm / displacement to less-affluent communities within which historic preservation activities are undertaken.

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			both within the state plan but also within county- and municipal-level plans informed by the state plan.		complicated, and potentially more costly if the entire physical structure has been destroyed. The economic revitalization that historic preservation can initiate may also make the community less affordable.		
		Amount of Land Preserved	The number of acres preserved as farmland, undeveloped / natural land, and undisturbed blue and green spaces can be used to measure success of the State's Development and Redevelopment Plan's policies related to protecting and maintaining the State's natural, historic, and water resources.	Land preservation is an important component of preparing for a changing climate and mitigating the effects of increased flooding and other extreme environmental events. Greater land preservation will result in lower costs after extreme weather events by limiting the number of structures in harm's way. Land preservation will	Transfer development rights land preservation programs may result in sprawl in the sending areas. Land preservation driven by historic preservation can also lead to economic revitalization / gentrification, which can result in displacement of lower-income residents. Nearby conservation lots in conservation subdivisions reduce	Planners can track the emergence of sprawl in the transfer development rights sending areas, which are likely to occur in the suburbs surrounding metropolitan cores. Because sprawl is, in part, a solution to the financial pressures found in urban centers, planners can recommend policies in addition to transfer development rights to	Absent land preservation, there will be accelerating loss of agricultural land and its decline as a share of the economy. There will also be accelerated loss of green spaces, as well as buffer zones around blue spaces. Economic losses during extreme weather events will increase, and residents will report

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				improve residents' satisfaction with their communities by providing more opportunities for them to engage with nature. Finally, preservation of agricultural land will ensure that the state can continue to meet the sustenance needs of its residents, as well as providing an important economic resource.	the values of a given conservation lot.	mitigate these pressures. Inclusionary zoning policies can be used to address displacement of lower-income communities, while the value of lots within conservation sub-divisions can be maintained with more careful planning that discourses perceptions of density and the possibility of blocked nature views.	lower satisfaction with their communities.

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5	Mitigate climate change by decarbonizing New Jersey's economy.	**Growth in Compact Urban Centers** **Reduction in VMT** **Revisions to Building Codes**	Planners can contribute to New Jersey's effort to decarbonize its economy via strategies for creating more compact communities that require less driving, and which support more zero emission modes of transportation, such as walking and biking. Further, planners can preserve land for renewable energy infrastructure, such as windmills, and revise building codes to include more energy efficient standards. Compact urban places are an increasingly sought after living environment, and these places facilitate more walking to services and employment and thus help reduce vehicle miles traveled. In	Creating more compact urban centers will reduce vehicle miles traveled, make it easier for people to bike and walk, and it will improve residents' satisfaction with their communities. Reductions in vehicle miles traveled also lead to cleaner air, more efficient transportation, and less congestion. Increases in zero emission transportation will result in a decrease in energy consumption. The residents of compact urban spaces are also more likely to have lower perceptions of crime, and thus higher usage of public spaces.	Compact urban centers are not desirable to roughly half the population, including young people. Thus, this population will seek other living arrangements. Further, if not carefully planned, compact spaces can increase congestion especially if zero emission transportation is not successfully planned for or implemented. Requiring green energy building codes can increase the cost of building, thus hampering other priorities within the SDRP such as providing affordable housing.	Exploratory scenario analyses can help planners design communities for autonomous vehicles, which will help reduce congestion. These same scenarios can be used to design effective compact centers, with appropriate support for zero emission transportation systems such as biking and walking. Policy is needed to ameliorate social and environmental impacts of securing land for renewable energy, such as windmills. Policy can also Integrate "Leadership in Energy and Environmental Design – Neighborhood Development" (LEED-	The opposite of compact urban center-based development is sprawl. Sprawling environments demand increased vehicle miles traveled and energy use and generally are associated with less satisfaction with one's community. Unchecked sprawl will make it impossible to achieve goals of energy reduction and decarbonization.

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			addition, urban environments increase transit usage. Planners can encourage other forms of zero emission transportation by intentionally creating built environments that are supportive of bicycling, which result in a host of psychological and mental health benefits. Amenity richness and land use diversity are needed together to reduce perception of crime, which is an important outcome needed before people will populate urban spaces by walking and biking. Finally, building codes are an important component of facilitating the transition to renewable energy. However, code officials	Revising building codes to require more energy efficient materials and systems will further reduce New Jersey's energy demands and facilitate the transition to a carbon-neutral economy.		ND) into form-based codes, making increased building energy efficiency the standard in a community. Further, emphasizing the regional approach such as through the SDRP, and more public participation, will help to achieve green goals in planning. The regional approach will also help ensure congruence across municipalities, so that some do not become inordinately expensive.	

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			do not enforce newer energy codes as rigorously as they do the older life-saving codes, suggesting a need for improved training.				
6C	Invest in nature-based solutions that expand tree canopy and create more urban blue and green spaces.	**Growth in # and acreage of Parkland**	Growth in the number of parks and acreage of parkland is a metric that can be tracked. When existing locally unwanted land uses fall into disrepair, they can be redeveloped into more beneficial uses, such as parkland. Undeveloped land can be preserved as parkland, and new parkland can be	Growth in acreage devoted to parkland will help support more resilient growth, which is needed in response to expected impacts from climate change. Greenspaces also impact the perception of pleasantness. When they are located with new development around metro stations, they may result in increased transit	Increasing parkland, including greening streets, can result in declines in perception of overall quality of that street or space. Increasing the number of parks in low-income communities can also cause gentrification.	Be mindful that parks are not a fix for all that ails a community or society. The spacing and number of parks can be used to manage and disperse the number of users, mitigating displeasure from over-crowding. Gentrification can be mitigated via inclusionary zoning policies.	Absent investments in creating and preserving parks, New Jersey communities will experience a decline in park quality and access, with a similar decline in perception of community satisfaction, public health, and behaviors that

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			required within new developments.	usage. Growth in community satisfaction and behaviors that support sustainability are expected.			support sustainability.
6E	Strictly limit development in floodplains.	**Adopt Restrictive Land-Development Policies**	State planning can exert a strong influence on hazard planning, which may be needed as many municipal plans are inadequate in this area. Designating floodplains and restricting development within them will mitigate the effects of sea level rise and associated flooding from increasingly severe storms.	Limiting development in floodplains will reduce damage to property and threats to life during floods, which are expected to increase in New Jersey as the climate changes. In addition, there will be significant fiscal savings to municipal services. Those services will not need to be marshalled to respond to flood	Limiting development in floodplains means just that: limiting development. Limits on development can create challenges for municipalities that want to grow but have limited options. The result can be increases in housing costs which runs counter to other goals within the state plan.	The reduction of risks to property and life from floods, as well as reduction in costs associated with response, recovery, and rebuilding need to be carefully weighed against the costs of limiting growth. The risks and costs from flooding are expected to grow as climate change accelerates, causing more severe	Absent strict limitations on development in floodplains, some growth will continue to happen in these areas. The result will be increases in property damage and associated costs for losses, as well as a variety of municipal response costs. Harm to humans or loss of

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				emergencies induced by people living or working within a floodplain, nor to rebuild afterwards.		storms that occur with greater frequency. In most cases, growth can be accommodated by revising zoning to allow for greater density.	life due to flooding will also rise.
6F	Advance brownfield remediation.	**Decrease the Number of Brownfield Sites**	The U.S. Environmental Protection Agency defines a brownfield as "A property, the expansion, redevelopment or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant or contaminant." The number of brownfields in New Jersey is known. The State Development and Redevelopment Plan intends to decrease the number of these sites through remediation. The sites	Brownfields are problematic sites in a community: they are toxic and can cause health problems; they carry stigma that affects surrounding parcels; and the expense to clean them as well as associated regulations create substantial barriers to most developers. Reducing the presence of these sites in New Jersey will help economic revitalization within communities, will enhance public health, and will in some	Redeveloping brownfields in ways that ensure social sustainability is complex, and it requires more than simply the incorporation of popular planning techniques, such as employing new urbanist principles. In addition, Black and Hispanic families benefit less from brownfield clean up than do whites. The same applies for renters versus owners.	The public sector can provide some initial funding for site assessment, as well as for infrastructure development to support desired goals. Public-private partnerships can be implemented to help ensure the sustainability of remediated brownfield sites, including social dimensions.	If brownfields are not remediated, the communities in which they exist will continue to suffer from public health issues, environmental injustice, as well as difficulty attracting and sustaining population growth and economic development.

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			can subsequently be used for societal goals (such as housing and commerce).	instances provide much needed land for development. In addition, brownfield sites can be intentionally redeveloped in ways that advance environmental justice.			
7	Encourage sound and integrated planning.	**Reduce Displacement of Businesses and/or Residents**	Zoning that opens more urban land to housing is often a strategy adopted by planners seeking to reduce housing costs. Industrial zones are an important part of urban economic health, though they can be lost in urban industrial rezonings to accommodate housing. Changes in population, mapped to sociodemographic information such as income and race, can be tracked.	Sound and integrated planning should not result in the displacement of residents or businesses. Displacement of residents runs counter to the SDRP's other goals of preserving housing and increasing affordability, while retention of business and industries are necessary for a healthy economy. In addition, preservation of businesses,	Zoning to open urban lands to more housing may exacerbate patterns of segregation, rather than reverse them, and they can damage industrial zones that provide an important economic base for communities. Density restrictions can exacerbate income segregation	Inclusionary housing requirements can combat income segregation. Inclusionary zoning can be initiated by the state to preempt local zoning when it restricts affordable housing, which may be common. Density bonuses linked to affordable housing and affordable housing trusts are additional policies that can be implemented to combat displacement.	Absent efforts to coordinate and preserve industrial zones within communities, the trend of loss of industry within some of these communities will continue. Industries will locate outside of the communities in search of upgraded buildings, lower costs, and more favorable zoning, or they may seek these qualities in another state altogether.

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			Economic census data can be used to determine business retention.	including middle-class incomes, is necessary for the goals of ensuring affordability within communities.		Light rail transit can increase density along transit corridors. Industrial preservation policies can be initiated to preserve industrial sectors and the middle-class job opportunities that they provide. Industrial zones are effective at preserving industry, with some of these zones also able to serve as a mixed-use zone.	Absent efforts to prevent displacement of residents, communities will become less diverse, income and racial segregation is expected to increase, as will sprawl as people search for more affordable development that consumes lower cost land and results in low density housing.
		Reduce ELULUs in Low-Income Communities of Color	Existing Locally Unwanted Land Uses are disproportionately located in low-income communities of color. These communities are segregated, largely because of municipal land use policy and zoning.	Reducing existing locally unwanted land uses will improve satisfaction of the community amongst residents, it may provide an opportunity for redevelopment that meets a community need, and it is often a	Existing locally unwanted land uses are usually privately owned, polluting facilities of various kinds. They may also be abandoned or neglected sites that are not currently contributing to the	End exclusionary zoning, which will help suffering low-income communities avoid some of the worst of climate change that is yet to come. Exclusionary zoning may create communities that are	The number of existing locally unwanted land uses will stay the same or likely increase. The results will be greater environmental injustice, with associated social

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				matter of environmental justice. Existing locally unwanted land uses are often noxious facilities.	economy or the social life of a community. Reducing or eliminating these may be complicated, particularly as the existing locally unwanted land uses activity will likely have to move elsewhere. In addition, acquiring such parcels for redevelopment is costly and may be contentious.	ripe for exploitation, with such exploitation taking the form of concentrated polluters or other entities that create noxious environments. Initiate proactive zoning, which allows polluting firms in designated areas. Proactive zoning is associated with environmental justice problems being less severe and more tractable. Zoning incentives can be used to induce developers to redevelop existing locally unwanted land uses.	impacts (e.g., public health issues, growth in segregation, declines in community satisfaction).
		Levels of Integration or Segregation	Municipal zoning and housing plans have exacerbated segregation, yet it is zoning that also holds	Reducing segregation and increasing integration will serve environmental justice and equity goals, as	There are no planning-related disbenefits to increasing integration and decreasing segregation. It is	Planners ae specifically called to “expand choice and opportunity for all persons” and they	Absent the adoption of the SDRP, integration will occur slowly, changing only over

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			the solution to segregation in part. State governments may need to guide local governments to create more affordable housing, which leads to more integration. Sound and integrated planning will increase the levels of integration amongst diverse socio-demographic and income groups, as well as concomitantly decrease segregation.	well as leading to healthier communities. With greater integration, New Jersey can expect reductions in concentrations of existing locally unwanted land uses, which are disproportionately concentrated in segregated communities. Reducing segregation will also reduce the exposure of low-income communities to the worst effects of climate change.	possible, given the known history of discriminatory planning in the United States and in New Jersey, that integration efforts will be resisted. This will create political issues, and possibly interventions / pressure, that can affect implementation of planning. But they are not considerations for planning, as defined within the American Institute of Certified Planners.	have a “special responsibility” to plan for those who have been marginalized or disadvantaged. These requirements are defined in the AICP Code of Ethics and Professional Conduct. Planning for integration is itself mitigation of a disbenefit.	generations as race becomes a less salient feature of social organization. Income segregation will persist and worsen.
		Growth in Compactness of Suburbs	Increasing the compactness of suburbs (PA 2) supports smart growth strategies as well as center-based development. Compact suburbs are better able to support future transit	Encouraging more compact development in the suburbs (PA 2) yields several benefits, including: (1) greater capacity to support transit systems (both existing	Compact development may lead to a rise in housing prices and more congestion for automobile users, especially when transit options are not available.	Inclusionary zoning policies will be needed to maintain affordability as the suburbs densify. In addition, increasing the supply of available housing, such as by permitting additional	If the SDRP is not adopted, New Jersey will experience continued growth in both suburban and sprawling environments.

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			options for residents, which will be needed to accommodate aging residents who do not wish to move, people with disabilities, and to support the state's sustainability goals (including decarbonization of the economy through reductions in VMT, in part . Suburban sprawl is the result of local planning practices, and higher-level institutions, such as the state plan, can play a role in containment.	and future); (2) reduction in sprawl; (3) more walkable communities with more activity sites to which one might walk ; (4) preservation of open space and green spaces; and (5) more opportunities for mixed-use and economic development.		dwellings on suburban plots, should lower costs. Increases in transit systems (which will be supported by growth in density) will reduce the number of trips by car. Those reductions will help reduce congestion. In addition, the increased compactness of suburbs as well as increased density should lead to more pedestrian trips (which will also assist in reducing vehicle miles traveled and congestion).	Associated with this trend is more auto-dependent environments, larger lots and consumption of land and green spaces, encroachment upon environmentally sensitive lands and possibly their destruction.
		Growth in TOD	Urban sprawl originates from the practices of local planning authorities. Transit Oriented Development (TOD) encourages higher density, mixed use development that	Transit oriented development will result in a variety of benefits. More household pedestrian and transit trips should occur in communities with plans that	Transit oriented development plans typically involve mixed-use development, but these developments tend to be affordable only to highly skilled	Need to consider the broader contexts when promoting transit oriented development, particularly the social and economic make-up of communities. Inclusionary zoning is a	If a policy favoring growth in transit oriented development remains unadopted, most New Jersey communities will continue to develop

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			can support transit systems, particularly light rail. This type of development is usually more compact, and thus it helps limit suburban sprawl. However, most communities do not typically develop plans that support transit oriented development. State action is needed to encourage smart growth, of which transit oriented development is one component To measure transit oriented development, communities will be studied for plans that encourage compact, center-based, mixed-use, and high-density development.	encourage transit oriented development than in those without transit oriented development, and there will be a slower rise in VMT. The evidence shows that supportive built environments encourage more walkability, but the effect is almost twice as large for advantaged groups than it is for disadvantaged groups. These outcomes support public health, sustainability goals, and conservation of open space.	and affluent residents. Compact development can result in gentrification and higher housing costs, which in turn can price out lower-income communities.	key policy choice to protect affordability.	in a way that is not conducive to supporting future transit systems, particularly light rail systems. In addition, people will take fewer trips by walking or transit, and sprawling landscapes will continue to increase.

TABLE 3: CLIMATE AND RESILIENCE

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
1A	Facilitate growth in Planning Areas 1, 2, and 3, and accommodate growth in Planning Areas 4-5 in centers.	Tracking increases in infrastructure investment and the number of approved development projects in these areas, as well as tracking the integration of sustainable practices, such as mixed-use developments and public transit access.	Indicators for evaluating growth facilitation in Planning Areas 1, 2, and 3 refer to measurable outcomes that reflect the effectiveness of infrastructure investments and development projects aligned with state planning goals. The assessment mechanism can involve collecting data on infrastructure spending, the number of approved projects, and the implementation of sustainable practices like mixed-use developments and public transit access, allowing for ongoing evaluation of how these initiatives contribute to climate resilience and community well-being.	Enhanced community resilience by ensuring that infrastructure investments and development projects are aligned with sustainable practices. Additionally, it can promote economic growth and improve quality of life by increasing access to public transit and mixed-use spaces, reducing reliance on cars, and lowering greenhouse gas emissions.	Potential disbenefits of this policy adoption could include the risk of gentrification, where increased development and investment lead to rising property values that displace long-term residents in overburdened communities. Additionally, infrastructure improvements may strain existing resources if they are not carefully planned.	Potential mitigation methods include implementing policies that promote affordable housing alongside new developments to prevent displacement of existing residents. Additionally, conducting community engagement processes can help ensure that local voices are heard in planning decisions, while traffic management strategies and phased infrastructure improvements can address congestion and resource strain,	Without adoption, the state may experience increased urban sprawl, leading to inefficient land use and greater pressure on rural and undeveloped areas by 2050. This could result in heightened infrastructure strain, reduced access to essential services, and exacerbated economic disparities while failing to adequately address housing needs, potentially leading to housing shortages and affordability crises in already vulnerable communities.

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
						ensuring that the benefits of development are equitably distributed.	
		Monitoring the preservation of agricultural land and ecosystems, measured by changes in land use and habitat quality.	Indicators for Planning Areas 4 and 5 emphasize the preservation of agricultural land and ecosystems, which are assessed by tracking changes in land use patterns and evaluating habitat quality over time. The assessment mechanism involves using remote sensing data, land surveys, and biodiversity assessments to monitor land use changes and ecological health, enabling an evaluation of the effectiveness of conservation efforts in protecting these vital areas.	Preserving agricultural land and ecosystems in Planning Areas 4 and 5 can enhance food security and maintain biodiversity, contributing to a healthier environment and stronger local economies. Additionally, these efforts can increase resilience to climate change by protecting natural resources, reducing flood risks, and improving water quality.	Potential restrictions on development that could limit economic growth and housing availability in surrounding areas. Land preservation efforts could lead to conflicts with landowners or farmers who may feel constrained by regulations, potentially resulting in pushback against conservation initiatives.	Implementing flexible land-use policies that allow for sustainable development alongside conservation efforts. This will ensure that economic growth and environmental protection can coexist. Engaging local stakeholders in the planning process can also help address concerns and foster collaboration while providing financial incentives or support for landowners to adopt sustainable practices can encourage	The state may face significant loss of vital farmland and natural habitats, leading to decreased biodiversity and increased vulnerability to climate impacts. This could result in diminished food security, higher flood risks, and a decline in the overall quality of life for communities that rely on these resources for their livelihoods and environmental health.

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
						participation in conservation efforts.	
1B	Recenter, redesign, and rebuild underutilized areas.	Metrics on transforming vacant or underused properties into vibrant mixed-use developments that promote community engagement and sustainable practices.	These indicators measure the number and type of new projects, their design features, and the extent of community engagement involved in the planning process. The assessment mechanism involves collecting data on project outcomes, such as increased foot traffic, local business growth, and resident satisfaction surveys, and evaluating sustainability practices implemented in these developments.	Transforming vacant properties into mixed-use developments can enhance community vibrancy by increasing local business activity and providing residents greater access to amenities and services. Additionally, these projects promote sustainable practices, reduce reliance on cars, and foster social interaction, ultimately contributing to stronger, more resilient neighborhoods.	There can be a potential risk of gentrification, displacing long-time residents and altering community dynamics. Additionally, the investment in redevelopment might divert funds from other critical services, such as education and public safety, potentially straining local resources.	Implementing policies that ensure affordable housing options are preserved (e.g., *Mount Laurel Doctrine*) or created alongside redevelopment efforts. Engaging local communities in the planning process can also help prioritize their needs and ensure that benefits from redevelopment are equitably shared.	New Jersey may face increased urban decay, as underutilized areas could deteriorate further, leading to decreased property values and reduced economic activity. The state could also experience growing disparities in resource access, exacerbating social inequalities and limiting opportunities for residents in struggling communities.

