Concept Development Guideline

July, 2024

Procedures are subject to change without notice.
Check the Capital Project Delivery website
to ensure this is the current version

Table of Contents

Purpose

The purpose of this document is to provide step-by-step guidance on performing each activity in the Concept Development (CD) Phase of the NJDOT Project Delivery Process. This guide is intended for Project Managers, Designers, Subject Matter Experts (SMEs), and other stakeholders involved in the project delivery process. The following documents can be referenced for additional information on

- Concept Development:
- Concept Development Activity Descriptions
- Concept Development Work Breakdown Structure (WBS) Dictionary

This guide is divided into seven sections, reflecting the seven major areas of the Project Delivery Process Network Diagram for the CD Phase. Guidelines for consultant selection are not included in this document. The seven sections are: Initiate Concept Development, Perform Data Collection, Perform Data Analysis, Perform Alternative Analysis, Select Preliminary Preferred Alternative, Prepare Concept Development Report and Obtain Concept Development Report Approvals.

Introduction

All capital projects are required to complete the Concept Development Phase. While all capital projects must complete the CD Phase, project customization allows the Project Manager the ability to tailor the CD Scope Statement based on the complexity of the problem. This means that CD does not have to include all the CD activities; however, there are some critical activities and related deliverables that must be completed for CD.

The Division of Project Management (DPM) conducts all CD studies, except in cases where another entity other than the Department such as, a Metropolitan Planning Organization (MPO), local municipalities or counties, serve as the lead agency. In that case, DPM or Local Aid staff is assigned to work with the lead agency and provide guidance during this phase of work.

The CD Phase is intended to collect data and analyze a feasible solution which is cost effective, meets all NJDOT and FHWA standards and is supported by the community. The critical end products of the process are a well defined Purpose and Need Statement, a confirmed environmental document and a concept (alternative) that has met the approval of NJDOT SMEs, FHWA, the local municipality and the public. The Designer for the Preliminary Engineering (PE), Final Design (FD) and Construction (CON) Phases is also selected during this phase.

Initiate Concept Development

Review Problem Statement (2005)

The Problem Statement (Form TP-I) is a document that describes the perceived transportation problem. It identifies the type of problem (e.g., congestion, safety, bridge, pavement, etc.) and the location of the problem (route, milepost, limits, municipality and county). DPM receives all Problem Statements from Capital Program Development (CPD) after they are reviewed and prioritized. Upon receipt of the Problem Statement, the Project Manager:

- Reviews the form to ensure that all the pertinent information regarding the problem in question is included and the problem is well defined.
- Verifies the problem by contacting the Problem Statement initiator; uses the Straight Line Diagram (SLD) to verify the problem location.

Review Problem Screening Report (2010)

A Problem Screening Report contains the results of the problem screening conducted by CPD.

The Project Manager:

- Obtains the Problem Screening Report
- Reviews the Problem Screening Report; paying attention to the following:
  - The date the screening was completed to determine the validity of the data used.
  - Recommendations that will help to determine the scope of work for the proposed study.

Obtain Management Systems Input (2015)

It is necessary to gather as much data as possible on the problem to help determine purpose and need. The analysis of the data will confirm, define or refine the initial problem statement.

There are many sources of valuable data that can be useful. The Department's Management Systems house valuable data on different assets. A search of these Management Systems is required to help define the problem and identify any other problem at or near the identified problem site. This information should also be used to help determine the Concept Development (CD) scope of work.

In addition to the Management Systems, other SMEs, such as the Division of Traffic Engineering and Safety should be consulted for information. While each SME does not have a Management System, they can provide useful information such as existing or upcoming work orders at or near the problem site.

