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New Jersey State Plan Infrastructure Needs Assessment

Update and Briefing

Presentation outline

- Background
- Proposed basic methodology
- Preliminary sector findings
 - Transportation
 - Environment
 - Energy
- Next steps

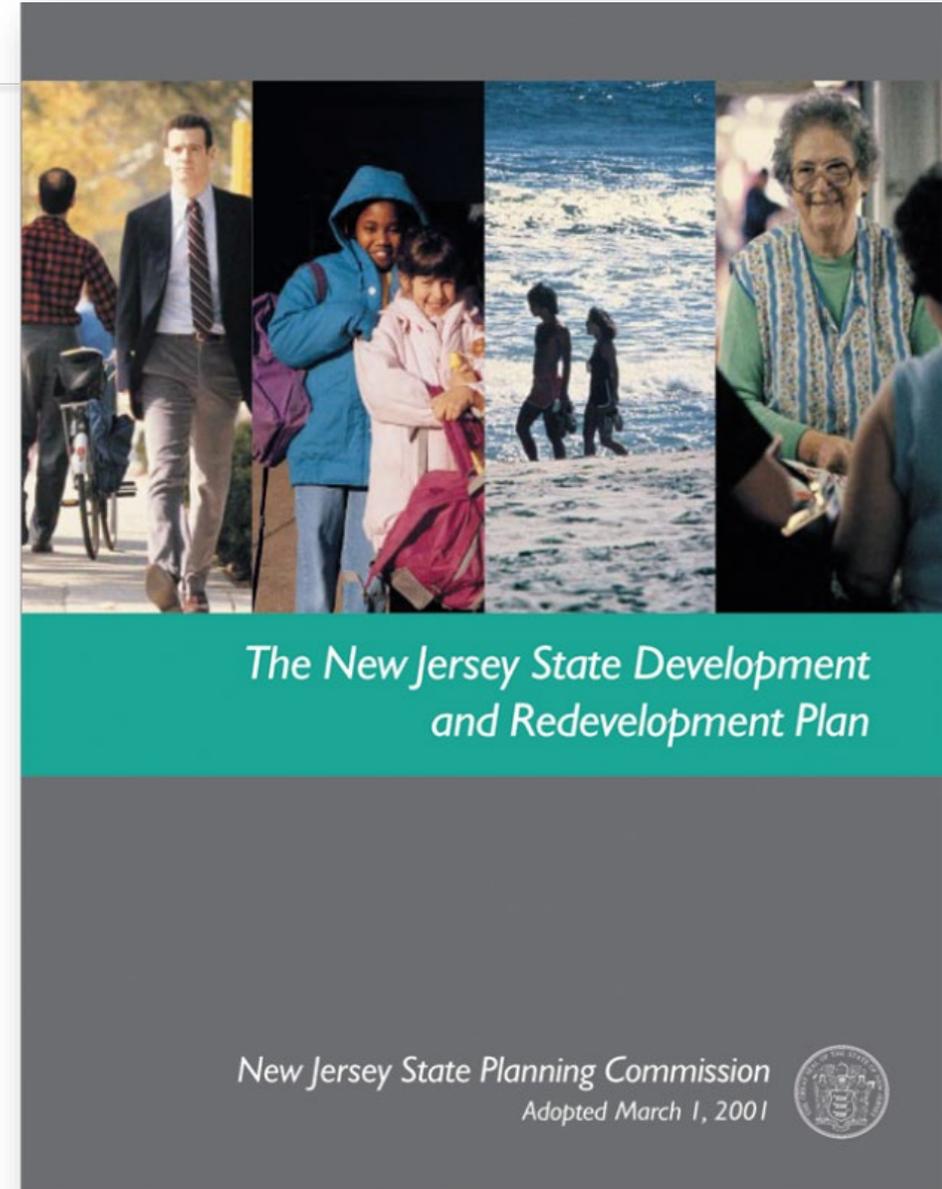


New Jersey State Plan Infrastructure Needs Assessment

BACKGROUND

NJ State Planning Act

- Ultimate objective of the State Plan is to allow government at all levels to devise more effective, efficient and desirable growth and infrastructure policies
- Encourages State and local agencies to:
 - Coordinate capital plans with comprehensive and functional plans
 - Increase the time horizon for capital planning
 - Base capital budget on long term capital plans
 - Use consistent and coordinated capital planning methods



NJ State Planning Act

- Infrastructure Needs Assessment (INA) is required by law:

*“Prepare and adopt as part of the State Plan a **long-term Infrastructure Needs Assessment**, which shall provide information on **present and prospective conditions, needs and costs** with regard to State, county and municipal capital facilities, including water, sewerage, transportation, solid waste, drainage, flood protection, shore protection and related capital facilities.” (N.J.S.A. 52:18A-199.b)*

- Last INA completed in 2001 covering the period 2000-2020
- NJ Office of State Planning has started the process of updating the current State Plan

Phase 1 Infrastructure Needs Assessment

Transportation

- Roads, bridges, and tunnels
- Public transportation, including bus, rail, and paratransit
- Multimodal freight
- Maritime
- Aviation
- Electric vehicle charging
- Operations, maintenance, and administration facilities and equipment

Environment

- Drinking water
- Wastewater disposal, including combined sewer outflows (CSOs)
- Stormwater management and flood protection
- Shore protection

Energy

- Power generation
- Power transmission and distribution
- Distributed energy resources, including Class I renewables, storage, and others
- Energy Efficiency as a resource