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
		Monitoring improvements in local infrastructure, such as enhanced green spaces and stormwater management systems, can provide insights into how these initiatives enhance urban resilience to climate impacts while fostering economic revitalization.	This indicator involves collecting baseline data, conducting regular assessments, and analyzing ecological and economic metrics. This approach helps evaluate how these initiatives strengthen urban resilience to climate impacts while fostering economic revitalization through community feedback and performance indicators.	Improving local infrastructure can enhance community well-being by providing access to green spaces, promoting outdoor activities, and improving mental health. Effective stormwater management can reduce flooding risks and property damage, ultimately increasing property values and attracting businesses to the area.	The potential risk of gentrification displacing long-time residents and altering community dynamics. Additionally, the investment in redevelopment might divert funds from other critical services, such as education and public safety, potentially straining local resources.	Implement policies that ensure affordable housing options are preserved (e.g., Mount Laurel Doctrine, which mandates a fair share of affordable housing supply from each municipality in New Jersey through state law) or created alongside redevelopment efforts. Engaging local communities in the planning process can also help prioritize their needs and ensure that benefits from redevelopment are equitably shared.	New Jersey may face increased urban decay, as underutilized areas could deteriorate further, leading to decreased property values and reduced economic activity. The state could also experience growing disparities in access to resources, exacerbating social inequalities and limiting opportunities for residents in struggling communities.
1C	Protect the habitat of resident and migratory threatened and endangered species.	Evaluating the effectiveness of habitat restoration and conservation measures—such as	Habitat restoration involves rehabilitating degraded ecosystems to enhance biodiversity and ecosystem services,	This can provide insights into how these actions enhance ecological resilience while	The risk of restricting land use can impact local economies and livelihoods, particularly for	Engaging local communities in the planning process to balance conservation goals	The state could face significant biodiversity loss, leading to the extinction of certain species and a decline in ecosystem health. This

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		creating protected areas and wildlife corridors.	while conservation measures like protected areas and wildlife corridors aim to safeguard habitats and facilitate animal movement between fragmented landscapes. Ecological monitoring can be conducted through biodiversity surveys, tracking species populations and movements, and evaluating habitat quality over time, alongside stakeholder feedback to ensure community support and engagement.	ensuring local communities benefit from improved access to green spaces and ecosystem services.	communities reliant on agriculture or development. Additionally, poorly planned initiatives may lead to unintended ecological consequences, such as the introduction of invasive species or the displacement of existing wildlife populations.	with economic needs, ensuring that land use restrictions are fair and considerate of local livelihoods. Additionally, implementing adaptive management strategies can help monitor ecological outcomes and adjust practices to minimize negative impacts, such as controlling invasive species or enhancing existing wildlife habitats.	loss could disrupt local ecosystems, reduce resilience to climate change, and negatively impact tourism and recreational opportunities, ultimately harming the state's economy and natural heritage.
2	Foster greater diversity in the State’s housing stock and reduce the housing cost burden.	Tracking the increase in affordable housing units and the variety of housing types, such as mixed-use developments and co-housing options. Monitoring changes	Tracking the increase in affordable housing units and varied housing types involves monitoring new developments and their characteristics, such as affordability and design, to ensure they meet	It helps to identify trends in housing accessibility and affordability, ensuring that diverse populations can meet their housing needs. This can provide	If the focus on increasing housing variety overshadows infrastructure and community services, it could strain local resources and lead to potential overcrowding or	Integrated planning and thorough impact assessments should be conducted to ensure that developments match the necessary upgrades in services.	The state could face increased housing instability and affordability crises, leading to higher rates of homelessness and displacement, particularly among low—and moderate-income residents. Additionally, the lack of

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		in housing cost burdens among low- and moderate-income households, alongside community access to public transportation and essential services	diverse community needs. Assessment mechanisms include data collection on housing costs, demographic trends, and accessibility to public transportation and essential services, which will allow for regular evaluation of housing equity and community resilience.	insights into how housing development efforts enhance resilience by promoting sustainable, inclusive communities.	inadequate public services.	Additionally, community engagement and partnerships for funding can help align housing growth with infrastructure improvements, promoting overall resilience and sustainability.	diverse housing options may exacerbate socio-economic inequalities, contribute to urban sprawl, strain existing infrastructure, and hinder overall economic growth, making it more difficult for communities to adapt to climate change and demographic shifts.
3	Increase access to opportunity and remove barriers to mobility in overburdened communities by investing in transit and making walking and biking easier and safer.	Tracking the percentage of residents within a specific distance of reliable public transit options enhances access to jobs and essential services. Additionally, monitoring the expansion of pedestrian and cycling infrastructure and assessing	To assess these factors, data can be collected through GIS mapping to analyze proximity to transit, along with surveys to gauge usage and satisfaction. Transportation emissions can be monitored using traffic flow studies and air quality assessments to determine the impact of these mobility improvements on overall emissions.	Potential benefits include improved access to jobs and essential services for residents, enhancing economic opportunities and quality of life. Expanding pedestrian and cycling infrastructure can promote healthier lifestyles, reduce traffic congestion,	If not managed effectively, the risk of increased traffic congestion in areas surrounding new transit options could negate some environmental benefits. The focus on public transit and active transportation might lead to reduced investment in road infrastructure for vehicles, potentially inconveniencing	Implementing comprehensive traffic management plans to ensure smooth flow and minimize congestion around new transit hubs. Additionally, integrating multi-modal transportation strategies that accommodate cars alongside public transit and active transportation options can ensure	The state may see a widening of economic and social disparities as residents in these areas remain isolated from jobs and essential services. This could lead to heightened poverty rates, decreased overall quality of life, and increased reliance on inefficient transportation options, further exacerbating the state's environmental issues and public health challenges.

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		reductions in transportation emissions can indicate progress toward sustainable mobility.		and lower transportation emissions, contributing to a more sustainable and environmentally friendly community.	residents who rely on cars.	all residents' needs are met, while ongoing community engagement can help address concerns and enhance overall transportation planning.	
4A	Protect and restore wetlands and river and stream corridors.	Monitoring changes in biodiversity and ecosystem services, such as flood mitigation and carbon sequestration.	Systematic data collection and analysis of biodiversity indicators and ecosystem services, such as flood mitigation and carbon sequestration. We can evaluate ecosystem health and resilience by monitoring these metrics over time, informing conservation and management strategies.	Well-restored wetlands and river corridors can adapt to and mitigate the impacts of climate change, ultimately enhancing the environment's overall sustainability and functionality.	One potential disbenefit is that focusing too heavily on specific indicators may overlook broader ecological interactions, leading to incomplete ecosystem health assessments.	Implementing adaptive management practices integrating diverse ecological indicators and stakeholder input can enhance monitoring efforts while ensuring resources are effectively allocated to assessment and direct conservation actions.	The state could face increased flooding, loss of biodiversity, and diminished water quality, severely impacting ecosystems and communities. Additionally, the effects of climate change, such as rising sea levels and extreme weather events, would likely exacerbate these challenges, leading to greater economic and environmental consequences.
4B	Protect and enhance forest resources.	Forest health metrics include tree growth rates, biodiversity, and	Monitoring key metrics such as tree growth rates, species diversity, and carbon sequestration potential	Enhance sustainable management practices, promote biodiversity	Restricting land use for agriculture or development might lead to economic conflicts or reduced	Engaging stakeholders through collaborative planning and incorporating flexible	The state could experience increased deforestation, loss of biodiversity, and diminished carbon sequestration capacity,

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		forests' capacity to sequester carbon.	through field surveys, remote sensing, and data analysis. By regularly collecting and evaluating this information, forest managers can gauge ecosystem vitality, inform management practices, and track changes over time.	conservation, optimize carbon sequestration efforts, and support climate resilience and ecosystem stability.	local revenue opportunities.	land-use strategies can help balance conservation goals with economic needs, ensuring that forest health and community interests are addressed.	leading to greater vulnerability to climate change impacts. Additionally, the decline in forest health could harm water quality, increase soil erosion, and reduce recreational opportunities, negatively affecting both ecosystems and local communities.
5A	Transition to 100% renewable energy.	Tracking the reduction in greenhouse gas emissions and the increase in local energy resilience	Monitoring greenhouse gas emissions through regular emissions inventories. For example, an annual greenhouse gas inventory can be conducted by local or the state, where data is collected on sources of emissions to quantify and report emissions over a specified period.	This enables communities to identify effective sustainability strategies, enhance environmental accountability, and improve preparedness for climate-related challenges.	A potential disbenefit of tracking greenhouse gas emissions and energy resilience is that it may divert resources and attention away from immediate local needs or other pressing environmental issues, leading to incomplete or ineffective sustainability efforts.	Prioritizing a balanced approach that integrates emissions tracking with broader community needs and environmental initiatives can ensure comprehensive and effective sustainability efforts.	The state could experience intensified climate-related challenges, greater energy insecurity, and significant obstacles to achieving its climate goals, which would have detrimental effects on public health and the economy.
		Tracking the growth of renewable energy capacity,	Tracking the implementation of renewable energy projects and	This will enhance community engagement, optimize resource	There is a potential risk of resource misallocation or bureaucratic delays,	Establishing clear communication channels and streamlined	The state may miss critical opportunities for energy transition, resulting in continued reliance on fossil

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		such as solar and wind installations.	infrastructure improvements over time through collaboration with local municipalities.	allocation, and facilitate knowledge sharing, leading to more effective and sustainable energy solutions that benefit both the environment and local economies.	which can hinder timely implementation and reduce the overall effectiveness of sustainability initiatives.	processes among stakeholders can enhance coordination and ensure timely decision-making and resource allocation.	fuels, increased greenhouse gas emissions, and heightened vulnerability to climate change impacts.
5B	Reduce vehicle miles traveled and expand the use of zero emission modes of transportation.	Metrics on air quality improvements and reductions in greenhouse gas emissions from transportation	Analyzing air quality data from monitoring stations alongside transportation emissions inventories to quantify improvements in air quality and reductions in greenhouse gas emissions resulting from implemented transportation policies and initiatives.	Analyzing air quality data alongside transportation emissions inventories allows for a comprehensive understanding of the effectiveness of transportation policies and initiatives, enabling targeted improvements and fostering public support for sustainable mobility solutions.	The complexity and resource intensity of data integration could lead to delays in reporting and hinder timely decision-making.	Establishing standardized protocols and utilizing advanced data management tools can streamline the analysis process, ensuring timely and effective reporting on air quality and emissions.	The state may face deteriorating air quality, increased public health issues, and insufficient progress toward climate goals, ultimately jeopardizing environmental sustainability and the well-being of its residents.

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6A	Eliminate combined wastewater sewer systems and associated overflow.	Reduction in sewage overflow events during heavy rainfall and improved water quality in local waterways.	To assess these improvements, monitoring systems can track the frequency and volume of overflow incidents, coupled with regular water quality testing, and evaluate the effectiveness of green infrastructure through before-and-after studies measuring runoff reduction and overall water quality improvements.	Improved water quality in local waterways, which enhances public health and supports aquatic ecosystems. Additionally, reducing sewage overflow events can lead to lower treatment costs and increased community resilience to flooding, while green infrastructure promotes sustainable urban development and improves aesthetic and recreational opportunities for residents.	Potential disbenefits include the high initial costs associated with implementing green infrastructure solutions, which may strain local budgets. If not properly maintained, these systems could become ineffective, leading to continued sewage overflow issues and potentially creating public health risks if water quality deteriorates.	Securing funding through grants or public-private partnerships to offset the costs of implementing and maintaining green infrastructure. Additionally, establishing regular maintenance schedules and community education programs can ensure these systems remain effective and encourage local involvement in their upkeep, ultimately enhancing their long-term viability.	The state may experience increased untreated sewage discharge into waterways during heavy rainfall, leading to significant public health risks and environmental degradation. This could result in deteriorating water quality, loss of aquatic biodiversity, and heightened flooding risks, ultimately impacting the quality of life for residents and straining public health resources.
6C	Invest in nature-based solutions that expand tree canopy and create more urban blue and green spaces.	Metrics on urban temperature reduction and improvements in stormwater	Monitoring urban temperature data using satellite imagery and ground-based sensors, coupled with	Monitoring urban temperature reduction and improvements in stormwater	The potential for high costs and resource demands associated with data collection and analysis, which	Leveraging existing data sources, collaborating with local agencies for shared resources,	The state may face exacerbated urban heat island effects, increased flooding risks, and compromised water quality,

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
		management, such as decreased runoff and flooding events. Tracking increases in tree canopy coverage and biodiversity, along with community access to green and blue spaces	hydrological modeling to evaluate stormwater management effectiveness by analyzing runoff patterns and the frequency and severity of flooding events before and after the implementation of green infrastructure initiatives; Using remote sensing technology to measure tree canopy coverage and biodiversity, combined with community surveys and GIS mapping to evaluate access to green and blue spaces, thereby assessing the effectiveness of these initiatives in improving urban resilience to climate change impacts.	management helps identify effective strategies for mitigating heat island effects and reducing flooding, leading to enhanced community resilience, better public health outcomes, and improved environmental quality. These indicators can provide critical insights into environmental health and urban resilience. This also enables informed decision-making that enhances community well-being, promotes ecological sustainability, and	could divert funding from other critical urban sustainability initiatives. The potential for misinterpretation of data leads to misguided policies or resource allocations that do not effectively address the community's or ecosystem's actual needs.	and utilizing cost-effective monitoring technologies can enhance efficiency and reduce the financial burden of the assessment process. Establishing clear data analysis frameworks and involving diverse stakeholders in the assessment process is also essential to mitigate the risk of misinterpretation, ensure that findings are accurately contextualized, and lead to informed, effective policy decisions.	leading to heightened public health issues and significant economic and environmental challenges. Additionally, the state may face diminished ecological health, reduced urban resilience to climate change, and increased vulnerability to heat waves and flooding, ultimately impacting public health and quality of life.

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
				mitigates climate change effects.			
6D	Expand the use of green infrastructure and green building materials.	Monitoring the implementation of flood-resistant designs and materials and assessing the resilience of structures during extreme weather events	Systematic inspections and evaluations of buildings employing flood-resistant designs and materials, combined with post-event analyses of structural performance during extreme weather events, utilizing data collection methods such as surveys, remote sensing, and engineering assessments to determine resilience levels and areas for improvement.	Monitoring the implementation of flood-resistant designs and materials enables the identification of best practices and effective strategies for enhancing structural resilience, ultimately reducing property damage, safeguarding public safety, and minimizing recovery costs during extreme weather events.	The potential for increased costs and regulatory burdens on builders and property owners could discourage investment in necessary improvements and limit participation in resilience initiatives.	Providing incentives such as tax breaks or grants for implementing flood-resistant designs and streamlined permitting processes can encourage compliance while promoting investment in resilience.	The state may face increased property damage, greater vulnerability to flooding and extreme weather events, and higher recovery costs, which could ultimately lead to economic losses and jeopardize public safety and community stability.
6E	Strictly limit development in floodplains.	Reducing new housing permits and construction activities within these vulnerable areas should be an	Tracking the number of new housing permits and construction activities in designated high-risk floodplains over time, utilizing geographic	Reducing new housing permits and construction activities in vulnerable areas helps protect	Potential outcomes include shortages of affordable housing options, increased housing costs, and resident	Local governments can implement strategies such as incentivizing development in safer areas, promoting	During extreme weather events, the state may experience increased flooding risks, heightened property damage, and greater loss of life, ultimately

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
		indicator for assessing the effectiveness of limiting residential development in identified high-risk floodplains.	information systems (GIS) to analyze spatial data and compare it against floodplain maps and stakeholder engagement to evaluate compliance and effectiveness of development restrictions.	communities from flood risks, promotes long-term environmental sustainability, and enhances public safety by minimizing potential property damage and associated recovery costs in high-risk floodplains.	displacement, which could exacerbate socio-economic disparities in the community.	affordable housing initiatives, and exploring adaptive reuse of existing structures to balance safety and housing needs.	compromising community resilience and straining emergency response resources.
6F	Implement mandatory flood mitigation standards in new construction and restrict development in high-risk zones.	Measuring compliance with land use regulations restricting residential development in designated high-risk flood zones.	Regular audits and inspections of land use permits, coupled with GIS analysis, to map development activities against designated flood zone boundaries and stakeholder reporting to ensure adherence to regulations and identify areas of non-compliance.	Measuring compliance with land use regulations in high-risk flood zones ensures that development practices align with safety standards, reduce flood-related risks, and foster long-term community resilience by protecting	The potential for bureaucratic delays and increased administrative costs could slow down necessary development projects and discourage investment in the area.	Streamlining the permitting process and utilizing digital tools for tracking and reporting compliance can mitigate bureaucratic delays and administrative costs enhance efficiency while maintaining oversight and ensuring adherence to land use regulations.	The state may face increased residential development in vulnerable areas, leading to higher property damage, greater loss of life during flooding events, and significant financial burdens on emergency services and recovery efforts.

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
				vulnerable areas from unsuitable residential development.			
		Monitoring the impacts on community vulnerability, such as changes in flood insurance claims and emergency response times during flood events.	Analyzing flood insurance claims data and emergency response times during flood events, utilizing statistical analysis to identify trends and correlations, and conducting surveys with affected communities to assess the perceived resilience and effectiveness of implemented measures.	This will provide valuable insights into the effectiveness of resilience measures. It will enable targeted improvements, enhance emergency preparedness, and ultimately protect at-risk populations more effectively during flood events.	The potential for data privacy concerns and the misuse of sensitive information could discourage community participation and undermine trust in emergency management efforts.	Implementing strict data protection protocols with potential research guidance from the Institutional Review Board (IRB), ensuring transparency about data usage, and actively engaging the community in discussions about privacy can help build trust and encourage participation in monitoring efforts.	The state may face increased risks during flood events, including inadequate emergency response and unaddressed community needs, which can result in greater property damage, loss of life, and diminished trust in local disaster management systems.
6G	Advance brownfield remediation.	Improvements in soil and water quality in previously contaminated areas, as well as the increase in green space and	Collecting and analyzing soil and water samples to measure quality improvements, conducting regular environmental monitoring, and using	Enhance public health by reducing exposure to pollutants, increasing local biodiversity through restored habitats,	The potential for increased property taxes or development pressures that could lead to gentrification, displacing long-time residents and altering	Implementing policies that prioritize affordable housing, provide community benefits agreements, and involve residents in the	The state may continue to grapple with underutilized contaminated sites, leading to ongoing public health risks, decreased property values, limited economic development opportunities,

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
		habitat restoration resulting from these efforts.	GIS mapping to track changes in green space and habitat restoration alongside community feedback to evaluate the effectiveness of remediation efforts.	and creating valuable green spaces for community recreation and education, all of which contribute to the overall success and acceptance of brownfield remediation efforts.	the community's character.	planning process can help ensure that remediation efforts support existing communities while enhancing local environments.	and environmental degradation that could hinder overall community resilience and quality of life.
7A	Integrate land use and transportation planning.	Metrics on reduced vehicle miles traveled (VMT) and improved public transit access in newly developed and historically under-served areas.	Analyzing traffic count and mileage data to quantify reductions in vehicle miles traveled (VMT), complemented by surveys and ridership statistics to evaluate improvements in public transit access while using GIS mapping to assess changes in transportation infrastructure in newly developed and historically underserved areas.	Enhance adaptive capacity by promoting sustainable development, reducing reliance on single-occupancy vehicles, lowering greenhouse gas emissions, and fostering resilient infrastructure that can withstand climate-related impacts, ultimately leading to healthier communities and a	The potential for conflicts among stakeholders with differing priorities can lead to delays in decision-making, increased costs, and the risk of implementing solutions that do not adequately address the needs of all community members, particularly historically marginalized groups.	Fostering inclusive engagement processes that prioritize community input, establishing clear communication channels, and facilitating collaborative decision-making can ensure that diverse perspectives are considered and lead to more equitable and effective planning outcomes.	The state may experience increased traffic congestion, higher greenhouse gas emissions, inefficient land use, and greater vulnerability to climate impacts, ultimately resulting in diminished quality of life, economic stagnation, and exacerbated social inequalities.

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
				more sustainable environment.			