The Department Management Systems are: *Bridge Management System (BMS), Pavement Management System (PMS), Drainage Management System (DMS), Congestion Management System (CMS), Safety Management System (SMS), Maintenance Management System (MMS), Rockfall Hazard Management System (RHMS), Smart Growth Management System (SGMS) and Pedestrian Safety Management System (PSMS).*

Requested data from most Management Systems is usually obtained within two (2) weeks of the request date. Safety data is usually provided within four (4) weeks, however, the Bureau of Safety, Bicycle and Pedestrian Programs will accommodate a shorter turnaround, if justified.

This task can be eliminated if a Problem Screening was recently completed.

The Project Manager:

- Submits an email request to the appropriate NJDOT service area requesting the following information for the given location. The request should include a brief description of the problem being investigated, exact location (milepost), municipality and county.
  - Relative ranking on the management system
  - Final bridge rating
  - Available traffic counts and work orders
  - Recently completed work-orders/projects
  - Other relevant information
- Compiles the information obtained.

Determine Mapping Level and Resources Required (2020)

Base mapping is required for most projects, however, the level of mapping required for each phase of project development can vary. The level of mapping needed for the CD Phase depends on the problem being investigated. CD Phase mapping needs should be determined based on anticipated project constraints, project complexity and funding. The Project Manager coordinates with the Bureau of Survey Services to help determine mapping needs and whether mapping will be provided by a Designer.

For pavement resurfacing projects (Mill X, Pave X, plus 1”), a Pavement Recommendation is obtained prior to the CD Phase that determines the appropriate mapping needs. Due to limited seasonal availability to conduct aerial survey, Limited Scope projects may acquire design level mapping under a separate agreement. If so, the mapping is then provided to the Designer to be used during the FD Phase.

For most projects, the following considerations shall be made for base mapping:

- Bandwidth is the ROW width plus 30’ on either side of curb.
- If the subject roadway intersects a state highway, the mapping should include the entire lengths of the ramps.
- If the subject roadway intersects either county or local roads, the mapping should include the entire ramp that is under NJDOT jurisdiction. (Note: NJDOT will sometimes enter agreements with local municipalities to rehabilitate the entire ramps that may not be under NJDOT jurisdiction.)

The Project Manager:

- Obtains aerial maps (GIS or DEP aerials are suitable) for the length of the roadway to be paved

- Provides Survey Services Designer with the information

Obtain Stakeholder Input (2025)

In addition to internal NJDOT Management System owners and SMEs, sometimes various external stakeholders need to be solicited for additional data or information that the NJDOT does not gather. Additional data needs will depend on the type of project. This may include a copy of the municipal master plan, traffic studies conducted by the county or local municipality, bicycle/pedestrian plans, trails plans, station area access plans, and information about recently completed or pending work orders.

Develop Community Profile (2030)

A Community Profile provides comprehensive information about the community within a proposed project study area. It describes the population and land use of the area, identifies where key community facilities such as schools, churches, community centers, hospitals, etc., are located and identifies where the protected populations (Environmental Justice) are located and what languages are spoken in the community and what facilities could be impacted by transportation decisions. The profile helps to determine the type of outreach strategies to employ, whether project information should be provided in a language other than English and whether the proposed project will have a negative or no effect on the community or enhance it.

The profile and stakeholder list should be updated as the study progresses and more information about the community and surrounding area is obtained.

The Designer or Project Manager:

- Obtains US Census demographic data for the study area, locates and identifies any protected populations in the study area www.factfinder.census.gov
- Checks the municipal website for historical and current data including any historic districts or special zoning districts.
- Visits the study area. Use the Community Profile Checklist to take an inventory of the study area. Identify any major sites, destinations and trip generators within or proximate to the study area (e.g., educational institutions, transit stations, senior centers, medical centers, businesses, community facilities, parks). Also, identify where the residential areas are and where the protected populations (if any) are located.
    - Takes photographs
    - Analyzes the site's multi-modal capacity; describes existing accommodations and any physical or perceived impediments for bicycle and pedestrian travel; makes note of where people are walking/riding; where sidewalks are missing; potential for bike lanes/paths; the presence of street furniture, lighting and shade trees; where bus stops are located; access to bus stop; where people are congregating, shopping etc.; note evidence of community cohesion; does the existing transportation facility provide the only convenient transportation connection/linkage among land uses in the local area or region.
    - Talks to people. Find out who the community leaders are and where the community meetings are held.

