NJDOT Commitment To Communities

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5 Phases of an NJDOT Construction Project

Diane Gutierrez-Scaccetti

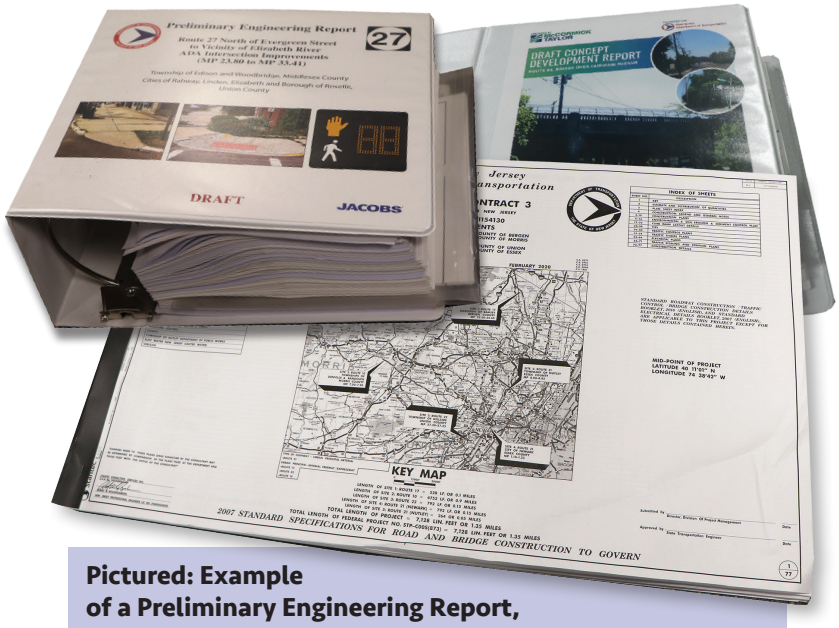
As Commissioner, I am frequently asked why construction projects take so long to complete.

It's a valid question that I want to take the time to properly answer, because I understand the frustration that residents feel when a project has been promised and years later there still is no construction crew in sight.

In short, construction projects take a while to come to fruition because the New Jersey Department of Transportation (NJDOT) devotes the necessary time and effort to ensure each project is designed and built properly.

There are many guidelines we have to follow, steps we have to take to comply with federal and state regulations, and processes we must go through in order to carry out a successful project. While time consuming, these steps must be completed properly to ensure NJDOT's resources are being used wisely to create **safe** and **reliable** highway infrastructure that will serve New Jersey residents and visitors for many years to come.

In this newsletter, I'd like to lay out NJDOT's typical project design and delivery process. My hope is to provide a deeper understanding of why it can take a few years for a proposed project to get to a point where it is "shovel ready."



Pictured: Example of a Preliminary Engineering Report, Concept Development Report and Construction Plans.

There are five consecutive phases of an NJDOT-sponsored construction project:

- Problem Screening
- Concept Development
- Preliminary Engineering
- Final Design
- Construction

Problem Screening

Duration: 2-3 months

The problem screening phase is the beginning of the process. In this phase, our team creates what we call a "**problem statement**." The problem statement identifies an area (such as a stretch of roadway or bridge) that either needs improvement, rehabilitation, or redesign. We then obtain more information and determine if the area

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Pictured: NJDOT Engineers survey a bridge overpass.

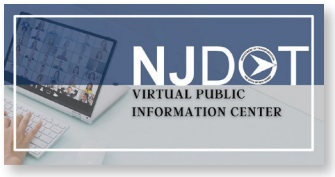
of concern is already being addressed by existing projects or programs, and ultimately make a recommendation to the NJDOT Capital Program Committee to advance this to project status.

Concept Development

Duration: 6-16 months

In this phase, we define the primary transportation need to be addressed. We gather a broad range of information, including how the existing road or bridge was built and whether it meets current design standards. We look at traffic volumes, crash data, and available fiscal resources to advance the project.