TABLE 4: EQUITY

No.	NJ SDRP Policy / Strategy	Indicators	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
1	Encourage center-based, compact, mixed-use development while protecting and preserving critical environmental resources and high-value agricultural lands.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
1A	Facilitate growth in Planning Areas 1, 2 and 3, and accommodate growth in Planning Areas 4-5 in centers.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
1B	Recenter, redesign, and	**Inclusive Opportunities:**	"Underutilized and vacant lots" refer to neglected or	Adopting a policy to recenter, redesign,	While the policy to recenter, redesign,	To address the challenges of	If the policy to recenter, redesign,

	rebuild underutilized areas.	Measure the distribution of new housing, jobs, and business opportunities created in overburdened areas by revitalizing vacant or underutilized parcels, focusing on whether minority and low-income populations benefit.	abandoned parcels in urban areas that could otherwise contribute to crime or blight but offer significant potential for community-centered growth. These spaces can be reimagined to address the housing, employment, and economic needs of underserved communities, especially through "infill development" strategies that prioritize the construction of residential, commercial, and public amenities on underused urban land. "Inclusive Opportunities" emphasizes the equitable distribution of these resources, ensuring that new development directly benefits minority and low-income residents. To measure inclusivity in redevelopment outcomes, data on the distribution of new housing units, jobs, and businesses in revitalized areas will be analyzed, focusing on benefits to minority and low-income	and rebuild underutilized areas provides a proactive solution to the challenges posed by urban population growth and space limitations. By focusing on vacant and underused lots and buildings, cities can unlock valuable land for affordable housing, job creation, and community amenities without the need to expand outward into greenfield areas. This approach not only meets the demand for increased housing but does so sustainably, preserving open spaces and reducing suburban sprawl.	and rebuild underutilized areas offers clear benefits, its implementation poses significant challenges, particularly due to property ownership issues. Most abandoned buildings and vacant lots are privately owned, limiting the city's authority to intervene directly in repurposing these properties. Without the legal mechanisms to compel redevelopment, municipalities may struggle to initiate the revitalization of these spaces, relying instead on incentives or costly acquisition processes that can delay progress and strain public resources.	privately owned, vacant, and underutilized properties, cities could pursue stronger policies to reclaim or acquire these lands, enabling more effective revitalization. Granting municipalities greater authority to reclaim neglected properties not only helps reduce urban blight but also alleviates strain on public resources associated with policing, waste management, and other services. By gaining control over these parcels, cities can transform hazardous or unsightly areas into community assets, enhancing safety and neighborhood pride.	and rebuild underutilized areas remains unadopted, cities with high levels of abandonment and vacant land will continue to face substantial social, economic, and environmental challenges. Concentrations of vacant lots often lead to widespread urban blight, rendering neighborhoods unattractive for both residents and visitors. These areas, marked by neglect and disuse, tend to foster a perception—and often a reality—of insecurity, as vacant properties are associated with increased crime and a diminished sense of community safety. This ongoing cycle of disinvestment not only drives residents away

			populations. Key indicators will include the percentage of affordable housing units, minority-owned businesses established, and job opportunities accessible to low-income residents. Additionally, special attention will be given to the impact of repurposing parking infrastructure for community-oriented developments, as minimum parking requirements often drive up housing and service costs, disproportionately affecting lower-income residents who may not need parking but face its indirect costs. By setting maximum parking limits in high-density urban areas with strong public transit access, cities can replace underused lots with affordable housing, local businesses, and public amenities. This approach aligns with Smart Growth and equity-focused planning principles, creating vibrant, multi-use spaces that support equitable urban growth and	Transforming neglected parcels into productive spaces also has significant social and economic benefits. Redeveloping these areas can reduce blight, lower crime rates, and enhance neighborhood aesthetics, creating a sense of pride and ownership among residents. Further, prioritizing infill development can support economic growth by attracting new businesses, which can, in turn, generate local jobs and increase access to essential services for low-income and minority communities. This policy aligns with Smart Growth principles and	Additionally, even when cities secure the necessary authority or cooperation to redevelop underutilized areas, the costs associated with remediation and renovation can be high, especially if properties are in poor condition. Environmental contamination, outdated infrastructure, or structural decay can drive up redevelopment expenses, which may be passed on to residents or businesses, potentially impacting housing affordability. These financial and logistical barriers make it challenging for municipalities to ensure that	Moreover, reclaiming vacant properties can have positive environmental impacts, supporting goals for cleaner air, water, and soil. Abandoned lots often attract illegal dumping or contamination that degrades environmental quality, whereas reclaiming and redeveloping these spaces allows for environmentally responsible remediation efforts. This can, in turn, reduce pollution and create green spaces or sustainable developments that improve the overall health and quality of life for urban residents. To further mitigate costs, cities can offer targeted incentives for	but also discourages new businesses, limiting economic growth and worsening urban decline. Beyond social impacts, vacant land negatively affects environmental quality. Abandoned sites may attract illegal dumping, accumulate hazardous waste, or become points of contamination that degrade air, water, and soil quality. These conditions place an ongoing strain on city resources as municipalities must allocate funds for policing, emergency services, and cleanup efforts without receiving tax revenue in return. Without proactive measures to reclaim and revitalize these spaces, cities risk deepening cycles

			directly benefit residents in high-need neighborhoods, transforming vacant or blighted lots into productive community assets.	strengthens social equity by ensuring that revitalization efforts benefit underserved populations, supporting vibrant, inclusive urban environments where all residents have access to quality housing and economic opportunities.	redevelopment efforts align fully with affordability and social equity goals.	developers willing to invest in environmentally friendly and affordable housing solutions, aligning urban growth with both social equity and environmental sustainability goals.	of poverty, increasing environmental degradation, and further eroding the overall quality of urban life. Maintaining a significant stock of vacant land is ultimately a disservice to cities, undermining their potential to become vibrant, equitable, and sustainable communities.
		Public Space Accessibility: Assess whether the redesigned public spaces, parks, and amenities in rebuilt areas are accessible to all, particularly for low-income or marginalized groups.	"Public Space Accessibility" refers to the ease with which all residents, especially low-income or marginalized groups, can access and enjoy redesigned public spaces, parks, and amenities in rebuilt areas. Vacant land, if left undeveloped, can contribute to urban decline, blight, and social issues, such as increased crime and safety concerns. By converting underused land into vibrant, culturally, and ecologically productive spaces, cities can foster a	The adoption of the policy offers significant benefits for urban communities, particularly for low-income and marginalized groups. A key objective is to ensure that all residents live within a reasonable walking distance of a public park, ideally within half a mile. By	While the policy aims to improve access to public parks and amenities, several disbenefits must be acknowledged. Simply achieving equal proximity to greenspaces does not guarantee equitable access to the facilities and amenities within those parks. Research indicates that predominantly	To effectively mitigate the disbenefits associated with the policy, it is crucial to ensure that parks and public spaces in low-income and minority neighborhoods receive the same level of investment and amenities as those found in predominantly white areas. This can be achieved by	If the policy is not adopted, the trend of inequitable access to parks and greenspaces is likely to persist and worsen. This continued inequity in access and the distribution of amenities within these spaces will have significant negative consequences for vulnerable populations, including individuals with disabilities, youth,

			sense of pride and inclusion within the community, transforming eyesores into places of social and environmental value. In many U.S. cities, parks and greenspaces in minority and low-income neighborhoods are often smaller, more crowded, and lack the quality amenities found in wealthier or predominantly white areas. This discrepancy creates an inequitable experience in accessing public space, where residents in marginalized areas may have fewer or lower-quality recreational options despite being within walking distance of green spaces. The goal of this indicator is to ensure that redesigned public spaces in rebuilt areas provide equitable, high-quality amenities that meet the needs of all residents. To assess "Public Space Accessibility," the distribution,	implementing Blight Management strategies, cities can transform vacant lots into vibrant public spaces. This process includes removing debris, enriching the soil, planting grass and trees, and installing features such as split rail fences to create safe and inviting environments. Such transformations not only enhance the aesthetic appeal of neighborhoods but also ensure equitable access to greenspaces for all residents. Providing accessible public parks and amenities supports improved physical and mental health outcomes by	white populations often enjoy superior access to parks with more amenities and better maintenance compared to those in low-income or marginalized communities. This disparity raises concerns that merely converting vacant lots into greenspaces may not adequately address the underlying inequities in park quality and accessibility. Moreover, initiatives like the Philadelphia Land Care (PLC) program, which temporarily transform vacant lots into greenspaces, highlight the potential for short-term solutions that do not result in lasting	systematically adding comparable facilities and features—such as playgrounds, sports fields, and community gardens—to greenspaces in underserved neighborhoods. By prioritizing equal access to quality amenities, cities can address disparities and create inclusive environments that foster community engagement and well-being. Additionally, any initiatives focused on transforming vacant lots into greenspaces must be designed as permanent solutions rather than temporary fixes. Ensuring that these projects receive ongoing funding and maintenance will not	seniors, and low-income and minority groups. Research has shown that inadequate access to quality greenspaces contributes to a range of adverse health outcomes, such as higher rates of obesity, mental health issues, and limited opportunities for physical activity. Moreover, the failure to address these disparities can exacerbate environmental issues such as poor air quality, increased stormwater runoff, and higher urban temperatures. Greenspaces play a critical role in mitigating these problems; when access is inequitable, marginalized communities may face

			quality, and accessibility of redesigned public spaces in revitalized areas will be evaluated. Key measures will include the size and quality of amenities, such as playgrounds, seating, and recreational facilities, in areas serving low-income or marginalized communities compared to other neighborhoods. Additionally, proximity data will be analyzed to ensure that these communities have easy access to parks within walking distance. Surveys and community feedback will further determine whether residents perceive these spaces as welcoming, safe, and accessible. By tracking these indicators, policymakers can better understand and address disparities in public space quality, creating more inclusive urban environments.	encouraging active lifestyles and social interaction. Well-designed public spaces serve as community hubs where residents can gather, play, and engage in recreational activities, fostering a sense of belonging and community cohesion. For marginalized populations, who often face barriers to accessing quality greenspaces, the implementation of this policy and indicator ensures that revitalization efforts prioritize their needs, creating inclusive environments that cater to diverse community members. Ultimately, this	improvements. If these spaces are intended as stopgaps until more significant development occurs, they may fail to provide the permanent recreational and community benefits that residents need. Such a transient approach risks perpetuating the cycle of neglect, where revitalized areas do not receive the sustained investment necessary to create truly equitable and accessible public spaces. Without a commitment to long-term planning and resource allocation, the transformation of vacant lots into greenspaces may fall short of delivering the	only enhance their usability but also demonstrate a commitment to long-term community investment. Establishing a framework for consistent care and upkeep will help maintain the quality of these spaces and encourage their sustainable use over time. By prioritizing permanent transformations and equitable amenities, cities can create vibrant, accessible public spaces that serve all residents, ultimately contributing to more cohesive and resilient urban communities.	heightened exposure to environmental hazards and diminished quality of life. Without intervention, the lack of investment in public spaces and amenities will likely lead to continued urban decline, reinforcing social and health inequities. Ultimately, not adopting this policy risks entrenching systemic disparities and jeopardizing the health and well-being of entire communities, particularly those already burdened by economic and social challenges.

				approach promotes social equity, enhances the overall quality of life, and contributes to the sustainability of urban areas by making them more livable and resilient for future generations.	intended benefits for all community members, particularly those who are most in need of high-quality, accessible amenities.		
1C	Protect habitat of resident and migratory threatened and endangered species.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
2	Foster greater diversity in the State's housing stock and reduce housing cost burden.	**Affordable Housing Distribution:** Track the percentage of new housing units that are affordable and located in high-opportunity areas, ensuring that marginalized groups are not priced out.	The indicator aims to track the percentage of new housing units that are designated as affordable and situated in high-opportunity areas. This is crucial because historically, Black households and other marginalized groups have faced significant housing cost burdens, stemming from systemic inequality, disinvestment, and segregation. Such burdens force many lower-income	Adopting the policy brings a multitude of benefits that extend beyond simply increasing the availability of affordable units. One of the most significant advantages is the promotion of mixed-use development, which plays a critical role in	While the policy aims to enhance equity in housing, several disbenefits must be considered. First and foremost, affordability alone does not guarantee the suitability of the area where new housing units are constructed. If affordable housing is built in unsuitable	To effectively mitigate the disbenefits associated with the policy, several strategic measures can be implemented. First, enhancing flexibility in the application, reporting, and monitoring requirements for public subsidies can	If the policy is not adopted, the consequences will likely perpetuate and exacerbate existing issues within communities. Concentrations of poverty will continue to grow, leading to heightened levels of crime, unemployment, and lowered educational

			families to allocate a large portion of their income to housing expenses, which in turn limits their ability to invest in essential needs like food, education, and healthcare. By measuring the distribution of affordable housing in affluent neighborhoods, this indicator seeks to ensure that marginalized groups are not excluded from areas that offer better economic and social opportunities. To assess this indicator effectively, cities must not only monitor the percentage of affordable units developed in high-opportunity areas but also evaluate the policies that facilitate or hinder such developments. For instance, mixed-income developments can serve as a sustainable solution to enhance affordability while attracting private investment and amenities that benefit a diverse income range. Furthermore, local	addressing the challenges associated with concentrated poverty. By integrating affordable housing within high-opportunity areas, these developments help deconcentrate poverty, creating more equitable access to resources and opportunities for all residents. Furthermore, mixed-use development has been shown to lead to reductions in crime rates and improvements in education and health outcomes. When marginalized communities have access to better housing in thriving neighborhoods, they benefit from	locations, such as floodplains or areas prone to other environmental hazards, residents may face increased risks from climatic events, leading to potential loss of life and property. This highlights the necessity for careful site selection and risk assessment in the planning process to ensure that affordable housing is both accessible and safe. Additionally, the complexity of coordinating efforts among multiple agencies can hinder the efficacy of these housing initiatives. Effective implementation often requires collaboration between state and	significantly streamline the process for developers. By reducing bureaucratic hurdles, more resources can be directed toward housing development rather than administrative tasks, making it easier for projects to get off the ground. This streamlined approach can also encourage a wider range of developers to participate in creating affordable housing, ultimately leading to more diverse and suitable options for residents. Moreover, increasing dedicated funding at both state and local levels is crucial. Allocating more resources specifically for affordable	achievement. These factors will reinforce cycles of generational poverty, making it increasingly difficult for affected families to escape the confines of economically distressed neighborhoods. Without adequate affordable housing in high-opportunity areas, marginalized groups will remain trapped in environments that limit their potential for upward mobility. Moreover, the lack of access to affordable housing will further restrict these communities' social capital, as individuals will struggle to build connections and access resources critical for employment, financial management, and

			governments need to address land-use inequities that perpetuate the shortage of affordable housing. This includes revising restrictive single-family zoning laws to permit multifamily housing and standardizing income qualification targets imposed by funders. Additionally, removing regulatory barriers, such as permitting restrictions and limitations on construction types, will enable a more equitable distribution of affordable housing across all neighborhoods, preventing further concentration in areas of poverty.	enhanced social networks, increased economic opportunities, and greater community cohesion. This not only fosters a sense of belonging but also contributes to overall community safety and well-being. As diverse populations interact within these vibrant spaces, they create a dynamic environment that encourages cultural exchange and collective resilience. Additionally, by tracking the distribution of affordable housing in high-opportunity areas, policymakers can ensure that marginalized groups are not priced out of neighborhoods that offer essential	local governments, housing authorities, and community organizations. This coordination can be challenging and may result in delays or misalignment of goals, ultimately affecting the quality and availability of affordable housing. Furthermore, the financial burden associated with developing affordable housing can be disproportionately high, especially when navigating the regulatory landscape. Many affordable housing projects face substantial upfront costs and ongoing regulatory burdens related to compliance with subsidies and zoning laws, which can	housing initiatives ensures that these projects are financially viable and can be built in appropriate locations that minimize risk. Additionally, strategic outreach and education efforts aimed at both the public and elected officials can foster greater awareness and support for affordable housing developments. By informing stakeholders about the benefits of mixed-income communities and the importance of equitable housing distribution, communities can build a stronger coalition advocating for necessary policy changes and investments. These proactive steps will	navigating government and social services effectively. This isolation will stifle economic growth and exacerbate disparities, as residents in low-income areas will find it increasingly difficult to secure job opportunities that might otherwise be available in more affluent neighborhoods. Additionally, school performance will continue to suffer across all income groups, as the cumulative effects of poverty, limited access to resources, and substandard living conditions contribute to a negative educational environment. Without proactive measures to address these issues, the state risks entrenching systemic

				services, quality education, and access to employment. This proactive approach helps mitigate systemic inequalities, allowing for a more balanced and inclusive community where everyone can thrive. Ultimately, the adoption of this policy will lead to a more equitable housing landscape, supporting the development of sustainable, mixed-income communities that benefit all residents.	deter developers from participating in these initiatives. Without addressing these logistical and financial challenges, the intended benefits of increased housing diversity and reduced cost burdens may not be fully realized, leaving marginalized groups still vulnerable to housing insecurity.	help create a more favorable environment for the successful implementation of affordable housing projects, ensuring that marginalized groups are not only included but thrive in high-opportunity areas.	inequalities and diminishing the overall quality of life for its residents.
3	Increase access to opportunity and remove barriers to mobility in overburdened communities	**Transit Access Equity:** Measure whether transit improvements reduce commute times for low-income and minority communities, ensuring they have better access to jobs and services.	The indicator focuses on measuring the impact of transit improvements on reducing commute times for low-income and minority communities. Access to reliable public transportation is critical for these groups, as	Adopting the policy will significantly enhance mobility for low-income and minority communities. By increasing the frequency of bus	While the policy offers significant potential benefits, several challenges and disbenefits must be acknowledged. One major issue is the complexity of	Addressing the challenges associated with this policy will indeed require significant financial investment and strategic planning. To mitigate	If the policy is not adopted, the existing disparities in accessibility will likely persist and potentially worsen. Marginalized groups, including low-income individuals,

	by investing in transit and making walking and biking easier and safer.		it directly influences their ability to reach essential destinations such as employment centers, educational institutions, and healthcare facilities. Research indicates that individuals from low-income backgrounds often face significant barriers in accessing public transit, which exacerbates existing inequalities and limits their opportunities for social and economic advancement. To assess the effectiveness of transit improvements, data will be collected on commute times pre- and post-implementation of new transit initiatives in targeted areas. This will include an analysis of ridership patterns, service frequency, and overall accessibility of transit routes for low-income and minority populations. Additionally, surveys and community feedback will be integral in identifying barriers to transit access and understanding	stops and passenger rail stations, residents will experience reduced travel distances and shorter commute times, making it easier for them to access employment opportunities, educational facilities, and essential services. This improved transit access is crucial in fostering economic mobility and empowering individuals to achieve greater stability and self-sufficiency. Moreover, equitable transit access positively impacts public health and well-being. By ensuring that low-income and marginalized	addressing disproportionate access to public transportation. There is often a struggle to find clear, actionable solutions that effectively target the specific needs of low-income and minority communities, particularly in regions where historical disinvestment has created systemic barriers. As efforts are made to enhance transit access, there is a risk that these improvements may not adequately reach or benefit the most underserved populations. Additionally, the push for decarbonization in transportation can	these disadvantages, cities can prioritize a comprehensive approach that integrates transportation planning with affordable housing development. By aligning these two critical areas, planners can ensure that improvements in transit access directly benefit low-income and minority communities, thus reducing inequities in access to jobs and services. Additionally, cities should seek innovative funding sources, such as public-private partnerships or state and federal grants, to alleviate the financial burden of transit improvements. Implementing a	people of color, and those with physical or mental disabilities, will continue to face significant barriers in reaching essential destinations such as employment, educational institutions, healthcare services, and healthy food options. The ongoing inequity in transit access can perpetuate cycles of poverty and hinder social mobility, leaving these communities isolated and disconnected from vital resources. Moreover, the absence of strategic investment in transit infrastructure will exacerbate public health disparities, as individuals from disadvantaged backgrounds may struggle to access

			the experiences of residents. By focusing on these metrics, policymakers can evaluate whether transit investments effectively enhance mobility and connectivity for disadvantaged communities, ensuring they have equitable access to jobs and services vital for a healthy and thriving life.	populations can reach healthcare providers, grocery stores, and recreational facilities, the policy can help mitigate health disparities associated with limited mobility. Research indicates that equitable access to transit correlates with improved health outcomes, as individuals are more likely to engage in physical activity and maintain a healthier lifestyle when they can easily reach essential destinations. Overall, the policy not only enhances transportation equity but also contributes to healthier, more vibrant communities where all residents	present a conflicting priority. While investing in public transit is essential for reducing emissions and promoting sustainable mobility, the transition to greener alternatives may inadvertently overlook the immediate needs of communities that rely heavily on existing public transportation networks. The challenge lies in balancing the dual goals of enhancing access and achieving environmental sustainability, which can lead to complex trade-offs that might not favor the most vulnerable populations. Thus, careful planning and consideration are	phased approach to development can also help manage costs while allowing for ongoing assessment and adjustments based on community feedback. Moreover, enhancing last-mile connectivity—such as safe pedestrian paths, bike lanes, and local shuttle services—can shorten the distance to transit hubs and improve overall accessibility, ensuring that residents can easily reach transportation options without undue burden. This multifaceted strategy can create a more equitable transit system that serves all community members effectively.	healthcare and wellness opportunities. This limited access can contribute to adverse health outcomes, further entrenching socioeconomic inequalities. Additionally, without improved transit solutions, the potential for economic growth in these communities may be stifled, as businesses may hesitate to invest in areas lacking accessible transportation options. Overall, failing to adopt this policy could solidify systemic inequities, perpetuating the challenges faced by vulnerable populations and undermining broader efforts to create inclusive, equitable communities.