New Jersey State Plan Infrastructure Needs Assessment

PROPOSED METHODOLOGY

Sketch-planning approach



- **Present needs** – the cost to improve existing infrastructure to target levels of performance plus the annual cost to maintain and operate infrastructure at target levels of performance
- **Prospective needs** – The cost to enhance, adapt, or expand infrastructure to accommodate population and employment growth and/or achieve desired policy objectives while maintaining target levels of performance

Sketch-planning approach

- 30-year planning horizon = 2050 (2030 for present need)
- If feasible, estimates are unconstrained by anticipated funding
- Present need defined by existing plans and documents
- Scenario-based consideration of prospective needs:
 - ***Business-as-usual*** - continuation of recent trends
 - ***Aspirational*** – a policy-driven scenario – State Plan
 - ***Constrained?*** – a scenario that includes one or more constraints such as funding, technology, public/political support, or others that may impede achieving the aspirational scenario



New Jersey State Plan Infrastructure Needs Assessment

TRANSPORTATION SECTOR

Preliminary findings and observations

- Performance-based transportation planning and capital programming has been in place since the late 1990's
 - Multitude of performance metrics drive estimates of infrastructure needs
- Plans and programs appear to be coordinated and consistent across agencies (NJDOT, NJ TRANSIT, MPOs and authorities)
- Capital planning is a well-established, on-going and continuous process, but practices vary across agencies
 - 5 to 10-year planning horizon, not all on the same cycle
 - Most are constrained by anticipated revenues
- State-of-good repair and modernization of New Jersey's legacy infrastructure is driving capital investments
 - Safety is another important priority

Future planning and investment considerations

- Is **decarbonizing transport** only about the transition to EVs or should VMT reduction be a priority as well?
- How should infrastructure investment incorporate **climate resilience and adaptation**?
- How will the **future of work and other societal changes** shape transportation needs?
- How will **changing technology** impact mobility and travel?
- How do we ensure investments result in **just mobility and equitable transportation outcomes** for disadvantaged communities?
- What **future funding** will be available to support infrastructure investment?



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ENVIRONMENT SECTOR

Preliminary findings and observations

- Comprehensive water infrastructure (drinking water and wastewater) needs are assessed approximately every 5-10 years, usually with a 20-year planning horizon
 - Drinking Water Infrastructure Needs Survey and Assessment (last updated 2022)
 - Clean Watersheds Needs Survey (last updated 2012)
- Needs are traditionally driven by infrastructure life-cycle considerations, continued compliance with pollution standards, and future growth projections
 - Recent emphasis on Combined Sewer Overflow (CSO) and lead pipe elimination
- Investments are funded via a combination of user fees, Federal and State grants, and revolving loan programs

Preliminary findings and observations

- New stormwater management requirements related to Municipal Separate Storm Sewers Systems (MS4) were adopted in 2022
 - DEP has used preliminary data from the MS4 permitting process to quantify stormwater management and flood protection gray and green infrastructure needs
- Shore protection is a joint responsibility of NJDEP and the US Army Corps of Engineers
 - Projects must comply with the Coastal Area Facility Review Act and NJ's Waterfront Development Law
- No comprehensive assessment of shore protection needs exists
 - For reference, more than a \$500 million was spent on beach replenishment along NJ's coastline between 1990 and 2005
 - NJ's Shore Protection Fund receives \$25+ million annually, mostly used as local match for Federal grants

Future planning and investment considerations

- How should infrastructure investment incorporate **climate resilience and adaptation**?
- How will **future growth and settlement patterns** impact water infrastructure needs?
- What will it take to more comprehensively integrate **green infrastructure and nature-based solutions** stormwater management investments?
- How can New Jersey transition from **traditional approaches to shore protection** and structural strategies to **non-structural strategies such as managed retreat, land use and nature-based solutions**?
- What more can we do to prioritize investments that benefit **overburdened and disadvantaged communities**?



New Jersey State Plan Infrastructure Needs Assessment

ENERGY SECTOR

Preliminary findings and observations

- Leading practice in energy infrastructure needs assessment uses a resource adequacy framework to model various policy scenarios
 - Most recent modeling in NJ was done in 2019
 - Two business-as-usual (baseline), least-cost pathway, and six variations
 - Includes property costs (vehicles, buildings, appliances, industrial processes)
- Least-cost pathway assumptions include:
 - Meeting 100% clean energy targets by 2050
 - Rapid adoption of building electrification. 90% of buildings will be electric by 2050
 - Transmission is allowed to expand to 7 to 14 GW
 - Greater than 2GW of storage capacity and greater than 3.5 GW of offshore wind capabilities by 2030
- Best estimate of present need is the ***total cost of energy*** to achieve this scenario, which includes costs of building retrofits, EV transition, and purchased energy

Future planning considerations

- What **resilience and assurance** investments will be needed beyond 2030?
- What additional investments are needed to ensure **equitable access** to the clean energy transition?
- How will **competition for limited land** impact competing policy goals (e.g., agricultural preservation and solar, an assuaging role for agrivoltaics)?
- How can we successfully address **conflicts between property rights and clean energy development** (e.g., wind energy)?
- How can we address **conflicting state policies** (e.g., municipal finance regulations and use of clean energy programs managed by the utilities)?
- Should NJ adopt **building performance standards**?

Next steps

- Prepare interim report
- Vet preliminary present need estimates with State agency partners
- Conduct additional stakeholder outreach as needed
- Investigate Phase 2 sectors

Phase 2 Infrastructure Sectors

Commerce

- Telecommunications
- Farmland retention

Health and Environment

- Public recreation open space lands
- Public recreation facilities
- Solid waste management
- Public health care

Public Safety and Welfare

- Public education
- Higher education
- Public libraries
- Arts
- Historic resources
- Public safety, justice, and corrections
- Public administration
- Human services
- Public housing