

Division of *Capital Program Support*



Capital Program Support

- *Most diverse Division at NJDOT*
- *Combination of:*
 - *Practitioners, keepers of standards, and SMEs*



Capital Program Support



```
graph TD; A[Capital Program Support] --> B[Utility Management]; A --> C[Program Management Office (PMO)]; A --> D[Design Standards]; A --> E[Bureau of Landscape Architecture and Environmental Solutions (BLAES)];
```

The diagram is an organizational chart with a light green background. At the top is a white box with a red border containing the text 'Capital Program Support' in red, italicized font. A vertical red line descends from this box to a horizontal red line. From this horizontal line, four vertical red lines descend to four separate white boxes with black borders, arranged horizontally. The boxes contain the following text from left to right: 'Utility Management', 'Program Management Office (PMO)', 'Design Standards', and 'Bureau of Landscape Architecture and Environmental Solutions (BLAES)'. On the left side of the slide, there is a decorative graphic consisting of several thin, curved grey lines and a solid red arrow pointing to the right.

**Utility
Management**

**Program
Management
Office (PMO)**

**Design
Standards**

**Bureau of
Landscape
Architecture
and
Environmental
Solutions
(BLAES)**

Capital Program Support

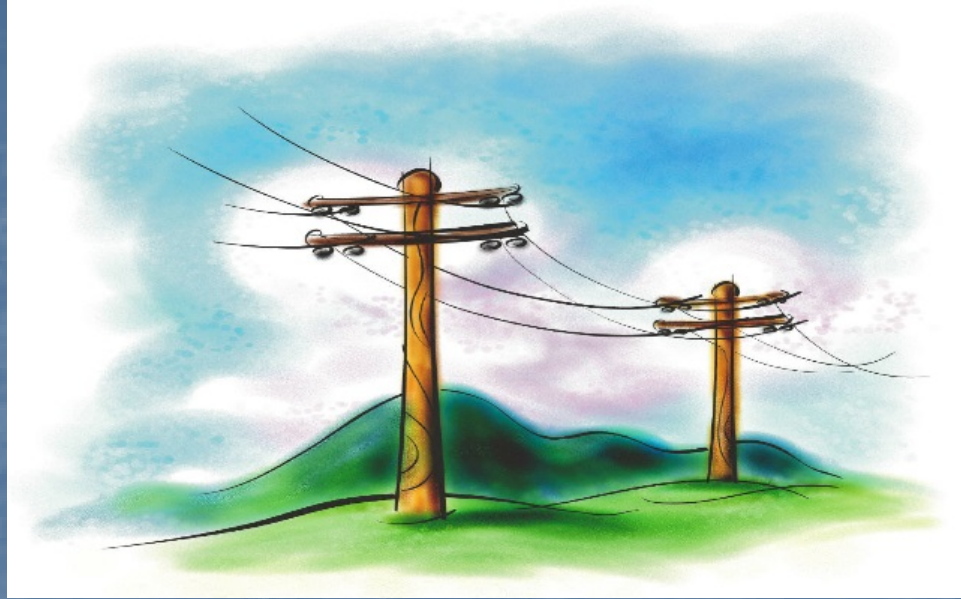


**Utility
Management**

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Architecture
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Solutions
(BLAES)



UTILITY MANAGEMENT OFFICE

What's Utility Management?

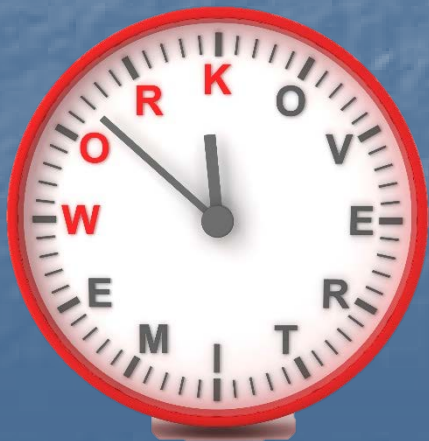
Integral process that enables project managers and project team members to make *informed* utility-related project decisions



Why is Utility Management important?

Poor utility decisions can lead to:

- *extended construction times*
- *safety concerns*
- *increase costs*



Who are the Stakeholders?

- Utility Management Office
- NJDOT Project Manager
- Designer
- Utility Company
- Resident Engineer



Utility Management Process

- Identifying potential utility impact issues
- Coordinating proposed utility work
- Preparing utility agreements and modifications
- Preparing utility agreement plans



Utility Management Process

Tools

- Utility Contact Letter & Utility Base Plans
- Utility Risk Assessment Plan
- Utility agreements and modifications
- Utility agreement plans



Utility Management *Information*

NJDOT Home	About NJDOT	NJcommuter.com	Community Programs	Reference / Links
Engineering	In the Works	Capital Program	Freight, Air and Water	Doing Business

Overview	<h2>Capital Project Delivery</h2> <h3>Utility Management</h3> <hr/> <h4>Summary</h4> <p>Utility Management is an integral process that enables project managers and project team members to make informed utility related project decisions. When it comes to designing and implementing transportation projects, utility conflicts identified at the end of the design period or during construction can extend construction time, pose safety concerns, and increase costs. Locating, protecting, and relocating underground utilities creates significant delays to construction and utility services. Minimizing utility relocation during the design and development of transportation projects can lead to faster project delivery and lower costs.</p> <p>The Office of Utility Management provides subject matter expertise regarding utilities to Department personnel in Project Management, Construction Management, Design Services, Regional Operations and Consultant Designers in support of Capital Program Projects and Utility Permits.</p> <p>The Office of Utility Management also coordinates Department activities with public utility owners and railroad companies to manage an effective and cost efficient utility process to safely accommodate utility facilities in accordance with the "Utility Accommodation Policy, N.J.A.C. 16:25" located within the State's right-of-way.</p> <p>N.J.S.A. 27:7-44.9, amended in 1983 requires the State of New Jersey to reimburse utility owners for utility relocation work required as the result of a highway project administered by the Commissioner of Transportation.</p> <p>Virtually every highway construction project in the State of New Jersey impacts utility facilities. The designer of the project shall examine and seek alternatives to minimize or eliminate the impact on utility facilities. The design of utility facilities located within the existing or proposed highway right-of-way requires coordination among the Project Manager, designer and the utility owners. The Office of Utility Management develops and maintains all the documents required to complete the relocation of utility facilities when and if required during the design and construction of the State's highway project.</p>
Site Content	
What's New	
Training	
Frequently Asked Questions	
CPM Project Delivery Process and Phases	
CPM Limited Scope Project Delivery Approach	
TSM Limited Scope Project Delivery Process	
Process Summaries	
Constructability	
Construction Engineering	
Construction Scheduling	
Contract Administration	
Errors and Omissions	
Performance Evaluation	
Cost Management	
Quality Management	
Risk Management	
Schedule Management	
Scope Management	
Stewardship and Oversight Agreement	
Utility Management	
Value Engineering	
Flow Charts	
Diagrams	
Activity Descriptions	
Guidance	
Templates	
Subject Matter Experts	
Glossary	
Best Practices	

CPD
Website

Utility
Management
webpage

Capital Program Support



Utility
Management

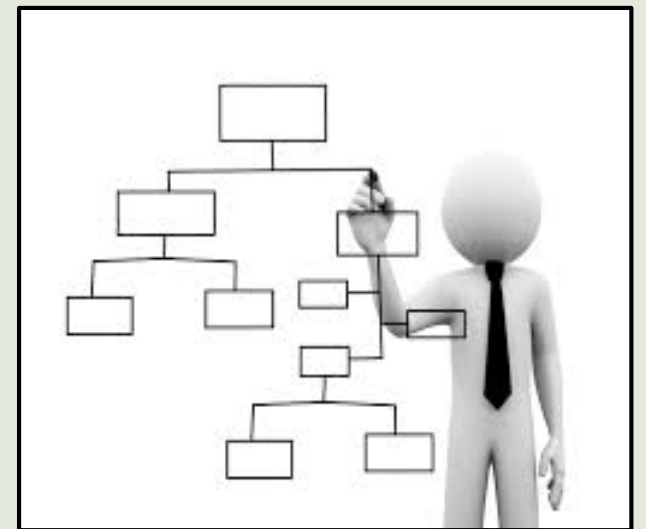
**Program
Management
Office (PMO)**

Design
Standards

Bureau of
Landscape
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Solutions
(BLAES)

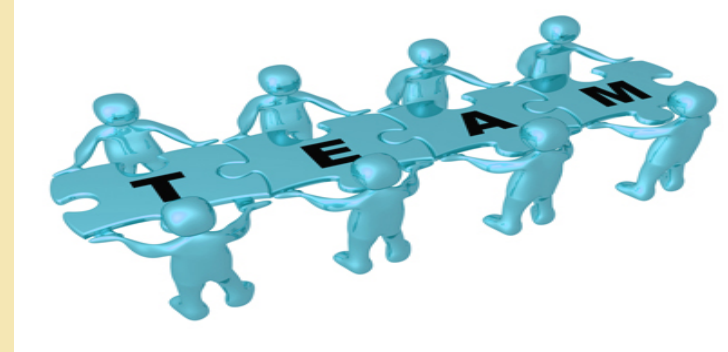
Program Management Office (PMO)

- ❑ Center For Improvement (CFI)
- ❑ Contract Management
- ❑ Claims, Risk, and VE (CRAVE)
- ❑ Schedule & Budget Management
 - ❑ PMRS



Center For Improvement

- *Coordinate*



- *Facilitate*



- *Implement*



Center For Improvement

- **Oversee NJDOT's Capital Project Delivery (CPD) process**
- **Work on Process improvement projects**
- **PM training**
- **Coordinate with internal & external stakeholders**

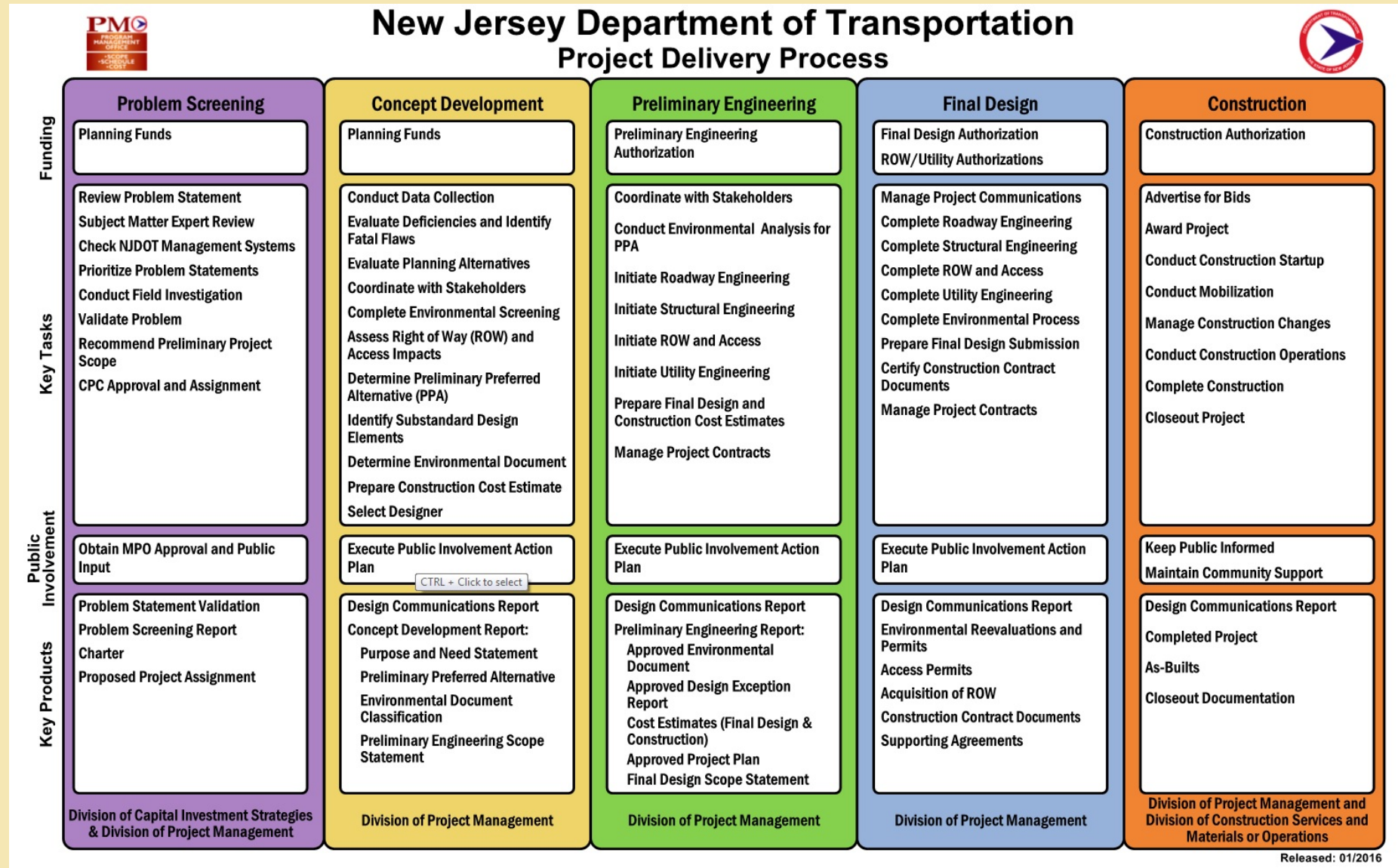


Capital Project Delivery (CPD) process ?

- NJDOT PM evaluate, plan, design & construct capital projects
- Process:
 - provides consistency
 - works to ensure a quality product
 - *on time*
 - *at the lowest possible cost*



Capital Project Delivery (CPD) process



Center For Improvement

Project Management (PM) Training

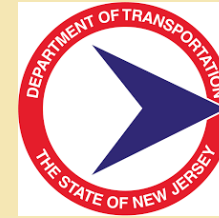
- Conducted for over 10 yrs.
- Held in Spring & Fall
- Sample courses:
 - *PM Basics*
 - *PM Essentials*
 - *Contract Management & Negotiation Skills*
 - *Complex Project Management*
 - *Measuring Project Performance*
 - *Project Risk Management*



Center For Improvement

Coordinate with internal & external stakeholders

❖ *NJDOT SMEs*



❖ *FHWA*



❖ *ACEC*



❖ *STIC*





- About Us
- Divisions & Bureaus
- Forms
- Admin. Directives
- Mgt. Announcements
- Deleg. of Authority
- Policies & Standards
- Training
- Ethics Concerns
- Useful Tools
- Site Index
- Helpful Links
- Client Applications



NJDOT Sign Contest

Deadline: March 31st

All employees are welcome to participate. If you think you can capture in 10 words or less the essence of the work we do here at NJDOT and its importance to the taxpayers in our state, please feel free to [submit your ideas](#).

See the [3/9/17 NJDOT Connection](#) for additional details

MEMORANDUM

Attention Purchase Requesters and Budget Center Manager

Deadline: March 10th

[FY 2018 Vendor Waiver Poll/Survey](#)

Please respond to [NJDOT Equipment, Materials & Supplies](#).



February March
Treasury Cut-Off Deadline for Procurements for Fiscal Year 2017

[Additional Information](#)



Women's History Month Events:

Celebration

Friday, March 17th

Time TBD

Ewing MPR

The Women in Transportation Volunteer Subcommittee is sponsoring a day full of events to celebrate Women's History Month.

[View Event Details](#)

Panel Discussion: Connected Vehicles

Friday, March 24th

12-1pm

Ewing Training Room A



Project Management Training

Various Dates

9am-4pm

Foran Building

Quick Links

Career/Benefits/Guidance

Select One

Directories

Select One

Technology Services

Select One

Links for the above drop down menus will not work if pop-up blocker software is activated.

Applications & References

Applications

APRWS

FILENET

BUSINESS OBJECTS

GEO TRANS

CLIENT APPLICATIONS

MYDOT

CMOD eDOCS

Office SharePoint Server 2007

eCATS

PMRS

Falcon/DMS

Workplace Support

Administrative College

IT Support Requests

ANNOUNCEMENTS

Logo Store

BROWN BAG series

NI DOT Connection

Charitable Efforts

Retirement Celebrations

EMPLOYEE MEMORIAL

Suggestion Box

Innovative IDEAS

WIT Women in Transportation

Interior Signs

References

511 REAL TIME TRAFFIC

NEWSLETTERS

Project

NJcomm.com

Capital Project Delivery

OPRA

e-STIP

PERFORMANCE CENTER

Financial FAQs

SUSPENSE PROCEDURE

Funds Management Training

TRANS INF

News Clips

websense

External References

AASHTO THE VOICE OF TRANSPORTATION

Prudential Deferred Comp.

FHWA NJ

Center For Improvement Guidance

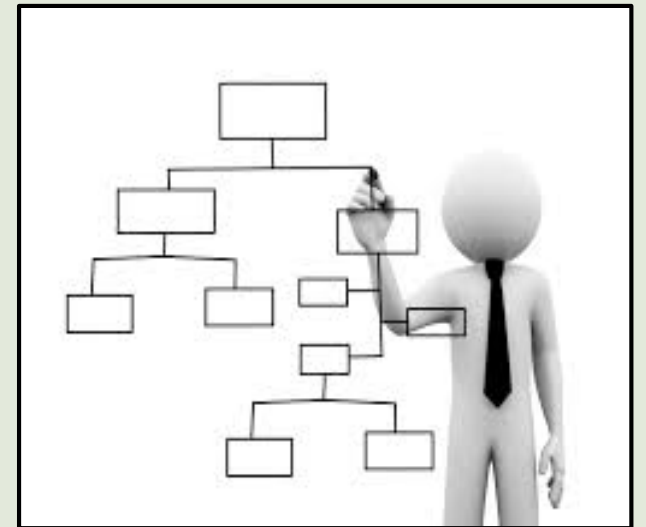
NJDOT Intranet

CPD Icon (under "References")



Program Management Office (PMO)

- ❑ Center For Improvement (CFI)
- ❑ **Contract Management**
- ❑ Claims, Risk, and VE (CRAVE)
- ❑ Schedule & Budget Management
 - ❑ PMRS



Contract Management



What we do!

- *Provide CPM staff with tools necessary to effectively manage the Contract Management Lifecycle*
- *Assist with execution of NJDOT Procurement Process*
- *Administer contracts once a Consultant is selected*
- *Assist with close out Capital Projects upon completion*



Contract Management Tools

- *Financial Management Information Systems (FMIS)*
 - *Department-wide*
 - *Used to input and monitor funding information*
- *Business Objects*
 - *Tool for accessing the Data Marts for reporting:*
 - *FMIS, PMIS, NJCFS, MACSe, Payroll, eCats and TransInfo.*



Types of Consultant Solicitations

- *Single Project*
- *Term Agreement*
- *Multi-Project*
- *Group*
- *Batch*



Where to find information?

The screenshot shows the NJDOT Employee Intranet homepage. At the top, there is a navigation bar with links for Intranet, Index, NJDOT Internet, NJHome, and Feedback, along with a search box. The main header features the NJDOT logo and the text "new jersey department of transportation Employee Intranet".

On the left side, there is a vertical menu with the following categories: About Us, Divisions & Bureaus, Forms, Admin. Directives, Mgt. Announcements, Deleg. of Authority, Policies & Standards, Training, Ethics Concerns, Useful Tools, Helpful Links, and Client Applications.

The main content area is divided into several sections:

- Charitable Efforts:** A section with a red heart icon and the text "NJDOT Charitable Efforts". It includes a notice: "Please take note that a new area for NJDOT Charitable Efforts has been created within Quick Links under Workplace Support."
- 2016 Halloween and Thanksgiving Basket Sale:** A promotional graphic featuring pumpkins and sunflowers. The text reads: "2016 Halloween and Thanksgiving Basket Sale Thursday, October 20th 9am-1:30pm E&O Lobby". Below this, it states: "NJDOT's Employee Memorial Committee will hold its' annual Halloween and Thanksgiving Basket Sale. All proceeds will benefit NJDOT employee activities throughout the year. Thank you for your generosity!"
- 50th Anniversary:** A logo for NJDOT's 50th anniversary (1966-2016) with the text "CELEBRATING 50 YEARS OF SERVICE TO NEW JERSEY".
- GIVE:** A small graphic with the text "think with your heart GIVE".
- New Jersey Employees:** A graphic with the text "New Jersey Employees".

On the right side, there are several utility sections:

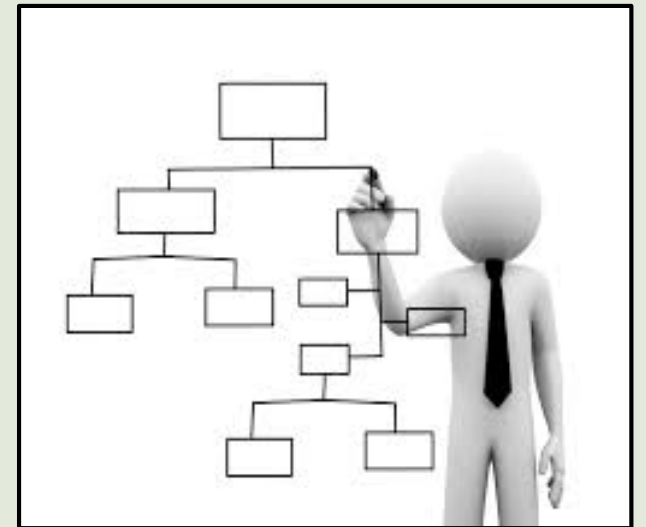
- Quick Links:** Three dropdown menus for "Career/Benefits/Guidance", "Directories", and "Technology Services". Below them is a note: "Links for the above drop down menus will not work if pop-up blocker software is activated."
- Applications & References:** A grid of application icons including APRWS, BUSINESS OBJECTS, CLIENT APPLICATIONS, CMOD eDOCS, eCATS, Falcon/DMS, GEONET, GEOTRANS, MYDOT, Office SharePoint Server 2007, and PMRS.
- Workplace Support:** A section with icons for "Administrative College" and "Loan Store".

Business Objects



Program Management Office (PMO)

- ❑ Center For Improvement (CFI)
- ❑ Contract Management
- ❑ **Claims, Risk, and VE (CRAVE)**
- ❑ Schedule & Budget Management
 - ❑ PMRS



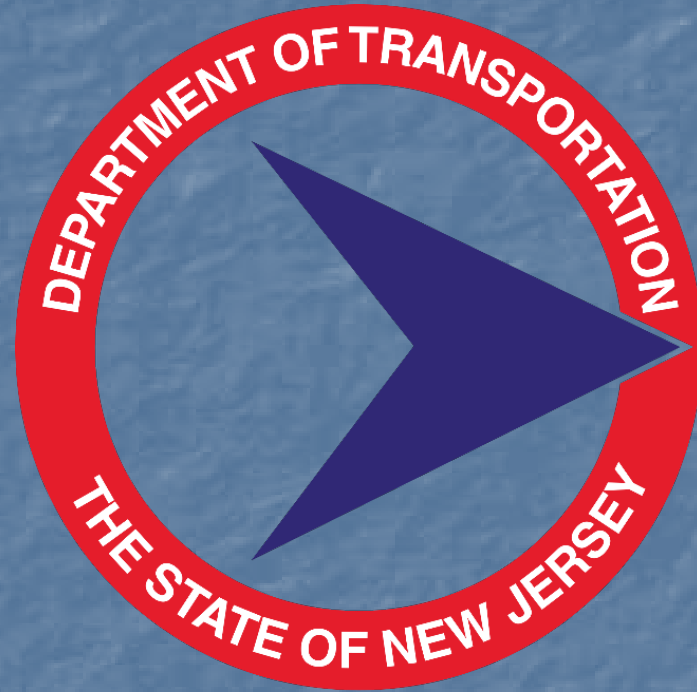
CLAIMS

RISK

ANALYSIS

VALUE

ENGINEERING



What does the Claims team do?

- Manage the *Contractual Claims Resolution Process*
 - Process is used to *resolve* the dispute of the change/claims condition outside of litigation



What is a change?

A change condition is a believed difference between the contract requirements and the actual requirements imposed during construction or if the site conditions differ from what was originally expected



What is a claim?

When a Contractor believes there a change condition on a construction project that is in dispute with the Department



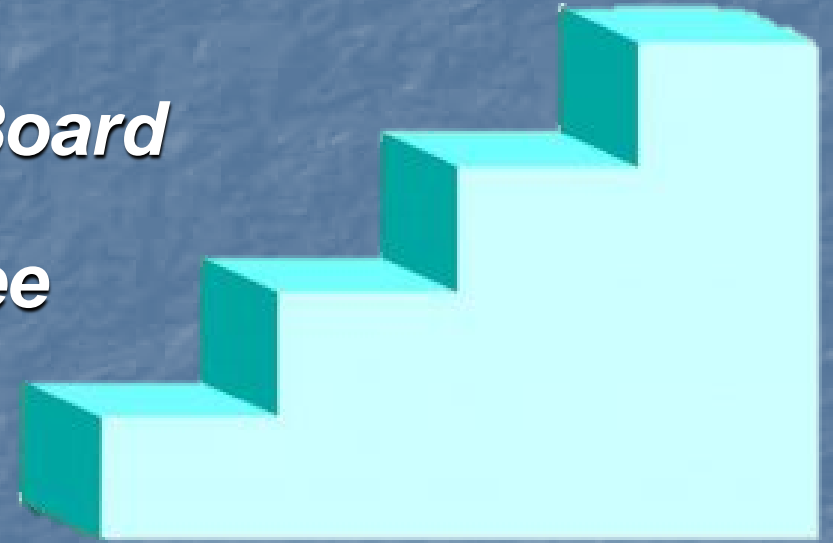
What are the Process steps?

Step I – Review by the Resident Engineer

Step II – Review by the Dispute Review Board

Step III – Review by the Claims Committee

Step IV – Non Binding Mediation



Claims Guidance

New Jersey
Department of Transportation



Standard Specifications
for Road and Bridge Construction

2007

NJDOT Specification 107.12

107.12 THE CONTRACTUAL CLAIM RESOLUTION PROCESS

107.12.01 Satisfying the Notice Requirements

If the Contractor has provided the RE notice of change as specified in [104.03.04](#), the RE and the Contractor may negotiate a resolution, even if the full impact has not been determined. If a notice of change has not been resolved, the Contractor may initiate the contractual claims resolution process.