				have the opportunity to thrive.	needed to ensure that the goals of equity and sustainability are not at odds with one another.		
4	Protect, maintain, restore, and enhance the State's natural resources.						
4A	Protect and restore wetlands and river and stream corridors	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
4B	Protect and enhance forest resources	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
5	Mitigate climate change by decarbonizing New Jersey's economy.						
5A	Transition to 100% renewable energy.	**Access to Affordable Renewable Energy:** Measure whether low-income households	The term "Access to Affordable Renewable Energy" refers to the availability and affordability of	Transitioning to 100% renewable energy brings significant benefits,	While the transition to 100% renewable energy is essential for sustainable	To effectively mitigate the disbenefits associated with the	If the policy is not adopted, the consequences will likely exacerbate

		have access to affordable renewable energy sources, such as community solar programs.	renewable energy sources, particularly for low-income households. This indicator emphasizes the importance of ensuring that all communities, especially underserved ones, have equitable access to renewable energy resources, such as community solar programs. Local governance and procedural equity are essential for facilitating this access, as these factors influence how renewable energy initiatives are planned and implemented. Often, marginalized communities have limited participation in the decision-making processes surrounding renewable energy projects, which can lead to outcomes that fail to address their needs or even exacerbate existing inequalities. To assess the effectiveness of this indicator, the measurement will focus on the availability and uptake of affordable renewable energy	particularly for low-income households. One of the primary advantages is the reduction of energy price volatility, which is largely driven by dependence on fossil fuel imports. By investing in renewable energy sources, communities can stabilize energy costs and provide more predictable pricing for consumers. This stability is crucial for low-income households, who often face financial strain and need to manage their budgets effectively. A shift to renewable energy not only alleviates these financial pressures but also enhances	development, it is not without potential drawbacks that must be carefully considered. One significant concern is land loss associated with the large-scale deployment of renewable energy infrastructure, such as solar farms and wind turbines. This can lead to the displacement of local communities, as well as reduced access to land for agriculture and recreation. Additionally, the installation of renewable energy systems may affect the quality and quantity of nearby water resources, as construction and operational activities can disrupt natural water flows and ecosystems.	transition to 100% renewable energy, particularly from a social equity perspective, targeted ‘place-based’ employment transition policies are essential. These policies should focus on areas at high risk of disruption due to the shift from traditional energy sources to renewables. By investing in job training and workforce development programs specifically tailored to local communities, particularly those historically reliant on fossil fuel industries, we can facilitate a smoother transition for workers and minimize economic disparities. This approach not only	existing inequities, particularly within low-income and marginalized communities. The large-scale implementation of renewable energy solutions, when executed without community input and local knowledge, can inadvertently overlook the specific needs and circumstances of these populations. This oversight not only perpetuates systemic marginalization but may also lead to the displacement of communities, as energy projects are developed without consideration for local contexts and the impacts on residents’ lives. As a result, low-income households could find themselves increasingly excluded from the benefits of

			options within low-income households. This includes evaluating the presence of community solar programs and other localized renewable energy systems designed to empower residents through sustainable energy solutions. The assessment will also consider key factors such as the procurement and installation processes of renewable energy technologies, as well as their long-term viability and maintenance. By integrating smaller-scale renewable systems into broader energy policies, local governments can enhance community agency and ensure that the benefits of renewable energy are equitably distributed, ultimately fostering greater local participation in energy decision-making.	energy security and independence. Additionally, adopting renewable energy sources is a critical strategy for mitigating climate change and reducing pollution. By moving away from fossil fuels, communities can significantly lower greenhouse gas emissions and minimize harmful pollutants that disproportionately impact marginalized populations. This transition not only benefits the environment but also improves public health outcomes by reducing the incidence of respiratory diseases and other health issues linked to air	Furthermore, the environmental impacts of renewable energy technologies must also be addressed, particularly regarding wildlife. The construction of solar and wind facilities can pose risks to local habitats and species, leading to negative consequences for biodiversity. Lastly, improper disposal of photovoltaic (PV) waste at the end of its lifecycle can create environmental hazards, as outdated or damaged solar panels contain materials that may leach harmful substances into the environment if not managed correctly. Therefore, while the transition to	supports those facing job loss but also empowers communities to take advantage of new opportunities in the growing renewable energy sector. In addition to employment strategies, creating policies that offer compensation and support for individuals and communities who may be adversely affected by the transition is crucial. This could include financial assistance, access to alternative employment opportunities, or support for those displaced by renewable energy projects. By proactively addressing potential losses, we can	renewable energy, further entrenching disparities in energy access and affordability. Moreover, without a proactive approach to ensuring access to affordable renewable energy sources, vulnerable communities will continue to bear the brunt of energy poverty and high energy costs associated with traditional energy sources. This situation can create a cycle where the lack of access to affordable renewable energy reinforces economic struggles, limits opportunities for community investment, and undermines efforts to combat climate change effectively. In

				pollution. The combination of economic stability and enhanced environmental health creates a more equitable energy landscape, ensuring that low-income households can access affordable renewable energy sources while contributing to broader climate resilience.	renewable energy is critical for climate action, it is essential to implement comprehensive planning and management strategies to mitigate these potential disbenefits, ensuring that the transition is truly sustainable and equitable for all communities.	ensure that the benefits of the renewable energy transition are distributed equitably, protecting the livelihoods of those at risk and promoting broader community resilience. These strategies are vital in ensuring that the shift to renewable energy not only reduces environmental impacts but also enhances social equity and inclusivity, fostering a just transition for all stakeholders involved.	essence, the failure to transition to renewable energy not only jeopardizes environmental goals but also risks deepening social inequities, leaving low-income households without the tools or resources needed to thrive in an increasingly sustainable future. Addressing these issues through inclusive policies is essential to break these cycles of marginalization and ensure equitable access to clean energy for all.
5B	Reduce vehicle miles traveled and expand the use of zero emission	**Equitable Access to Zero-Emission Transportation:** Track whether low-income communities gain access to zero-emission transportation options,	This indicator refers to ensuring that low-income communities have meaningful access to zero-emission transportation options, such as electric buses and shared electric	Adopting policies to reduce vehicle miles traveled while expanding access to zero-emission modes of transportation yields	While policies aimed at reducing vehicle miles traveled and expanding access to zero-emission (ZE) transportation can have substantial	To effectively mitigate the disbenefits associated with policies aimed at reducing vehicle miles traveled and	If the policy is not adopted, the consequences will disproportionately affect low-income communities and exacerbate existing

	modes of transportation.	such as electric buses or shared electric vehicles.	vehicles. This indicator emphasizes the importance of reducing transportation distances through higher residential and employment densities, which can promote walkable access and integrate diverse land uses. By designing urban spaces that prioritize accessibility, through features like reduced speed limits, connected bike lanes, and clear signage, local governments can create an environment that encourages the use of sustainable transportation methods. To effectively assess equitable access to zero-emission transportation, local governments must implement experimental governance strategies that promote innovation and trial projects aimed at enhancing transportation options for low-income communities. This involves actively engaging stakeholders and business owners, particularly in the	significant benefits, particularly for low-income communities. By decreasing the need for expanding existing infrastructure, these policies foster a more compact urban design that shortens distances between residences and employment centers. This enhanced connectivity allows for seamless access to essential services and job opportunities, making it easier for low-income residents to engage in their communities without relying on personal vehicles. As a result, this transition not only promotes sustainable transportation	benefits, they also come with notable disbenefits, particularly when viewed through a social equity lens. One major risk is the potential overestimation of the power of experimentation and trial projects to drive meaningful change within communities. If local governments rely too heavily on experimental governance without sufficient follow-through, they may fail to implement the necessary infrastructure and support systems that ensure equitable access to zero emission transportation options for low-income populations.	expanding access to zero-emission (ZE) transportation, it is crucial for local governments to adopt a comprehensive approach that emphasizes social equity. First, local authorities should investigate and develop strategies for scaling innovations and facilitating institutional learning within their communities. By focusing on how successful pilot projects can be expanded and integrated into broader transportation networks, governments can ensure that the benefits of zero emission transportation reach	inequities. As urban sprawl continues unchecked, the costs associated with the construction and maintenance of zero emission transportation infrastructure will escalate. Without a proactive approach, these rising costs may lead to further neglect of sustainable transportation solutions, particularly in marginalized neighborhoods that already face significant barriers to access. Moreover, the absence of effective sustainable and zero emission policy initiatives can result in a missed opportunity for local governments to implement transformative changes that benefit

			private sector, to support policies that facilitate the decarbonization of the local economy. By tracking the deployment of zero-emission transportation options and measuring their accessibility within underserved neighborhoods, cities can gauge the impact of their initiatives on reducing vehicle miles traveled while simultaneously addressing social equity concerns. This holistic approach not only fosters sustainable transportation solutions but also empowers communities, ensuring that all residents can benefit from the transition to cleaner, more accessible transportation alternatives.	options but also supports economic mobility and social inclusion. Furthermore, integrating zero-emission transportation options—such as electric buses and shared electric vehicles—into urban environments enhances the overall quality of life for underserved communities. Improved access to clean transportation options contributes to reduced air pollution, leading to better health outcomes, particularly for vulnerable populations who are disproportionately affected by environmental hazards. By	Additionally, the diverse resources, interests, and influences of different stakeholders can complicate the adoption process. Without careful consideration of these varied factors, policies may inadvertently favor certain groups while neglecting the specific needs of marginalized communities. For instance, affluent neighborhoods may secure more attention and resources, leaving low-income areas without adequate transportation options. Moreover, the uneven development between cities must also be acknowledged.	low-income communities and do not remain isolated experiments. Additionally, local governments must actively manage the divergent interests of public, private, and citizen stakeholders, not only during experimental phases but also throughout the learning and scaling processes. Engaging stakeholders from various backgrounds allows for a more inclusive decision-making framework that prioritizes the needs of marginalized groups. Moreover, to effectively address existing inequalities, local governments should examine the extent to which they can tackle these	all residents. Lack of persistence and foresight from local authorities will hinder the adoption of innovative transportation solutions, leaving vulnerable communities without necessary services. Consequently, the impacts of pollution will intensify, as these areas are likely to continue experiencing higher levels of air quality degradation due to reliance on conventional transportation methods. As access to clean and efficient transport services diminishes, social, economic, and physical well-being will be stifled, perpetuating a cycle of disadvantage that disproportionately affects low-income

				prioritizing equity in the deployment of zero-emission transportation, cities can ensure that low-income communities are not left behind in the transition to a sustainable transportation future. This alignment of social equity and environmental stewardship helps create healthier, more resilient communities while advancing broader climate goals.	Policies that do not take into account the unique contexts and capacities of different urban areas risk exacerbating existing disparities, ultimately hindering the equitable distribution of zero-emission transportation resources. Thus, while the intentions behind these policies are commendable, their implementation requires a nuanced understanding of social equity to avoid unintended negative consequences.	disparities through translocal exchanges and collaborative networks, such as the Covenant of Mayors. These platforms enable local governments to engage in mutual learning and capacity building, fostering partnerships that can enhance the implementation of equitable zero emission transportation solutions. By prioritizing collaboration and inclusivity, local governments can work towards ensuring that all communities benefit from the transition to sustainable transportation, thereby mitigating potential disbenefits.	populations. Thus, the failure to adopt equitable policies for zero-emission transportation will ultimately undermine efforts to create a healthier, more just urban environment for all residents.
		Reduced Transportation Costs:	To understand this indicator, it is crucial to recognize the	Adopting the policy brings significant	While the policy aims to promote	To mitigate the disbenefits, it is	Failing to implement this policy would

		Measure reductions in transportation costs for low-income individuals as a result of expanded zero-emission transportation options.	inherent disparities in transportation economics, particularly how these costs disproportionately affect low-income individuals. Those in underserved communities often bear the brunt of transportation expenses while having limited resources to contribute to infrastructure projects and policy implementations. This inequity highlights a broader global trend: marginalized populations frequently sustain the financial burden of maintaining and funding transportation systems that do not serve their needs effectively. Traditional approaches, such as transport demand modeling and conventional cost-benefit analyses, often fail to capture this complexity, providing a narrow perspective that overlooks the diverse realities faced by these communities (Randal et al., 2020). To effectively assess this indicator, it is essential to	benefits, particularly for low-income individuals who often face systemic barriers in accessing essential services. By expanding access to affordable and efficient transportation, this policy enhances connectivity to critical resources, including healthcare, education, employment opportunities, grocery stores, and recreational activities. This increased access not only improves the quality of life for low-income residents but also fosters greater community engagement and social cohesion, allowing individuals	equity, it risks accentuating existing transportation-related inequities and potentially creating new ones. If not carefully implemented, the policy may prioritize affluent neighborhoods that already have access to efficient transportation options, further marginalizing low-income communities and exacerbating disparities in access and affordability. Moreover, the transition to zero emission transportation may require significant upfront investments in infrastructure, diverting funds from other critical areas such as public transit, affordable housing, or social	crucial to adopt a philosophical framework that emphasizes fairness in addressing trade-offs. This framework should prioritize meaningful community engagement to ensure that low-income individuals and marginalized communities are actively involved in the planning process. By doing so, policymakers can better identify specific transportation needs and barriers, leading to solutions that not only enhance access to zero emission options but also rectify existing inequities, ultimately promoting a more inclusive transition to sustainable transportation.	exacerbate existing inequalities and lead to negative consequences for low-income individuals and marginalized communities. Without these considerations, housing availability and costs may become increasingly strained, while time and opportunity costs rise, hindering access to essential services and employment opportunities. Additionally, this inaction could foster segregation and community disharmony, resulting in a disproportionate distribution of carbon costs that further entrenches social and economic disparities.

			employ a comprehensive evaluation framework that considers the full range of costs and benefits associated with expanded zero-emission transportation options. This includes not only direct monetary savings from reduced transportation costs but also qualitative factors such as access to jobs, healthcare, and educational opportunities. Engaging with low-income individuals and communities in the assessment process will help ensure that their voices are heard and their specific transportation needs are addressed (Meenar et al., 2019b). By prioritizing social equity in the evaluation mechanism, we can better measure the tangible impact of zero-emission transportation initiatives on reducing overall transportation costs for those who need it most, ultimately fostering a more equitable and sustainable transportation landscape.	to maintain important relationships with friends and family. Furthermore, reducing transportation costs through the implementation of zero emission modes can alleviate financial stress on low-income households, enabling them to allocate their limited resources to other necessities, such as housing and nutrition. By prioritizing equitable transportation solutions, we can help break the cycle of poverty, reduce reliance on personal vehicles, and mitigate the environmental impact of transportation. This	services. Without a strong focus on inclusive planning and community engagement, the policy could perpetuate cycles of inequality, leaving vulnerable populations even more disadvantaged as they struggle to access essential services and bear increased financial burdens.		

				holistic approach not only promotes social equity but also contributes to a healthier, more sustainable urban environment, ultimately leading to a more just society where all individuals have the opportunity to thrive.			
6	Adapt infrastructure to contend with climate change, especially impacts that disproportionately affect vulnerable populations..						
6A	Eliminate combined wastewater sewer systems and associated overflow.	**Health Impact Reduction:** Track reductions in health issues (e.g., waterborne illnesses) in marginalized communities disproportionately	Combined wastewater sewer systems, often used in older urban areas, are designed to transport both sewage and stormwater in a single pipeline. During heavy rainfall or storms, these systems can become overwhelmed,	Eliminating combined wastewater sewer systems will significantly improve public health outcomes, particularly for	While eliminating combined wastewater sewer systems has clear benefits, implementing green stormwater infrastructure (GSI)	To address the potential challenges of adopting this policy, prioritizing inclusive community involvement is essential. Engaging local residents—	If the policy is not adopted, underserved communities will continue to bear the disproportionate impacts of sewer overflow and flooding events. Without

		affected by sewer overflows.	leading to combined sewer overflow (CSO) events. During CSOs, untreated wastewater flows directly into nearby rivers, lakes, and other water bodies, exposing nearby communities—often marginalized and underserved populations—to a higher risk of waterborne pathogens. These health hazards can result in increased cases of gastrointestinal illnesses, respiratory infections, and skin conditions among individuals who rely on local water sources for drinking or recreational activities. Marginalized communities are disproportionately affected due to historic disinvestment and limited access to protective infrastructure like green stormwater systems. The indicator measures reductions in health risks linked to sewer overflows by tracking reported cases of waterborne illnesses and	marginalized communities facing disproportionate exposure to hazardous overflow events. By reducing sewer overflows, this policy will decrease the incidence of waterborne illnesses and related health issues caused by contact with untreated wastewater, enhancing overall community health and well-being. Access to safe drinking water will improve, especially in areas where untreated wastewater has previously compromised local water sources. Moreover, the policy supports enhanced	as a primary solution comes with challenges. One concern is the risk of insufficient community engagement, leading to a lack of local buy-in. Without meaningful input and participation from affected communities, GSI projects may fail to address local needs effectively or be met with resistance, undermining their impact and sustainability. Moreover, GSI investments risk perpetuating historic racial inequities in urban development. If GSI implementation follows previous patterns of uneven distribution, it may reinforce existing	especially those from lower-income and historically marginalized areas—in decision-making processes ensures that green stormwater infrastructure (GSI) reflects community needs and builds trust. Incorporating community insights from the outset can lead to greater acceptance and long-term success of GSI projects, enhancing their impact and sustainability in disadvantaged areas. Another key mitigation strategy is to apply retrospective fittings of GSI and real-time control (RTC) technologies across existing infrastructure,	targeted intervention, green infrastructure investments will likely remain concentrated in more affluent neighborhoods, leaving marginalized areas with outdated, overwhelmed wastewater systems and increased vulnerability to health hazards and economic instability. As a result, residents in these communities will face sustained exposure to pathogens and contaminants, leading to persistently higher rates of waterborne illnesses and related health issues. Access to safe drinking water will remain at risk, particularly for those relying on local water sources that are periodically compromised by

			related health issues in communities affected by CSOs. Data collection will focus on public health reports, hospital records, and community surveys in areas with high incidences of CSO events. The aim is to assess if green stormwater infrastructure (GSI) and other mitigation strategies like real-time control (RTC) reduce the health impacts from overflow events. As climate models predict increased precipitation due to climate change, incorporating RTC and GSI alongside the phased elimination of combined sewer systems will be essential for resilience. This dual approach can provide a responsive framework to address both immediate and future public health needs.	water quality and environmental resilience. By reducing pollution in local water bodies, it will benefit ecosystems that rely on these waters and contribute to cleaner, safer recreational areas for community use. The policy also emphasizes cost-effective green stormwater infrastructure (GSI) solutions, such as permeable pavement and bio-retention systems, which are proven to be sustainable and affordable investments that minimize overflow risks while strengthening urban infrastructure for a changing climate.	disparities in infrastructure and access to safe water in marginalized neighborhoods. Without deliberate measures to ensure equitable distribution, the policy could inadvertently deepen the divide between well-resourced and underserved communities. The policy's reliance on GSI also raises concerns about adaptability and longevity in the face of climate change. GSI systems often have high maintenance requirements and may degrade faster than more robust, gray infrastructure or real-time control (RTC) systems. Additionally, RTC,	ensuring both newer and older areas benefit from improved water management. Retrofitting GSI in underserved neighborhoods can correct historical inequities in infrastructure investments, providing these communities with the same resilience and health protections as more affluent areas. Retrofitting RTC technology alongside GSI will also improve system flexibility, allowing for rapid adjustments during intense or consecutive storm events. Finally, increased funding for research and innovation in RTC technologies can address	untreated wastewater. This ongoing reliance on combined wastewater systems will continue to "impair adjacent water supplies, disrupt natural hydrologic processes through extensive channelization and piping, and result in flooding, aquatic ecosystem degradation, sewer overflow, riparian habitat loss, and water quality impairment". The cumulative effects of these conditions will contribute to the degradation of local ecosystems, undermining natural resilience and eroding quality of life for residents. Furthermore, by not adopting this policy, the broader urban infrastructure will