- Use the information collected during the field visit and the demographic data obtained from the US Census to develop the Community Profile.

Prepare CD Public Involvement Action Plan (2035)

The Public Involvement Action Plan (PIAP) outlines the plan to inform and obtain input from the public on the proposed project. Early public input helps the NJDOT understand the transportation problem and how actions we take to solve the problem might impact the public.

Use information gathered in the Community Profile about the population within the study area and any other historic information about the population to develop the PIAP. The Division of Community and Constituent Relations (CCR) is a good resource to help understand the political climate of the area, how the residents perceive the Department, and how likely they are to attend meetings. This information helps to ensure that the appropriate outreach strategies are utilized.

The level of public involvement will depend on the scope of the proposed project and its perceived impacts. Adjustments to the plan might be necessary as the study advances and more information is obtained. At a minimum, a Public Information Center (PIC) should be held for every potential project.

The Project Manager:

- Visits the study area during the development of the Community Profile
- Identifies the target population (ethnicity, median age, education, transit ridership, etc.)
- Develops an initial stakeholder list (local residents, businesses, community organizations, advocacy groups, elected officials).
- Develops a draft public involvement program for the study. This should include:
  - a list of activities/meetings
  - a purpose and objective for each meeting
  - a target audience for each meeting
- Coordinates with CCR for input
- Provides Designer with a copy of the PIAP for their use to help develop the fee proposal. Allow for some flexibility as consultants might have suggestions/recommendations.
- Sends draft PIAP to CCR for comment
- Incorporates comments and forwards to CCR for signature
- Sends copy to Designer

Develop Concept Development Scope Statement (2040)

The Concept Development (CD) Scope Statement documents the activities, major milestones and deliverables necessary to complete the CD Phase. The CD Scope Statement is prepared by the Project Manager prior to the execution of the Task Order and is used in the negotiation of the CD Phase schedule and consultant fee proposal.

The Project Manager:

- Consults with the Executive Regional Manager and identifies the appropriate activities to include in the CD Scope Statement. If necessary, identify and consult appropriate SMEs to help determine the appropriate activities for the study.

- Submits a copy of the CD Scope Statement and proposed CD Phase schedule to the Designer (include copy of PIAP) when requesting fee proposal.
- Finalizes the CD Scope Statement if changes were made during consultant negotiation.

Create Concept Development Schedule (2045)

A Primavera schedule is required in each project delivery phase for every capital project. Schedulers assist the Project Managers in developing the CD Phase and PE Phase schedules.

The Project Manager submits a *Baseline Schedule Request Form* to the Office of Schedule and Budget Management and requests that the project be either placed in the "What If" or "Active" area.

- The Project Manager provides the Scheduler with a copy of the CD Scope Statement.
- The scheduler develops a schedule based on the activities in the CD Scope Statement.
- The Project Manager reviews and provides feedback to the scheduler for revision.
- The Project Manager provides a copy of the schedule to the Designer to aid in the development of the CD fee proposal.
- The Designer provides input on the schedule.
- The Project Manager works with the Scheduler to finalize the schedule. The schedule should be finalized before the Task Order is executed. The Executive Regional Manager and Director must concur with the schedule.

Develop Concept Development Fee Proposal (2050)

A man-hour cost estimate is a detailed list of anticipated hours required to perform each activity in the scope of work, associated cost and consultant staff expected to perform the activity.

To effectively negotiate the fees for the CD Phase, the Project Manager develops a man-hour cost estimate. Project scope and complexity will determine the amount of hours needed to complete each activity within the CD Phase.