To initiate the contractual claims resolution process, submit to the RE a Contractual Notice Form for the claim. At a minimum, include the following information with the Contractual Notice Form:

1. A detailed factual statement of the claim providing all necessary dates, locations, and Items affected by the claim.
2. The date on which facts arose that gave rise to the claim.
3. A copy of notice given to the Department pursuant to any other Subsection of the Contract that relates to the matter giving rise to the claim.
4. The name, function, and activity of each individual involved in or knowledgeable about the claim.
5. The specific provisions of the Contract that support the claim and a statement of the reasons why the provisions support the claim.
6. A detailed factual statement of the actions taken by the Contractor to mitigate the claim.
7. If the claim relates to a decision of the Department that the Contract leaves to the Department's discretion or as to which the Contract provides that the Department's decision is final, the Contractor shall set out in detail the facts supporting its contention that the decision of the Department was fraudulent, arbitrary, or capricious.
8. The identification of documents and the substance of communications relating to such claim.
9. If an extension of Contract Time is sought, the specific days sought and the basis for the claim, supported by the Contractor's approved baseline progress schedule and updates, as well as relevant fragments. Include a time impact evaluation of the delay as specified in [108.11.01.C](#).
10. If additional payment is sought, provide a breakdown of the amount sought in the manner specified in [104.03.08](#), or other calculations and basis of the amount sought.
11. If additional payment is sought, the Contractor may provide the bid documents when escrowed with an escrow custody agent, as specified in [103.05](#).
12. The Contractor must state in writing that all documentation in support of the claim has been provided to the Department and that the Contractor has requested that the review process begin.

If the Department determines that the submitted Contractual Notice Form does not provide sufficient information, the Department will consider the Contractual Notice Form incomplete for the purpose of processing the claim under the Contractual Claim Resolution Process, and the Department will notify the Contractor of the missing components required to start the process. The Department will not initiate formal discussions or meetings concerning a claim submitted on an incomplete Contractual Notice Form.

The Department will review alleged liability and damages at the same time.

Risk Management Process

- Process that enables project team members to make *informed decisions* on project-related risks
- Proactively manage project risks over the life of the project



FIVE KEY COMPONENTS

- ❖ Risk Planning
- ❖ Risk Identification
- ❖ Risk Analysis
- ❖ Risk Response Planning
- ❖ Risk Monitoring and Control



Risk Management Tool – *Risk Register*

- Tool for Project Managers and Designers
- Documents project risks
- Addresses the project risks
- Utilized throughout the project life cycle




Risk Management Tool – Risk Register

http://www.state.nj.us/transportation/capital/pd/documents/RiskRegisterExample.pdf

File Edit Go to Favorites Help

NJ.COM AccuWeather Fox News CNN Google Maps Prudential Santander TD Bank PMRS e-Builder PRMS Sharepoint PMO sharepoint CFI Sharepoint CPD Website Weather



NJDOT RISK MANAGEMENT
EXAMPLE PROJECT RISK REGISTER

Project Manager:	XXXX	Municipality(ies):	XXXX
Designer:	XXXX	County(ies):	XXXX
NJDOT Project Job No.:	XXXX	Initial Register Date:	XXXX
NJDOT UPC #:	XXXX	Last Register Update:	XXXX

Project Name: Route # over the XYZ River

Risk Rank & ID		Risk Statement & Category			Risk Analysis Matrix						Risk Response Strategy & Response Planning				
Risk Rank	Unique ID #	Risk Statement	Risk Category		Risk Probability	Risk Impact			Risk Response Strategy	Risk Response Action Plan	Final Risk Owner	Action Plan Status	Risk Last Updated		
			Initial Risk Owner	Risk May Occur In		Schedule	Cost	Schedule Score						Cost Score	Final Score
1	1	As a result of Weather delays during construction which may occur, which would lead to schedule delays	Construction	Construction	5 - Very High	10 - Very High	4 - Moderate	50	20	70	Accept Threat	Have a contingency of 2 days not shown in the contract documents that will allow for unforeseen issues such as weather delays.	Contractor and NJDOT	Plan Implemented	4/9/2013
1	2	As a result of what can be considered a weather delay which may occur, which would lead to conflict regarding schedule time extensions	Construction	Construction	5 - Very High	10 - Very High	4 - Moderate	50	20	70	Accept Threat	Define in the specs that the RE will determine if the project is delayed due to weather. Since it is a 24hr schedule, allow for hourly delays with impacts to working crews. Give additional time to allow mob and demob detailed in the spec.	Contractor and NJDOT	Plan Implemented	4/9/2013
12	3	As a result of Prefabricated components not being manufactured properly which may occur, which would lead to delivery dates not being met	Construction	Construction	2 - Low	7 - High	1 - Very Low	14	2	16	Transfer Threat	Shop drawings must reflect as-built pile locations. Verification of dimensions by the contractor must be completed during fabrication of components.	Contractor	Plan Implemented	4/10/2013
5	4	As a result of Bridge demolition not going according to approved working drawings and taking longer than the anticipated 36 hours which may occur which would lead to NJDOT owning the schedule delay since the plan was approved by NJDOT	Construction	Construction	3 - Moderate	10 - Very High	1 - Very Low	30	3	33	Mitigate Threat	1. Require in the contract documents that the demolition plan must demonstrate how the demolition will be accomplished with the bridge being built within the 7 day closure period. 2. Require in the specs the demo plan must be submitted 90 days prior to the 7 day (168hr) closure period 3. Designer approves plans 30 days prior to closure period	Contractor	Plan Implemented	4/10/2013
5	5	As a result of the bid date being delayed resulting in inadequate time to fabricate precast components prior to September 2012 which may occur, which would lead to schedule delays	Construction	Construction	3 - Moderate	10 - Very High	1 - Very Low	30	3	33	Mitigate Threat	The NJDOT must push to get the project out to bid since the community under no circumstances wants delays extending into the fall.	NJDOT	Plan Implemented	4/10/2013
10	6	As a result of Value Engineering Proposals which may occur, which would lead the 7 day closure for construction completion not being met	Project Management	Construction	2 - Low	10 - Very High	1 - Very Low	20	2	22	Avoid Threat	Do not approve any submittal that is not in accordance with section 104.02.01 of the stdn specs which require that any value engineering proposal made must conform to the construction schedule which is 7 day (168 hours) closure period on this project.	Designer and NJDOT	Plan Implemented	4/10/2013
13	7	As a result of Components being damaged or delayed during delivery which may occur, which would lead to schedule delays	Construction	Construction	2 - Low	4 - Moderate	2 - Low	8	4	12	Mitigate Threat	All components should be delivered prior to the 7-day closure period. If the components are damaged and need repair/replacement, then closure period will move to another week.	Contractor	Plan Implemented	4/10/2013
17	8	As a result of the Contractor not being able to secure an adequate material storage location near the project site which may occur, which would lead to project delays	Construction	Construction	2 - Low	2 - Low	2 - Low	4	4	8	Transfer Threat	There are a number of empty locations and parking lots that the contractor will have to negotiate with the various owners to obtain clearance for material storage. It is a low probability that none will allow storage.	Contractor	Plan Implemented	4/10/2013
16	9	As a result of Grout used for prefabricated substructures not meeting required 24 hour strength requirements which may occur, which would lead to schedule delays	Construction	Construction	1 - Very Low	10 - Very High	1 - Very Low	10	1	11	Transfer Threat	Verify the are adequate products on the qualified product list that meet the necessary requirements.	Contractor	Plan Implemented	4/10/2013
13	10	As a result of Precast abutments being out of alignment when placed on piles which may occur, which would lead to improper construction and delays	Construction	Construction	2 - Low	4 - Moderate	2 - Low	8	4	12	Mitigate Threat	Allow the design of the bearing seat to be slightly oversized to compensate for the misaligned abutments.	Contractor and Designer	Plan Implemented	4/10/2013

14.00 x 8.50 in

Risk Management Guidance

NJDOT Home	About NJDOT	NJcommuter.com	Community Programs	Reference / Links
Engineering	In the Works	Capital Program	Freight, Air and Water	Doing Business

- Overview
- Site Content
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- CPM Limited Scope Project Delivery Approach
- TSM Limited Scope Project Delivery Process

Process Summaries

- Constructability
- Construction Engineering
- Construction Scheduling
- Contract Administration
- Errors and Omissions
- Performance Evaluation
- Cost Management
- Quality Management
- Risk Management**
- Schedule Management
- Scope Management
- Stewardship and Oversight Agreement
- Utility Management

Capital Project Delivery

Risk Management

Summary

Risk Management is a process that enables project sponsors and project team members to make informed decisions on project-related risks. The New Jersey Department of Transportation (NJDOT) has developed a series of guidance documents that help to proactively manage risks over the life of the project.

Objectives

The process goal is to ensure that project risks are proactively managed over the life of the project. Accomplishing this goal helps to eliminate re-work, minimize design changes and ultimately minimize the cost of the project and the time required to complete the project.

Major Tasks

The Risk Management Process has five key components:

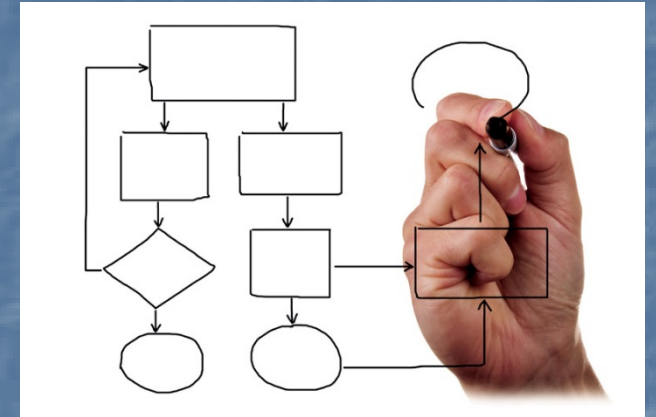
- **Risk Planning:** Deciding how to approach, plan and execute the risk management activities for a project.
- **Risk Identification:** Determining which risks might affect the project and documenting their characteristics.
- **Risk Analysis:** Prioritizing risks for further analysis or action by assessing and combining their probability of occurrence and magnitude of impact.
- **Risk Response Planning:** Developing options and actions to

CPD Website

Risk Management webpage

VALUE ENGINEERING

- *Systematic process of review and analysis of a project during the Concept Development and design phases*
- FHWA mandate for projects over \$40 million on bridge projects and \$50 million on roadway projects on the National Highway System



VALUE ENGINEERING WORKSHOP

- Attended by multidiscipline SME's not involved in the selection of a Project's Preliminary Preferred Alternative (PPA)
- Independent team can bring a fresh outside view of alternate solutions from other similar projects



WORKSHOP GOALS

Brainstorm and evaluate recommendations that provide an *“Equal Product”* with an increased value that addresses safety, reliability, constructability, schedule and meets the *“Purpose and Need”* of the project



VALUE ENGINEERING Guidance

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- Scope Management
- Stewardship and Oversight Agreement
- Utility Management
- Value Engineering**

Capital Project Delivery Process Summary

Value Engineering

Summary
Value Engineering is a systematic process of review and analysis of a project, during Concept Development and the Design phases, by a multi-discipline team of Subject Matter Experts not previously involved in the project.

Objectives
The objective of a Value Engineering study is to identify value opportunities and recommend alternatives aimed at improving the quality of the project, reduce the schedule duration of the project, and to lower the overall cost while safely, reliably, and efficiently meeting the original function or "purpose and need" of the project.

To conform to Title 23- Code of Federal Regulations, part 627, and MAP-21, FHWA's requirements of Value Engineering include projects on the National Highway System receiving Federal assistance with an estimated total cost of \$40 Million or more on bridge or with an estimated total cost of \$50 Million or more on roadway projects.

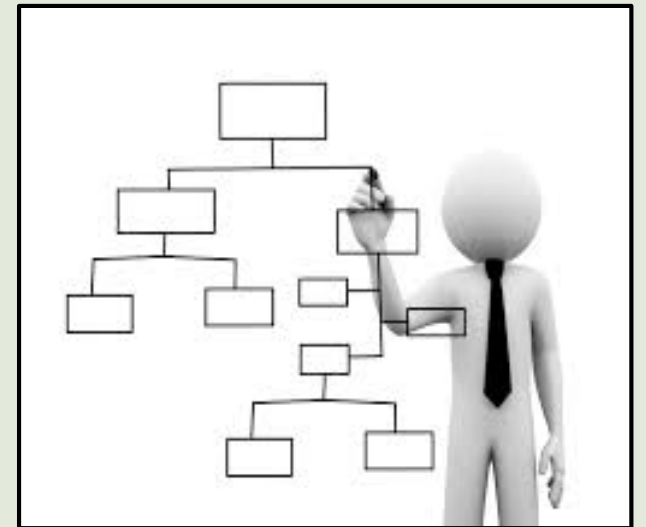
Guidance Documents
Detailed Value Engineering information is provided within the [NJDOT Value Engineering Process Guideline](#) (pdf 1.2m) and the [Value Engineering Process Flow Chart](#) (pdf 238k). The purpose of the NJDOT Value Engineering Process documents are to provide guidance to NJDOT employees and NJDOT's consultant designers in the methodology that the Value Engineering Unit utilizes to conduct Value Engineering studies.

CPD Website

Value Engineering webpage

Program Management Office (PMO)

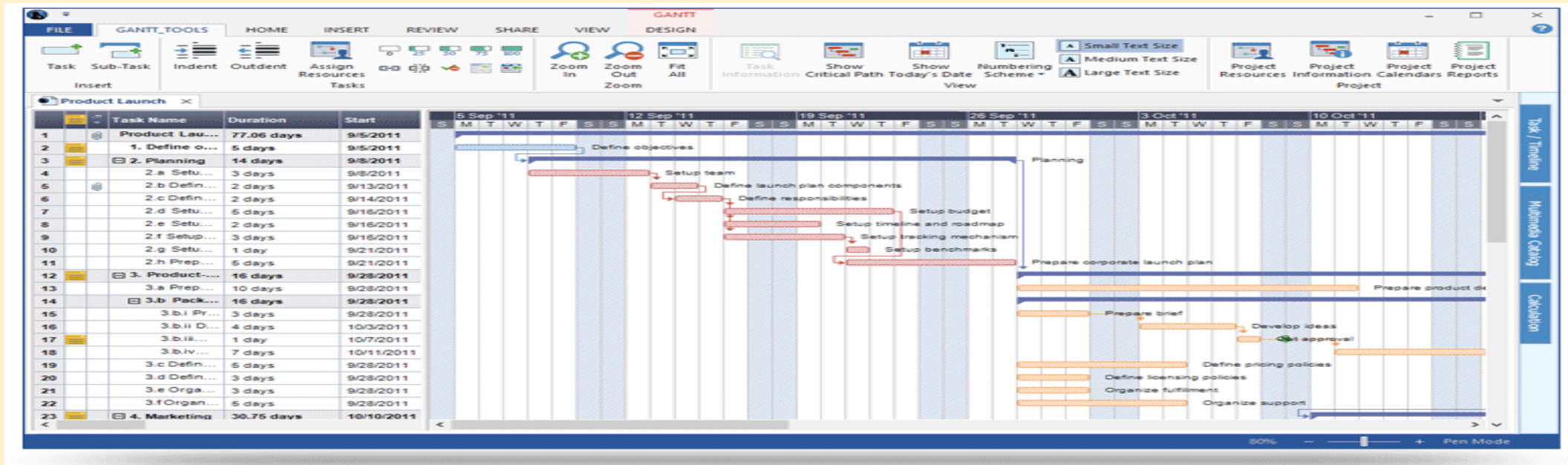
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- ❑ **Schedule & Budget Management**
 - ❑ PMRS



Schedule Management

Schedule: *a collection of a project's activities and milestones with start and finish dates*

- Activities in a schedule are determined from work efforts from a **Scope Statement**



NJDOT Schedules - Primavera P6

NJDOT uses Primavera P6

- *P6 uses the Critical Path Method (CPM)*
- *CPM developed by the US Navy in 1958*



Used world-wide:

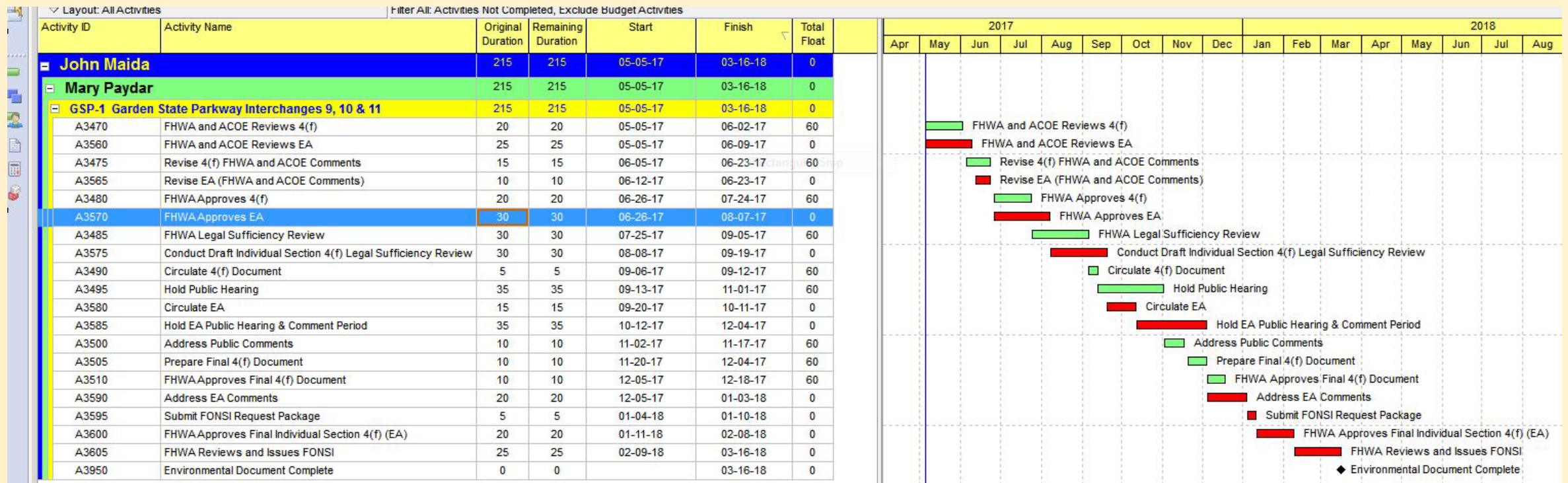
- *Three Gorges Dam project in China*
- *Hoover Dam Bridge*
- *Pentagon reconstruction following 9/11*
- *Nuclear power plants, cable TV, US Military, NASA*

First large-scale application: construction of the *World Trade Center* in 1968



Critical Path Method (CPM)

Critical path is typically represented by the red bars. If those activities are delayed, they will delay the *entire* project.



The activities that are non-critical (those with green bars) **can slip** without delaying the project. However, if they are delayed too much, they will become critical!

The importance of Accurate Schedules

From all of the schedule information, we publish a variety of reports:

- *A monthly report is sent to the Assistant Commissioner and representatives of all In-house units, to discuss during their meetings*
- *The dates are compiled and sent to the MPO's and the FHWA*
- *In addition, we use these dates for various reports; a bi-annual report goes to the Commissioner and the Deputy Commissioner, and an annual report is made to the Governor*

**It is imperative that your schedules reflect
accurate and *realistic* dates!**

NJDOT Schedules

Currently: Primavera P6

- All projects in DPM, TSM and Construction use Primavera
- 350 +/- schedules (250 activities/schedule)



Soon: Primavera P6 to be replaced by e-builder



Schedule Management Guidance

NJDOT Home	About NJDOT	NJcommuter.com	Community Programs	Reference / Links
Engineering	In the Works	Capital Program	Freight, Air and Water	Doing Business

- Overview
- Site Content
- What's New
- Training
- Frequently Asked Questions
- CPM Project Delivery Process and Phases
- CPM Limited Scope Project Delivery Approach
- TSM Limited Scope Project Delivery Process

Process Summaries

- Constructability
- Construction Engineering
- Construction Scheduling
- Contract Administration
- Errors and Omissions
- Performance Evaluation
- Cost Management
- Quality Management
- Risk Management
- Schedule Management**
- Scope Management
- Stewardship and Oversight Agreement
- Utility Management
- Value Engineering

Capital Project Delivery

Schedule Management

Schedule Management includes the processes needed to direct and control completion of a project or proposed project. These processes include defining and sequencing activities, estimating activity resource needs and durations, and developing and controlling project schedules.

The New Jersey Department of Transportation (NJDOT) will be completing a process improvement project to implement schedule management processes, tools and techniques during 2011. Please use the [Interim Schedule and Budget Management Guideline](#) (pdf 457k) and the [Project Delivery Process Project Customization Guideline](#) (pdf 389k) until this is complete.

CPD Website

Schedule Management webpage

NJDOT Project Budget Process



NJDOT Project Budget Process

- Required to establish Federal funding
 - ***No budget = No funding!***
- Requirements?
 - *Active schedule in Primavera*
 - *Accurate Scope Statement*
- When?
 - *Near the end of CD for PE*
 - *Near the end of PE for FD*



NJDOT Project Budget Process

Develop a Budget:

- *Associate activities with the appropriate SME units*
- *Circulate the budget to all in-house SME units*
- *SME units add hours*
- *Lock the budget and notify the PM*
- *PM will negotiate any man-hour changes w/SME units*
- *PM notifies us to finalize budget*
- *PM completes budget baseline form*
- *ERM signs budget baseline form*



* OSB can provide detailed reports to PM upon request

Independent Cost Estimate (ICE)



Independent Cost Estimate (ICE)

- Federally mandated for **all** consultant-designed projects
 - *Prior to consultant selection*
 - *Codified under 23 CFR part 172*
- Assist PM negotiation's with consultant designer
- Based on past history of **similar** job types
- Requirements?
 - *Consultant's proposal **without** costs*
 - *Scope Statement*



Independent Cost Estimate (ICE)

Process:

- *Develop ICE based on job type & past history*
- *Provide recommended cost/man-hours to PM for review/concurrence*
- *Once negotiations are complete, the PM will provide us with the final negotiated cost/hours for records*
- *If the designer's proposal exceeds 10% of the ICE, the PM will review & may request further clarification*

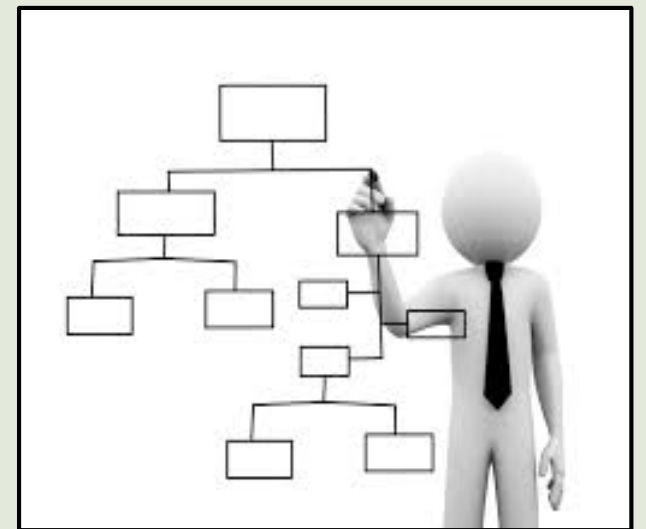
Provide reports to PM if requested to aid in negotiations

- *PM may request a Summary ICE report*
 - *provides a detailed comparison of design man-hour estimates between NJDOT's ICE values and the designer's proposal*

Program Management Office (PMO)

- ❑ Center For Improvement (CFI)
- ❑ Contract Management
- ❑ Claims, Risk, and VE (CRAVE)
- ❑ Schedule & Budget Management

❑ **PMRS**



What makes up PMRS program?