We are also mindful of the surrounding communities when we develop project concepts. Is the road or bridge in an urban, suburban or rural area? Are there homes, businesses, farms or factories nearby? Are there hospitals, schools, parks, places of worship, or transit stops in the area? We also take into account significant regional, commercial or residential development plans, and we perform an environmental screening to identify wetlands, wildlife habitat, and other constraints that might affect the design or construction schedule. Lastly, we assess whether we would need to acquire private property or obtain easements to construct the project.



Typically, extensive public outreach is also conducted during this time to ensure the local community, public officials, and stakeholders have a voice in the decision-making process. The last step is to hire a consultant firm through the state's qualification-based solicitation process to begin the preliminary engineering phase.

All of this information helps us develop several practical design alternatives from which we select a **preliminary preferred alternative** that offers the best balance of benefits, impacts and cost. We do this to ensure that taxpayer money and other resources are being utilized in the most **effective** and **efficient** way possible.

Preliminary Engineering

Duration: 14-20 months

Once the preliminary engineering phase starts, the Concept Development study officially moves from a study to a project. Project design begins with work on detailed engineering calculations, plans, and specifications. We work to confirm the boundaries of where the project will take place and move forward with any necessary land acquisitions from private landowners.

In many projects, existing utilities such as overhead wires, poles, and underground pipes must be relocated to create sufficient and safe areas for construction activities. We identify environmental impacts in this phase and develop a document for approval by the New Jersey Department of Environmental Protection (NJDEP) and/or the Federal Highway Administration (FHWA).

Pictured: Route 3/Route 46 Valley & Notch Road Interchange project site in Clifton, New Jersey.

The design choices made in this phase are scrutinized in extensive detail, and it is not uncommon for extenuating circumstances to be discovered that require additional time for re-engineering, environmental permitting, or consulting with local officials and residents.

Final Design

Duration: 18-30 months

During the final design phase, all work that was initiated in the preliminary engineering process is advanced to

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completion. This includes utility work, environmental permits, land acquisitions, and construction funding. NJDOT's subject matter experts and design consultants gather for critically important workshops to identify and mitigate risks. In the last two years, NJDOT has held **70 workshops** to examine and potentially modify project design and construction staging plans. Taking the time to discuss possible risks saves both **time** and **resources** in the long run.

Construction

Duration: 1-4 years (May be longer for large projects)

The construction phase begins with a competitive bidding process by advertising the project, reviewing bids, and awarding the project to the lowest responsible bidder. The amount of time it takes to build a project depends on its scope and complexity. Our largest projects, sometimes costing hundreds of millions of dollars, may take more than five years to build. On the other hand, we can complete a non-complex pavement preservation project in a single calendar year.

Highway resurfacing projects, which tend to be a bit more complex than pavement preservation projects, are frequently completed within two calendar years. The same goes for bridge deck replacement and bridge superstructure replacement projects.

New Jersey's population density and high traffic volumes frequently require us to limit a contractor's work hours to non-peak travel times. We often require contractors to build projects in sections, or stages, to keep traffic flowing on at least one of the travel lanes. These accommodations add time and cost, but are necessary to **keep traffic moving** as best as possible.

Pictured: Ribbon cutting ceremony at the Rt 72 Manahawkin Bay Bridges Project in Stafford Township, New Jersey *(photo taken pre-pandemic)*.

In conclusion, each phase has a purpose, and each phase builds upon the previous one. Together, our project design and delivery processes ensure that NJDOT projects are designed and built properly with as little disruption to the traveling public and the local environment as possible, while stewarding our resources to the best of our ability.

Thank you for taking the time to read this and please feel free to share it with your colleagues. If you have any questions about any of the information in the newsletter please feel free to contact NJDOT's **Office of Community Relations** at **609-963-1982**.

Diane Gutierrez-Scaccetti
Commissioner