				Investing in these improvements aligns with social equity and economic development goals by ensuring that communities previously neglected in urban planning benefit from green infrastructure initiatives. This policy promotes a fairer distribution of green investments, giving vulnerable communities greater access to essential resources like safe water and reducing their exposure to biohazardous materials during floods. Collectively, these benefits contribute to building resilient, equitable, and sustainable urban	while promising, has shown inconsistent performance during consecutive storm events, which are becoming more frequent with climate change. Together, these factors highlight that the policy may struggle to provide reliable, long-term protection and could face higher costs and technical limitations if not implemented with these constraints in mind.	concerns about inconsistent performance and adaptability. Investments in RTC research will drive the development of more robust, cost-effective solutions to meet the challenges of climate variability and reduce long-term maintenance costs. By focusing on these mitigation strategies, the policy can achieve its goals of health impact reduction and equitable infrastructure improvement while managing its associated risks.	become increasingly strained under the pressures of climate change. As extreme precipitation events become more frequent, combined systems will be overwhelmed even more often, exacerbating existing inequities in health outcomes, environmental conditions, and economic opportunity. Inaction will entrench disparities and compound the challenges faced by marginalized communities, further perpetuating a cycle of disinvestment and environmental harm that will become harder—and more costly—to reverse.

				spaces where all residents can thrive.			
6B	Eliminate lead pipes.	**Lead Exposure in Vulnerable Communities:** Measure reductions in lead exposure for low-income and minority communities, ensuring that lead pipe removal is prioritized in high-risk areas.	Lead exposure, particularly harmful at any level, poses serious health risks, with children being especially vulnerable. Lead accumulates in the brain by binding to calcium receptors, disrupting neurological functions crucial to behavior, cognitive development, and overall health. In the context of this indicator, “high-risk areas” refer to communities—primarily low-income and minority populations—that face increased exposure due to aging infrastructure and historical disinvestment. These communities are often situated in areas with outdated, oversized systems that no longer match current population needs, which raises maintenance costs and health risks disproportionately for residents.	Eliminating lead pipes will significantly reduce the health risks associated with lead exposure, especially for vulnerable populations like low-income and minority communities, where outdated infrastructure and contamination risks are highest. Removing these pipes directly improves public health by preventing neurological and developmental issues in children, who are especially susceptible to lead’s toxic effects. Enhanced health outcomes will not only lead to better quality of life but	While eliminating lead pipes is essential for public health, the process could unintentionally exacerbate historical patterns of disinvestment in marginalized communities. In some cases, infrastructure projects aimed at modernizing or "right-sizing" water systems have led to a reduction in services and resources, particularly in areas with declining populations or economic hardship. By selectively removing or downsizing infrastructure, this policy risks further isolating low-income	To prevent further marginalization of underserved communities, implementing lead pipe elimination must avoid the complete “right-sizing” approach that risks reducing essential infrastructure and services. Instead, targeted upgrades should focus on maintaining or enhancing service access, ensuring that infrastructure adjustments do not result in decreased availability or quality of water services for vulnerable populations. Avoiding blanket reductions in service will prevent unintended isolation of communities already impacted by	If the policy to eliminate lead pipes is not adopted, vulnerable communities will continue to face elevated health risks from lead and other contaminants leaching into their water supplies. Without targeted removal efforts, the persistent presence of lead pipes will lead to ongoing exposure, particularly among children, causing severe and often irreversible health impacts. Marginalized communities, where lead pipes are more concentrated, will continue to endure these heightened risks, compounding long-standing

			The assessment will track reductions in lead exposure levels, focusing on high-risk communities where lead pipes pose a greater health burden. Data collection will emphasize blood lead level screenings in children, water sampling for lead concentrations, and documentation of lead pipe removal in prioritized areas. The concept of “right-sizing” will be applied strategically: rather than a complete reduction in services, this method will recalibrate infrastructure to current population sizes and needs, allowing resources to be reallocated effectively in underserved areas. Prioritizing the removal of lead pipes in low-income and minority neighborhoods ensures that residents in the most vulnerable areas benefit first, promoting health equity as cities update and optimize their infrastructure.	also alleviate long-term healthcare costs for families and communities burdened by lead exposure. In addition to health benefits, prioritizing lead pipe removal lightens the fiscal strain on municipalities by reducing the volume of infrastructure that requires regular oversight, maintenance, and emergency repairs. This streamlined infrastructure lowers operating costs and allows cities to reallocate resources toward further modernization and essential services, enhancing overall water service quality and management efficiency. By	and minority communities, inadvertently reinforcing inequities that have left these areas underserved for decades. Additionally, without careful planning and community engagement, lead pipe removal projects could disrupt local access to essential services or create temporary gaps in water delivery and quality, which could affect already vulnerable populations disproportionately. Ensuring equitable implementation of the policy will require vigilance and dedicated resources to avoid perpetuating past injustices and to ensure that the most affected	historical disinvestment. Prioritizing robust community engagement is also critical for effective implementation. Involving residents in decision-making from the outset ensures that their concerns and needs are addressed, fostering trust and increasing community buy-in. Local input can guide project prioritization, helping planners to identify specific areas and circumstances where lead pipe removal will have the most substantial impact. This participatory approach ensures that solutions align with the needs of the community, especially those who have historically	environmental and health inequities. Moreover, municipalities will struggle to maintain oversized, outdated infrastructure systems that no longer match population needs, stretching already limited resources and compromising service quality. This inefficiency not only drives up maintenance costs but also limits the ability of municipalities to monitor and control water quality effectively. The financial burden of sustaining obsolete systems will fall disproportionately on low-income communities, who often face higher water rates and fewer service improvements. Without action, these

				aligning infrastructure size with community needs, this policy enables more focused, responsive management, ensuring that high-risk areas receive reliable, safe water service while promoting equity and sustainability.	communities gain rather than lose access to safe and reliable infrastructure.	lacked a voice in infrastructure planning. Furthermore, understanding the historical context of infrastructure placement and access is essential to equitable policy execution. Many communities currently facing lead exposure are in their position due to decades of disinvestment, discriminatory policies, and lack of maintenance. Addressing these inequities as part of the policy framework acknowledges past harms and actively works to avoid perpetuating them. By incorporating historical context, planners can make informed decisions	communities will bear the dual burden of health risks and economic strain, deepening inequities in access to safe drinking water and perpetuating cycles of disinvestment and health disparity.

						that not only remove lead pipes but also promote long-term equity and resilience.	
6C	Invest in nature-based solutions that expand tree canopy and create more urban blue and green spaces.	**Tree Canopy Expansion in Low-Income Areas:** Measure whether investments in green infrastructure expand the tree canopy and reduce heat island effects in disadvantaged urban areas.	The urban heat island effect refers to the phenomenon where urban areas experience significantly higher temperatures than their rural counterparts due to the removal of natural vegetation for infrastructure development. This temperature differential is exacerbated in neighborhoods that have historically faced disinvestment and urban redlining, leading to a disproportionate impact on low-income and marginalized communities. As these communities often lack sufficient green spaces, they are particularly vulnerable to the adverse effects of extreme heat, which poses serious health risks and diminishes overall quality of life. Expanding tree canopy coverage in these areas can serve as a critical mitigation	Investing in green infrastructure to expand tree canopy in low-income areas yields significant ecological and human health benefits, making it a crucial public good. A well-distributed urban tree canopy can effectively filter air pollutants, improve air quality, and promote respiratory health, particularly in disadvantaged communities that are often burdened by higher levels of pollution. Furthermore, trees play a vital role in mitigating the urban heat island effect by providing shade and cooling the	While investing in green infrastructure and expanding tree canopy can yield significant benefits, there are potential disbenefits that must be considered, particularly from a social equity perspective. One notable risk is that extreme heat events, exacerbated by climate change, could overwhelm the resilience of newly planted trees, leading to their scorching and death. This not only undermines the initial investment but also perpetuates the cycle of vulnerability for low-income communities already	To mitigate potential disbenefits associated with the investment in green infrastructure and the expansion of tree canopies, particularly in low-income areas, it is essential to implement a holistic approach that leverages the ecological benefits of trees. Increased transpiration from a robust tree canopy can significantly cool urban environments, effectively countering the extreme heat that threatens both the trees themselves and the communities they serve. Additionally, a well-planned urban forestry strategy can create habitats for natural pest	If the policy is not adopted, the consequences for low-income communities will be dire, particularly in the face of rising temperatures exacerbated by urbanization. Extreme heat, which already claims hundreds of lives annually, will continue to intensify, disproportionately impacting those living in disadvantaged areas who may lack access to adequate cooling resources or healthcare. As urban populations grow, the risk of heat-related illnesses such as heat exhaustion, dizziness, fainting, and heat stroke will escalate, further straining

			strategy to combat heat and improve urban resilience, making it essential to prioritize tree planting and green infrastructure investments where they are needed most. To effectively assess the impact of tree canopy expansion in low-income areas, it is crucial to employ an assessment mechanism that not only tracks the quantitative growth of tree canopy but also evaluates the qualitative benefits for the communities involved. This involves measuring reductions in local temperatures and the corresponding decrease in heat-related health risks among residents, particularly in disadvantaged neighborhoods. Additionally, engaging community stakeholders in the planning and implementation of green infrastructure projects ensures that local needs and preferences are incorporated,	surrounding environment, thereby reducing extreme heat exposure that disproportionately affects low-income residents who may lack access to air conditioning or safe outdoor spaces. By enhancing tree canopy coverage, these investments not only promote environmental sustainability but also foster social equity by improving the quality of life for marginalized populations. Access to green spaces contributes to better mental health outcomes, encourages physical activity, and creates community cohesion, as	disproportionately affected by heat. Moreover, if tree canopy projects are not carefully managed and maintained, they may lead to a temporary surge in tree mortality, which could further reduce the tree cover intended to mitigate urban heat island effects. This loss could exacerbate existing disparities, leaving marginalized neighborhoods without the necessary green infrastructure to combat heat and improve air quality. Thus, it is crucial that policies ensure proper planning, ongoing maintenance, and community involvement to	predators, which may help control pest populations without relying on chemical interventions. Community engagement is vital in this process; involving local residents in the planning, planting, and ongoing maintenance of green spaces ensures that the initiatives reflect the needs and preferences of those who will benefit from them most. This participatory approach not only fosters stewardship and ownership but also promotes social cohesion, enhancing the resilience of these neighborhoods against heat waves and environmental stressors.	already vulnerable communities. Moreover, without proactive measures to expand tree canopies and reduce impervious surfaces, the urban heat island effect will persist, making these areas even less livable. The absence of green infrastructure will not only fail to mitigate the effects of heat but may also exacerbate existing health disparities, as marginalized populations endure higher temperatures and associated health risks without the environmental benefits that trees and green spaces provide. Ultimately, neglecting to invest in such initiatives perpetuates a cycle of inequity and leaves low-income

			fostering a sense of ownership and responsibility. By prioritizing investments in green infrastructure that expand tree canopies in historically marginalized urban areas, cities can work towards addressing both environmental and social equity issues simultaneously.	residents are more likely to engage in outdoor activities and gather in green areas. Ultimately, prioritizing tree canopy expansion in low-income neighborhoods is an essential step towards creating healthier, more resilient urban environments that benefit all community members while addressing historical inequities.	safeguard against these potential setbacks and ensure that investments in green infrastructure yield sustainable and equitable benefits for disadvantaged urban areas.	Furthermore, ongoing education about tree care and the ecological roles trees play can empower communities to actively participate in preserving these vital resources, thus reinforcing the long-term success of green infrastructure investments.	communities increasingly vulnerable to climate-related hazards, undermining their overall health and well-being.
		Equitable Access to Green Spaces: Assess whether urban blue and green spaces created by these investments are accessible to low-income and minority populations.	Access to urban green spaces (UGS) is often limited for marginalized populations, including low-income individuals, racial and ethnic minorities, and the elderly. This inequity restricts their ability to benefit from UGS, which is linked to improved health outcomes, reduced risk of chronic diseases, enhanced well-being, and increased opportunities for	Adopting this policy yields significant benefits, particularly for low-income and minority populations. By expanding urban blue and green spaces, these initiatives can lower the risk of chronic diseases, enhance well-being, and	There are potential disbenefits that must be carefully considered, particularly through a social equity lens. One critical issue is that equal proximity to urban green spaces does not automatically equate to equitable access to amenities within	To effectively mitigate the disbenefits, it is crucial to prioritize the engagement and involvement of historically underserved and disinvested communities. This can be achieved by implementing participatory planning	If the policy is not adopted, low-income and minority populations will face escalating health risks, including heightened vulnerability to heat-related illnesses such as heat exhaustion and heat stroke. The lack of equitable access to urban green

			physical activity. The historical context of discrimination in the United States has contributed to the uneven distribution of these vital resources, highlighting the need for targeted efforts to rectify these disparities. Rather than relying on traditional composite indices to estimate exposure risk, more specific metrics—such as demographics, socioeconomic status, and access to amenities like air conditioning—can provide a clearer picture of accessibility challenges. To effectively assess equitable access to green spaces, planning practices must incorporate principles of participation, redistribution, and recognition. These components ensure that diverse community voices are included in decision-making (procedural equity), resources are allocated fairly (distributional equity), and the unique needs of different	increase the likelihood of physical activity among marginalized communities. Furthermore, the presence of greenery in urban areas contributes to the reduction of air and water pollution, creating a healthier environment for all residents. In addition to these health benefits, green infrastructure plays a crucial role in mitigating flooding and managing the impacts of combined sewer overflow (CSO) events, which disproportionately affect disadvantaged neighborhoods. By incorporating natural systems into	those parks. Research indicates that predominantly white populations often enjoy greater access to parks that feature superior amenities and facilities, while marginalized communities may find themselves with limited resources and amenities in their local green spaces. Moreover, simply increasing access to urban green spaces without the meaningful involvement of underserved groups can inadvertently exacerbate existing injustices and perpetuate historical patterns of marginalization. If these communities are not engaged in	principles that actively seek to elevate the voices of these groups throughout the planning and decision-making processes. By fostering meaningful collaboration with community members, stakeholders can ensure that the specific needs, desires, and cultural values of marginalized populations are accurately represented and integrated into the development of urban green spaces. Moreover, empowering these communities with decision-making power enhances their agency and ownership over local	spaces (UGS) will perpetuate existing disparities, leading to worsening mental, social, and physical well-being for these communities. Vulnerable populations will remain predisposed to negative health outcomes as they continue to be excluded from the benefits that green spaces provide, such as improved air quality and opportunities for physical activity. Moreover, without targeted investment, the impacts of combined sewer overflow (CSO) events will persist and likely intensify, exacerbating flooding and water quality issues in already marginalized neighborhoods as climate change

			populations are acknowledged. Furthermore, health impact assessments that emphasize racial and ethnic equity throughout their processes enable decision-makers to tackle health disparities more effectively. By employing these frameworks, urban planners can create inclusive green spaces that truly serve all community members, fostering healthier and more equitable urban environments.	urban planning, communities can bolster their resilience to climate-related challenges. This policy also ensures a fair distribution of the costs and benefits associated with green investments, promoting social equity and environmental justice. Overall, these benefits highlight the necessity of equitable access to green spaces, as they not only enhance individual health outcomes but also strengthen community bonds and foster a more sustainable urban environment.	the planning and decision-making processes, their needs and preferences may be overlooked, leading to developments that do not serve them effectively. This disconnect can result in a scenario where investments fail to translate into true equity, potentially reinforcing disparities rather than alleviating them. Therefore, it is essential to approach the implementation of this policy with an inclusive framework that prioritizes the voices and experiences of low-income and minority populations to ensure that the benefits of green	resources, ensuring that green infrastructure investments provide equitable access to amenities and benefits. Such an inclusive approach not only addresses existing disparities but also builds trust and strengthens community resilience, ultimately leading to more effective and sustainable outcomes for all residents. By committing to equitable engagement and decision-making, urban planners and policymakers can help transform green investments into tools for social equity, ensuring that the benefits of enhanced green spaces are	progresses. The uneven distribution of UGS resources will continue to reflect racial and socioeconomic inequalities, further entrenching systemic injustices. Consequently, the adverse effects of air and water pollution will grow, contributing to a cycle of environmental degradation that disproportionately affects low-income and minority communities. Without a proactive commitment to equitable access, the health and quality of life for these populations will continue to decline, deepening social inequities and undermining community resilience in the face of

					investments are equitably shared.	accessible to low-income and minority populations.	environmental challenges.
6D	Expand the use of green infrastructure and green building materials.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
6E	Strictly limit development in floodplains.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
6F	Implement mandatory flood mitigation standards in new construction and restrict development in high-risk zones.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
6G	Advance brownfield remediation.	**Health Improvements in Overburdened Communities:** Measure the reduction in health risks (e.g., air and soil contamination) in low-income communities	Brownfields are defined by the U.S. Environmental Protection Agency as “real property, the expansion, redevelopment, or reuse of which may be complicated by the presence of a hazardous substance, pollutant, or	The policy presents significant benefits, particularly for overburdened communities that have historically faced health disparities due to	There are notable disbenefits associated with the policy, particularly from a social equity perspective. Brownfield sites, which include vacant	To effectively mitigate the disbenefits, it is crucial to ensure consistent access to clear and summarized information regarding	If we continue to neglect the advancement of brownfield remediation policies, the consequences for overburdened communities will be

		living near remediated brownfields.	contaminant" (U.S. EPA, 2021). These sites often suffer from significant soil and groundwater contamination due to the presence of hazardous substances such as toxic heavy metals and volatile organic compounds, resulting from factors like flooding, solid waste accumulation, and leaking infrastructure. Historically, it is low-income and minority communities that are disproportionately affected, as they tend to reside near these contaminated areas. This proximity exposes them to direct health risks, including respiratory issues, skin disorders, and long-term chronic diseases linked to environmental toxins. To effectively assess the health improvements in these overburdened communities, a comprehensive evaluation mechanism is essential. This would involve monitoring key health indicators, such as the	environmental hazards. As urbanization accelerates, the demand for new housing, employment opportunities, and infrastructure increases, necessitating the safe reuse and rehabilitation of previously contaminated sites. Remediating brownfields not only mitigates the health risks associated with air and soil contamination but also revitalizes neglected urban areas, transforming them into safe, usable spaces for housing and community development. This proactive approach can	industrial locations, incompatible land uses, landfills, and Superfund sites on the U.S. Environmental Protection Agency's National Priorities List, often require complex regulatory processes for redevelopment. The multifaceted nature of these sites can lead to inconsistencies in how they are managed and cleaned up, which may not adequately protect the health of surrounding communities. Furthermore, many states lack requirements for public disclosure of environmental assessment results or cleanup data, resulting in a	site contaminants. State and federal programs should prioritize the provision of risk-based data that is easily understandable for both developers and community members. Establishing a national database that consolidates information on contaminant risks would empower local residents, fostering transparency and trust in the remediation process. In addition to improved access to information, adequate funding for the cleanup of brownfield sites is essential. This funding not only facilitates the physical revitalization	significant and detrimental. Underused, derelict, and contaminated lands will persist, perpetuating a cycle of environmental degradation and public health risks. These sites, often laden with hazardous substances, pollutants, and contaminants, will continue to negatively impact the health of nearby residents, particularly in low-income neighborhoods that are already disproportionately affected by environmental injustices. Moreover, the inaction on brownfield remediation will exacerbate urban sprawl, as the lack of redevelopment

			prevalence of diseases associated with air and soil contamination, in conjunction with environmental assessments of the brownfields before and after remediation efforts. Engaging with community stakeholders to gather qualitative data on health perceptions and lived experiences can further inform the assessment process. By integrating quantitative health data with community insights, policymakers can gain a clearer understanding of the remediation's impact on health risks and ensure that the benefits of such investments are equitably distributed among vulnerable populations.	enhance public health outcomes by reducing exposure to hazardous substances, which is crucial for low-income communities that disproportionately bear the burden of environmental degradation. Moreover, the benefits of brownfield remediation extend beyond immediate health improvements; they foster economic growth, create jobs in cleanup and redevelopment efforts, and promote social equity by ensuring that marginalized populations have access to cleaner environments. Ultimately, the adoption of this	significant information gap. When data is available, it is often presented in a highly technical format filled with extensive reports detailing various chemicals from different environmental samples, including surface and groundwater. This can create confusion and mistrust within affected communities, particularly among low-income and marginalized populations who may lack the expertise to interpret such information. As a result, without effective communication and transparency, there is a risk that remediation efforts may fail to address	of contaminated areas but also addresses the broader pollution disparities faced by marginalized communities. Investing in research focused on public health indicators and community health outcomes can further support sustainable redevelopment efforts. By promoting a holistic understanding of health equity and community well-being, these measures can help ensure that brownfield remediation effectively benefits those who have historically borne the brunt of environmental hazards.	opportunities forces cities to expand into undeveloped areas rather than revitalizing existing, contaminated sites. This trend not only strains urban infrastructure and resources but also perpetuates socioeconomic inequalities, as marginalized communities remain trapped in environments with higher exposure to toxins and lower access to healthy living conditions. Thus, failing to adopt brownfield remediation policies will hinder progress toward health improvements and equity in these communities, allowing existing disparities to grow unchecked.