- ▶ **e-Builder**: Manage project documents, project reporting, cost, scope management, schedule information, automated routing, basic review and approvals
- ▶ **Bluebeam**: High level markup on plan sheets and assisting with SME reviews
- ▶ **Digital Signature Application**: Allow digital signature approval for contract documents and function as a legal replacement for raised seal/wet signature for Professional Engineers (probably DocuSign)



Current High Level Schedule

- ▶ *Initial Design (July to October 2016)*
- ▶ *Phase 1.1 Launch (November 2016)*
- ▶ *Phase 1.2*
 - ▶ System Configuration (November 2016 to January 2017)
 - ▶ Integration/Custom Reporting (November 2016 to June 2017)
 - ▶ Training (June to August 2017)
 - ▶ Go-live (August 2017)
 - ▶ Adoption (August 2017 to September 2017)
- ▶ *Complete Phase 1 Implementation (October 2017)*



Guide Me

Dashboard Last updated: 02.13.2017 05:34 PM

Document Management Dashboard

Print Refresh

Documents not Filed

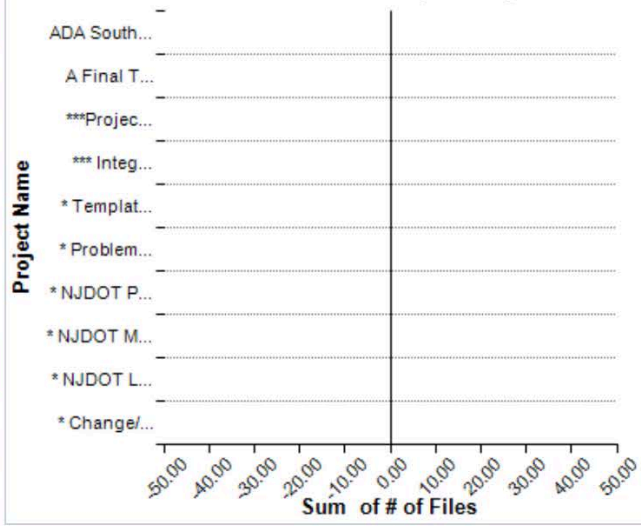
Project Name	Record Count
* Route 1 Signage Repair (NJDOT Training Project)	7.00
ADA North, Contract 4	5.00
* NJDOT Sandbox	2.00
* QA Test	1.00
* Rt 287/78 I-287/202/206 Interchange Imp	1.00
Rt 15 NB, Bridge over Lake Hopatcong	1.00

Documents not filed within 2 hours

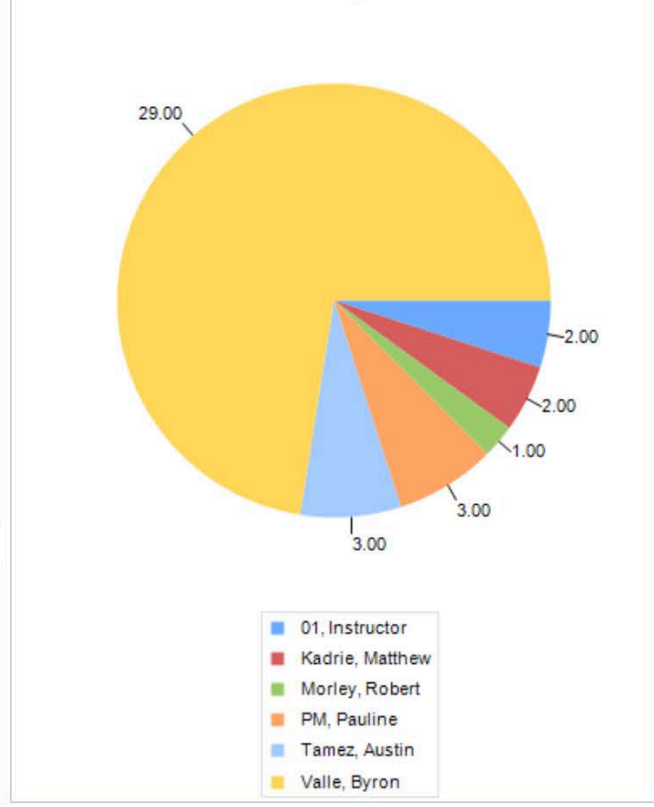
Projects With No Documents

Project Name	Sum of # of Files
* Change/Issue/RFI Process project	0.00
* NJDOT Local Aid Sandbox Project	0.00
* NJDOT Maintenance Sandbox Project	0.00
* NJDOT Project Template 1	0.00
* Problem Statement & Project Creation Project	0.00
* Template - NJDOT	0.00
*** Integration Project (DO NOT USE) ***	0.00
***Project for Locations Spawn	0.00
A Final Test	0.00
ADA South, Contract 2	0.00
Chilton Ave, Bridge over Aband Elizabeth Industrial Track	0.00
CR 501 (JFK Blvd), Bridge over Route 139	0.00
Intersection Imp Prog & Safety Corridor Prog w/ROW - South	0.00
Job Order Contracting ITS Maintenance 2017 - North	0.00
Master Project	0.00

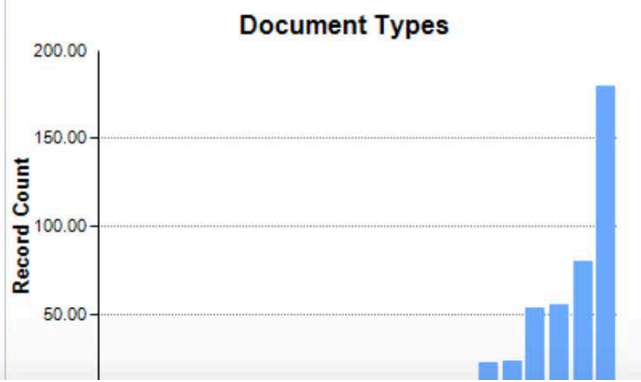
Number of Documents per Project



Redlines per User



Document Types



Documents Uploaded per User





Recent Pages...



Projects

All Projects

All Projects

	Project ID ▲	Project Name	Program Manager	Project Manager	Assistant Project Manager	Designer
Edit		* NJDOT e-Builder Implementation Management				
Edit	0000000	* Problem Statement & Project Creation Project				
Edit	009231	Rt 46 Passaic Avenue to Willowbrook Mall	William Birch	Charles Henry	Sangaran Vijayakumar	
Edit	028042	Rt 1&9T/New Rd, St. Paul's Ave to Secaucus Rd	Laine Rankin	Jay Jeyamohan	Roland Bisda	Thomas Hicks
Edit	058006	Rt 22 Hilldale Place/North Broad Street	Atul Shah	Kamlesh Shah	Nilesh Patibandha	Ellen Kristiansen
Edit	083460	Rt 3 Bridge over Northern Secondary & Ramp A	Laine Rankin	Nirmin Nasef	Dhananjay Rana	Magdy Hagag
Edit	083710	Rt 40 Atlantic County Drainage	Thomas Saylor	John Campi	Wahida Yousoufzai	Nabil Hourani
Edit	093270	Rt 168 Bridge over Big Timber Creek	Thomas Saylor	Andrew Maevisky	Pooja Parmar	Steven Locke
Edit	103810	Rt 35 Hears Brook & Woodbridge Creek, Culvert Replace	William Birch	Omar Hameed	Hanaa Assad	James Buscek
Edit	113400	Rt 46, Rt 163 to Water St (CR 620)	Atul Shah	Nicole Einthoven	Meeta Patel	David Bizuga
Edit	113680	Rt 9 Jobs Creek Bridge	Thomas Saylor	Amy Kennard	Arpita Upadhyay	Kenneth Burkhardt
Edit	113790	Rt 71, Main Ave to Cedar Ave, Pavement	William Birch	Omar Hameed	Hanaa Assad	Alex Mankiw
Edit	114080	Rt 18, South of Texas Rd to Rues Lane, Pavement	William Birch	Samir Shah	Niranjan Patel	Steven Locke
Edit	1234567	* NJDOT Sandbox	Pauline PM	Paul PM		Donnie Designer
Edit	124250	Rt 33, Bentley Rd to Manalapan Brook	William Birch	Donald Locke	Bhagirath Dave	David Hutchinson
Edit	138010	Rt 55 SB Schooner Landing Rd to Sherman Ave	Thomas Saylor	John Zim	Bhupendra Shah	
Edit	143340	Rt 15 NB, Bridge over Lake Hopatcong	Atul Shah	Chris Manz	Bhavesah Shah	Michael Martynenko
Edit	143350	CR 501 (JFK Blvd), Bridge over Route 139	Laine Rankin	Alwin Eugene	Joshua Szulczewski	Steven Locke
Edit	144250	Rt 22, Bridge over NJT Raritan Valley Line	William Birch	Rashmin Patel	Piotr Kurcon	
Edit	153000	Rt 23, High Crest Dr to Macopin River	Atul Shah	Brian Mulcahy	Pankaj Shah	Bernard Boerchers
Edit	153160	Perkintown Rd (CR 644), Bridge over Rt 295	Thomas Saylor	Babulal Dhulesia	Nisharg Dalwadi	Chet Shah
Edit	153710	Rt 27, Dehart Place to Rt 21	Atul Shah	Kunalvir Kaushal	Chirag Patel	
Edit	153760	Rt 1, Rt 3 to 46th St	Laine Rankin	Mahesh Patel	Ashish Patel	
Edit	154000	Rt 9, Wrights Land to Harbor Rd	Thomas Saylor	Evans Marcellus	NamGiao Tran	
Edit	154140	ADA North, Contract 4	Atul Shah	Hardev Dave	Nilesh Bhavsar	Brian Mausert
Edit	154210	ADA South, Contract 2	Thomas Saylor	Andrew Maevisky	Pooja Parmar	Hong Sun
Edit	154250	Chilton Ave, Bridge over Aband Elizabeth Industrial Track	Atul Shah	Nicole Einthoven	Dinesh Shah	John Korunow

Guide Me



Recent Pages...



Quick Start

- ! - Implementation Team Action Items
- 03.00 - Project Location Process (PLP)
- Key Decision or Assumption
- 01.00 - Problem Statement Process (PSP)
- 02.00 - Project Creation Process (PC)
- 99.01 - Project Assignment Process (PAP)
- 99.02 - Change/Issue/RFI Process (CIRP)
- CIRP Action Items
- Communications - Action Item
- Communications - Communication Tracker
- More

Troy Nelson

All Projects

Workflow in your court

Show

Project	Name	Subject	Step	Date Due	Requested Comment
* NJDOT e-Builder Implementation Management	! - Implementation Team Action Items #107	Digital Signature Charter		09.29.2016	
* NJDOT e-Builder Implementation Management	! - Implementation Team Action Items #148	Arrange for Troy to attend DPM ERM staff meetings		01.13.2017	
* NJDOT e-Builder Implementation Management	! - Implementation Team Action Items #151	Project Management Performance Dashboard		01.20.2017	

[Forms](#) | [Processes](#)

My first 10 tasks

Show

Project	Task	FinishDate	%	Manager
There are no tasks				

Tasks

Submittal items in your court

Filter by Actions Show

Project	Title	#	Rev #	Package #	Status	Due Date	Held By
There are no submittal items in your court							

Items Pending Approval

Show

Project	Item Type	Item #	Approval Requested By	Date Approval Requested	Amount
There are no items pending approval for the selection.					

[See More Items Pending Approval](#)

Quarantined Spam

Show

Sent	Subject	From	Email Address	Folder	Project
There is no spam email detected.					

[Go to Quarantine](#)

Announcements

To contact e-Builder Support
Please call (888) 288-5717 or email support@e-builder.net. Thank you!

Tuesday, Feb 14, 2017

9:00 AM - 12:00 PM
PMRS (e-Builder) /Account Level Consultant Selection Process (* NJDOT e-Builder Implementation Management)

1:00 PM - 2:00 PM
Dana Hecht Staff Meeting with all ERM's (* NJDOT e-Builder Implementation Management)

1:30 PM - 4:30 PM
PMRS (e-Builder)/Account Level Job Order/Task Order Agreement Process (* NJDOT e-Builder Implementation Management)

[Calendar](#)

Strategic Requirements

- ▶ Able to *proactively manage* CPM projects and project data
- ▶ Integrate (data sharing) with key Department management systems
- ▶ Electronic documents
- ▶ Automated work routing with multiple user review and comment
- ▶ Digital signature (including raised seal equivalent)
- ▶ Accessible
- ▶ Expandable



What does this all mean?

- ▶ Enhance Collaboration and Approval
- ▶ Transparency
- ▶ Savings
- ▶ Triggers and alerts
- ▶ Auditable Documentation
- ▶ Enhanced Project Execution



Where to find information?

The screenshot shows the NJDOT Employee Intranet website. At the top, there is a navigation bar with links for Intranet, Index, NJDOT Internet, NJHome, and Feedback, along with a search box. The main header features the NJDOT logo and the text "new jersey department of transportation Employee Intranet".

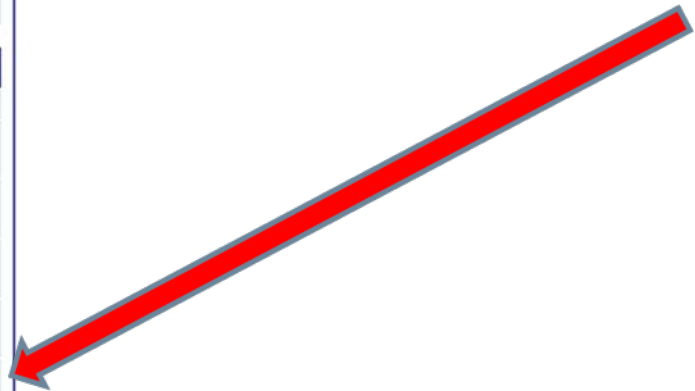
On the left side, there is a vertical navigation menu with the following items: About Us, Divisions & Bureaus, Forms, Admin. Directives, Mgt. Announcements, Deleg. of Authority, Policies & Standards, Training, Ethics Concerns, Useful Tools, Helpful Links, and Client Applications.

The main content area is divided into several sections:

- Charitable Efforts:** A section with a heart icon and the text "NJDOT Charitable Efforts". It includes a notice: "Please take note that a new area for NJDOT Charitable Efforts has been created within Quick Links under Workplace Support."
- Halloween and Thanksgiving Basket Sale:** A section featuring a basket of pumpkins and sunflowers. The text reads: "2016 Halloween and Thanksgiving Basket Sale Thursday, October 20th 9am-1:30pm E&O Lobby". Below this, it states: "NJDOT's Employee Memorial Committee will hold its' annual Halloween and Thanksgiving Basket Sale. All proceeds will benefit NJDOT employee activities throughout the year. Thank you for your generosity!"
- Quick Links:** A section with three drop-down menus labeled "Career/Benefits/Guidance", "Directories", and "Technology Services". Below these menus is a note: "Links for the above drop down menus will not work if pop-up blocker software is activated."
- Applications & References:** A section containing a grid of application icons: APRWS, FILENET, BUSINESS OBJECTS, GEOTRANS, CLIENT APPLICATIONS, MYDOT, CMOD eDOCS, Office SharePoint Server 2007, eCATS, PMRS, and Falcon/DMS.
- Workplace Support:** A section with icons for "Administrative College" and "Lamp Store".

At the bottom left, there is a "50" anniversary logo for NJDOT (1966-2016) and a "GIVE" button with the text "think with your heart". At the bottom right, there is a logo for "New Jersey Employees".

PMRS



Capital Program Support



```
graph TD; A[Capital Program Support] --> B[Utility Management]; A --> C[Program Management Office (PMO)]; A --> D[Design Standards]; A --> E[Bureau of Landscape Architecture and Environmental Solutions (BLAES)];
```

The diagram is an organizational chart with a light green background. At the top is a white box with a dark red border containing the text 'Capital Program Support' in a bold, italicized black font. A vertical line descends from this box to a horizontal line. From this horizontal line, four vertical lines lead down to four separate white boxes with black borders. From left to right, these boxes contain: 'Utility Management', 'Program Management Office (PMO)', 'Design Standards' (with 'Design' and 'Standards' on separate lines and both in red), and 'Bureau of Landscape Architecture and Environmental Solutions (BLAES)' (with 'Bureau of Landscape Architecture and' on one line and 'Environmental Solutions (BLAES)' on the next line). On the far left, there is a dark red arrow pointing right, and several thin, curved grey lines that appear to be part of a decorative graphic.

Utility
Management

Program
Management
Office (PMO)

Design
Standards

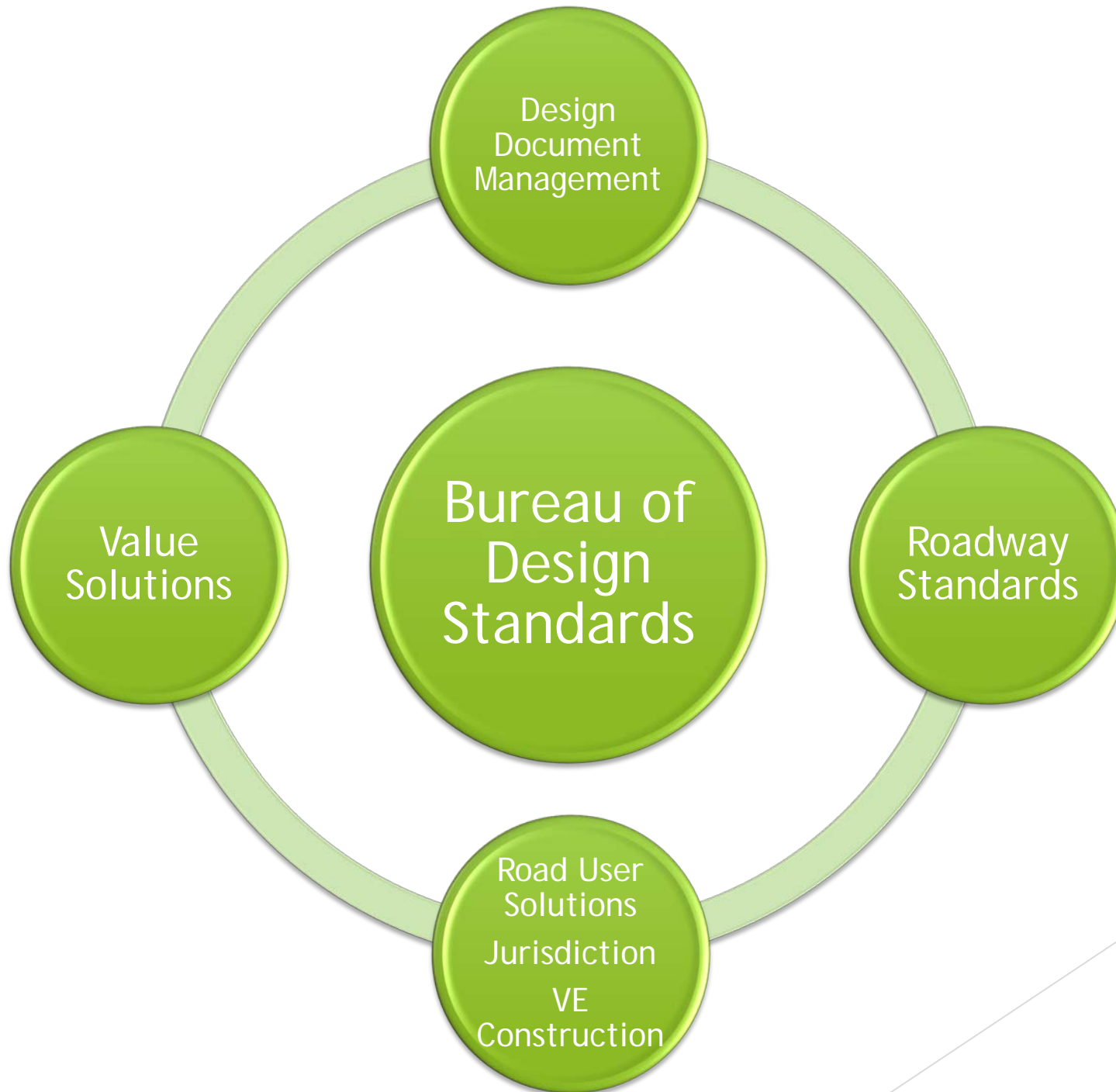
Bureau of
Landscape
Architecture
and
Environmental
Solutions
(BLAES)

Division of Capital Program Support

Bureau of Design Standards

Director: Paul F. Schneider

Executive Manager: Warren Howard



Design Document Management Unit

Kiran B Shelat
Supervising Engineer 2
(609) 530-2572

EDU

Yong Chol Kim
Project Engineer
(609) 530-5628

Youssef Ben-Khayat
Project Engineer
(609) 530-2359

Nicole Onorati
Secretary Assistant 3
(609) 530-4121

Hemant Padalia
Project Engineer
(609) 530-4021

Doreen Laurita
Tech. MIS
(609) 530-5569

Rich Crockett
Engineer Technician 2
(609) 530-3805

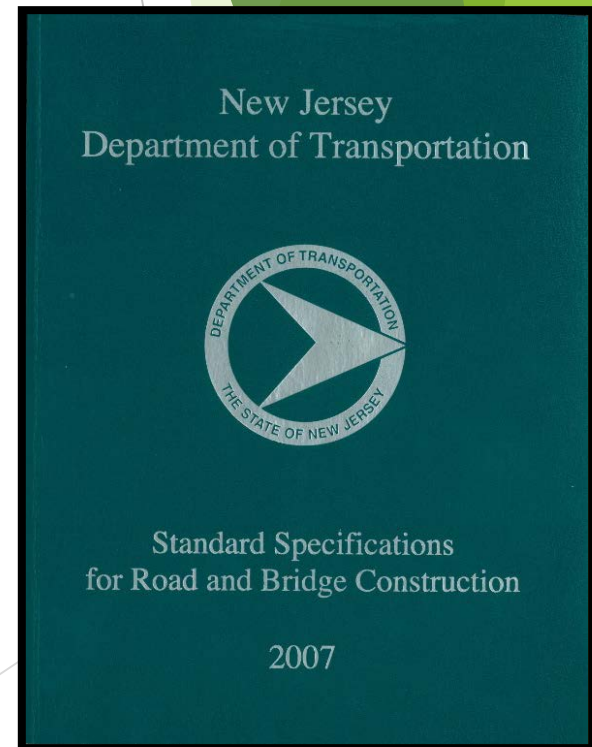
Brad Hafner
Engineer Technician 1
(609) 530-5629

Natasha Jaime-Bobé
Assistant Engineer
(609) 530-2710

Adam Markley
Engineer Technician 3
(609) 530-2368


Design Document Management Unit

- ▶ Develops, maintains and publishes Baseline Engineering Documents such as:
 - *Standard Specifications for Road and Bridge Construction*
 - *Roadway Design Manual*
 - *Bridge Design Manual*
 - *Construction Details for Roadway-Traffic Control-Bridge*
 - *Sample Plans*



Announcements

- ▶ *BDC (Baseline Document Change)*
- ▶ *CAN (Corrective Action Notice)*
- ▶ *QIA (Quality Improvement Advisory)*

New Jersey Department of Transportation 1635 U.S. & 9th Avenue, P.O. Box 900, Trenton, NJ 08622-9000		Design Document Management			
Baseline Document Change Request					
Forward to Manager, Design Document Management					
Initiator:		Submital Date:			
Initiating Office:		Telephone:			
For Questions or Comments Call:		Telephone:			
Name of Document:					
Description of Change:					
Reason for Change:					
Has the document been reviewed by other offices? (If yes, list office and contact person)					
Do Not Write Below This Line					
Baseline Document Change Number		Design Document Management Contract		Telephone:	
Affected Baseline Documents:					
Sufficient Information Provided?				<input type="checkbox"/> Yes or <input type="checkbox"/> No	
Is Change Accepted for Processing by Design Document Management?				<input type="checkbox"/> Yes or <input type="checkbox"/> No	
Reason if not accepted:					
→			Date:		
Supervisor, Design Document Management			Date:		

New Jersey Department of Transportation CAPITAL PROGRAM SUPPORT Director: Paul F. Schneider Telephone: (609) 530-5387		CAN No.:	
Subject:		Approved: Paul F. Schneider	
Bureau(s) Affected:		Date:	
Description of Issue(s):			
Corrective Action Plan:			
Implementation: Immediate			

New Jersey Department of Transportation QUALITY IMPROVEMENT ADVISORY		QIA No.:	
CAPITAL PROGRAM SUPPORT Director: Paul F. Schneider Telephone: (609) 530-5387		Approved: Paul F. Schneider	
Date:		Date:	
Subject:			
Process Affected:			
<input type="checkbox"/> Scope <input type="checkbox"/> Design <input type="checkbox"/> Right of Way <input type="checkbox"/> Utilities <input type="checkbox"/> Environmental <input type="checkbox"/> Historic <input type="checkbox"/> Construction			
Bureaus Affected:		Procedure(s) Affected:	
Nature of Issue(s):			
Recommendation(s):			
Impact Assessment:		Cost Impact:	
<input type="checkbox"/> Schedule <input type="checkbox"/> Quality <input type="checkbox"/> Cost <input type="checkbox"/> Scope		None	
Implementation: Immediate			

Announcement Process and Procedure

- ▶ Change requests forms are received from:

- *Subject Matter Experts (SMEs)*
- *FHWA*
- *Deputy Attorney General's Office*



- ▶ Unit communicates with the requestors and assesses necessary changes



Announcement Process and Procedure

- ▶ Sends out review requests Department wide
- ▶ Solicits comments
- ▶ Communicates with FHWA and receives approvals
- ▶ Prepares BDC announcements
- ▶ Receives signatures from the Director and the Assistant Commissioner
- ▶ Posts the Announcement on NJDOT website
- ▶ Responds to the queries received from users and provides clarification

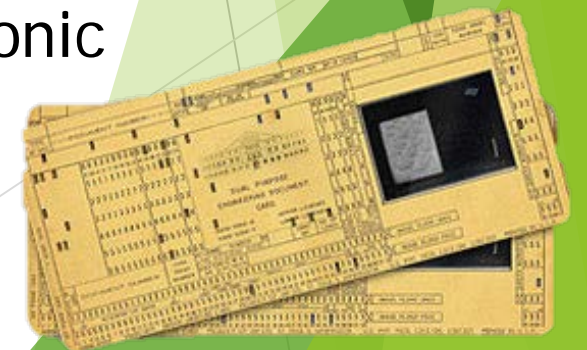
Engineering Document Unit

Brief History and Purpose

- ▶ Prior to July of 1996 - Units kept their own records.
- ▶ To be Efficient, NJDOT combined all the information in one location.

Engineering Documents Unit (EDU) was **FORMED!!!!**

- ▶ Any projects from 1998 to present are currently in an electronic format.
- ▶ Any projects prior to that time frame are maintained on aperture cards with film backup.



Plan Request Process and Procedure

Who can send requests?

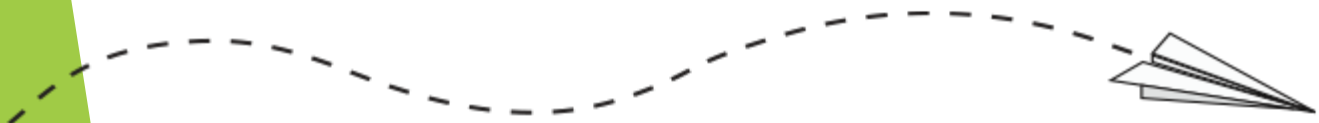
- ▶ *In-house staff*
- ▶ *Contractors*
- ▶ *Consultants*
- ▶ *Land Surveyors*
- ▶ *Lawyers*
- ▶ *General Public*

How are they received?

- ▶ *E-mail*
- ▶ *Hand delivered by in-house personnel*
- ▶ *OPRA*

How are they sent?

- ▶ *E-mail*
- ▶ *Secured interface*
- ▶ *CD/DVD*
- ▶ *Hard copy*



New Jersey Department of Transportation

Engineering Documents Unit (EDU)

Phone: (609) 530-5587

FAX: (609) 530-6626

E-Mail: EDU.Documents@dot.nj.gov

EDU Log Number

PLAN REQUEST FORM

Please indicate if the request is for Bid Express, Electronic File, or Hard Copy*

Indicate the type of plans you are requesting (Check all that apply)

ROADWAY		BRIDGE/STRUCTURES**	
KEY MAP	<input type="checkbox"/>	GP&E	<input type="checkbox"/>
TYPICAL SECTIONS	<input type="checkbox"/>	SIGN STRUCTURES	<input type="checkbox"/>
CONSTRUCTION PLANS	<input type="checkbox"/>	PIERS	<input type="checkbox"/>
DRAINAGE PLANS	<input type="checkbox"/>	ABUTMENTS	<input type="checkbox"/>
PROFILES	<input type="checkbox"/>	BEARING PLAN	<input type="checkbox"/>
TIE SHEETS	<input type="checkbox"/>	FRAMING	<input type="checkbox"/>
GRADES	<input type="checkbox"/>	STEEL DETAIL	<input type="checkbox"/>
LIGHTING PLANS	<input type="checkbox"/>	DECK CROSS SECTION	<input type="checkbox"/>
ELECTRICAL	<input type="checkbox"/>	RETAINING WALL	<input type="checkbox"/>
LANDSCAPE	<input type="checkbox"/>	NOISE WALLS	<input type="checkbox"/>
SIGNING & STRIPING	<input type="checkbox"/>	OTHER (SPECIFY BELOW)	<input type="checkbox"/>
OTHER (SPECIFY BELOW)	<input type="checkbox"/>	** CONTINGENT UPON SECURITY APPROVAL.	
RIGHT OF WAY			
ENTIRE TRACT	<input type="checkbox"/>	NOTE: Traffic Signal documents and plans are not available in EDU.	
GENERAL PROPERTY	<input type="checkbox"/>		
JURISDICTION PLANS			
ROUTE:	<input type="text"/>	SECTION:	<input type="text"/>
COUNTY:	<input type="text"/>	MILEPOST(S):	<input type="text"/>
STRUCTURE NUMBER:**	<input type="text"/>		
NJDOT JOB NUMBER:	<input type="text"/>	NOTE: Required if it is an NJDOT Project.	

OTHER INFORMATION

--

REQUESTOR INFORMATION

COMPANY NAME: <input type="text"/>	
CONTACT NAME: <input type="text"/>	PHONE #: <input type="text"/>
ADDRESS: <input type="text"/>	
E-MAIL ADDRESS: <input type="text"/>	REQUEST DATE: <input type="text"/>

*Fees will be charged UNLESS a NJDOT Job Number is provided.

Plan Request Form

- ▶ Types of plans
 - ▶ Roadway
 - ▶ Right of Way
 - ▶ Bridge/Structures
 - ▶ Jurisdiction Plan

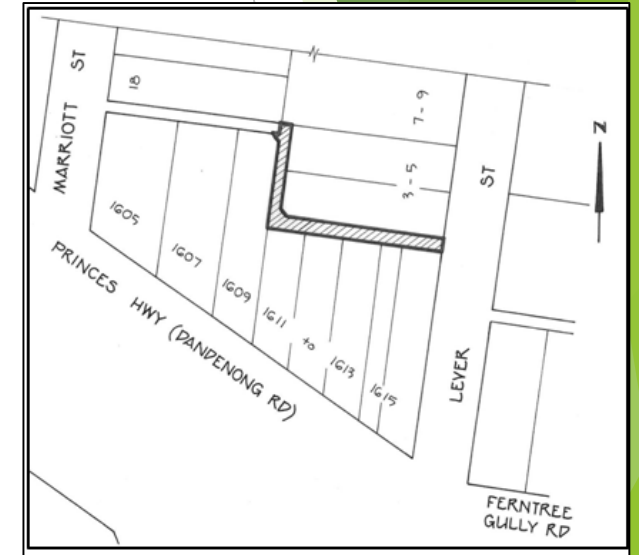
Processing of Working Drawings

- ▶ Hard Copies of Working Drawings and Mylars of Construction Plans
 - Are submitted to EDU by the PM
 - Drawings are forwarded to the appropriate person for approval/certification
 - After approval/certification, working drawings are distributed to resident engineer
 - Plans are archived for future reference



Receipt and Processing of Right of Way Plans

- ▶ Right of Way Plans are considered “living” documents
 - *ROW are never As-Built*
 - *Archived but remain Active*
- ▶ Changes to the existing ROW
 - *Sale / Purchase of Parcel / Easement, etc.*
 - *Changes are made by the ROW Engineering Unit*
- ▶ New ROW purchased
 - *Submitted to EDU during or at completion of the project*
 - *Plan sheets are numbered and entered in the ROW books*
 - *Placed in flat file drawers for future access*



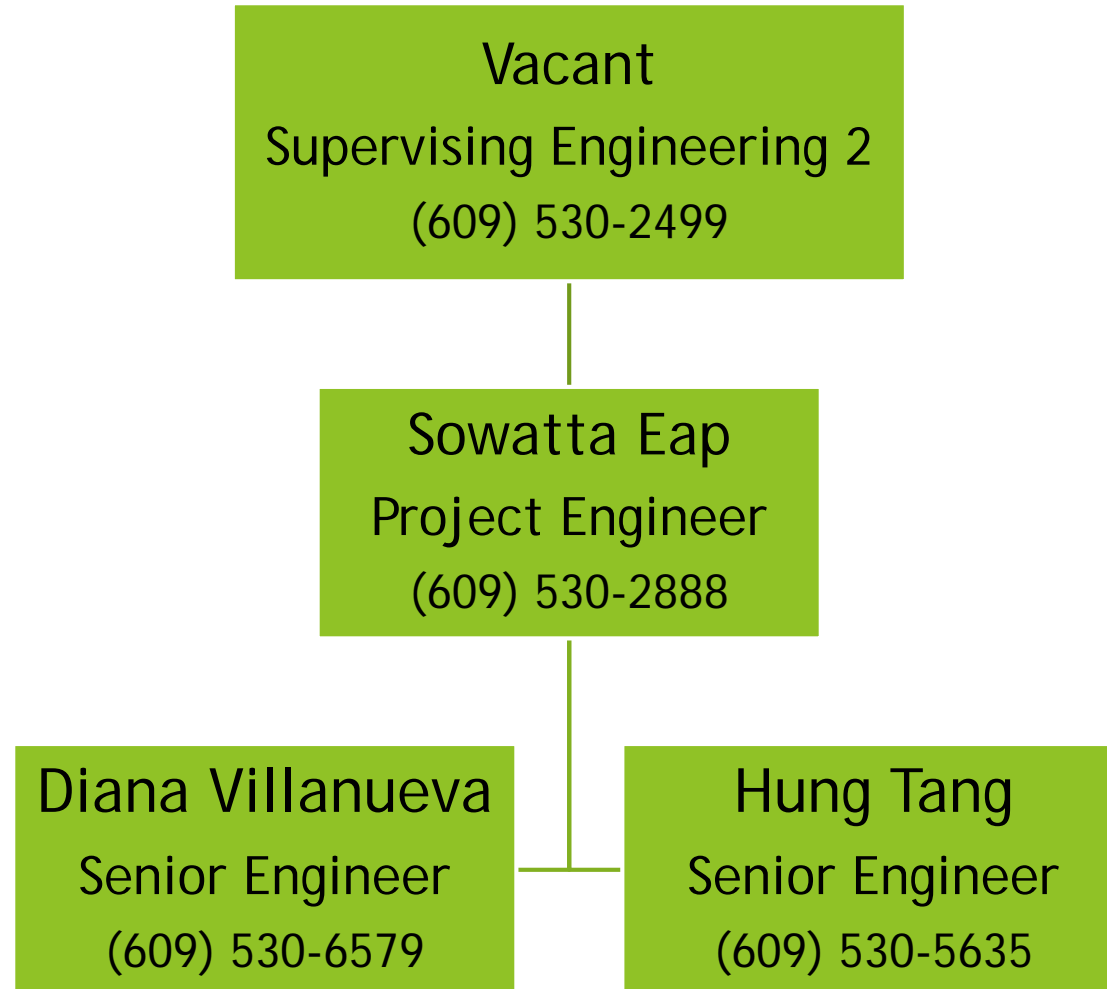
EDU Additional Functions

- ▶ *Prepare, print and e-mail to the webmaster the weekly Cafeteria menu*
- ▶ *Scan/print color plan sheets*
- ▶ *Scan large scale items to create electronic files*
- ▶ *Print & mount on foam core display boards*
- ▶ *Make CD/DVD copies in large quantities*
- ▶ *Laminate small and large scale items*

❖ **Currently undergoing an effort to make all plans in digital format for ease of use**



Roadway Standards

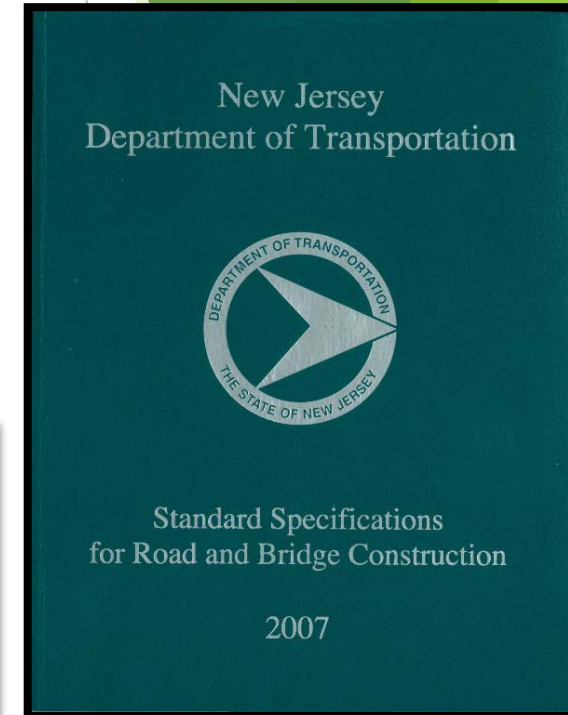
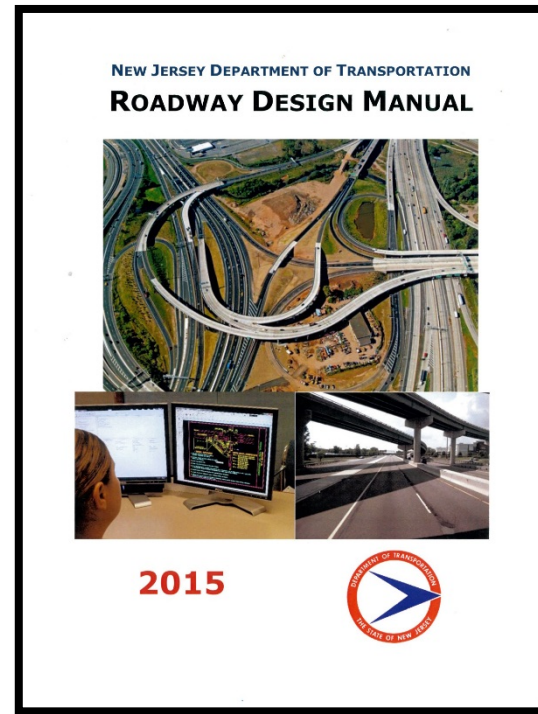


Roadway Standards Unit Responsibilities

- ▶ Update the Department's design standards by:
 - *Researching information and standards adopted by other states, agencies, and organizations*
 - *Consulting Subject Mater Experts (SME) for technical input*
- ▶ Conducting reviews for CPM and other projects
- ▶ Performing field visits to determine and identify necessary ADA and guide rail involvements in projects

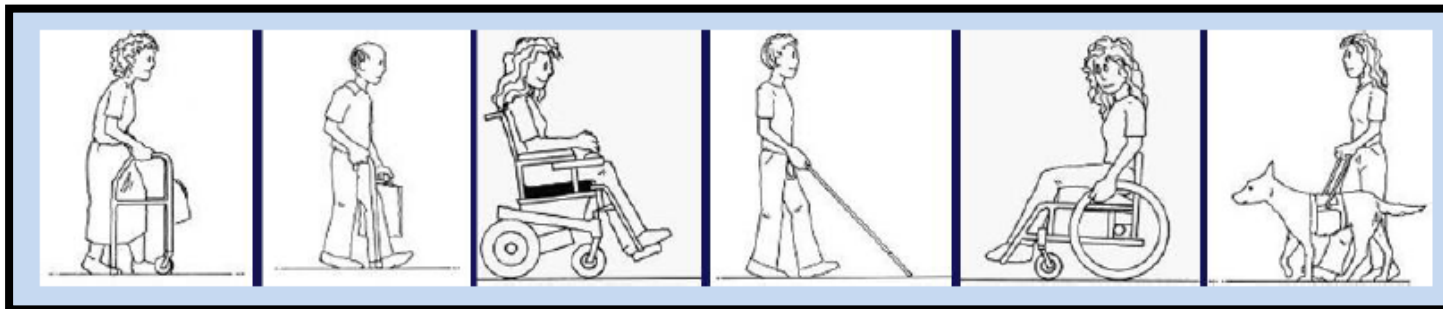
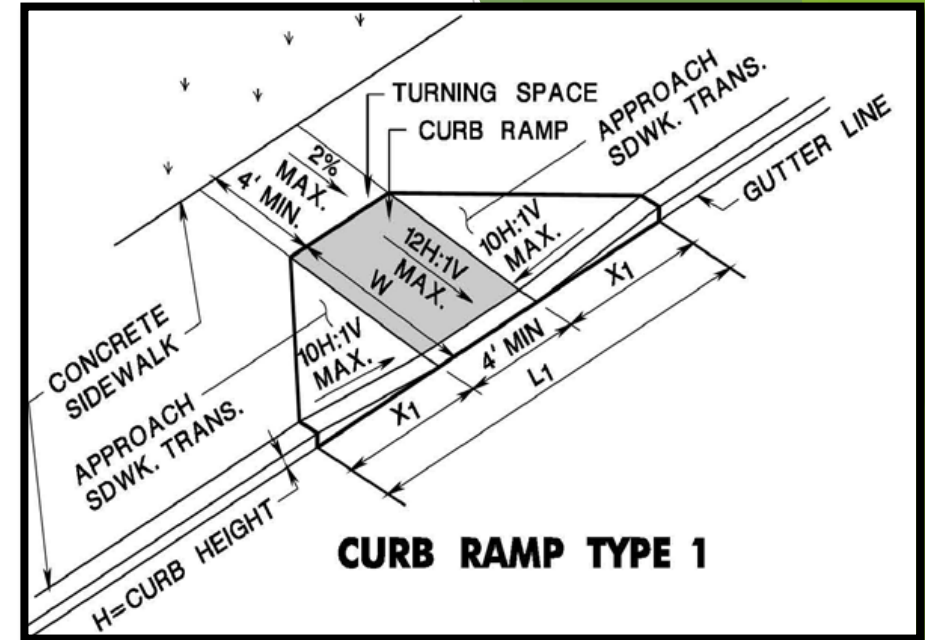
Department Documents

- ▶ *Roadway Design Manual*
- ▶ *Standard Construction Details*
- ▶ *Standard Specifications*
- ▶ *Sample Plans*



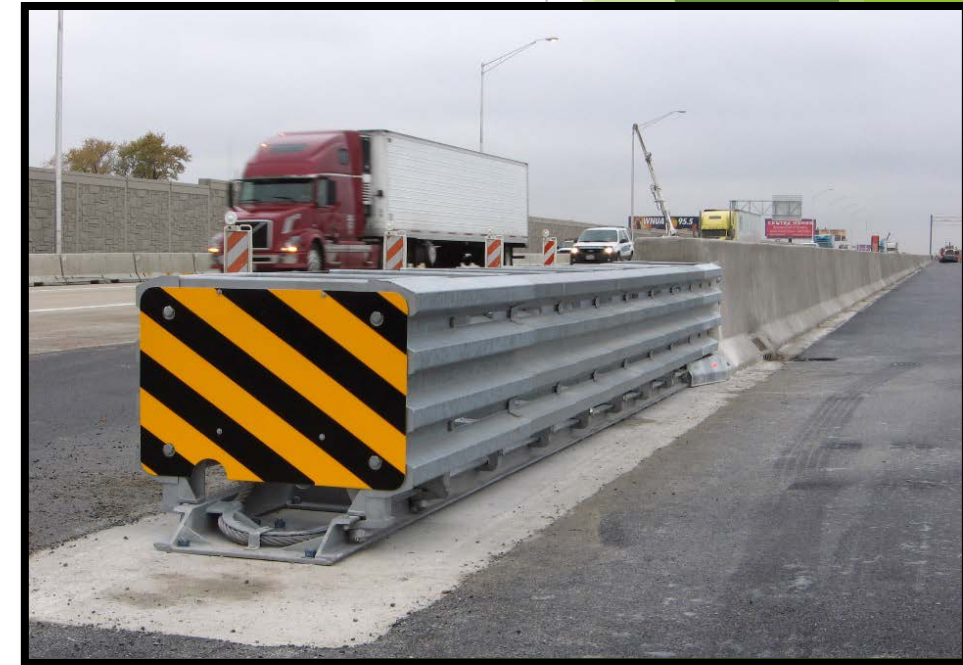
ADA Design

- ▶ Serve as the Americans with Disabilities Act (ADA) curb ramp Subject Matter Expert (SME)
- ▶ Review ADA curb ramp designs on projects
- ▶ Discuss innovative designs for curb ramps to make projects ADA compliant



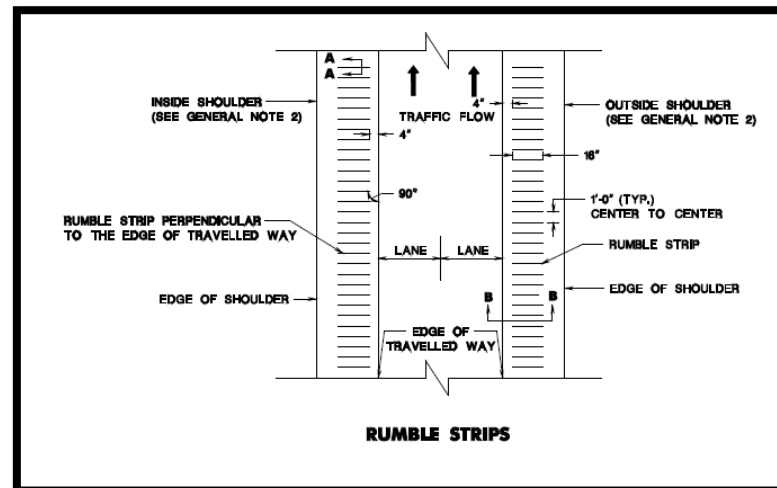
Roadside Safety Features

- ▶ Guide Rail - Longitudinal barrier whose primary functions are to prevent penetration and to safely redirect a vehicle away from an obstruction.
- ▶ Concrete Barrier Curb - Most common rigid median barrier in use today.
- ▶ Crash Cushion - Protective devices that significantly reduce the severity of impacts with fixed objects.

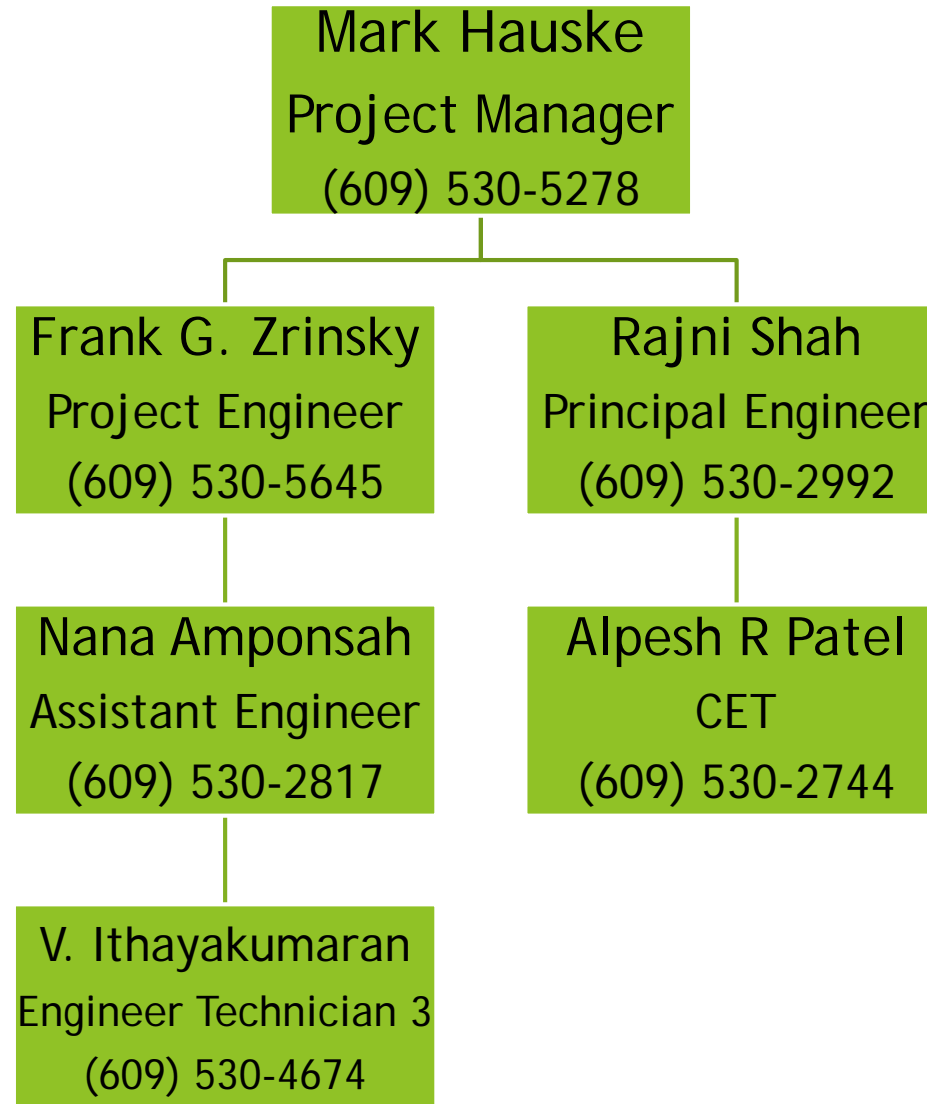


Rumble Strips

- ▶ Lead in the development of NJDOT centerline rumble strip standards
- ▶ Review shoulder and centerline rumble strip placement on projects

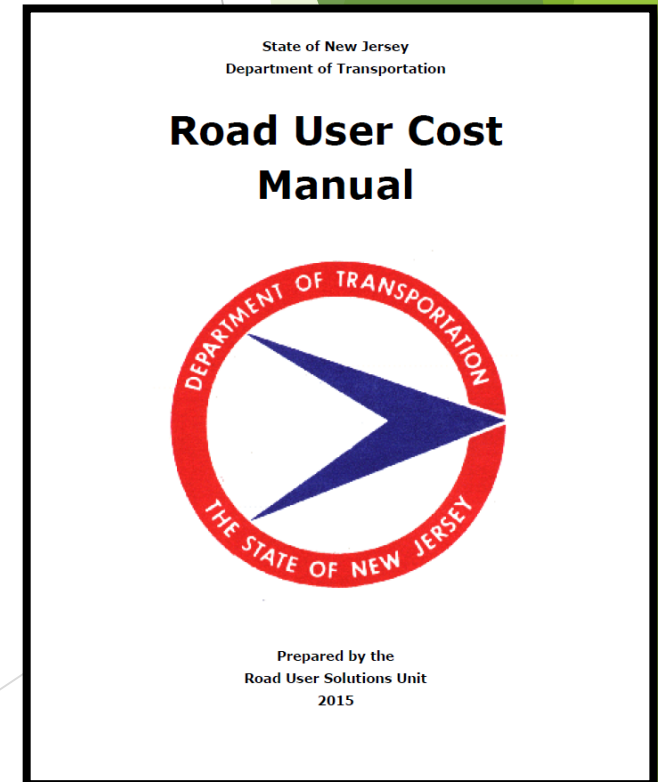


Road User Solutions, Jurisdiction and Value Engineering Construction Units



Road User Solutions Unit Functions

- ▶ Evaluates construction staging
- ▶ Recommends appropriate project delivery methods
- ▶ Provides necessary information for the contract documents
- ▶ Reviews and recommends alternative construction staging
- ▶ Participates on the bi-annual Work Zone Safety & Mobility process review team
- ▶ Maintains and updates the NJDOT Road User Cost Manual



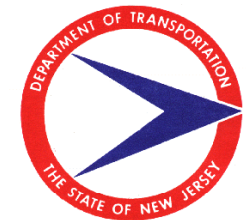
Jurisdiction Unit Functions

- ▶ Researches and responds to jurisdictional requests
- ▶ Reviews Jurisdictional Agreements and maps
- ▶ Provides technical assistance in developing Jurisdictional Agreements
- ▶ Responsible for scanning and cross-referencing executed Jurisdictional Agreements
- ▶ Maintains and updates the NJDOT Jurisdictional Manual for Highway Maintenance & Control