				policy can lead to safer, healthier communities that are better equipped to thrive amid the challenges posed by urban expansion and climate change.	the concerns of local residents, perpetuating a cycle of inequity and undermining the intended health improvements in overburdened communities.		
7	Encourage sound and integrated planning.						
7A	Integrate land use and transportation planning.	**Affordable Housing Near Transit:** Track the development of affordable housing in areas with improved transit connectivity, ensuring that marginalized populations benefit from integrated planning.	Integrating land use and transportation planning is essential for creating equitable communities, particularly through the lens of affordable housing near transit. This approach seeks to address the systemic inequities faced by disadvantaged populations by ensuring that affordable housing developments are strategically located in areas with improved transit connectivity (Hwang et al., 2024). By prioritizing transportation equity, planners can combat social exclusion, ensuring that	Adopting integrated land use and transportation planning through transit-oriented development (TOD) offers substantial benefits, particularly in improving living conditions for marginalized populations. By enhancing mobility and expanding public transportation ridership, TOD not only addresses issues of access but also fosters greater	The policy may raise significant disbenefits, particularly concerning social equity. One major issue is that public engagement often occurs too late in the decision-making process to effect meaningful change. When equity analyses are conducted after key decisions have been made, marginalized communities may find their needs	To effectively mitigate the disbenefits, it is crucial to actively seek and incorporate the perspectives of those most affected by transportation decisions, particularly individuals and communities historically marginalized in the planning process. Ensuring fair outcomes in transportation planning hinges on	If we do not adopt an integrated approach to land use and transportation planning, low-income and minority communities will continue to face disproportionate burdens that hinder their access to affordable housing and reliable transit options. Ineffective public engagement will further marginalize these groups, resulting in decisions made without their

			marginalized individuals have access to necessary transportation resources. Legislation such as Title VI of the Civil Rights Act and the Americans with Disabilities Act supports this mission by prohibiting discrimination and promoting equitable access to transportation services for all individuals, regardless of their background or abilities. Transit-oriented development (TOD) represents a promising framework for this integrated approach, as it harmonizes transportation, land use, and urban design to foster vibrant communities. TOD emphasizes the development of mixed-use neighborhoods centered around transit stations, which not only enhances accessibility but also creates a variety of housing options to accommodate diverse populations. To assess the effectiveness of this indicator, metrics should be established to track the quantity and	urban integration. This approach helps to alleviate poverty by creating more equitable access to jobs, education, and essential services, thereby contributing to overall community well-being. Furthermore, TOD can lead to significant reductions in housing and transportation costs. By concentrating development in densely populated areas, the financial burden of land costs is distributed among a larger number of residents, potentially lowering overall housing expenses. Additionally, improved transit access provides a	overlooked or inadequately addressed. This lack of timely involvement can lead to development outcomes that do not reflect the priorities or protect the interests of those most impacted by these changes. Additionally, the increased desirability of neighborhoods with enhanced transit access can drive up rental costs, contributing to gentrification and the displacement of long-time residents. While TOD aims to provide affordable housing, the reality may instead exacerbate housing insecurity for existing low-income populations. Moreover, TOD	maintaining a transparent and inclusive process that addresses recognition issues, allowing all voices to be heard and valued. This approach not only enhances trust and collaboration among stakeholders but also fosters a sense of ownership and agency among community members, which can lead to more equitable decision-making outcomes. While concerns regarding displacement due to "transit-influenced gentrification" are valid, research suggests that gentrification does not necessarily equate to displacement; in fact, it may often enhance	input and a lack of tailored solutions to address their unique needs. This lack of representation in the planning process can perpetuate cycles of inequality, limiting access to essential services and opportunities that are often concentrated in well-connected areas. Moreover, while transit-oriented development (TOD) has the potential to enhance urban livability, its success heavily depends on the socio-economic context of the neighborhoods where it is implemented. Without intentional integration of affordable housing in these transit-rich areas, the benefits of improved transportation

			affordability of housing units developed near transit hubs, alongside qualitative measures that capture the experiences and needs of marginalized communities. This comprehensive evaluation will ensure that integrated planning efforts genuinely benefit those most in need, promoting social equity and fostering inclusive urban environments.	viable alternative to the high costs associated with personal vehicle ownership, making it easier for low-income households to navigate their communities without incurring substantial financial strain. This holistic integration of housing and transportation promotes not only affordability but also social equity, enabling marginalized groups to thrive in urban environments that support their needs and aspirations.	projects often require significant financial investments, which can limit the availability of resources for affordable housing initiatives. Lastly, despite the benefits of proximity to public transportation, some residents may find living near transit stations undesirable due to noise, safety concerns, and the potential for increased crime. Collectively, these challenges underscore the necessity for careful planning and equitable engagement to ensure that TOD truly serves all community members rather than exacerbating existing inequities.	community mobility and provide benefits with minimal displacement. To further mitigate the negative impacts of rising housing costs, comprehensive strategies such as establishing affordable housing quotas and implementing rent control measures can protect low-income residents from the financial pressures associated with increased demand in transit-rich areas. Additionally, ensuring the ongoing availability of social services and community resources in gentrifying neighborhoods can help maintain stability for existing residents. By prioritizing equity in	infrastructure will likely bypass those who need it most, leading to increased housing costs and potential displacement. This situation could create a scenario where transit systems serve to further entrench socio-economic divides rather than alleviate them, resulting in higher rates of social exclusion and limited mobility for already vulnerable populations. Ultimately, failing to prioritize equity in planning will exacerbate existing disparities, leaving marginalized communities at a greater disadvantage in an increasingly urbanized world.

						both the planning process and implementation, cities can create vibrant, inclusive communities that leverage transportation improvements while safeguarding the needs of their most vulnerable populations.	

TABLE 5: INFRASTRUCTURE

Infrastructure

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
1	Encourage center-based, compact, mixed-use development while protecting and preserving critical environmental resources and high-value agricultural lands.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
1A	Facilitate growth in Planning Areas 1, 2 and 3, and accommodate growth in Planning Areas 4-5 in centers.	Smart/flexible land use and zoning policies Mixed-use zoning policies Increased allowable density	Communities should strive to embrace compact and walkable cities, which were largely abandoned with the advent of the private car and developed many of the strip malls, office parks, big box stores, and other large-scale single-use developments.	Allows provision of more housing units overall, which should include affordable and low-income units. Increase accessibility and connectivity to essential amenities.	Municipal zoning review process could be cumbersome and lengthy. Parking requirements could be hard to fight against if the areas are not currently served by public transit, and it would be	Higher-level agencies (County, Regional, or MPOs) can develop: - model ordinances that are compatible with the State Plan and other regional plans. - Customizable and/or modular redevelopment plans compatible with	Not applicable

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
		Essential amenities within a ¼-½-mile radius with complete pedestrian network.	Thanks, in part, to a culture shift in recent years, coupled with rising costs and inflation, many of these developments are experiencing high vacancies and unproductive lots. By revising existing zoning ordinances and promoting higher density, mixed-use developments, these former commercial developments can be retrofitted to meet current demands for more and affordable housing, and accessible communities.	Decrease car dependence.	easy to retain parking if the lot already includes several parking spots. Current company policies at several grocery stores don't have provisions that can accommodate stores under certain square footage. Pushback of existing local businesses who fear they will be priced/pushed out.	typical suburban strip malls and office parks.	
1B	Recenter, redesign, and rebuild underutilized areas.	Retrofit existing big box stores and malls to include multi-family housing. Redevelopment plans/overlays that promote adaptive reuse,	One recent undertaking by Costco has gained attention for their plan to open a store in Los Angeles on the bottom floor of an apartment building using a prefab design and one fifth of the housing units to be	Returning vacant, blighted, unused, and underutilized land to productive use. Providing housing units, both market rate and low-income.	Private/corporate ownership of housing, leading to further monopolization and/or privatization of public goods. Housing provisions might be temporary, as is the case with	Public agencies should consider options to partner with developers to secure low-income and affordable unit retention through means such as deed restrictions, negotiate ownership rights of units, rent-to-own provisions, and more.	Not applicable

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
		infill development, and retrofitting existing structures.	reserved for low-income residents.	Minimize new impervious surface and/or make use of existing IS. Replace IS with permeable pavement and other green infrastructure solutions.	programs like the Low Income Housing Tax Credit, which remove the rent ceiling after 15 years.		
1C	Protect habitat of resident and migratory threatened and endangered species.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
2	Foster greater diversity in the State's housing stock and reduce housing cost burden.	Affordable Housing element in Infrastructure Plans Affirmatively further the Fair Housing Rule	Investing in affordable housing through infrastructure plans can tackle the unmet needs of housing overall as well as affordable housing. Furthermore, infrastructure projects create jobs and inject capital into local economies. Additionally,	Job creation and small business opportunities, a portion of which could be dedicated to low-income residents. Guaranteed funding for housing projects such as housing	Policies that enable construction of more diverse housing, including infill projects, will not necessarily address housing supply or affordability concerns on their own. In addition to policy, complex market factors can govern	Policies should focus on removing barriers to development while prioritizing projects that address unmet housing needs, including affordable housing needs.	Not applicable

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
		Data Disaggregation	US HUD-funded projects require a portion of jobs and business opportunities created to be set aside for low-income people and public housing residents, thereby potentially stacking benefits.	construction, housing renovation, and repairs.	whether and when developers build housing.		
3	Increase access to opportunity and remove barriers to mobility in overburdened communities by investing in transit and making walking and biking easier and safer.	Travel Accessibility assessment using monetary costs Job Accessibility by Mode Walkability Score ADA Accessibility Compliance First and Last Mile Connectivity	Measuring job accessibility within a certain travel distance of transit service is required to determine transportation accessibility. Pedestrian safety, sidewalk facilities, and ADA accessibility are assessed to make walking and accessibility possible. Understanding available modes of transport helps to determine access to required services and transit hubs. Safety analysis involves the examination of crash rates, injuries, and KSI to	Including monetary costs in accessibility evaluations helps reveal how fare policies and travel expenses disproportionately impact low-income populations. The integration of Free-Floating Bike-Sharing (FFBS) with public transit systems has shown significant improvements in job accessibility, increasing by 180.02%,	Initial costs for transit infrastructure and the construction and retrofitting of micromobility infrastructure can be high. New transit and active transportation investments also have the potential to displace existing communities. Resistance from entities focused on car-centric planning can be a barrier to greater investment in transit and active	By creating thoughtfully planned, high-density development, a Transit-Oriented Development (TOD) approach can ensure new infrastructure supports the use of transit and active modes of transportation.	Without investment in transit and active transportation infrastructure, the financial burden of transportation will continue to fall most heavily on marginalized communities. These communities will continue to face infrastructure and accessibility gaps, unequal access to jobs, and higher safety risks for pedestrians and cyclists.

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
		Free Floating Bike Sharing (FFBS) Bicycle and Pedestrian Crash Analysis	identify high-risk areas. Flexible bike-sharing systems (FFBS) offer first- and last-mile connections without fixed docking facilities. Most studies measure accessibility considering solely travel time impedance, ignoring other elements that might hinder access to activities, such as monetary costs.	particularly for communities located further from central job hubs. By enhancing the integration of bike-sharing with public transit, the Gini coefficient for accessibility equity improved by 0.0336, indicating that the system is distributing benefits more equitably across diverse socio-economic groups, including marginalized communities. Lower-income and minority populations in the United States are at disproportionate risk of being injured or killed while walking.	transportation infrastructure.		

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
4	Protect, maintain, restore, and enhance the State's natural resources.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
4A	Protect and restore wetlands and river and stream corridors.	Wetland restoration or rehabilitation Level of contaminations in wetlands, rivers and stream corridors	Protection and restoration of wetlands encompasses a range of approaches, including protection, conservation, restoration, reconstruction, and construction of new wetlands. Given the highly fragmented nature of wetlands in areas modified by human activity (such as agricultural or urban areas), some research proposes identifying Operational Landscape Unites (OLUs) which are combinations of landscape patches with	Wetlands play a role in controlling humidity, preventing soil erosion, and purifying water. Research indicates that constructed wetlands can help maintain a high level of species diversity of trees, shrubs, and herbs. The OLU approach can facilitate more complete wetland restoration by encompassing a larger portion of a given floodplain, better connecting	Maintenance of wetlands in urban areas faces many challenges, such as the reduction of hydrological functions, changed water regimes due to barriers, contamination by wastewater, habitat loss due to land-use change, and loss of biodiversity due to the entry of alien species.	Urban wetlands should be managed sustainably by involving individuals and all relevant stakeholders as well as increasing public awareness about the importance of wetlands and their ecosystem services and benefits.	In the absence of wetland protection and restoration, wetlands may begin releasing stored nutrients back into the environment, contributing to water pollution, especially in areas with intensive land use. Poorly managed wetland restoration may introduce invasive species, disrupt ecosystems and reducing native biodiversity.

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
			hydrological and biotic connections.	areas of the wetland separated by human activity, and more accurately replicating natural hydrology.			
4B	Protect and enhance forest resources.	Forest health and vitality Forest coverage Carbon sequestration rates	Existing measures of forest health range from strictly utilitarian and related to local human needs, to more ecological definitions related to the persistence of forests or stands within a given landscape. The Food and Agriculture Organization of the United Nations (FAO) combines these perspectives by defining “forest health and vitality” based on the combined presence of abiotic (e.g., drought, heat, and pollution) and biotic (e.g., disease and pests) stresses and how they affect tree growth and survival. This definition	Healthy forests are crucial for providing services such as carbon storage, biodiversity maintenance, and climate regulation, which are essential for environmental stability. Healthy forests ensure the continued availability of forest products, including energy, building materials, and food, which are essential for human societies. See the environmental table	Identifying thresholds for forest decline is difficult, and once forests cross these thresholds, it can take decades to restore their health, potentially leading to a loss of ecosystem services for a long time. While carbon sequestration is important strategy, the significance of reducing emissions through development of carbon neutral technologies cannot be overemphasized.	Appropriate policy and regulatory measures need to be developed, especially with regards to measurement, monitoring, residence time and trading of carbon credits.	The consequences of not protecting and enhancing forest resources include increased pressure on land use, regulatory changes in the Carbon Credit System, and potential forest degradation.

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
			also encompasses the yield and quality of wood and non-wood forest products; wildlife habitat; and recreation, scenic, or cultural value. Carbon sequestration refers to the transfer of atmospheric carbon dioxide into other long-lived global pools including oceanic, pedologic, biotic, and geological strata to reduce the net rate of increase in atmospheric carbon dioxide.	for more information.			
5	Mitigate climate change by decarbonizing New Jersey's economy.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
5A	Transition to 100% renewable energy	Renewable energy infrastructure	The transition toward renewable energy systems is an important component of mitigating	Implementation of renewable energy infrastructure can help satisfy growing	Construction of energy infrastructure, as well as ancillary infrastructure built as	Technological advancements in energy infrastructure are improving transmission and	Without the transition to 100% renewable energy, the growing demand for energy may not be met.

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
		Gini coefficient (measure of the spatial disparity of local benefits and burdens of renewable energy infrastructure)	climate change. This process involves the deployment of renewable energy infrastructure, including power plants, transmission lines, and storage facilities.	energy demand and provide energy supply security. Local benefits can include local power supply, local tax revenues, and employment and development opportunities.	part of the initial stages of energy exploration and construction, can have negative externalities such as environmental degradation resulting from poor infrastructure maintenance. Renewable energy infrastructure may also contribute to local noise pollution, changes in landscape aesthetics, and lowered property values. Currently, renewable energy consumption is contributing to energy poverty, which is defined as a lack of access to reliable and affordable energy. Renewable energy requires a high up-front cost, which can	distribution networks, which helps increase the affordability and accessibility of electricity for underserved populations. Careful planning of ancillary energy infrastructure can ensure that benefits are realized for the local population, including labor opportunities and new road and water infrastructure. Long-term planning can also help ensure that ancillary infrastructure serves a long-term or secondary use.	Continued reliance on traditional sources on energy will have negative impacts on the environment and economy.

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
					pose challenges for governments and communities.		
5B	Reduce vehicle miles traveled and expand the use of zero emission modes of transportation	Vehicle miles traveled (VMT) Demand on power grid	See other table for definitions.	Reduced vehicle miles traveled in turn reduces wear on infrastructure (CITE)	Increased adoption of EVs will significantly increase power demand on utility grids. This is exacerbated by the fact that EVs require extended periods of time to charge.	Renewable energy-based on-road wireless charging (ORWC) infrastructure can reduce energy strain on charging infrastructure. ORWC infrastructure is built into the road and allows EVs to charge while in use.	
6	Adapt infrastructure to contend with climate change, especially impacts that disproportionately affect vulnerable populations.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
6A	Eliminate combined wastewater sewer systems and	Wastewater management Public health incidents	Health authorities should formulate appropriate policies that can enhance environmental surveillance and facilitate	Eliminating combined sewer overflow will improve public health by reducing	Eliminating combined sewer overflow will require significant investment in infrastructure,	Social acceptance is arguably the most decisive driver of a technology as well as the most effective	Without elimination of combined sewer overflow, environmental degradation will occur. In addition, public health

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
	associated overflow.	Sewage treatment costs	real-time monitoring of sewer overflow. Soft infrastructures, optimized sewer maintenance and prescreening of sewer overflow are recommended to reduce stormwater burden on wastewater treatment plant, curtail pathogen transmission and marine plastic pollution.	pathogen transmission through improved wastewater management and infrastructure. See Health table for more information.	including wastewater treatment plants, monitoring systems, and green infrastructure like rain gardens. Urban space constraints for implementing the necessary infrastructure solutions, coupled with ongoing maintenance costs, can pose a barrier to implementation.	addresser of its impediments. Adopting policies that focus on awareness, education, recognition, training, coordination and engagement can help overcome barriers to eliminating combined sewer overflow.	concerns will continue, such as increased pathogen transmission due to poor wastewater management and infrastructure.
6B	Eliminate lead pipes.	Wastewater management Public health incidents Sewage treatment costs	Health risks can be conducted based on the USEPA health risk assessment guidelines.	Replacement of lead service lines reduces public health risks associated with exposure to lead. See health table for more information.	Lead service line replacement can be a lengthy and labor-intensive process. Water service disruptions due to lead service line replacement can negatively impact customers.	A well-planned and implemented service line replacement program can reduce the length of process. In addition, stakeholder engagement and consistent communication with affected customers, elected officials, the media, and healthcare professionals can help ensure that the	Potential health risks associated with exposure to lead. See health table for more information.

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
					Partial lead service line replacement (PLSLR) has historically been common industry practice. However, PLSLR can actually exacerbate corrosion, especially when nonlead pipes are directly connected to lead pipes, and increase the amount of lead leaching into the water downstream.	public is well-informed about lead service line replacement and that efforts are positively received. Partial lead service line replacement should be avoided in favor of complete lead service line replacement.	
6C	Invest in nature-based solutions that expand tree canopy and create more urban blue and green spaces.	Type of blue-green infrastructure implemented Volume of stormwater runoff captured	Blue-green infrastructure (BGI) and green infrastructure (GI) refer to nature-based approaches to capturing and filtering stormwater runoff to mitigate the impacts of combined sewer overflows (CSOs). BGI encompasses a range of treatments, including both large-scale infrastructure (such as retention ponds	Adoption of green infrastructure and nature-based solutions will reduce the demand on traditional gray stormwater management infrastructure.	In some cases, green infrastructure investments may be focused in neighborhoods that are primarily wealthy and/or white, meaning economically and socially vulnerable populations may not be receiving the environmental, health,	In many cases, communities most at risk for stormwater flooding are also low-income communities and/or communities of color. Careful analysis and deliberate planning of green infrastructure investment that prioritizes flood-prone neighborhoods, low-income communities, and communities of color, can	Absent investment in blue-green infrastructure, excessive stormwater from rain events will continue to overwhelm existing stormwater infrastructure, resulting in flooding and CSO events.