NEW JERSEY DEPARTMENT OF TRANSPORTATION

Jurisdictional Manual For Highway Maintenance & Control

Preparation and Execution of Jurisdictional Agreements and Limit Maps



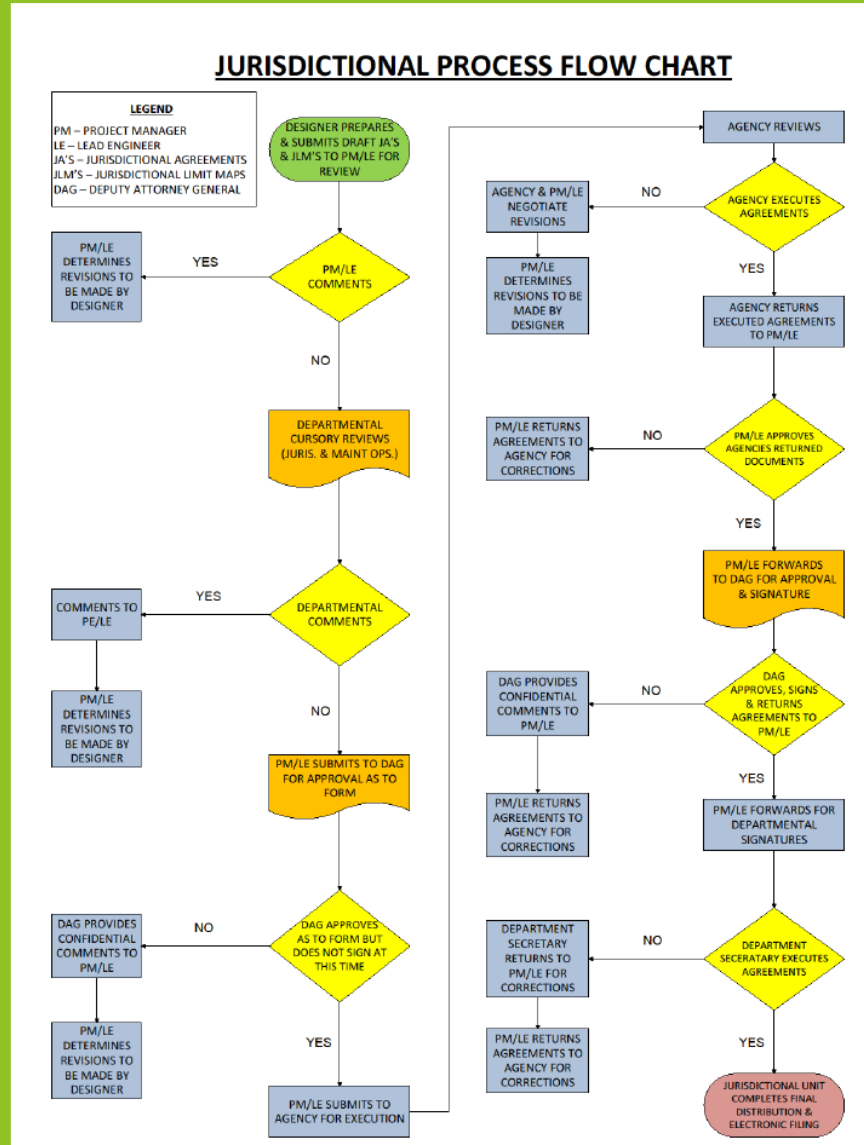
Prepared By The
Jurisdictional Control Unit
2015

Jurisdictional Manual for Highway Maintenance & Control

Preparation and Execution of Jurisdictional Agreements and Limit Maps

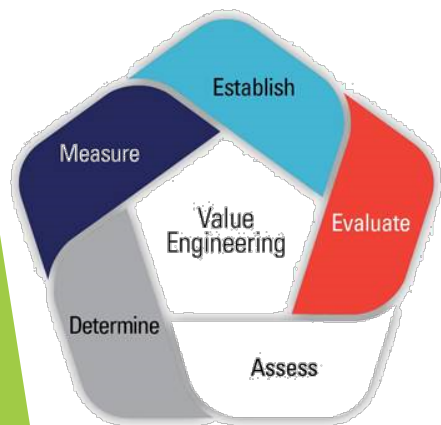
► Jurisdictional Process Flow Chart

► *Provides an overall view of the jurisdictional process*

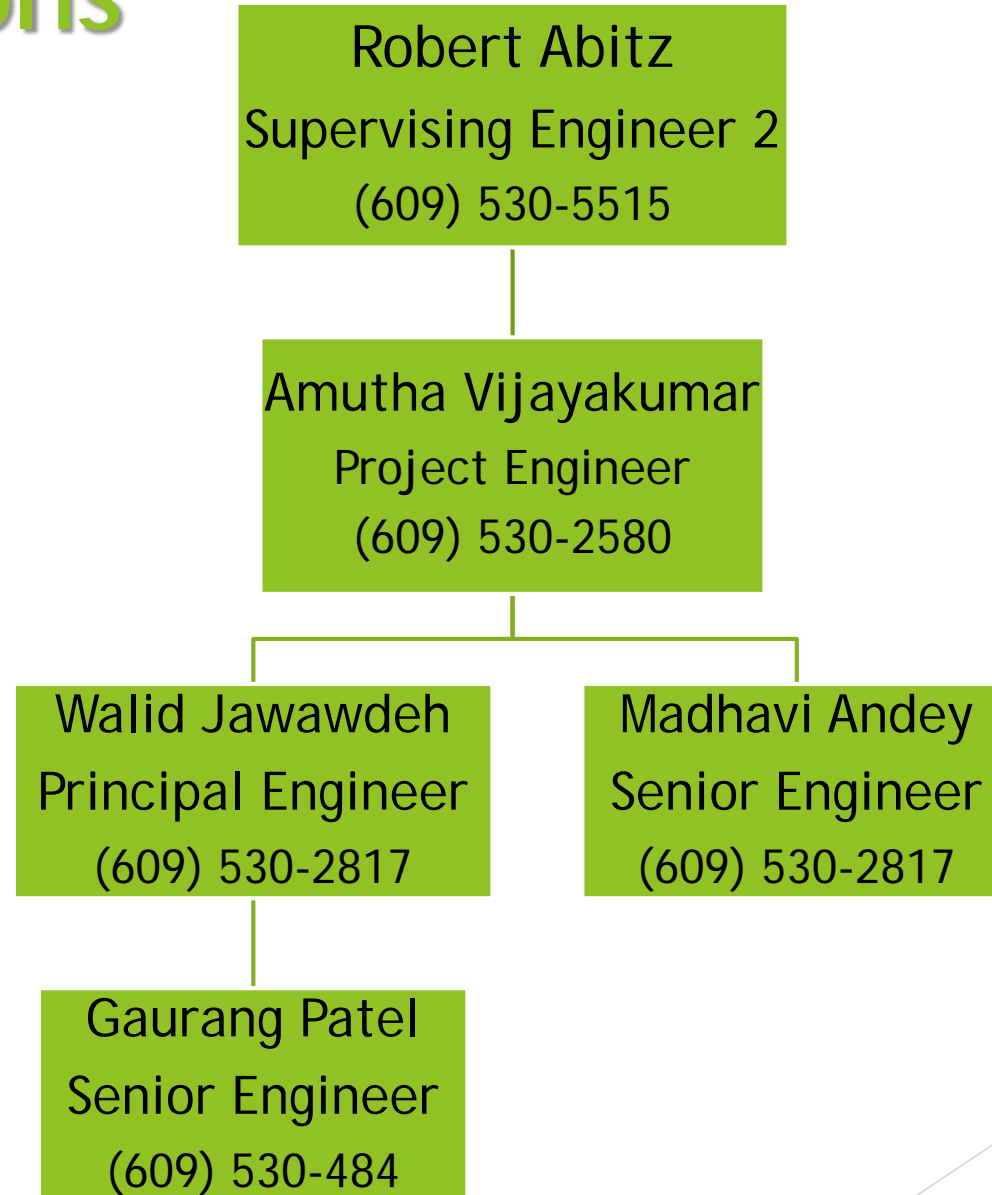


VE Construction Unit Functions

- ▶ Administers and facilitates the Department's Construction Value Engineering Program
- ▶ Evaluates all Value Engineering change proposals
- ▶ Prepares Construction Value Engineering summary of annual reports for the FHWA
- ▶ Maintains cumulative reports of proposals and measurable savings



Value Solutions



Value Solutions Involved in...

Highway Geometric Standards

(Radii, Sight Distance, Lane Configuration, Profiles, etc.)

- ▶ *Geometrics are Related to Traffic Operations*
 - ▶ Crashes
 - ▶ Level of Service at:
 - ▶ Interchanges
 - ▶ At-Grade Intersections
 - ▶ Driveways

Value Solutions Goals:

To get the most out of Every highway project....
for as little **\$\$\$** as possible.

Although "Value" is the underlying goal....
"Balance" is the key word.



Achieving the Most Value requires finding the appropriate Balance....
Not overdesigning and **Not the Cheapest.**

In our world...

Balance means finding the appropriate Geometric Improvement that Achieves:

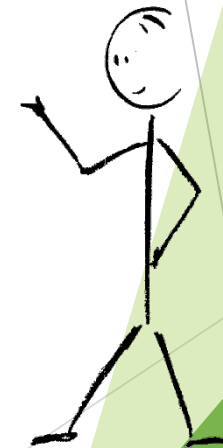
*The Needed Safety Improvement,
The Needed Traffic Operations Improvement,
and/or
The Needed Infrastructure Investment*

VS the COSTS & IMPACTS

On the other hand....

The Improvement must last for more than a few years....

Get In; Get Out; Stay Out B A L A N C E



The Project Delivery Process

- ▶ **All Capital Projects & Local Aid Projects;**
 - **Concept Development (CD)**
 - Developing the Footprint of the project (Alternatives Analysis)
 - Constructability
 - Reasonable Assurance (Concept Development)
 - **Preliminary Engineering (PE)**
 - On -Board Geometric Reviews
 - Design Exception Report
 - **Final Design**
 - Plan review
 - **Construction**
 - Change of Plans
- ▶ **Major Access (Developers)**

Important Links

- ▶ <http://www.state.nj.us/transportation/eng/>
- ▶ <http://www.state.nj.us/transportation/eng/#Specifications>
 - ▶ <http://www.state.nj.us/transportation/eng/specs/2007/Division.shtml>
 - ▶ <http://www.state.nj.us/transportation/eng/specs/index.shtml#StandardInputs>
- ▶ <http://www.state.nj.us/transportation/eng/#Manuals>
 - ▶ <http://www.state.nj.us/transportation/eng/documents/pdf/jurisdiction.pdf>
 - ▶ <http://www.state.nj.us/transportation/eng/documents/RUCM/>
 - ▶ <http://www.state.nj.us/transportation/eng/documents/BSDM/>
 - ▶ <http://www.state.nj.us/transportation/eng/pdf/SamplePlans.pdf>
 - ▶ <http://www.state.nj.us/transportation/eng/documents/RDM/>
 - ▶ <http://www.state.nj.us/transportation/eng/CADD/v8/>
- ▶ <http://www.state.nj.us/transportation/eng/#Announcements>
 - ▶ <http://www.state.nj.us/transportation/eng/documents/BDC/>



Capital Program Support



```
graph TD; A[Capital Program Support] --> B[Utility Management]; A --> C[Program Management Office (PMO)]; A --> D[Design Standards]; A --> E[Bureau of Landscape Architecture and Environmental Solutions (BLAES)];
```

The diagram is an organizational chart with a central title box at the top. A vertical line descends from the title box to a horizontal line. From this horizontal line, four vertical lines descend to four separate boxes arranged horizontally. The boxes contain the following text: 'Utility Management', 'Program Management Office (PMO)', 'Design Standards', and 'Bureau of Landscape Architecture and Environmental Solutions (BLAES)'. The text in the last box is red, while the others are black. On the left side of the slide, there is a decorative graphic consisting of several thin, curved lines and a solid red arrow pointing to the right.

Utility
Management

Program
Management
Office (PMO)

Design
Standards

Bureau of
Landscape
Architecture
and
Environmental
Solutions
(BLAES)



Bureau of Landscape Architecture & Environmental Solutions (BLAES)

Executive Manager, Joseph Sweger



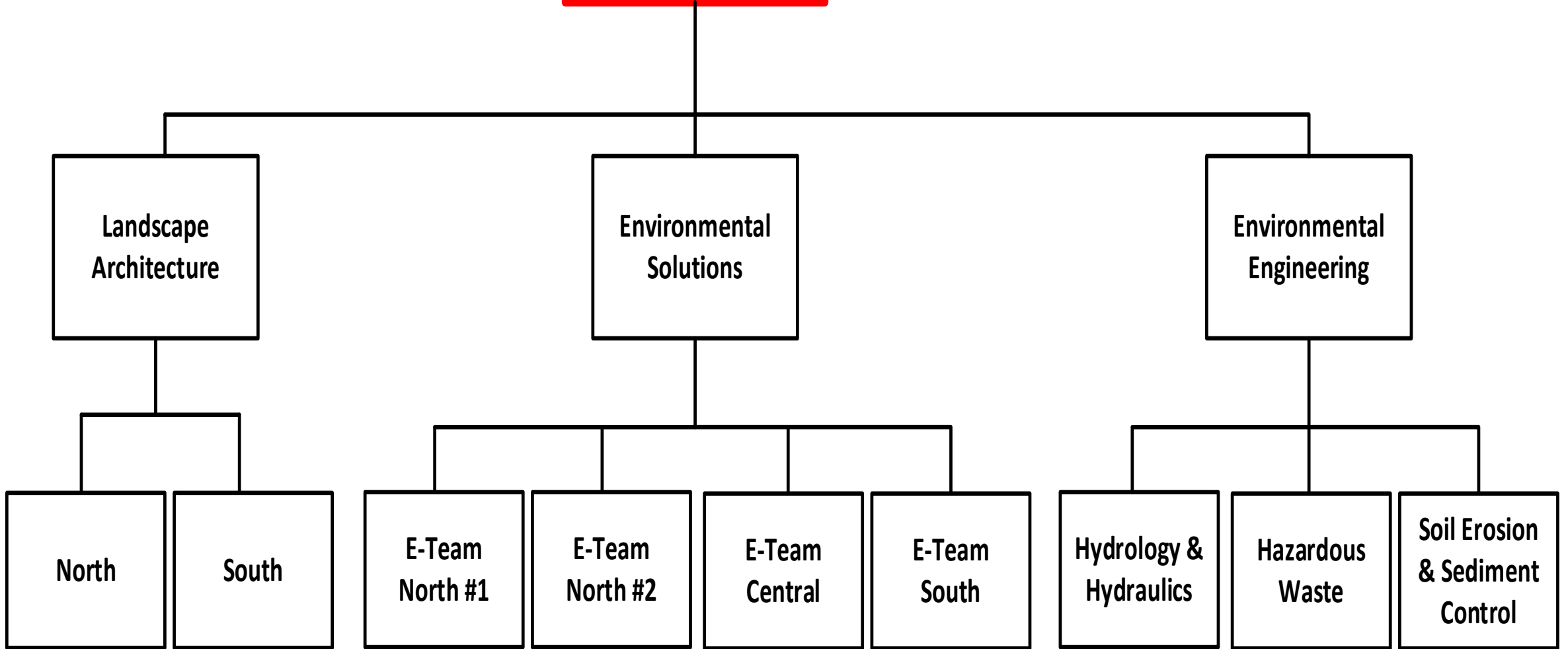
Functions of the Bureau of Landscape Architecture & Environmental Solutions

- *Providing project-related environmental services to Program Management to ensure that the Department is in compliance with all State and federal environmental regulations for all Capital construction projects*
- *Monitoring construction projects for compliance with all commitments resulting from regulatory agency requirements and from consultation with cultural resource agencies*
- *Providing landscape architectural services during design and construction, and coordinating aesthetics for Capital projects*

Functions of the Bureau of Landscape Architecture & Environmental Solutions (cont.)

- *Providing drainage-related engineering review and design for Access Permits, flooding studies, DEP-Land Use Regulation permits for bridge and highway projects, hydrology & hydraulic design of bridges and culverts, Storm Water Management facilities, and dams*
- *Reviewing and certifying to the local Soil Conservation District that the Department's projects comply with soil erosion control mandates; preparing RFAs (Request for Authorizations) for DEP approval under NJPDES program*
- *Preparing hazardous waste screenings, clearances, and remediation work plans for ROW parcels, and providing construction support.*
- *Administering all aspects of NJDOT's asbestos surveying & remediation concerns*

**Landscape Architecture
& Environmental
Solutions**





Offices of Environmental Solutions and Environmental Engineering Staff & Program Areas

Office of Environmental Solutions

Bruce Hawkinson, Section Chief North (5-4272)

E-Team 1 (North: Bergen, Hunterdon, Passaic, Sussex, Warren)

Zakrollah Asadpour, Supervisor (5-2727)

Aarti Gupta (5-2723)

Suzanne Szczepkowski (5-3765)

Matt Wilityer (5-4550)

Vacant

E-Team 2 (North: Essex, Hudson, Morris, Union)

Amber Cheney, Supervisor (5-5266)

Rachel Dekovitch (5-2312)

Cecilia Gervasi (5-2997)

Ed Osian (5-2783)

Vacant

Environmental Compliance Inspections

Sue Dill (5-2184)

Jo Ann Asadpour, Section Chief Central and South (5-3021)

E-Team 3 (Central: Mercer, Middlesex, Monmouth, Ocean, Somerset)

Tina Shutz, Supervisor (5-2543)

Robert Bird (5-4239)

Sharon Coe (5-2811)

Kairavi Patel (5-2287)

Charu Vaidya (5-2536)

E-Team 4 (South: Atlantic, Burlington, Camden, Cape May,

Cumberland, Gloucester, Salem)

Brenna Fairfax, Supervisor (5-2501)

Michael Ciappi (5-2328)

John Mikusa (5-3017)

Ryan Rathbun (5-5307)

Office of Environmental Engineering

Todd Wolfram, Section Chief (5-5555)

Hydrology and Hydraulics Unit

Sandy Blick, Supervisor (5-2283)

Kevin Bancroft (5-2459)

Bakula Patel (5-5652)

Vishal Patel (5-3476)

David Rauzino (5-2560)

Ryan Reali (5-6500)

Meeta Trivedi (5-5363)

Hazardous Waste Unit

Karl Bevans, Supervisor (5-3513)

Jeff McCue (5-5267)

Henry Nguyen (5-4965)

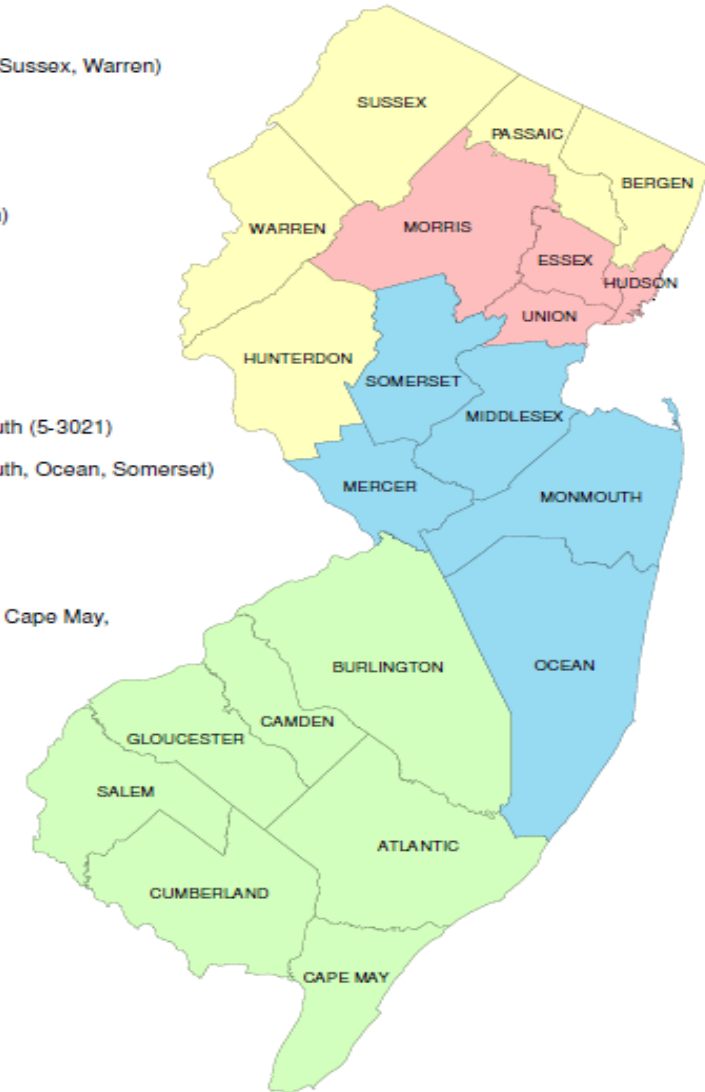
Sunay Pandya (5-8129)

Vacant

Soil Erosion and Sediment Control Unit

Jay Khetani, Supervisor (5-2477)

Vacant



Office of Landscape Architecture

Bureau of Landscape Architecture & Environmental Solutions Office of Landscape Architecture

Joe Sweger, Manager
5-2985
JoAnne Lauria, Sec 2
5-5673

Region North:

Paul Pospiech, Section Chief
5-5340 cell (609)203-5543

Design:

Nori Shepperd, Landscape Designer 1
5-3862
Phil Cyr, Landscape Designer 1
5-5659
Lana Davis, Landscape Designer 2
5-5675
Jon Lahoda, Landscape Designer 3
5-3736

Construction Support & Environ. Compliance:

Dan Miskowsky, Jr., C&M Tech 2
(609)273-5632
Eric Chestnut, C&M Tech 4
(609)306-1963
Brian Shankle, Landscape Designer 2
5-5452 cell (609)306-9230

Region South:

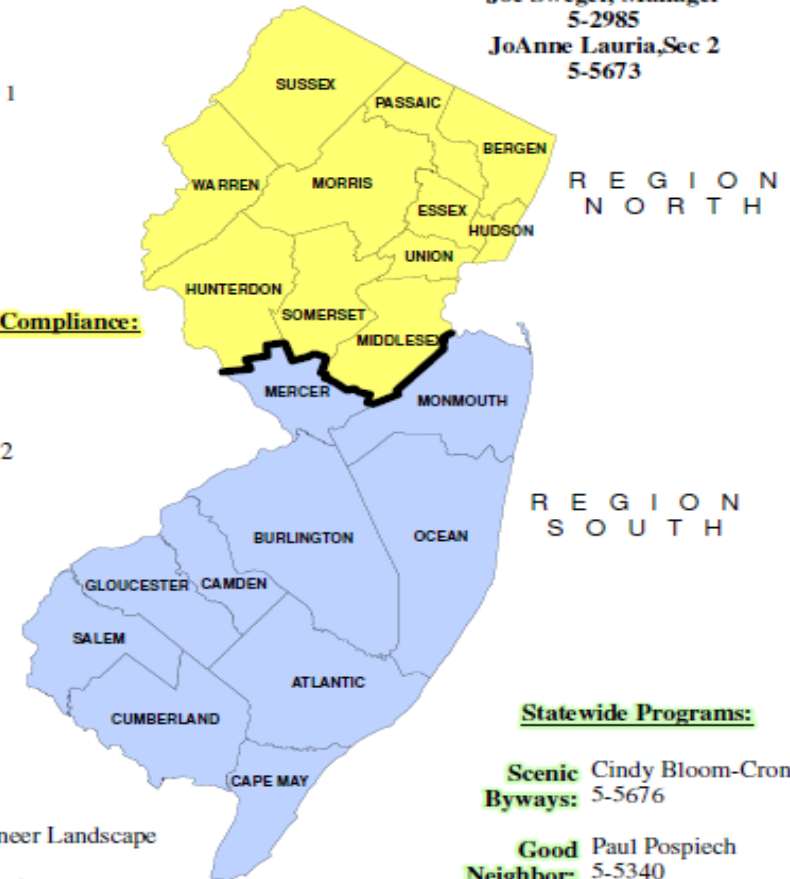
Brenda Hammer, Section Chief
5-5672

Design:

Cindy Bloom-Cronin, Project Engineer Landscape
5-5676
Rich Attenello, Landscape Designer 1
5-5254
Lois Johann, Landscape Designer 1
5-5537
Corey Wilson, Landscape Designer 3
5-3469

Construction Support & Environ. Compliance:

George Caruso, Proj. Eng. Landscape
5-3702 cell (609)203-5542
John Garzio, C&M Tech 1
(609)306-9338
Felicia Dipietro, Landscape Designer 3
5-5573 cell (609)203-5536



Statewide Programs:

Scenic Byways: Cindy Bloom-Cronin
5-5676

Good Neighbor: Paul Pospiech
5-5340

No Net Loss Reforestation Act: Brenda Hammer
5-5672

GEMZ: George Caruso
5-3702

SESC Vegetative Standards: Paul Pospiech
5-5340

Office of Environmental Solutions

E-Teams' Responsibilities

- NEPA documents (EIS, EA, CED, Executive Order 215) for all Capital projects
- Section 4(f) documents
- Section 106 (cultural resources) consultation with State Historic Preservation Office
- Prepares applications for and obtains environmental permits
- Green Acres coordination
- Design plan phase reviews
- Environmental Reevaluations
- Wetland and riparian mitigation plans
- Construction monitoring for compliance with environmental permit and cultural resource commitments
- Track new and changing environmental rules, regulations, and laws; recommending policies and policy changes; developing programmatic environmental solutions

National Environmental Policy Act of 1969 (NEPA)

Agencies undertaking transportation activities with federal funding are required to:

- Comply with all applicable environmental requirements, including NEPA and Section 4(f)
- Prepare documentation of compliance to a level appropriate to the undertaking's potential to cause significant harm to the environment
- Evaluate alternatives (including a no action or no-build alternative) and make decisions that balance the need for the project with the social, economic and environmental impacts of the project
- Inform governmental entities & the public and provide them an opportunity to be involved in decision-making; and
- Implement measures to avoid, minimize or mitigate environmental impacts.

National Environmental Policy Act

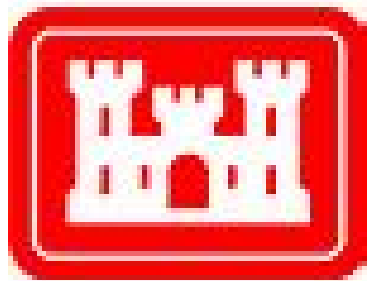


- **Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970**
- **Section 4(f) of USDOT Act (49 USC 303)**
- **Clean Air Act**
- **Safe Water Drinking Act**
- **Farmland Protection Policy Act**
- **Solid Waste Disposal Act**
- **Resource Conservation and Recovery Act of 1976 (RCRA)**
- **Title VI of Civil Rights Act of 1964**
- **Americans with Disabilities Act**
- **Executive Order 12898 (Environmental Justice)**

- **Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)**
- **Emergency Planning and Community Right to Know Act of 1986**
- **National Historic Preservation Act**
- **Economic, Social and Environmental Effects of Highways and Transit**
- **Highway Noise Standards**
- **Public Hearing Requirements**
- **Archaeological and Historic Preservation Act**
- **Archaeological Resources Protection Act**
- **AND MORE...**

Federal Environmental Coordination & Approvals

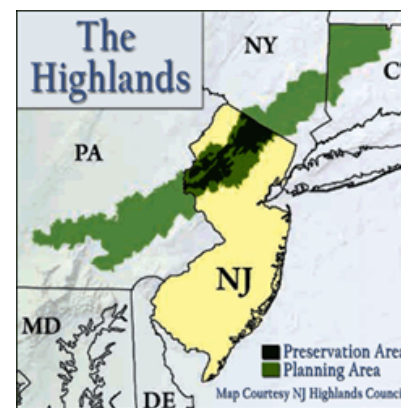
- *Federal Highway Administration*
- *U.S. Environmental Protection Agency*
- *U.S. Fish & Wildlife Service*
- *U.S. Coast Guard*
- *U.S. Army Corps of Engineers*



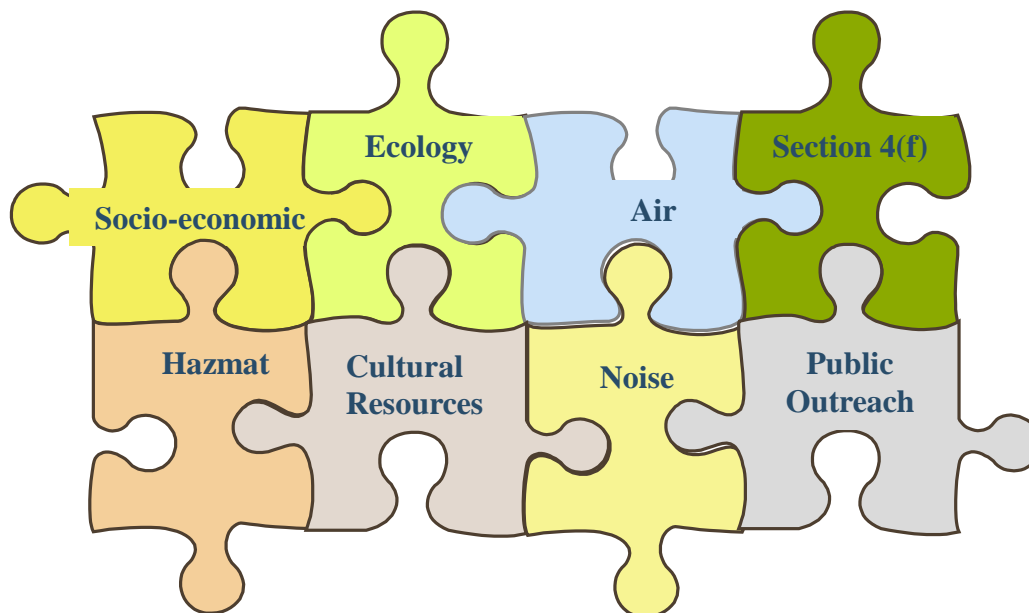
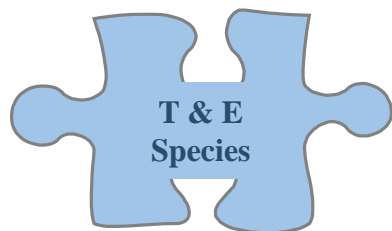


State Environmental Approvals

- New Jersey Department of Environmental Protection (NJDEP)
 - SHPO
 - DLUR
 - Green Acres
- Meadowlands Commission
- Highlands Commission
- Pinelands Commission
- Delaware & Raritan Canal Commission

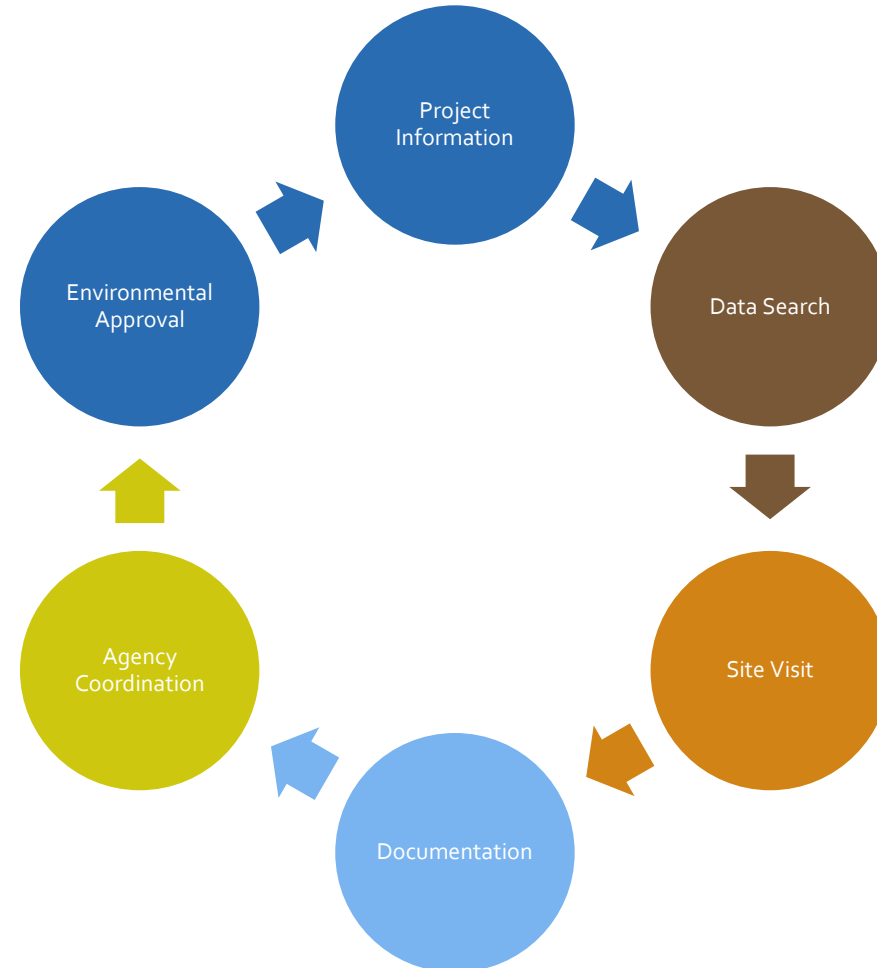


Environmental Disciplines



Environmental Delivery Process

- Environmental Screening
- NEPA Approval
 - EO 215 (Approval or Exemption)
- Environmental Reevaluation



Information

- *Project Purpose & Need*
- *Project Description*
- *Alternatives Analysis*
- *Public Outreach*
- *Agency Coordination*



Levels of Action



Section 771.115 of 23 CFR defined the three classes of actions that determine how compliance with NEPA is carried out and documented for transportation projects:

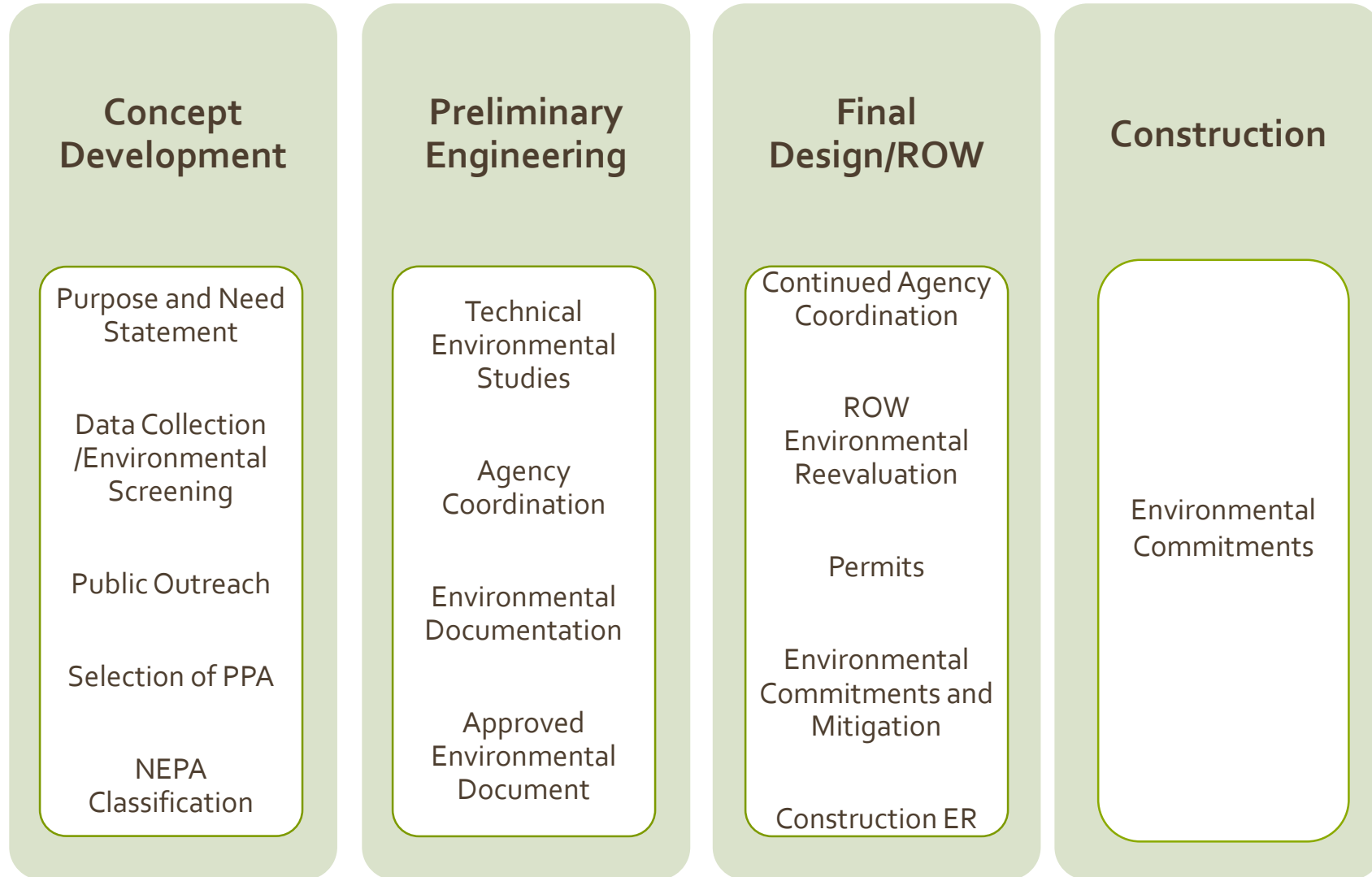
- *Class I - Environmental Impact Statement (EIS) is prepared for projects that will cause a significant adverse effect on the environment.*
- *Class II - Categorical Exclusion (CE) is prepared for projects that cause minimal social, economic or environmental impact.*
- *Class III - Environmental Assessment (EA) is prepared for larger scale projects that do not meet the requirements for a CE or those for which the significance of the environmental impact is not clearly established.*

FHWA/NJDOT Programmatic Agreement for Processing Categorical Exclusions

Enables NJDOT to “Self-Certify” Certain projects (30 different CE types):

- *Highway safety or traffic operations projects*
- *Highway resurfacing, restoration, rehabilitation, reconstruction*
- *Bridge rehabilitation, reconstruction, replacement*
- *Drainage work*
- *New signals and sign structures*

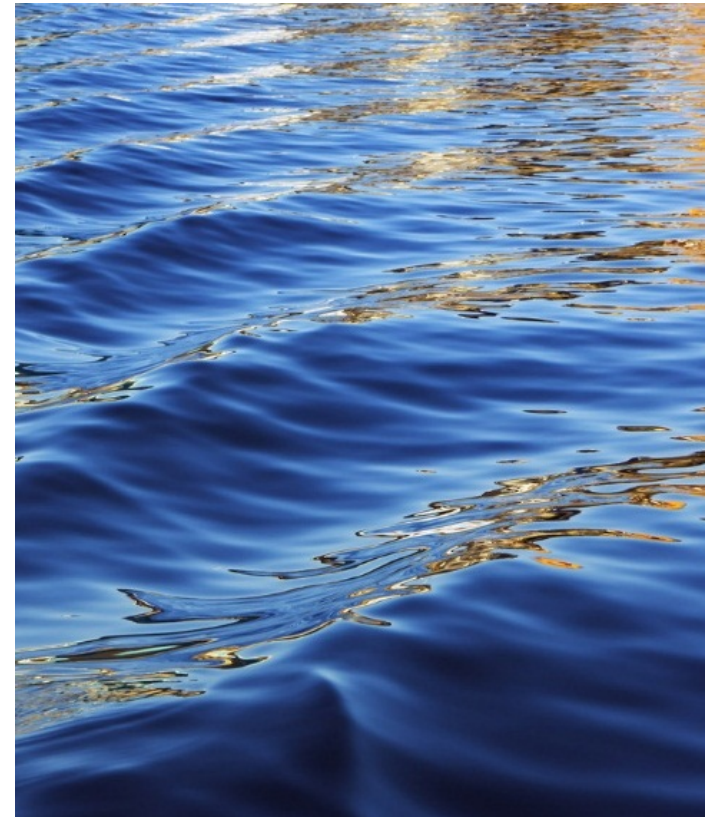
Capital Project Delivery Process





AVOID
MINIMIZE
MITIGATE

ENVIRONMENTAL IMPACTS



Questions?





Office of Landscape Architecture

**Landscape Architecture is the art,
planning, design, management,
preservation and rehabilitation of
the land for aesthetic and
functional reasons.**



Office of Landscape Architecture

Provides Landscape Architectural services and coordinates aesthetics for NJDOT during the Project Delivery Process for all Capital Program transportation projects through the preparation of contract documents and construction support.



The Office of Landscape Architecture administers the following Programs

- **No Net Loss Reforestation (NNL)**
- **Good Neighbor**
- **Scenic Byways**
- **Vegetative Canopy Management (VCM)**
- **Blue Star Memorial Highway**



No Net Loss Reforestation Program

N.J.S.A. C13:1L-14.2
Chapter 10

- **Reforestation application required when at least $\frac{1}{2}$ acre is deforested**
- **Public Information Center is held for any deforestation over 1 acre**
- **Planting done on-site**
- **Planting done off-site**
- **Monetary compensation if unable to fulfill replanting amount**

Route 295/42/I-76 Direct Connect Camden County



Route 295 / 42 / I - 76 Direct Connection

Bellmawr Borough, Mount Ephraim Borough and Gloucester City
Camden County, New Jersey

Reforestation Plan
Application

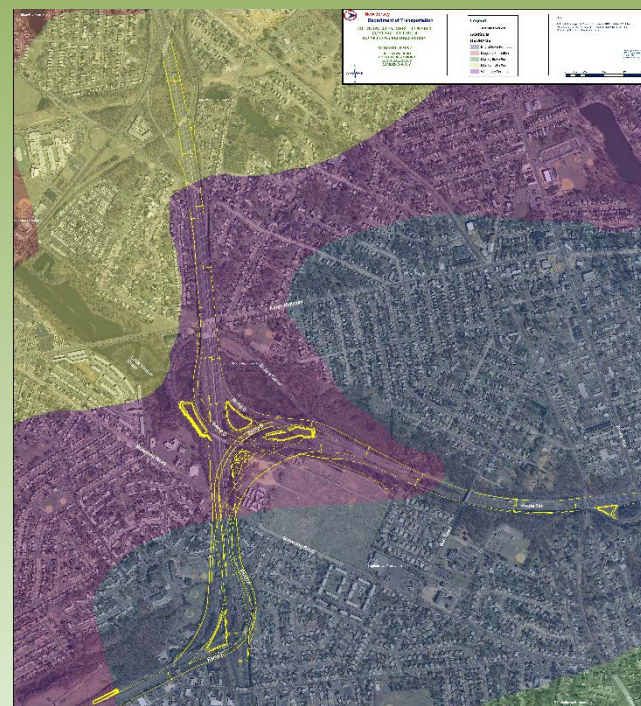
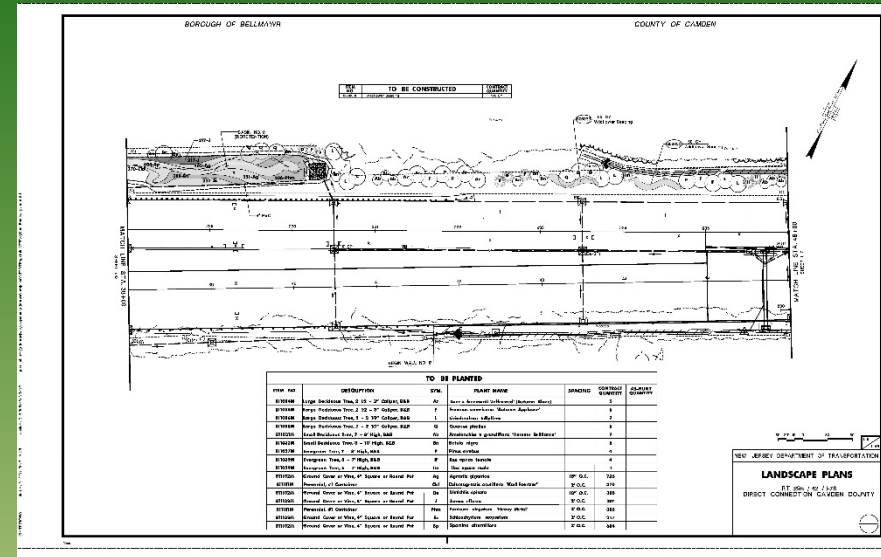
New Jersey No Net Loss
Reforestation Act



Prepared By:

Office of Landscape Architecture
New Jersey Department of Transportation
August 2012

Route 295/42/I-76 Direct Connect Camden County



Good Neighbor Landscaping Program

A landscaped area featuring several trees, including a large pink-flowering tree, and large rocks on a dark mulch bed, set against a clear blue sky.

Provides quick response to internal and external requests for plantings or other landscape elements throughout the state



Good Neighbor Planting Program

- Point Pleasant
- 9/11 Fields of Gold, Point Pleasant
- Deep Water Rest Area



Good Neighbor Planting Program

- Route 80 State Police Memorial
- Route 130 Levitt Parkway
- New Jersey Department of Transportation



Scenic Byways

A scenic view of a rural road with a red barn and a white tower in the background, surrounded by bare trees. The road is paved and has a double yellow line. The sky is clear and blue.

Recognizes scenic, historic, cultural, recreational, archaeological and natural qualities of roadways nominated through a grassroots sponsor.

Nominated at local, state, or federal level, or by a private sector organization.

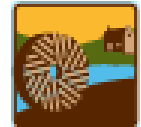
Sponsor makes a commitment to prepare a Scenic Byway Application and prepare a Corridor Management Plan.



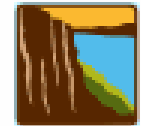
[Bayshore Heritage](#)



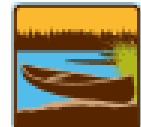
[Delaware River](#)



[Millstone Valley](#)



[Palisades](#)



[Pine Barrens](#)



[Upper Freehold](#)



[Warren Heritage](#)



[Western Highlands](#)

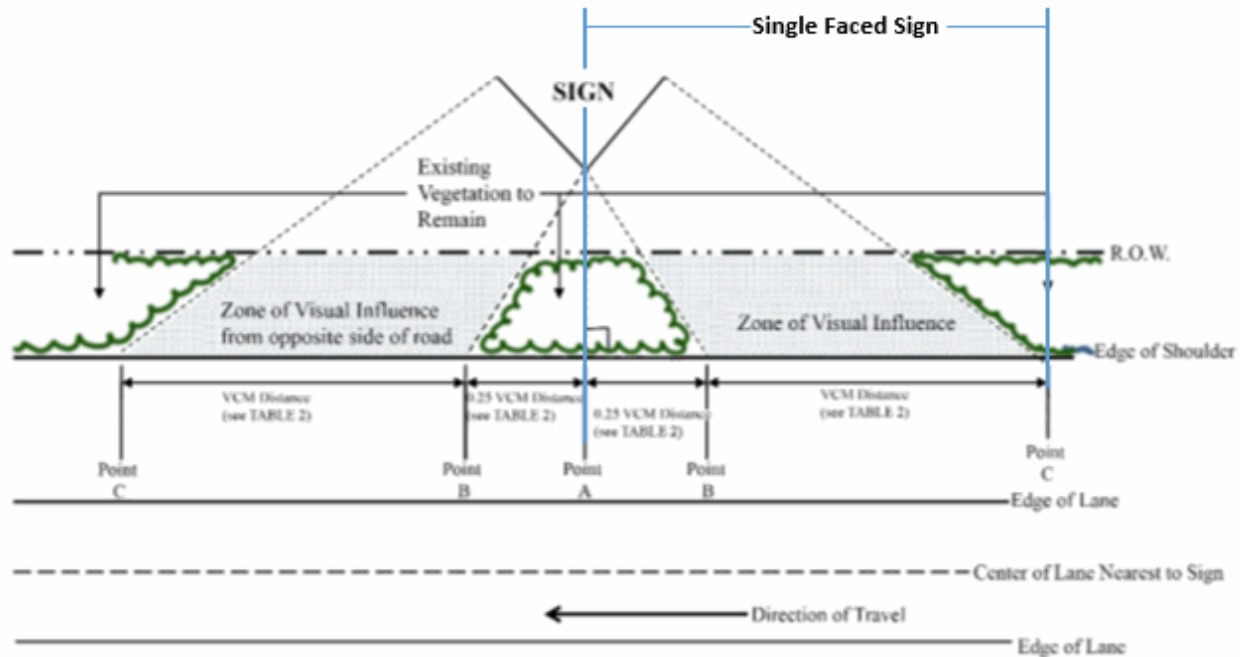


Vegetative Canopy Management VCM

N.J.S.A. 27:1A-5 and 27: 1A-6



VCM Zones of Visual Influence: Double-Faced or Single-Faced Sign



Point A is a point on the roadway edge perpendicular to the sign's closest point to the roadway.
Point B is a point 0.25 times the applicable VCM distance in Table 2.
Point C is the applicable VCM distance in Table 2 measured from Point B.
Existing vegetation is to remain between Points A and B.

Blue Star Memorial

A Living Tribute to the Men and Women of New Jersey who serve in the armed forces





Office of Landscape Architecture

**Provides the Department with Visual Aids
and Graphic Presentations**

- For design**
- For Public Information Meetings**
- For other units in the Department**

Public Information Center for Route 130 Raccoon Creek Bridge Replacement



NOTE:
ALL IMAGES ARE FOR REPRESENTATIONAL PURPOSES ONLY.

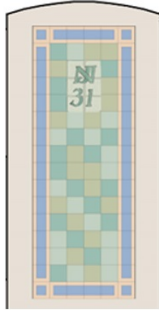


RT 130 RACCOON CREEK
BRIDGE AESTHETICS & IMAGE LOCATION
LOGAN TWP. GLOUCESTER COUNTY
PUBLIC INFORMATION CENTER MAY 5, 2016

OFFICE OF LANDSCAPE ARCHITECTURE NJDOT

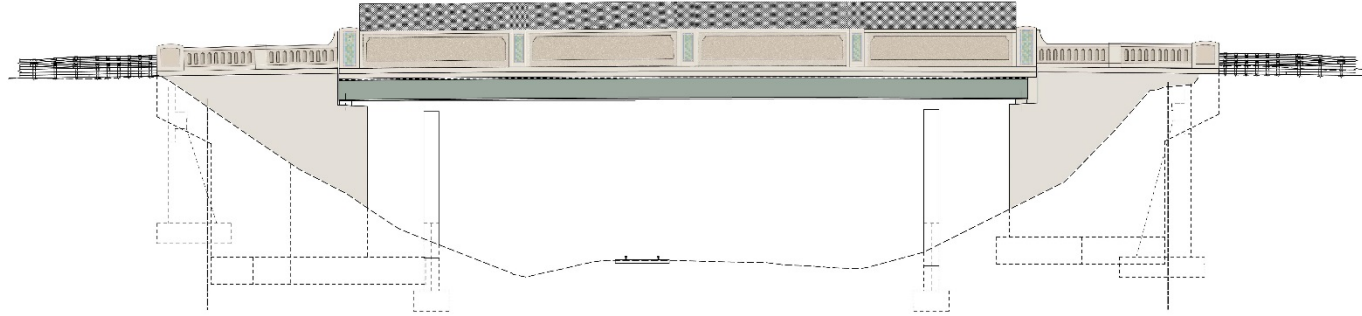
Pre-Construction Public Information Center Route 31 CSX

PROPOSED TILE DESIGN
ON NEW BRIDGE

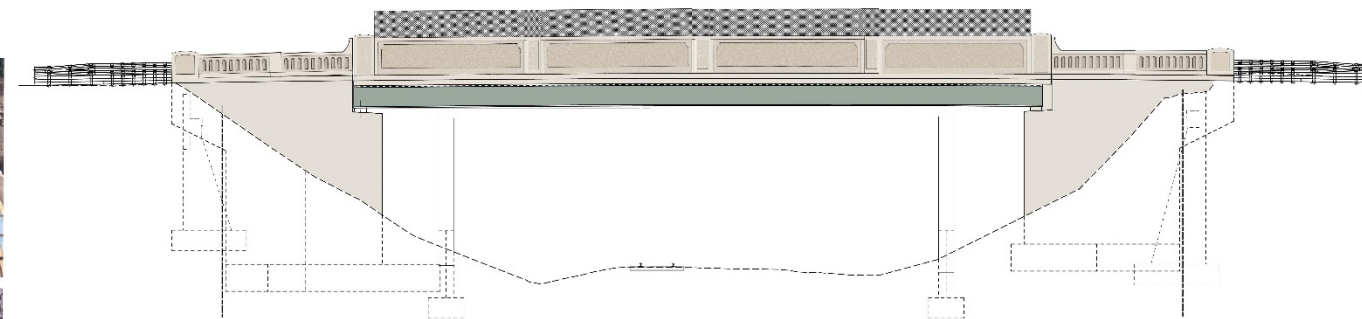


DETAIL OF INTERIOR
CORNER PANEL

PROPOSED INTERIOR BRIDGE VIEW



PROPOSED EXTERIOR BRIDGE VIEW



EXISTING HISTORIC TILE DESIGN



NOT TO SCALE

NOTES:

The above renderings are based on the current design elements and are subject to change based on final design of the proposed bridge.