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
			and detention basins) and small-scale treatments (such as rainwater cisterns, green roofs, bioswales, and porous pavements). The implementation of blue and green infrastructure is most effective when it is approached holistically, combining different methods based on varying contexts. Combined applications of BGI are effective in reducing CSO volume. See strategy 4a for additional information on CSOs.		and economic benefits of GI. Implementation of BGI that includes detention ponds can potentially increase the number of days with CSO discharge due to prolonged runoff inflow into the sewer system.	ensure that the benefits of GI are realized by those most in need. Implementation of BGI that considers the context and goals of a particular location can inform a holistic approach to stormwater managements that effectively reduces the negative impacts of CSOs. In addition, the prolonged runoff discharge caused by detention ponds can be mitigated by design that increases detention pond storage capacity and implementing a real-time monitoring system to control outflow.	
6D	Expand the use of green infrastructure and green building materials.	Energy consumed	Smart building practices encompass a range of technologies, including power and lighting technologies, building operation and maintenance technologies, HVAC	Adoption of smart building practices will reduce energy consumption, reduce carbon emissions, and promote sustainable and	Smart buildings require high initial investment costs and involve a level of technical complexity that necessitates specialized expertise.	Challenges with implementing widespread smart building practices can be mitigated by supporting technology development. This involves partnerships between governments, businesses, and academic	Without expanded use of green building technology, energy consumption and carbon emissions will remain high, preventing sustainable development.

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
			systems, and smart appliance management within buildings. HVAC technologies in particular show substantial market share, notable growth potential, and promising future applications.	self-sufficient urban development. Smart building materials can also promote healthy indoor environments. In cases of existing buildings, retrofitting with better insulation, newer windows, and green roofs can provide energy savings of up to 89%.		institutions. In addition, regulations and incentive systems can compel industries to prioritize the production and implementation of eco-friendly smart buildings.	
6E	Strictly limit development in floodplains.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
6F	Implement mandatory flood mitigation standards in new construction and restrict development	Flood mitigation technique used	Surface flooding can negatively impact buildings, road, and other infrastructure, both through losses incurred via damage to infrastructure and reduced transportation system performance. In	Flood mitigation standards and restrictions on development in high-risk zones will help prevent damage to road and other infrastructure.	While stream channel modification can lessen the impacts of stormwater flooding on a particular development, the downstream impacts of flooding can be exacerbated.	Thoughtful planning of flood mitigation techniques meant to protect development can reduce the unintended negative environmental impacts associated with stream channel modification and	Failure to build in alignment with flood mitigation standards, including limiting development in floodplains, will put infrastructure in harm's way with respect to

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
	in high-risk zones.		addition, techniques such as stream channel modifications can mitigate the impacts of stormwater flooding on infrastructure. Stream channel modifications involve the enlargement and stabilization of stream channels near development to facilitate the conveyance of stormwater away from the site. The process of limiting development in floodplains can involve wetland protection, soil and contour conservation, reduction of floodplain fill, and maintenance of floodplain vegetation.	Protection techniques such as raising the elevation of buildings, structural strengthening, and the construction of levees and flood walls, can reduce structural vulnerability. In some cases, stream channel modification can help divert stormwater away from development and mitigate the impacts of flooding on infrastructure. Limitation of development in floodplains ensures that natural flood mitigation and drainage systems remain undisturbed and capable of		the construction of water-diverting infrastructure.	flooding and severe weather events.

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
				handling water volume. This both allows ecosystems to mitigate flooding naturally and ensures human-made infrastructure is not placed in a location where it could be vulnerable to the negative impacts of flooding.			
6G	Advance brownfield remediation.	Acres of brownfield remediated Acres of green space created through remediation	According to the US Environmental Protection Agency, brownfields are defined as “Abandoned, idled, or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination.” The remediation of brownfields seeks to achieve multiple goals, including urban densification and sustainability. In some	Brownfield remediation can increase the amount of green space, which has positive environmental and health impacts. Brownfield greening can improve physical and mental health, manage flooding, and mitigate the urban heat island effect. See the health and environment tables	The technological complexities of brownfield remediation, along with the existence of legacy infrastructures, can pose a challenge to the implementation of remediation efforts. Technical and operational challenges include difficulties in pollutant identification and disposal and lack of professional and technical personnel.	Site-specific management strategies and decision-support systems can help manage the complexities of brownfield remediation projects and ensure sustainable outcomes.	Failure to advance brownfield remediation will limit the amount of green space constructed from remediated sites. This, coupled with the contaminants present in brownfield sites, will pose health risks. The lost opportunities to create green space and green infrastructure will also negatively impact efforts to mitigate stormwater flooding and climate change.

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
			cases, brownfields can be remediated and restored as green infrastructure, parks, general green spaces, or protected forest areas. This process is called “brownfield greening”.	for more information.			
7	Encourage sound and integrated planning.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
7A	Integrate land use and transportation planning.		Land use and transportation are inextricably related. Transportation infrastructure is a major driver of urban development and changes in land use and land cover. Continuous urban development is positively related to places having transit stations and airports and negatively correlated with places having ports.	The development and implementation of integrated land use and transportation planning and policy efforts can ensure a more efficient use of infrastructure resources. Thoughtful planning of transportation infrastructure can guide development and land use	Challenges to integrating land use and transportation planning include both sectoral and governance barriers. Infrastructure planning is generally conducted at a regional scale, while land use planning is done primarily at a local level.	Clarification regarding key roles of each sector and procedural guidelines at each level of governance can help overcome challenges in implementing integrated land use and transportation planning.	Without dedicated efforts toward integrating land use and transportation planning, the implementation of infrastructure may be less efficient than it would be with thoughtful policy packaging. There may be missed opportunities in the deployment of transportation infrastructure as a means to support land use

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
			“Policy packaging” is an emerging tool for integrating land use and transportation policies. Policy packaging refers to the combination of cross-sector policies to enhance policy implementation and effectiveness.	changes that align with the other goals outlined in the New Jersey Development and Redevelopment Plan.			planning goals, and vice versa.

TABLE 6: HEALTH

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
1	Encourage center-based, compact, mixed-use development while protecting and preserving critical environmental resources and high-value agricultural lands.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
1A	Facilitate growth in Planning Areas 1, 2 and 3, and accommodate growth in Planning Areas 4-5 in centers.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
1B	Recenter, redesign, and	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
	rebuild underutilized areas.						
1C	Protect habitat of resident and migratory threatened and endangered species.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
2	Foster greater diversity in the State's housing stock and reduce housing cost burden.	Exclusionary zoning policies that inhibit the development of affordable, high-density housing in high-resources neighborhoods of wealth and social capital Common mental disorders, sleep disturbances due to worry, and new diagnoses of hypertension	Residential segregation is associated with health inequities related to preterm birth, infectious disease, cancer, asthma, and mental health. Environmental racism compounds residential segregation by concentrating environmental hazards (such as pollution, noise, and extreme heat) in communities of color. Housing payment problems and housing insecurity are associated with increased risk of mental disorders and	Policies that reduce residential segregation are associated with reduced mortality for low-income individuals, primarily due to increased exposure to greenness and reduced exposure to nitrogen dioxide and road noise. Reducing housing costs may have a positive impact on mental health by reducing mental health risks and sleep disturbance associated with housing insecurity. Reduction of housing	In some cases, relocation from high- to low-density areas may negatively impact air quality by requiring more travel by private automobile than by public transit or active transportation.	To mitigate any disbenefits, inclusionary housing policies should focus on densification of housing as a means to promote affordability and preserve green space.	Without adoption of inclusionary housing policies, exclusionary zoning policies will inhibit the development of affordable, high-density housing in high-resources neighborhoods of wealth and social capital, leading to continued and/or increased residential segregation. This will in turn lead to greater health disparities between wealthier and poorer neighborhoods related to disease, mental health, and exposure to environmental hazards

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
		Deaths driven by lack of green space and exposure to noise, nitrogen dioxide, and particulate matter	sleep disturbance. Research indicates that risks are more pronounced for renters, younger people, and households with children. Long-term exposure to housing cost burden also is linked to lower achievement for children in math and reading standardized test scores and higher levels of behavior problems. The primary mechanisms for these impacts on children are caregiver distress, economic strain, and neighborhood disadvantage. In addition, poor quality housing can have negative health impacts related to both indoor conditions (mold, pests, poor ventilation, and lead paint) and outdoor conditions (air pollution, lack of green space, and	cost burden may also have a positive impact on children's cognitive and behavioral health.			like pollution and extreme heat. Absent inclusionary housing policies, the cost burdens associated with unaffordable housing will result in increased risk of mental health disorders and sleep disturbances, as well as behavior problems among children.

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
			lack of access to healthy food).				
3	Increase access to opportunity and remove barriers to mobility in overburdened communities by investing in transit and making walking and biking easier and safer.	Reduced vehicle emissions (carbon dioxide) Mental health indicators (including depression) Physical health indicators (including risk of cardiovascular disease, cancer, type-2 diabetes, and obesity)	Increasing the feasibility of walking, bicycling, and transit as modes of transportation, including in overburdened communities, can reduce vehicle emissions. Increased use of walking, bicycling, and transit as modes of transportation is associated with increased self-perceived health, including better mental health. Bicycle use has the greatest impact among active transportation modes.	Policies that promote increased use of active transportation modes can lead to improved mental and physical health. Cycling in particular is associated with a reduced risk of cardiovascular disease, obesity, various types of cancer, type-2 diabetes, depression. One study estimated that one-year mortality risk would decline 12% among potential commuters who switch their mode from car to bike. Increased use of active transportation has also been shown to reduce air and noise pollution and greenhouse gas emissions. Increased	Those using active travel modes (such as walking or bicycling) are disproportionately affected by fatal and serious injury crashes with motorists. Cyclist-involved crashes in low-income neighborhoods are more likely to be fatal. Fear of crime or harassment can impact the choice to use active travel modes. The lithium-ion batteries used in e-bikes and e-scooters are particularly susceptible to	Robust safety interventions, including physical design elements that protect vulnerable road users and lower speeds, can reduce the risk of fatality. Adequate lighting can play a major role in reducing fatality risk for vulnerable road users. Safe bicycle infrastructure should be focused in low-income areas that are currently less likely to have it. Fear of crime can be addressed through tactics such as increased “eyes on the street” which can serve as a crime deterrent. Notably, active travel can increase the number of people on the street, creating a positive feedback cycle wherein greater active transportation increases	Without increased access to walking, biking, and transit in overburdened communities, vehicle emissions will remain high, resulting in detrimental health impacts on the most vulnerable populations. A lack of active transportation will also contribute to less exercise and therefore lower cardiovascular health and increased risk of obesity, cancer, type-2 diabetes, and depression.

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
				use of active travel combined with increased use of lower-emissions vehicles alone is associated with a reduction in years of life lost to heart disease. Environments conducive to active transportation may also contribute to increased social interaction, healthier eating habits, and reduced crime.	thermal runaway, a process which releases large amounts of energy and can result in a powerful fire. Lithium-ion battery fires also emit toxic gases that are harmful to human health.	feelings of safety, resulting in more active travel. Battery management systems (BMS) monitor and optimize battery performance and disconnect lithium-ion batteries if a problem is detected, reducing the risk of a battery fire.	
4	Protect, maintain, restore, and enhance the State's resources.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
4A	Protect and restore wetlands and river and stream corridors.	Level of habitat connectivity Levels of chlorine, heavy metals, herbicides, nitrogen, and other	Habitat connectivity sustains ecological systems and biodiversity to support cleaner air, land, and water. Carbon capture reduces carbon emissions,	Protecting and restoring wetlands and river corridors will produce cleaner air, land, and water and increase habitat connectivity. Constructed or restored	Protection of wetlands and natural ecosystems is preferred as reconstructed wetlands do not provide the same	The site area should be carefully studied to design an effective constructed wetland given the particularities of each environment.	Failure to protect/restore wetlands and river/stream corridors would lead to environmental decline, which would negatively impact water, land, and air quality over time, leading to a host of adverse health

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
		contaminants from the water supply Amount of carbon sequestered	reducing the greenhouse effect.	wetlands can remove chlorine, heavy metals, herbicides, nitrogen, and other contaminants from the water supply. Wetlands also capture and sequester carbon.	quality of ecosystem services that natural wetlands do.		conditions in both local and global populations.
4B	Protect and enhance forest resources	Incidence of illness including diarrhea, fever, and acute respiratory infection Microbial load found in water	Forests are responsible for sequestering nearly one-third of carbon dioxide and promote public health and wellbeing. While the mechanism for forests' positive impact on mental and physical health is difficult to pinpoint, it is likely due to a combination of green scenery, soil, fresh air, sunlight, clean water, sounds of running water, bird song, and the natural aromas of trees, plants, and flowers. Loss of dense forest has been associated with increased incidence of diarrhea, fever, and acute	The public health benefits of forest therapy include improvements in mental health, cognitive function, immune function, pain relief, and hypertension. Exposure to forest environments is also associated with decreased anxiety and depression. Research indicates that protected areas of forest cover are associated with reduced incidence of diarrhea and acute respiratory infection.	Public health crises such as the COVID-19 pandemic can contribute to increased forest visitation due to the health, social, and recreational benefits that these natural resources provide. This can have impacts on how forests are managed to accommodate increased use.	Forest managers can adapt to increased demand by planning for adequate forest infrastructure that accommodates increased human presence and ensures that forests are protected while continuing to provide health benefits for the public.	Failure to protect the state's forest resources will result in reduced forest cover. This can threaten public health, as forests are responsible for improving environmental and physical health by trapping carbon dioxide and reducing incidence of infection, as well as mental health by providing natural and green spaces that reduce incidence of anxiety and depression.

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
			respiratory infection in children. Forest loss may disrupt water regulation cycles, leading to increased microbial load and infection in humans.				
5	Mitigate climate change by decarbonizing New Jersey's economy.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
5A	Transition to 100% renewable energy	Flammable gases contained within lithium-ion batteries including hydrogen, carbon dioxide, carbon monoxide, and hydrocarbons Toxic gases produced by lithium-ion battery fires, including hydrogen fluoride	Battery energy storage systems (BESS) are increasingly used to store energy in residential, commercial, and industrial contexts. BESS are useful in stabilizing the power grid and providing emergency power, minimizing the chances of a power outage.	Fossil fuel-dependent technologies may release harmful levels of compounds like sulfur dioxide, nitrogen oxide, carbon dioxide, and heavy metal particulates into the atmosphere, water, and soil that have negative consequences on human health. The impacts can be mitigated with the transition to 100% renewable energy. A study in Norway	BESS use lithium-ion batteries which carry the risk of igniting intense fires that result from short circuits caused by overcharging, overheating, or mechanical abuse. Lithium-ion batteries are particularly susceptible to thermal runaway, a process which releases large	Battery management systems (BMS) monitor and optimize battery performance and disconnect BESS modules if a problem is detected, reducing the risk of a battery fire. Smoke and fire detectors, fire suppression systems that include sprinklers, and ventilation systems that remove flammable battery gas are tools that can mitigate the risks associated with battery fires.	Failure to transition to 100% renewable energy would negatively impact public health through the continued emissions created by fossil fuels, which cause a range of health issues.

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
				showed the widespread transition to battery electric vehicles increased life expectancy, reduced noise pollution, increased productivity and economic growth.	amounts of energy and can result in a powerful fire. Lithium-ion battery fires also emit toxic gases that are harmful to human health.		
5B	Reduce vehicle miles traveled and expand the use of zero emission modes of transportation	Percentage of vehicle fleet electrified Emissions (GHGs, particulates, nitrogen dioxide, sulfur dioxide) Particulates including vanadium, sulfur, sulfate, iron, elemental carbon, titanium, manganese, bromine, ammonium, zinc, and copper Adverse respiratory health effects	Vehicle emissions are the primary source of pollution in urban street contexts. In addition, low- and middle-income communities and communities of color often rely on public transit, whose emissions disproportionately affect these communities. Higher pollution levels in underserved communities are linked to greater rates of hospitalization, respiratory and cardiovascular disease, and mortality. Traffic exhaust and fine particulate matter can be especially harmful to	Vehicle electrification reduces air pollution and greenhouse gas emissions. Given that low- and middle-income communities are most impacted by emissions, transportation electrification has the potential to address this health equity issue. According to one study's analysis, a scenario involving 100% light-duty vehicle electrification by 2030, 100% heavy-duty vehicle electrification by 2035, and 90% energy grid electrification by 2035 would avoid	Transportation electrification implemented without equity considerations can result in underutilized chargers in underserved communities, including low-income communities, communities of color, and pollution-burdened communities.	States and utilities commissions can direct utilities to consider the needs of underserved communities in transportation electrification and EV supply equipment siting. Policies intended to increase EV usage should be structured to ensure underserved communities are not left behind and that their concerns regarding EVs are addressed, otherwise health benefits won't be fully realized. Utilities should engage meaningfully with underserved communities to ensure the success of EV implementation. Policies	Failure to expand the use of zero emission transportation modes would negatively impact public health through the continued emissions created by combustion engines burning fossil fuels, which cause a range of health issues. Failure to reduce vehicle miles traveled would continue to facilitate sedentary lifestyles that negatively impact both physical and mental health.

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
		including respiratory infection, asthma, bronchitis, and lung cancer Low birth weight, preterm birth, and cognitive impairment Mental health indicators (suicide risk)	children, contributing to respiratory infections, low birth weight, preterm birth, and cognitive impairment. Diesel emissions from school buses can expose children to high levels of air pollution, adversely affecting health and academic performance. Retrofitting bus engines can reduce exposure. Short-term exposure to airborne particular matter is associated with heightened risk of suicide. Air pollution including carbon monoxide, nitrous oxides, particulate matter, sulfurous oxides, volatile organic compounds, and ozone contribute to bronchitis, asthma, lung cancer and cardiopulmonary diseases. Research shows that after controlling for socioeconomic and	150,000 premature deaths nationwide through 2050. Diesel engine retrofits of school buses have a positive impact on student health (aerobic capacity) and academic performance (test scores). Reduction of airborne particulate matter could also reduce incidence of suicide. Additionally, the use of electric mobility such as e-bikes and e-scooters can increase access to active travel modes for the young, the elderly, and the mobility-impaired, shifting transportation mode share away from internal combustion engines.		should focus on populations vulnerable to poverty, historically redlined communities, and vehicle-dependent individuals.	