Tile elements are part of the State Historic Preservation Office Memorandum Of Agreement and are not subject to change.

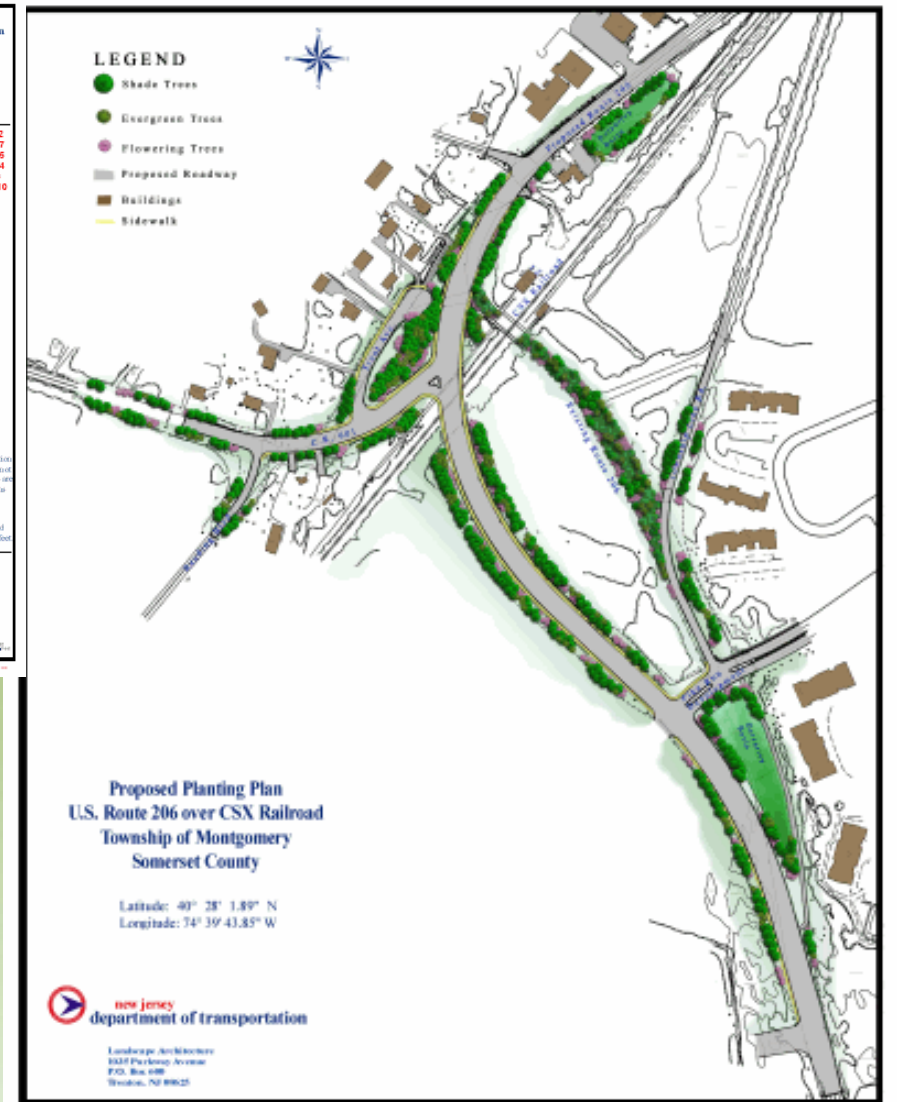
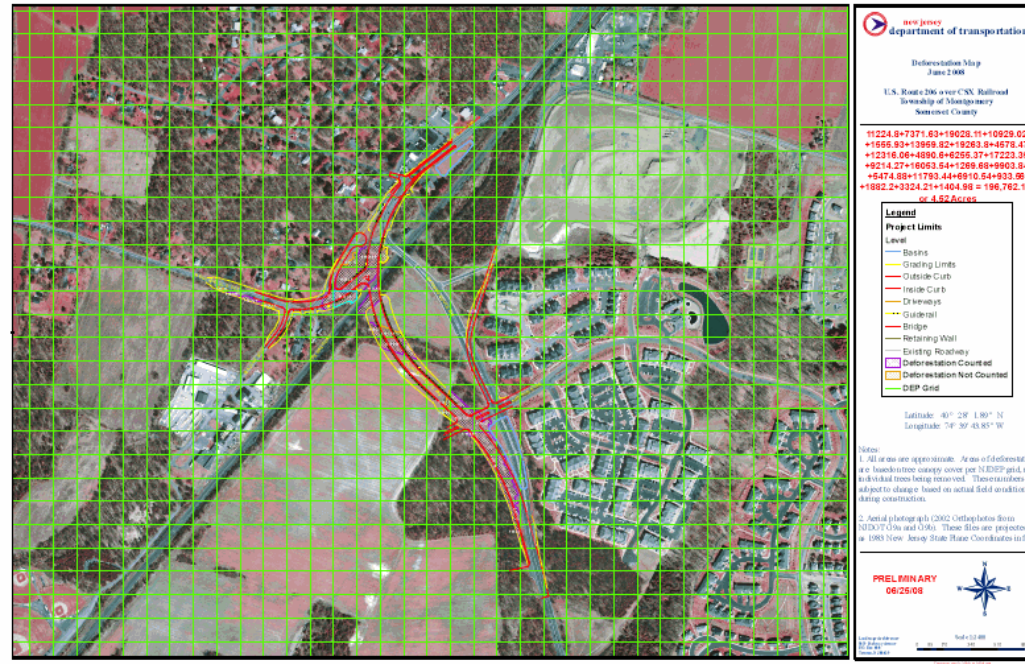


NEW JERSEY
DEPARTMENT OF TRANSPORTATION
OFFICE OF LANDSCAPE ARCHITECTURE
ROUTE 31 OVER CSX RAILROAD
BRIDGE AESTHETICS

PENNINGTON & HOPEWELL TOWNSHIP
MERCER COUNTY

PUBLIC INFORMATION CENTER JUNE 2016

Public forum presentation showing deforestation and proposed planting plan Route 206 over CSX Railroad



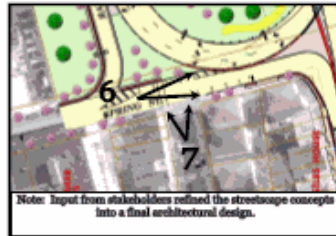
Route 280/ Route 21 Interchange Improvements Design Coordination Meeting – Public Outreach

Route 280/Route 21 Interchange Improvements



Office of Landscape Architecture

Final Streetscape Design



Route 280/Route 21 Interchange Improvements



Office of Landscape Architecture

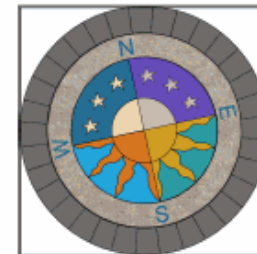
Final Streetscape Design



Corner of Grant Street &
Spring Street



Concrete Compass Rose





Office of Landscape Architecture

**Subject Matter Experts for
Aesthetics of:**

- **Bridges**
- **Retaining Walls**
- **Noise Barriers**
- **Streetscapes**



Bridge Aesthetics

Shark River Bridge





Retaining Walls Noise Barriers

Route 18, New Brunswick

Route 1 & 9 / Route 35, Woodbridge



Aesthetic Treatments

Route 36 Highlands Bridge



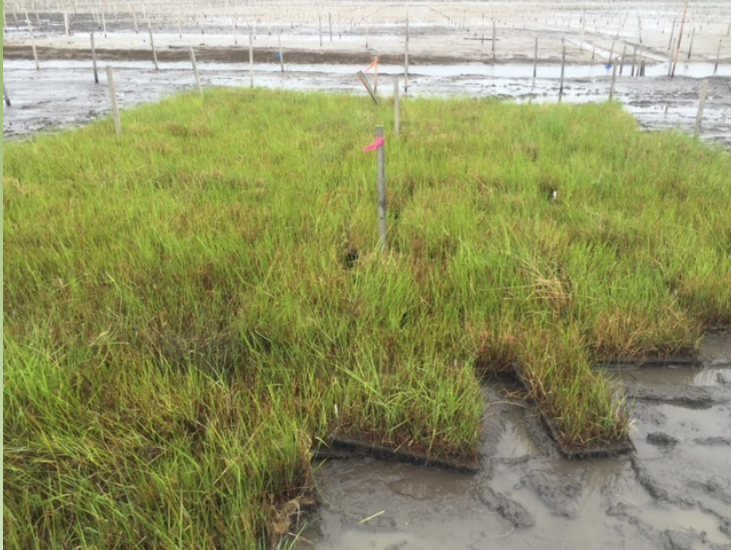
Subject Matter Experts – Soil Erosion and Sediment Control

Vegetative Standards



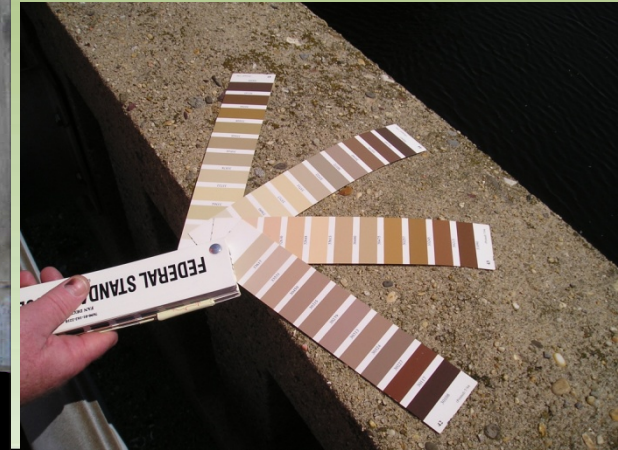
Construction Support

- *Plant Inspection*
- *Plant Layout*
- *Installation*
- *Mock-Up Approval*





Mock Up Approvals





*Context
Sensitive
Elements*



Community Enhancements to Mitigate Construction Projects

Welcome to Cedar Bonnet Island

Originally established in 1937, the Edwin B. Forsythe National Wildlife Refuge is protecting more than 47,000 acres and has become a vital link for seasonal bird migration along the New Jersey coast.



This handicapped-accessible 4,520 foot trail passes through upland and wetland habitats on a restored former dredge-spoil disposal site.



The varied habitats existing within the marsh are home to an array of wildlife. Along the trail, informational signage and overlook pavilions are provided to help guide the experience.



Coastal Marsh

The coastal marsh - otherwise known as a salt marsh - is an area in which flooding occurs between the inlands and the ocean during tidal events. These marshes have the ability to absorb forces from coastal storms and protect inlands from flood waters and wind damage.

The vegetation within the salt marshes of the Edwin B. Forsythe National Wildlife Refuge adapt in order to withstand the marshes' salinity and are also capable of filtering out sediment in order to cleanse the water many wildlife species inhabit.



Wading birds become attracted to the salt marsh due to the abundance of fish and invertebrates found within the water. Birds such as herons, egrets, plovers, etc., also use the nearby mudflats as a feeding ground.

Along with vegetation, mussels play a factor in helping filter water found in the salt marshes. Since these species are able to feed off algae and remove potentially harmful nutrients, the invertebrates are capable of naturally purifying the water. Other types of mollusks and some crustaceans can also aid in this process.



Pollinators

Over recent years, disturbing evidence has shown a decrease in pollinators worldwide due to the loss of habitat, introduction of invasive plant or animal species, diseases and parasites, and chemical misusage.



When pollen is moved within flowers or transferred from flower to flower by animals such as birds, butterflies, bees, bats, beetles, moths, other animals, or even by wind, the process is known as pollination. This leads to fertilization and successful seed or fruit production.

Many pollinators are considered threatened or endangered and have been known as federally "listed species".

Reducing humanity's carbon footprint, buying locally produced or organic food, and cultivating native plant material that provide nectar are a few steps that can be taken to promote pollinator protection and improve their survivability.

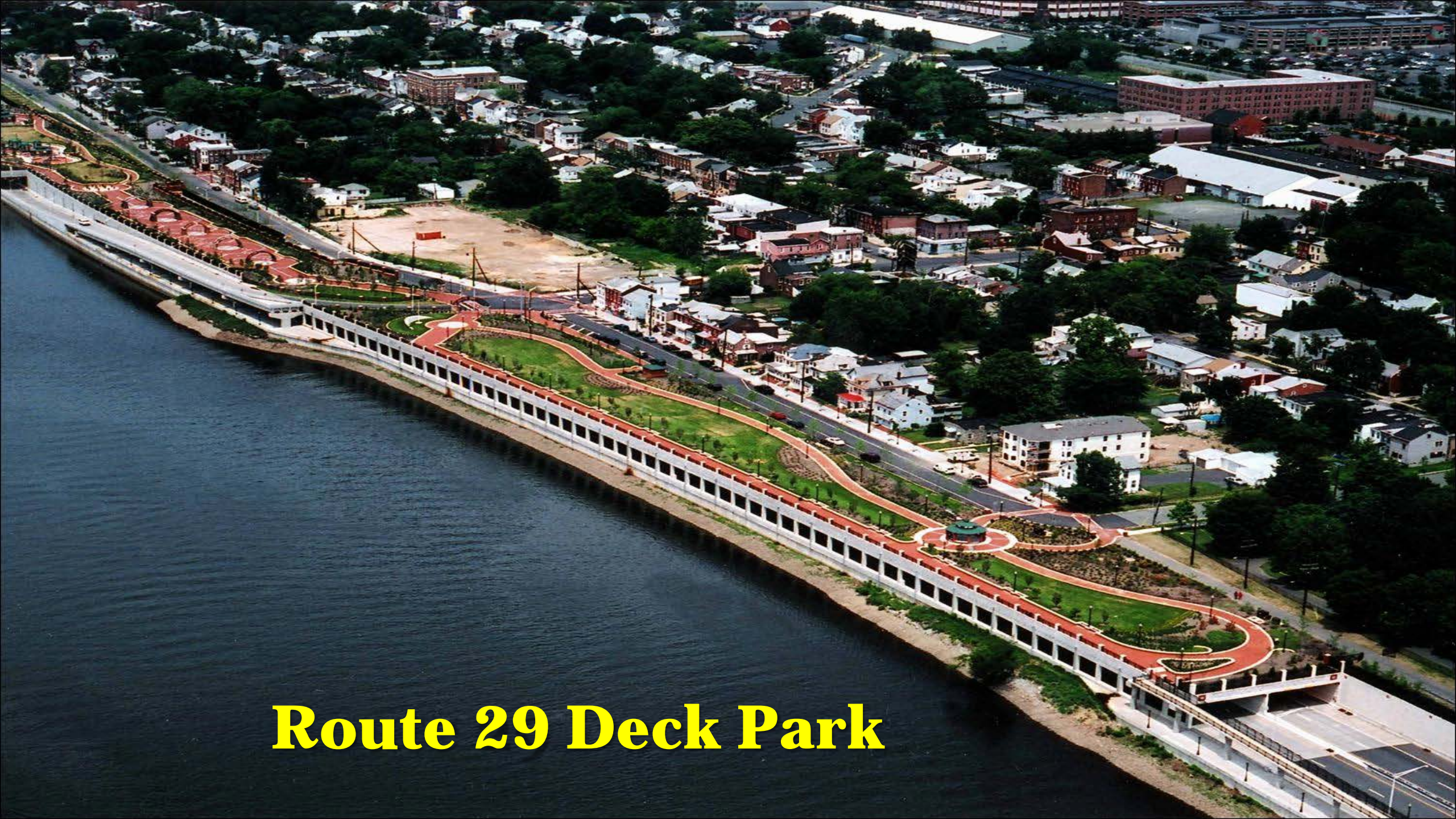
In the United States, pollination by honeybees, native bees, and other insects produces almost \$40 billion worth of products annually. However, there is significant proof that the U.S. has lost over half of its honeybee colonies over the past 10 years. Declines in monarch butterflies have also grown, resulting in up to 90 percent within the same time frame.



Pocket Parks on excess parcels

Route 30/ Route 9, Absecon





Route 29 Deck Park

Office of Landscape Architecture

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Lana Davis, Landscape Designer 2
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Region South:

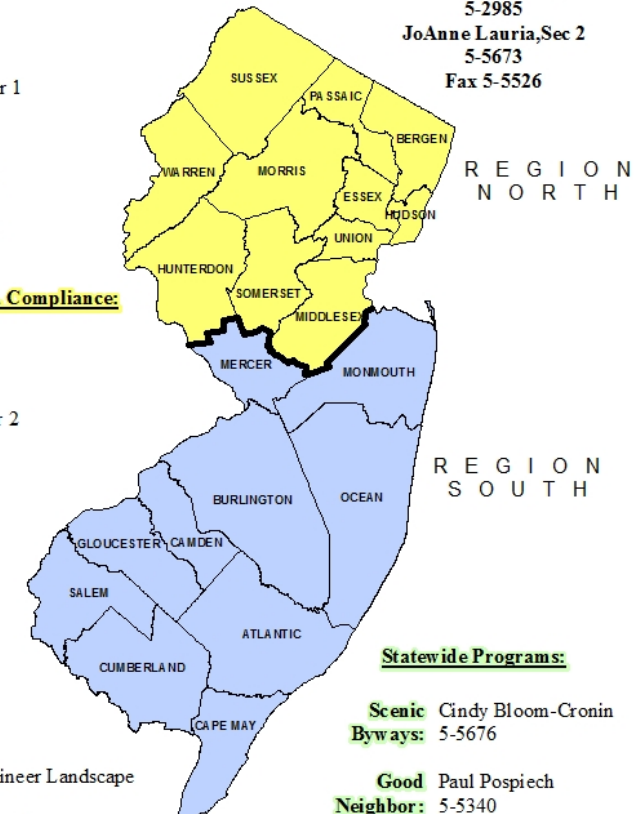
Brenda Hammer, Section Chief
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Rich Attenello, Landscape Designer 1
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Lois Johann, Landscape Designer 1
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Corey Wilson, Landscape Designer 3
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Felicia Dipietro, Landscape Designer 3
5-5573

Construction Support & Environ. Compliance:

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Scenic Byways: Cindy Bloom-Cronin
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Good Neighbor: Paul Pospiech
5-5340

No Net Loss Reforestation Act: Brenda Hammer
5-5672

GEMZ: George Caruso
5-3702

SESC Vegetative Standards: Paul Pospiech
5-5340

Blue Star: Lois Johann
5-5537

VCM: Rich Attenello (South) 5-5254
Phil Cyr (North) 5-5659

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. These shapes are primarily located on the left and right sides of the frame, creating a modern, dynamic feel. The central area is a plain white space where the text is placed.

Hydrology & Hydraulics

- ▶ Hydrology - the branch of science concerned with the properties of the earth's water, especially its movement in relation to land.



- ▶ Hydraulics - the branch of science and technology concerned with the conveyance of liquids through pipes and channels, especially as a source of mechanical force or control



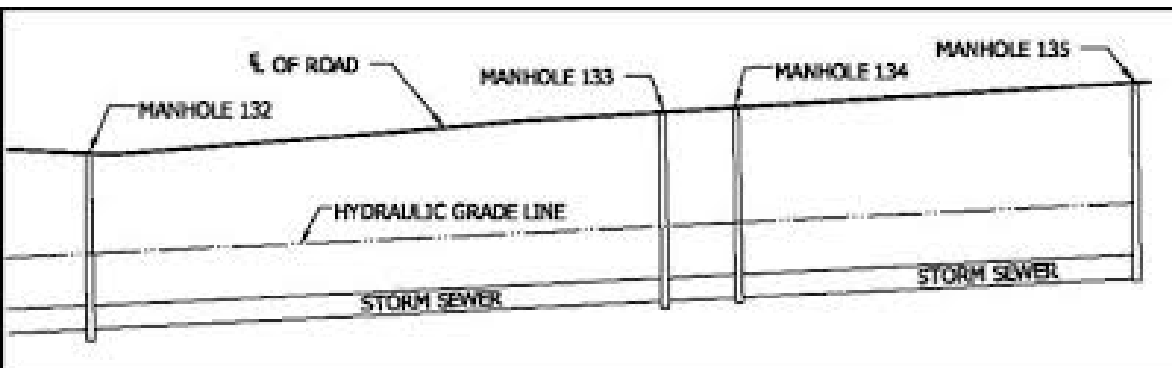
Why worry about runoff?

- ▶ *N.J.A.C. 7:13 Flood Hazard Area Control Act (FHACA)*
- ▶ *N.J.A.C. 7:8 Stormwater Management*

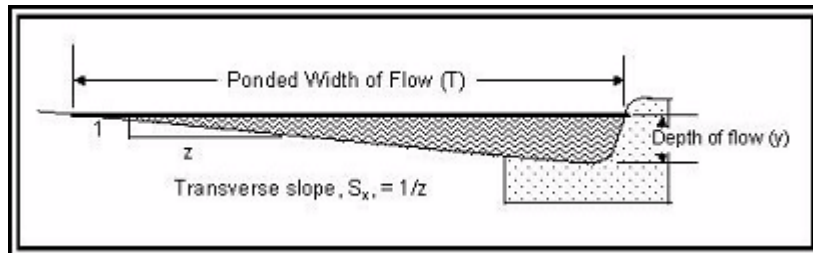


Drainage Review

- ▶ *Pipe Inverts*
- ▶ *Pipe sizing/capacity*
- ▶ *Hydraulic Grade Line (HGL)*



Drainage Review Cont.



► *Gutter Spread*

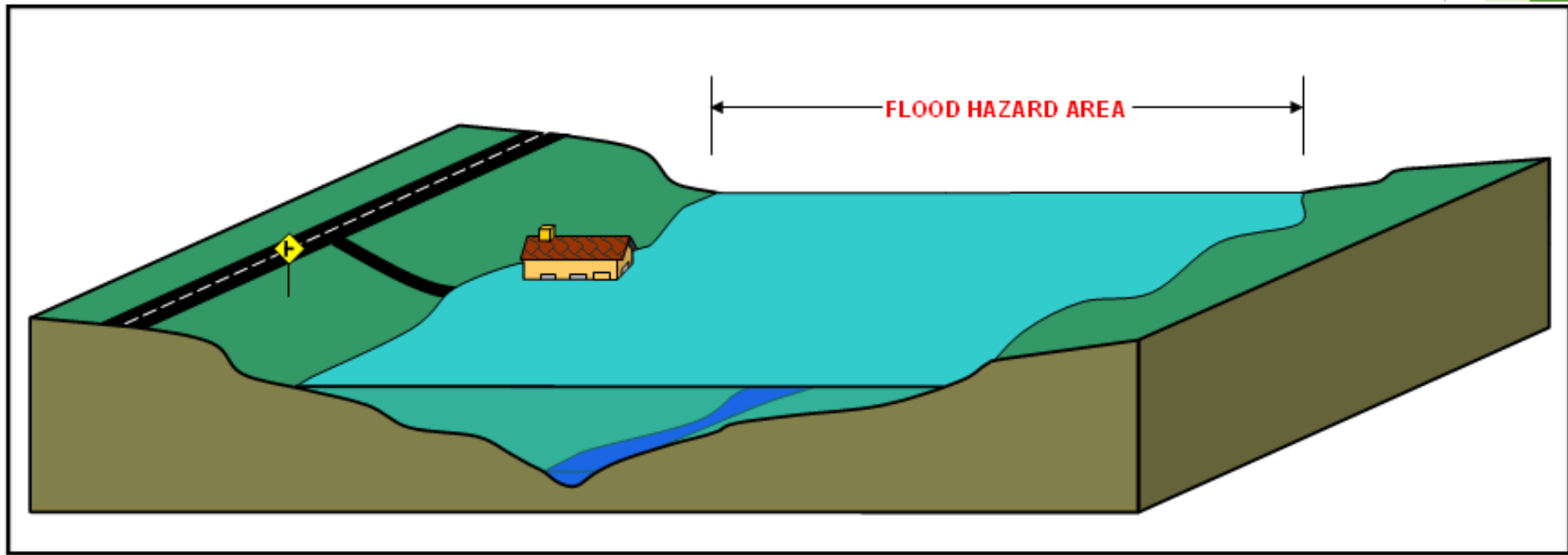
► *Inlet Efficiency*

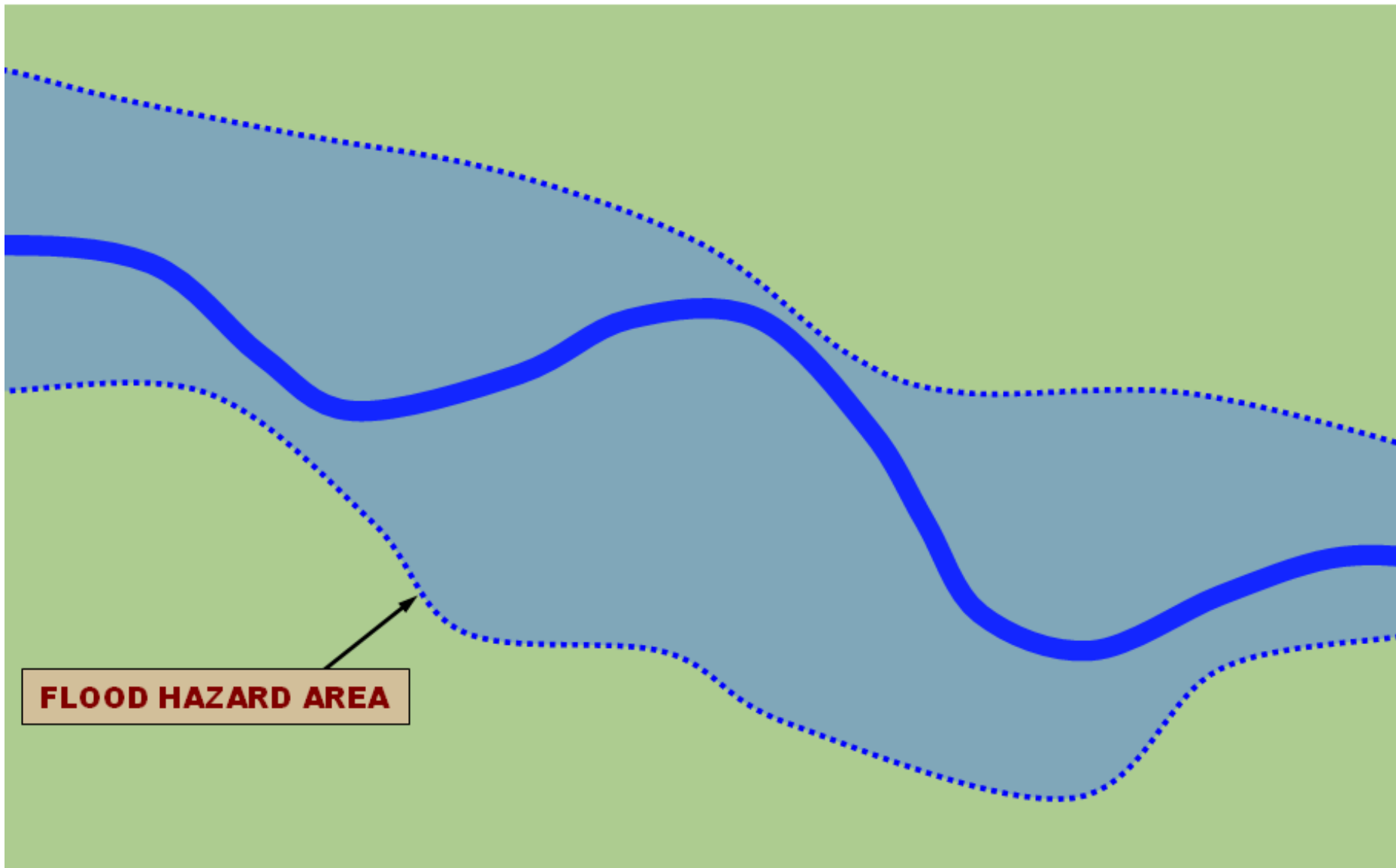
Table 10-7
Limits of Spread

Lane Configuration	Interstate and Freeways	Land Service Roads
Live Lanes next to Shoulder (inside & outside)	Full Shoulder	1/3 Width of Lane
Live Lanes next to Curb	---	1/3 Width of Lane
Ramp Proper	1/3 Width of Ramp	1/3 Width of Ramp
Accel/Decel Lanes	1/2 Width of Lane	1/2 Width of Lane

Flood Hazard Area

- Approximately 35% of New Jersey lies in a flood hazard area

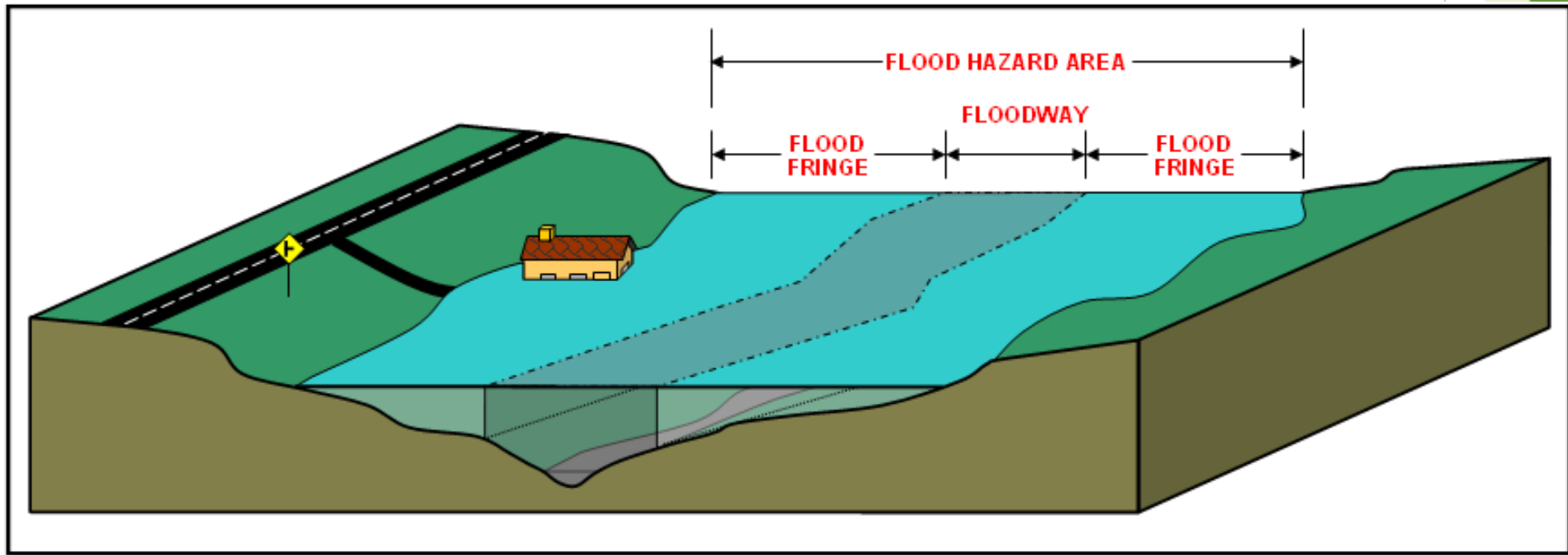


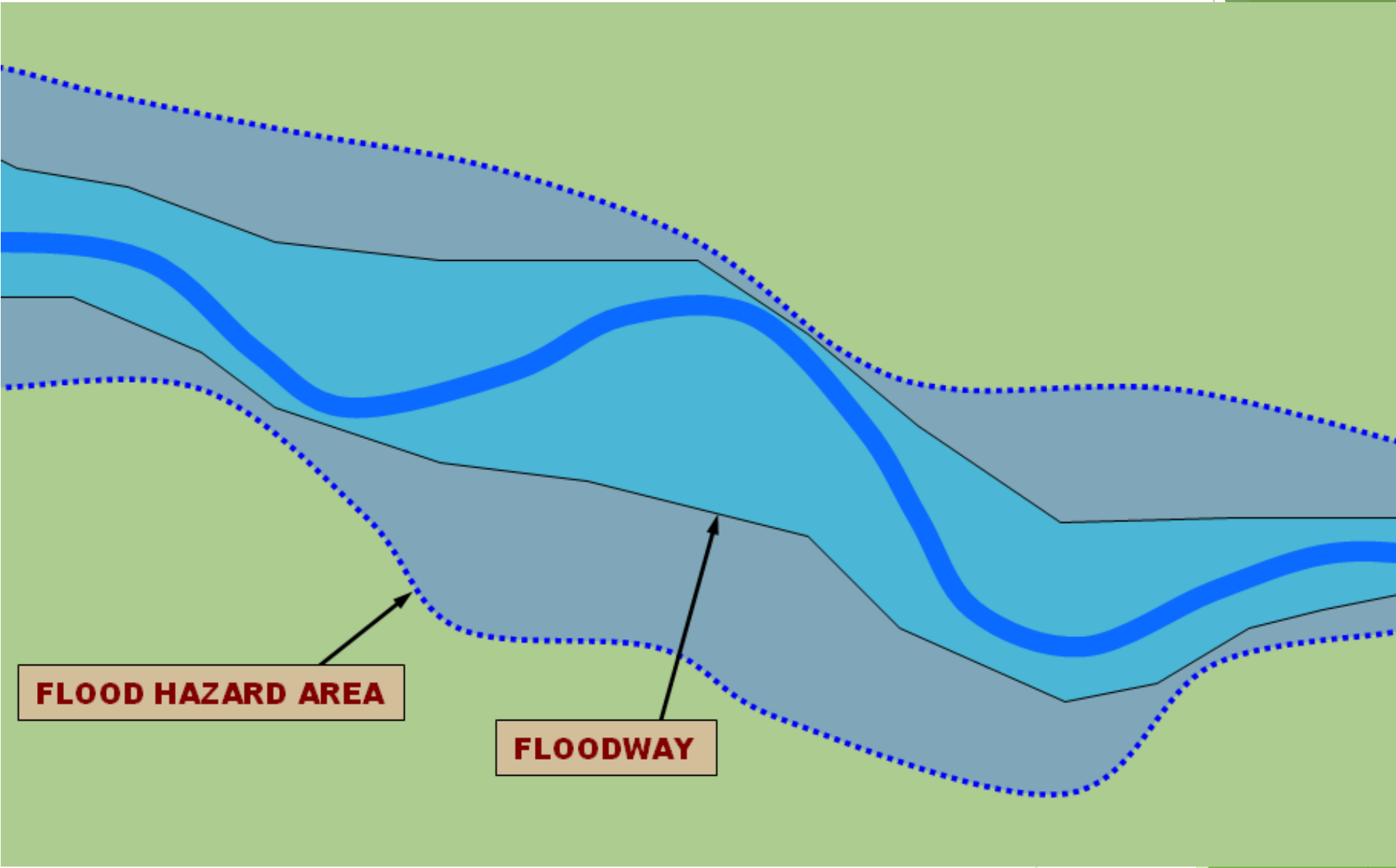


FLOOD HAZARD AREA

Flood Hazard Area

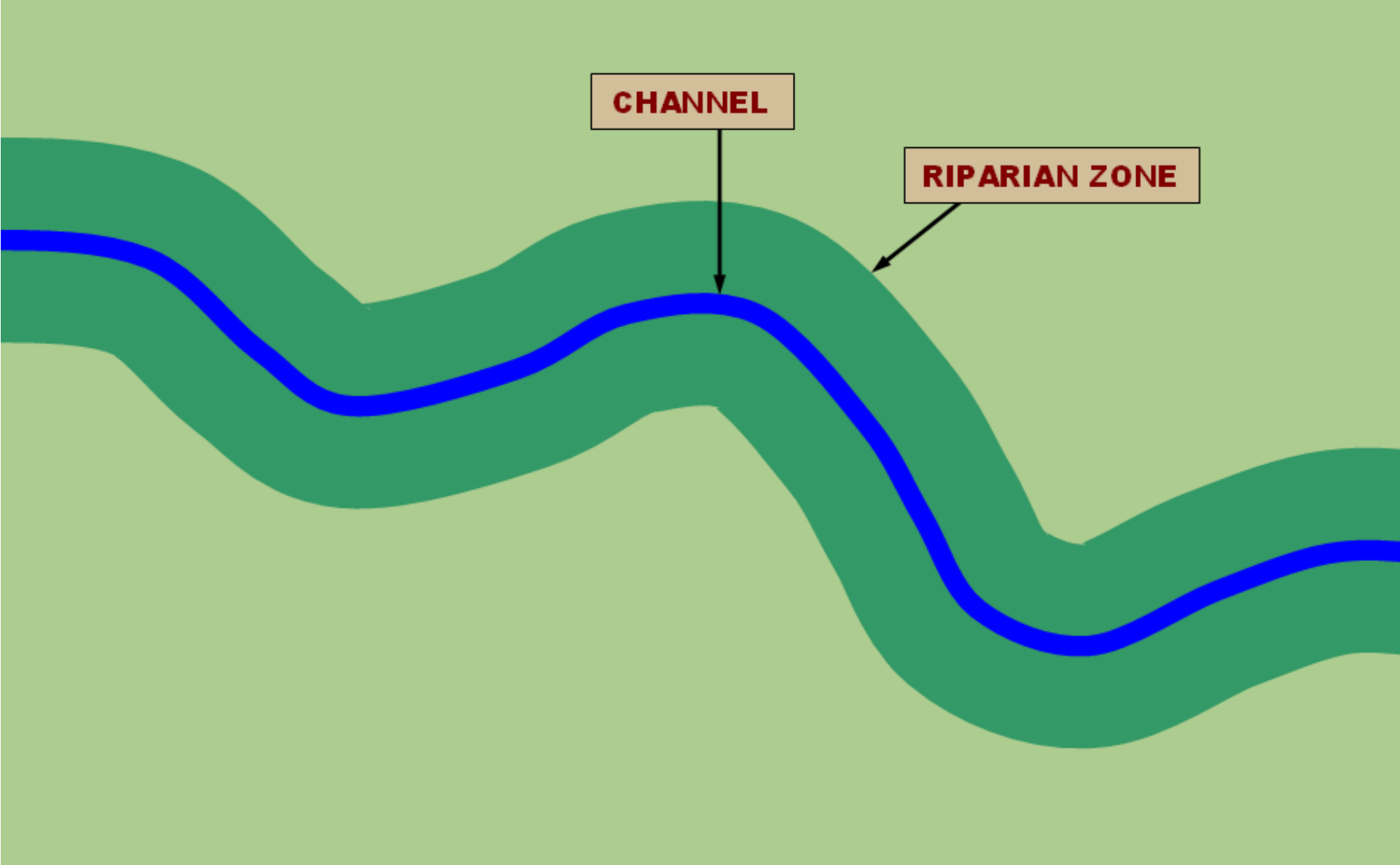
- ▶ The flood hazard area is comprised of the floodway and flood fringe

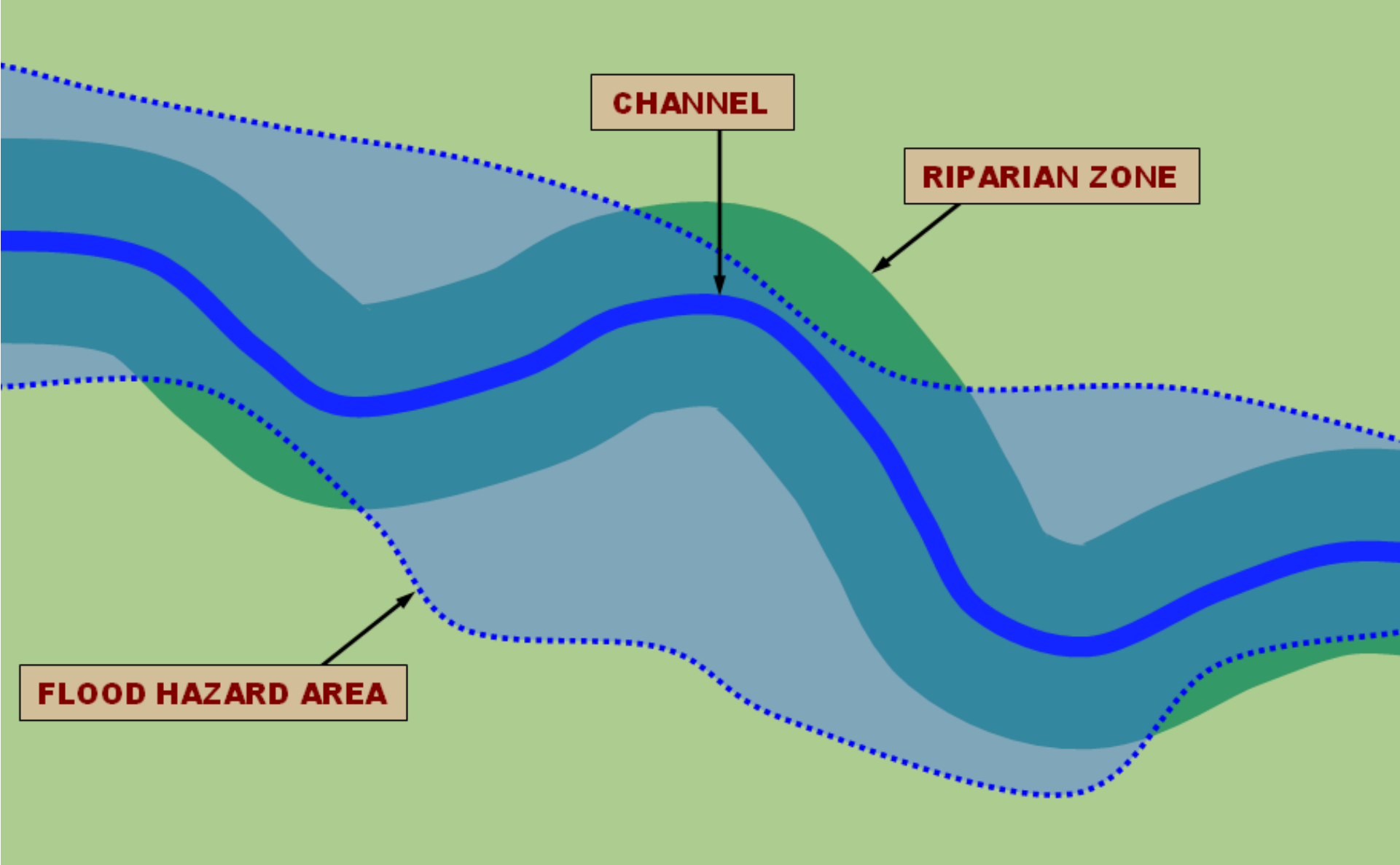




FLOOD HAZARD AREA

FLOODWAY





Stormwater Management (SWM)



Stormwater Management Triggers

- ▶ ¼ acre of new net impervious
 - ▶ Triggers Quality, Quantity, Recharge
 - ▶ Curbing roadway that was umbrella drainage counts as new impervious
- ▶ 1 acre of ground disturbance
 - ▶ Triggers Quantity and Recharge



Regulatory Stormwater Management Requirements

▶ Quality

- ▶ 80% Total Suspended Solids (TSS) removal for new impervious surface
- ▶ 95% TSS removal for discharge to C-1 water
- ▶ 50% TSS removal for reconstructed impervious surface
- ▶ This requirement causes most basins to be built

▶ Recharge

- ▶ Recharge same amount as pre development condition
- ▶ Recharge difference between pre and post development run off quantity

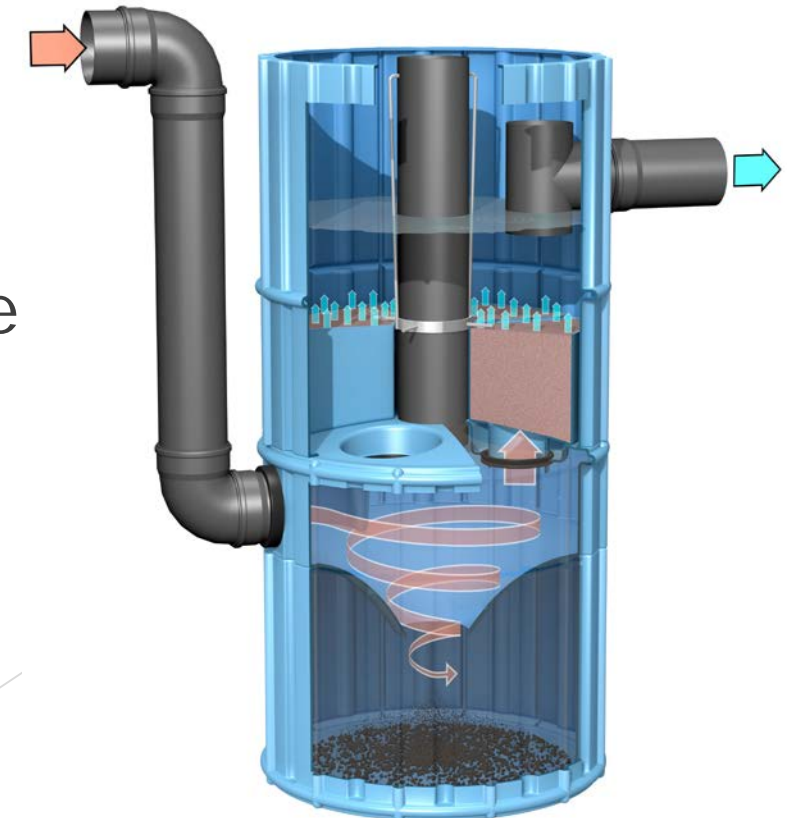
▶ Quantity

- ▶ Equal to or less than pre development conditions

Best Management Practices (BMPs) To Address Stormwater Management



- ▶ Basins
 - ▶ Infiltration
 - ▶ Retention
 - ▶ Detention
- ▶ Tide-flex Valve
- ▶ Manufactured Treatment Devices
 - ▶ Swirl Chambers
 - ▶ Off line & On line
 - ▶ Oil & Water Separators



When in doubt...


- ▶ *Sandra Blick*
- ▶ *David Rauzino*
- ▶ *Ryan Reali*
- ▶ *Kevin Bancroft*
- ▶ *Bakula Patel*
- ▶ *Vishal Patel*
- ▶ *Meeta Trivedi*



Questions?


Hazardous Waste Unit


The NJDOT commonly encounters contaminated sites that affect the planning, design, ROW, and construction of the State's transportation infrastructure

- 
- Hazardous Waste Unit, supports the Environmental Solution E-Teams, Project Management, Design and Construction associated with the management of contaminated soil and groundwater, asbestos and Underground Storage tanks (known and unknown)





- 
- Support the Design and Construction
 - Investigate any properties proposed for ROW acquisition to preserve the State's "innocent purchaser rights"
 - Conducts a Hazardous Waste (HW) Screening during CD/PE to identify potential Areas of Concern (AOC).
 - AOC may require further evaluation of potential soil and/or groundwater contamination based on proposed construction activities

- 
- NJDEP's Linear Construction Technical Guidance Document, dated January 2012, is technical guidance designed to help the person conducting a linear construction project (i.e., most of NJDOT projects) to ensure that contamination encountered during the project is handled in a manner that is protective of human health, safety and the environment.

Conducting a Hazardous Waste Study

The intent is to identify the presence or likely presence of hazardous substances and/or contamination within the existing and proposed Right-of-Way plus 250 feet on either side.

Areas of Concern

- Properties of questionable environmental integrity
- Solid and Hazardous Waste Landfills
- Industrial Facilities
- Properties with Storage Tanks (underground and above)
- Properties with the potential for Storage Tanks
- Railroads
- Spills
- Farmland (orchards)

Resources

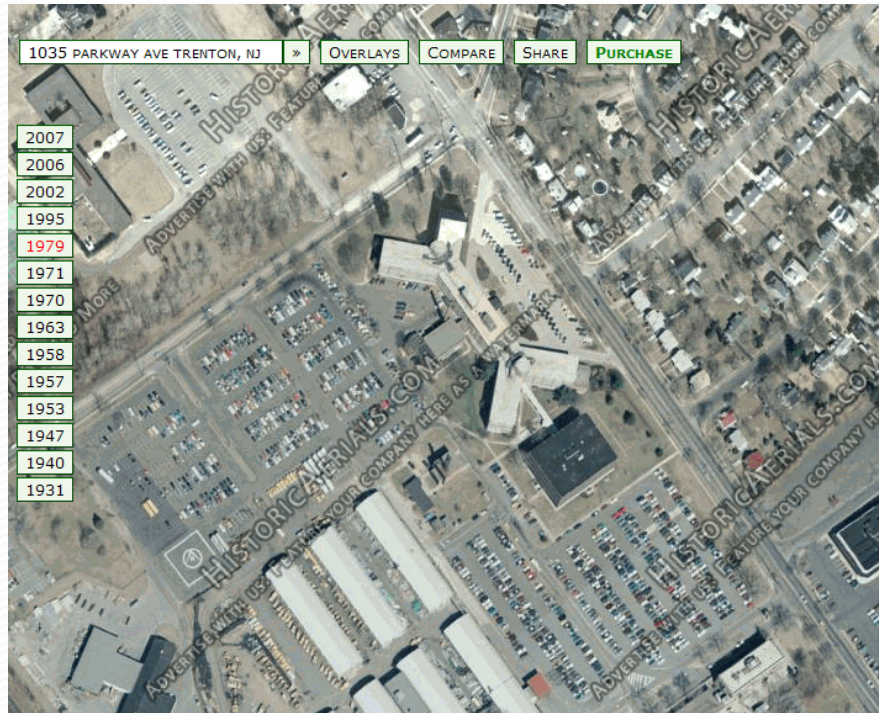
Federal Databases – EPA Envirofacts

State Database - NJ-GeoWeb and DEP DataMiner

Historic Land Use Review

- Historic Aerial Photographs
 - NJDEP requires investigation back to 1930
 - www.historicaerials.com
- Sanborn Fire Insurance Maps
 - Not available for all areas
- NJDEP Historic Fill Maps
 - www.state.nj.us/dep/njgs/geodata/dgso4-7.htm
 - These maps show areas of historic fill covering more than approximately 5 acres

NJDOT HQ 1979



NJDOT HQ 1940



Site Reconnaissance

- Field check to match up database searches
 - Verify Property addresses
 - Industrial or Residential property
 - Land Use
- Looking for areas of potential concern
 - Monitoring wells
 - UST
 - Stained soil (oil or other)
 - Poor housekeeping
 - Building structure
 - Railroad
 - Fill location and/or stockpiled soils
 - Location of potential concern
 - Front of property where construction may occur
 - Several hundred feet from construction area

Site Reconnaissance



Monitoring Wells



Site Reconnaissance

Drums and
Groundwater storage
Tank



Site Reconnaissance

Above Ground
Storage Tanks



Site Reconnaissance

UST Field




Site Reconnaissance

Former Service
Station



Asbestos

- Asbestos Surveying provides sampling, certified lab testing, and generates a report identifying the type, location and amount of asbestos present
- Asbestos Abatement provides specification to be added to a construction contract's Special Provisions. It tells a Contractor removing the asbestos exactly what to do and how to do it.
- The Abatement also provides an on-site asbestos specialist working on NJDOT's behalf who oversees the Contractor's asbestos removal operations, performs related air-monitoring, and ensures proper disposal

- 
- Hazardous Waste Unit, supports the Environmental Solution E-Teams, Project Management, Design and Construction associated with the management of contaminated soil and groundwater, asbestos and Underground Storage tanks (known and unknown)



Questions?

Soil Erosion & Sediment Control Unit

- *Reviews Soil Erosion and Sediment Control Plans and Reports*
- *Certifies the Soil Erosion and Sediment Control Plans and sends to the Soil Conservation District as DOT is self-certifying*
- *Processes Requests for Authorization (RFAs) to DEP under the NJPDES program for projects with one acre or more of disturbance*
- *Represents NJDOT at the monthly meeting of the State Soil Conservation Committee*
- *Coordinates with Landscape's Construction Support personnel and the Resident Engineer for corrective actions in the field*