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
			geographic characteristics, low-level local air pollution (sulfur dioxide) has a significant impact on life satisfaction. The impact on well-being is notably higher for individuals in poor health.				
6	Adapt infrastructure to contend with climate change, especially impacts that disproportionately affect vulnerable populations.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
6A	Eliminate combined wastewater sewer systems and associated overflow.	Sulfide concentration Fecal bacterial pathogens (such as E.coli, Cryptosporidium, enterococci, staphylococci, Campylobacter, Giardia,	Sewer overflows contain contaminants that pose a public health risk. Humans contract pathogens released through sewer overflows through the inhalation of droplets, ingestion via hand-to-mouth contact, consumption of	Eliminating combined sewer overflows (CSOs) reduces the risk of infection of gastrointestinal diseases by removing pathways for pathogens to reach humans, such as through drinking water	Currently, combined sewer replacement occurs opportunistically rather than strategically, meaning the areas most in need of replacement or	A strategic prioritization of combined sewer replacement can identify and target the areas most vulnerable to the negative repercussions of CSO events and act accordingly to efficiently eliminate combined sewer systems or implement blue-green	Failure to eliminate combined sewer overflows will negatively impact public health by exposing people to bacterial pathogens and heavy metals that are released during CSO events. CSO events are expected to increase in frequency

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
		norovirus, and enterovirus) Heavy metals Suspended solids Micro-pollutants	contaminated drinking water, food-chain transmission, or direct contact with water during recreation. This results in a high risk of infection of gastrointestinal diseases. Public health authorities can protect public health by optimizing water and wastewater treatment plants and improving ventilation and plumbing systems within buildings to reduce transmission.	aerosolized droplets, and contact through recreational waterways. Eliminating CSOs would improve water quality in waterways used for recreation and swimming, allowing the public to use these resources with a decreased risk of infection.	implementation of blue-green infrastructure do not always receive it in a timely manner.	infrastructure in the places that need it most.	exponentially over time due to climate change, worsening the trend of associated negative health effects.
6B	Eliminate lead pipes.	Exposure to lead	Maternal exposure to lead is associated with low birth weight, preterm birth, stillbirths, spontaneous abortions, and hypertension during pregnancy. Lead exposure among children can cause brain and nervous system damage, slowed growth, learning and behavior problems, and hearing and speech problems. This can in turn	Eliminating lead pipes reduce prenatal and neonatal health risks, as well as risks among children. Immediate health benefits include reduced risk of birth defects among infants and neurological damage among children. Longer-term benefits include improved cognitive	There are no known health issues with full line replacements, however partial replacements of lead pipes can lead to temporary (4-18 months) higher lead exposure in the water supply that leads to elevated	Expanding awareness about how residents can help mitigate impacts from partial line replacement. This includes flushing the tap prior to water use (recommendations vary from 15 minutes to 1 hour) immediately following partial line replacement. Residents should also use NSF/ANSI certified point of use water filters.	Failure to eliminate lead pipes would result in continued exposure to toxic lead, with particular risks for children who are still developing physically and cognitively. Epoxy resin coatings could lead to adverse health effects if water supply is contaminated. Orthophosphate in the water supply may lead to environmental concerns

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
			cause lower IQ, decreased ability to pay attention, and academic underperformance. Lead exposure is most harmful to children under six years of age.	function and increased academic performance.	blood lead levels in children.	Existing pipes could be coated in epoxy resin, but this may have other consequences to public health. Galvanic corrosion, a chemical reaction that releases lead into the water supply, can be prevented by placing a long brass pipe between existing lead pipes and new copper pipes. In addition, applying orthophosphate to water treatment, can reduce the need for lead pipe replacement by preventing lead from leaching into the water.	and is only a temporary solution.
6C	Invest in nature-based solutions that expand tree canopy and create more urban blue and green spaces.	Impervious cover Flooding Water quality Heat island effect Cardiovascular health (risk of cardiovascular disease, heart	Green infrastructure (including street trees, low-level vegetation, green walls, and green roofs) is considered a potential solution to improving air quality in the built environment. Living in greener areas is linked to increased	Green infrastructure aids in the removal of airborne pollutants. In urban street contexts, implementing low-level green infrastructure (i.e., hedges and bushes) can lead to improved air quality. In open road contexts, tall	Some research indicates high-level vegetation canopies (trees) leads to worsened air quality in street canyon contexts by lowering wind speed and	Potential disbenefits can be mitigated by installing different types of green infrastructure based on the context of the built environment (i.e., low-level rather than high-level GI in street canyon settings).	Absent investment in green infrastructure, impervious surfaces will continue to contribute to stormwater flooding and heat island effect, all of which negatively impact health. Lack of green infrastructure and street trees will also result in

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
		attack, and heart failure)	cardiovascular health, including a decreased risk of developing cardiovascular disease, heart attack, and heart failure. However, increased exposure to green spaces was not associated with delay in disease progression for those who had already developed CVD.	and dense vegetation barriers combining low- and high-level GI can improve air quality. Green infrastructure also mitigates the urban heat island affect, reduces noise pollution, and aids in stormwater mitigation. Increasing green space and reducing impervious coverage can improve cardiovascular health by decreasing the risk of developing cardiovascular disease, heart attack, and heart failure.	reducing air exchange.		worsened air and water quality, which negatively impact respiratory, cardiovascular, and gastrointestinal health.
6D	Expand the use of green infrastructure and green building materials.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
6E	Strictly limit development in floodplains.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
6F	Implement mandatory flood mitigation standards in new construction and restrict development in high-risk zones.	Number of deaths and injuries from floods Incidence of West Nile virus Presence of giardia in drinking water	Flooding may cause old and aging infrastructure to break or collapse. This has several serious consequences such as compromised sewage systems, contaminated drinking water, the spread of zoonotic diseases and water-borne illnesses, electrocution, physical injury, and death; extreme flood events can also lead to death by drowning.	Mandatory flood mitigation standards will increase the resiliency of critical infrastructure to withstand potential damages. This, in turn, reduces the number of physical injuries and deaths. Replacement or reinforcement of stormwater infrastructure and combined sewage system to withstand increasingly severe flood events will prevent the risk of spreading zoonotic diseases and other water-borne illnesses.	None found.	None found.	Without continued implementation of flood mitigation standards, flooding will lead to negative health impacts including contaminated drinking water, the spread of water-borne illnesses, and risks of electrocution, physical injury, and death. The economic consequences of flooding are also devastating to real estate markets.
6G	Advance brownfield remediation.	Exposure to metals such as lead and mercury Number of brownfield sites remediated	Land close to brownfields can be contaminated with toxic metals. One study found that proximity to brownfield sites is associated with increased blood levels of lead and mercury in adults. Lead	Brownfield remediation reduces exposure to toxic metals such as lead and mercury, which in turn leads to reduced neurological damage, increased cognitive function, and	In some instances, remediation of contaminated land for use as a public park may pose a health risk for those visiting the park on a regular	Remediation efforts must completely eliminate any form of contamination, especially for heavily polluted sites. Remediation efforts involving reclamation or reforestation should select appropriate species	Lack of brownfield remediation will result in continued exposure to toxins like lead and mercury, which can cause neurological damage, decreased cognitive function, and increased

No.	NJ SDRP Policy / Strategy	Indicator	Explanation of Terms and Assessment Mechanism	Benefits of Adoption	Disbenefits of Adoption	Mitigation of Disbenefits	Trend outcome
			and mercury negatively impact health through neurologic damage, decreased cognitive function, altered behavior, hematologic abnormalities, kidney and cardiovascular disease. The burden of exposure to toxic metals like lead and mercury is disproportionately concentrated in individuals and neighborhoods of color with fewer social and economic resources.	reduced risk of kidney or cardiovascular disease.	basis. In addition, in the process of reclaiming and reforesting heavily polluted sites, some species may be negatively impacted by soil toxicity.	that will not be adversely impacted by soil toxicity or soil cap construction. For land remediated for use as public parks, architectural elements that prevent direct contact with polluted soil can mitigate health risks.	risk of kidney and cardiovascular disease.
7	Encourage sound and integrated planning.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
7A	Integrate land use and transportation planning.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

EPILOGUE

The assessment of the 2024 preliminary draft of the State Development and Redevelopment Plan (SDRP) utilized both quantitative and qualitative methods. The quantitative analysis used more than three decades of geospatial data to identify past impacts of SDRP-guided development, which we then leveraged to define eight indicators, summarized below, which facilitate an assessment of plan aligned versus plan adverse development into the future. The qualitative analysis was conducted via an adapted health impact assessment methodology and an exhaustive review of the leading planning journals around key themes within the SDRP: Economy; Land Use and Environment; Climate Change and Resilience; Equity; Infrastructure; and Health.

Discussion of Quantitative Findings

We have assessed the potential impact of the 2024 preliminary draft of the New Jersey State Development and Redevelopment Plan (SDRP2024) by examining historical and projected land use patterns. The analysis provides a window into the SDRP's potential impact on growth trends, redevelopment, infrastructure, and environmental indicators across New Jersey. The quantitative findings support the SDRP2024 state planning approach that responds to past trends, anticipates future challenges, and uses data-driven, equity-oriented policies to shape a more sustainable and inclusive New Jersey by 2050.

The eight geospatial indicators utilized for monitoring growth as PLAN-ALIGNED versus PLAN-ADVERSE are as follows:

1. Growth in Smart Growth Planning Areas (PA1–PA3)
This indicator measures the share of development occurring in Planning Areas 1 through 3 (Metropolitan, Suburban, and Fringe), which are prioritized for growth under the SDRP2024. These areas already have infrastructure and capacity to support development efficiently. A higher proportion of growth in these areas signals alignment with smart growth principles, while growth in PA4–PA5 suggests sprawl and environmental risk.

2. Growth in Designated Centers
This indicator evaluates whether growth is concentrated in officially designated centers such as cities, towns, and villages. These compact, mixed-use, and walkable areas are essential to the State Plan's vision of place-based development. Development in centers supports efficient infrastructure use and equitable access to housing and services, while dispersed growth leads to sprawl and higher costs.

3. Growth as Redevelopment and Renewal
This measures the extent to which growth occurs through redevelopment of previously developed lands—including brownfields and areas in need of revitalization—rather than expansion into undeveloped lands. Prioritizing redevelopment preserves open space, utilizes existing infrastructure, and revitalizes underused urban areas. It also supports equity by reinvesting in communities that have historically experienced disinvestment.

4. Compact, Mixed-Use Development
This indicator assesses the ratio of high- and medium-density residential development compared to low-density and exurban growth. Compact growth encourages walkability, reduces land consumption, and fosters vibrant, interconnected neighborhoods. It also limits vehicle dependency and promotes sustainability, in line with smart growth goals.

5. Infrastructure-Connected Growth
This tracks the proportion of new development occurring within sewer service areas versus outside them. Development in sewered areas is more efficient, cost-effective, and environmentally sound, while growth in unsewered areas often indicates sprawl and increased environmental risks. This indicator reflects the alignment between land use planning and infrastructure capacity.

6. Environmentally Low-Impact Development
This metric evaluates how well new development avoids critical land resources such as prime farmland, wetlands, core forests, and wildlife habitat, and how it minimizes impervious surface. Avoiding these resources protects ecosystem services, prevents flooding, and sustains biodiversity. The indicator reflects environmental responsibility and long-term land stewardship.

7. Climate Resilient Development
This indicator measures the extent of development occurring in flood-prone areas, including zones at risk from sea level rise, storm surges, and stream flooding. Resilient development avoids or properly designed for these risks, reducing future property damage and infrastructure costs. It is a key metric for aligning land use with climate adaptation strategies.

8. Protection of Open Space and Natural Resources
This evaluates how much open space and natural resource land is preserved from development. High preservation levels indicate successful implementation of the State Plan's conservation goals and support ecological health, recreation, and climate mitigation. This indicator helps track the progress toward the "50x50" goal of protecting half of New Jersey's critical remaining lands by 2050.

Since its inception in 1992, the SDRP has aimed to counteract sprawling development and promote smart growth. Using high-resolution GIS land use/land cover (LU/LC) datasets from 1986 to 2020, the quantitative analysis evaluated whether growth over time has been PLAN-ALIGNED (consistent with the SDRP goals) or PLAN-ADVERSE (contradicting those goals). Between 1986 and 2020, New Jersey saw over 445,000 acres of new development, largely at the expense of farmland, forests, and wetlands. While approximately 63% of development occurred in Smart Growth areas (PA1-PA3), over 37% still occurred in rural and environmentally sensitive zones (PA4, PA4B and PA5), undermining the goals of compact, infrastructure-supported growth.

The quantitative analysis identified key trends: a post-2007 slowdown in land consumption; a shift toward higher-density housing; a decline in exurban sprawl; and the rise of warehouse and logistics development. Redevelopment has become an increasingly important growth strategy, especially as many northern municipalities reach buildout. For example, high-density residential development rose from 7.6% to 19.6% of total statewide growth from 1995 to 2020, while rural low-density development fell significantly in acres of land consumption.

Development within designated centers absorbed about 5% of total acres developed between 1986–2020—highlighting the need to reinvigorate the centers-based framework of the SDRP. Likewise, infrastructure alignment is uneven: while over 94% of high-density development occurred within sewered areas, about 80% of rural single-unit development occurred in non-sewered areas. The SDRP promotes growth in sewered, compact, and previously developed areas to reduce sprawl, costs, and environmental damage.

Newly constructed compact mixed use development projects that have been created over the past decades such as the Robbinsville Town Center (Mercer County) as well as successful smart growth redevelopment projects such as downtown New Brunswick, Middlesex County are examples where policies of the State Plan are being demonstrably achieved as PLAN-ALIGNED. In contrast, many examples of development growth that occurred over the past three decades can be characterized as PLAN-ADVERSE sprawl with many thousands of acres of natural resource lands such as farmland, forests and wetlands in Planning Areas PA4, PA5 and PA5b lost. A look at the data helps to bring a nuanced understanding to how these development patterns reflect the successes and inadequacies of the SDRP in its outcomes

A substantial amount of development and redevelopment, especially post 2007 up through 2020 (the date of the most recent Land Use GIS data), are trending to be PLAN-ALIGNED and more consistent with the SDRP and its vision statement. Many cities and towns such as Jersey City, New Brunswick and Glassboro have been redeveloped and revitalized at significantly higher densities, which takes pressure off growth in rural fringe areas. As evidence, rates of rural land consumption have dropped significantly over the last two decades (Lathrop & Hasse 2025). A strong case can be made from the data that NJ's 2020 landscape would have been significantly more sprawling if the SDRP had not been in existence to help guide development with a regional perspective.

This impact assessment integrates climate resilience as a central planning concern, reflecting a new goal within the SDRP itself. More than 54,000 acres of development since 1986 lie within flood-prone zones newly delineated by FEMA and Rutgers flood vulnerability mapping. Climate impacts are projected to worsen, reinforcing the urgency for future growth to avoid high-risk areas.

Lastly, New Jersey has preserved over 1.6 million acres of land through programs like Green Acres and the SADC's farmland preservation. However, with buildout anticipated by 2050, the SDRP2024 emphasizes redevelopment, infill, and equitable center-based growth as the foundation for sustainable development coordinated with vigorous conservation of the most valuable remaining natural resources.

Discussion of Qualitative Findings

We have also assessed the SDRP2024 qualitatively, considering the cutting-edge planning literature published in widely respected disciplinary journals, including *Journal of the American Planning Association*, *Journal of Planning Education Research*, *Urban Studies*, *Urban Affairs Review*, *Environment and Planning A: Economy and Space*, and *Urban Geography*. The assessment procedure utilized an adapted form of Health Impact Assessment methodology, which involved logic models linked to the SDRP policies and strategies, relevant indicators and assessment mechanisms derived from the literature, a review of benefits and disbenefits of adoption of the policies, mitigation of disbenefits, and discussion of trend outcomes (which assumed a revised SDRP is not adopted in 2025). This review allowed the SDRP policies and strategies to be assessed considering contemporary national planning concepts, trends, and best practices.

Summaries of the six policy / strategy areas of the SDRP that were qualitatively reviewed and determined to have strong evidence vis-a-vis expected impact are as follows:

1. Economy

Enacting adaptive reuse policies will promote infill and rehabilitation projects of vacant buildings to meet current needs. Designating buildings and/or neighborhoods can help preserve regional identity and guide the development in a manner suitable for local needs. Buildings and properties designated as historic generally appreciate in value more than similar properties in non-historic areas. Reducing housing costs can have profound effects on communities by allowing money to be spent on other goods and services. Diversifying housing types can help prevent displacement and offer upward mobility to low-income families and individuals by providing them access to more and better services. Establishing high-quality transit service (both bus and rail) can be a
powerful tool for improving the lives of low-wage workers who are more likely to rely on public transit. Increasing transit availability and reliability can enable more people to forgo car ownership and the high costs associated with owning and maintaining it. Connecting more New Jersey municipalities to each other via transit could enable more New Jerseyans to replace commuting trips and other car trips.

2. Land Use and Environment

At the heart of the SDRP is a primary goal of encouraging center-based, compact, and mixed-use development, while also allowing for a range of other environments within the framework of articulated planning areas. Center-based, compact, and mixed-use developments are widely documented in the planning literature as core strategies towards achieving a range of environmental benefits and outcomes, including reduction in air pollution due to reduced vehicle miles traveled, less sprawl and inefficient use of infrastructure, and more inclusive communities, especially across income ranges. There are many benefits that occur with increased development in centers, including reductions in vehicle miles traveled, lower-carbon travel patterns among residents, enhanced ability to transition to sustainable energy systems, increased perceptions of security, reduction in food deserts, and greater satisfaction with one's neighborhood. Compact development prevents sprawl, which is well documented in the planning literature to consume land and damage animal habitats. In addition, sprawl leads to greater use of automobiles and thus air pollution, creates more impervious surfaces that cause harmful runoff, and contributes more light pollution which disturbs nocturnal habitats.

3. Infrastructure

The strategies proposed in the SDRP support investment in New Jersey's infrastructure across a variety of contexts, including transportation, housing, wastewater and stormwater management, energy, and green building. By investing in active transportation infrastructure and implementing transit-oriented development, New Jersey can improve the safety and accessibility of walking, bicycling, and transit while reducing travel costs. At the same time, prioritizing adaptive reuse and infill development can support efforts to provide more market rate and low-income housing. Retrofitting and replacing aging

infrastructure can also help mitigate the negative health, economic, and environmental impacts of combined sewer overflow (CSO) and stormwater flooding. Green infrastructure and blue-green infrastructure can effectively reduce CSO volume, enhance water quality, reduce flood risk, and improve quality of life. By adopting a holistic, context-driven approach that prioritizes the most vulnerable communities, policymakers and planners can ensure that blue green infrastructure's numerous benefits, ranging from improved stormwater management to enhanced social equity, are realized by all.

4. Climate and Resilience

If fully implemented, the strategies outlined in New Jersey's State Development and Redevelopment Plan could significantly strengthen the state's climate resilience. The Plan will also continue to improve the state's housing stability, environmental quality, and long-term community sustainability. The SDRP's focus on compact, mixed-use development in designated growth areas aligns with research evidence and literature, showing that coordinated land use and transportation planning reduces sprawl, lowers vehicle emissions, and preserves critical farmland and ecological systems, ultimately contributing to the state's climate resilience. Climate resilience will be further reinforced by infrastructure modernization and nature-based investments. Eliminating combined sewer overflows, remediating brownfields, and expanding green infrastructure will reduce flood vulnerability, manage stormwater more effectively, and protect communities from climate-driven hazards. Urban tree planting, stormwater improvements, and expanded blue-green spaces will help manage extreme heat and rainfall, strengthen natural buffers, and increase the adaptive capacity of urban areas. Overall, the SDRP presents a sound and integrated framework for advancing climate resilience across ecological, infrastructural, and community dimensions.

5. Equity

The strategies outlined in the SDRP aim to improve equity by addressing long-standing disparities in housing, transportation, infrastructure, and environmental quality, particularly in historically underserved communities. Revitalizing underutilized spaces, such as vacant lots and brownfield sites, is designed to stimulate economic activity and improve living conditions. Similarly, diversifying housing options and placing affordable units in high-opportunity areas can dismantle patterns of segregation and increase access to essential services like education and healthcare. These efforts, when thoughtfully implemented, foster inclusive development and support upward mobility. By integrating land use and transportation planning, the plan promotes efficient, affordable, and accessible living environments.

6. Health

If implemented, the strategies advanced by the State Plan will have net positive impacts on the public health of New Jersey residents. Several of the Plan's strategies support the reduction of emissions and greenhouse gases from both the transportation and energy sectors, which in turn mitigates the negative health impacts from air pollution and particulate matter. Efforts to promote increased walking, biking, micromobility, and transit use will not only reduce vehicle emissions, but increase opportunities for physical activity which benefits both physical and mental health. Environmentally focused strategies to expand the use of green infrastructure, mitigate flooding, and remediate brownfields, coupled with the elimination of lead pipes and combined sewer overflows, will limit exposure to toxins and the spread of disease. In addition, the protection of New Jersey's forest resources will improve air quality and support cognitive and immune function. Diversifying the state's housing stock and reducing housing cost burden will reduce the stress associated with housing insecurity, as well as the health risks posed by poor quality housing.

Other Considerations for the Future

1. Warehousing: In recent years, warehousing has emerged as one of the most significant forces in New Jersey's land use planning. Warehouses offer several positive contributions to New Jersey's economy and logistics infrastructure, but they also present

challenges. Future trends in warehouse development in New Jersey will need to be carefully studied and managed.

2. Climate: New Jersey's climate is changing. Some of the impacts of these changes can be predicted, but there is also the possibility that the impacts will be more severe than expected or that entirely unanticipated impacts will occur. In addition, human nature is often unpredictable, and thus so too is how people will adapt to climate change as the outcomes materialize. State planners will need to carefully monitor the changing climate and its impact on New Jersey as well as trends in how people and communities respond.

3. Inclusion: Meeting the many challenges of the future will require a diversity of viewpoints and strategies, as well as the support of all New Jerseyans. Such contributions will not be possible if only some people share in the abundant human, environmental, and economic endowments found here. Thus, state planning must continue to identify, understand, and plan for the needs of all New Jerseyans as both those people and their needs change into the future.