The Project Manager:

- Submits the CD Scope Statement, schedule and PIAP to the Designer and requests a fee proposal (in Excel format) for the CD Phase work.
- Prepares an Excel spreadsheet with a man-hour estimate based on the CD Scope Statement and obtains input from the Executive Regional Manager or SMEs.
- Compares the Designer's cost estimate with the Project Manager's man-hour estimate and negotiates a fee that is acceptable to both parties (Fixed-fee for normal projects falls between 18% or 19.5% of Direct Labor).
- Requests three originals of signed Notice to Proceed (NTP) forms and a final scope of work once both parties are in agreement with the proposed fee.

Update PRS (2055)

The Project Reporting System (PRS) is the official internal clearinghouse for information on all NJDOT Capital Projects and can only be updated by NJDOT personnel.

The information in the PRS is used to provide the content for the Capital Project Status Report. The report is published monthly and contains general information, project status and schedules for all NJDOT Capital Projects. It serves as a reference for NJDOT management and the MPOs. The Project Manager is responsible for ensuring that the information in PRS is accurate and current.

- The Project Manager obtains the UPC and DB number from the Bureau of Capital Program Development.
- The Project Manager submits the *Bureau of Program Support Services Project Reporting Action Form* (by email) to the Bureau of Program Systems Management to have the new project entered into PRS.
- The Bureau of Program Systems Management notifies the Project Manager that the proposed project has been entered in PRS.
- The Project Manager updates PRS by populating the fields on each tab with available information.
- The Project Manager updates PRS monthly (at a minimum)

Execute Concept Development Task Order (2060)

Once the Designer and the Project Manager are in agreement on the scope, schedule and cost for the CD Phase, the Designer develops the Notice to Proceed (NTP), signs three originals, attaches a copy of the final CD Scope Statement, fee proposal and schedule and submits to the Project Manager for execution.

- The Project Manager reviews the NTP, signs the three originals and forwards with the CD Scope Statement, fee proposal and schedule to the Executive Regional Manager for review and approval.
- The Executive Regional Manager reviews and signs the NTP forms. The Executive Regional Manager submits a signed NTP form to the Contract Manager for entry into the Financial Management Information System (FMIS).
- The Contract Manager submits the NTP, CD Scope Statement, fee proposal and schedule to administrative staff for circulation. One original will be mailed back to the Consultant.
- Finally, the Project Manager instructs the Consultant to begin work.

Start Design Communications Report (2065)

The Design Communications Report (DCR) is a tool to help control project scope, schedule, and budget and improve overall quality. It documents important design decisions made during the CD Phase and throughout the life of the proposed project. These decisions are specific to design elements such as geometrics, bridge, sidewalk, drainage, ROW, access, environmental, etc. The DCR also documents critical constraints encountered and rationale for decisions made during the CD Phase and life of the proposed project. It is not intended to document project management strategies.

The DCR is prepared by the Designer during the CD Phase and updated as the proposed project advances and major decisions are made.

- The Project Manager provides the UPC number to the Designer.
- The Designer submits the draft DCR to the Project Manager for approval.

- The Project Manager and NJDOT SMEs review and approve the DCR.
- The Designer submits a signed DCR signature sheet to the Project Manager for approval. The Project Manager signs the sheet and returns it to Designer.
- The Designer uploads the approved DCR onto the Capital Project Delivery website.
- The Project Manager verifies that the approved DCR has been uploaded.

Perform Data Collection

Conduct Traffic Counts (2100)

Traffic Counts tell the planner how many and which types of vehicles are using the facility. Counts are needed to forecast future traffic volumes and conduct Level of Service (LOS) analysis. Roadways with a high percentage of truck traffic may require certain geometric design features to accommodate truck traffic. Roadways with a large number of pedestrians or with a potential for significant pedestrian traffic may require geometric considerations to reduce crossing distances or additional crossing opportunities. Traffic data also helps to determine the number and length of lanes required in the roadway design. Traffic counts also help to determine the best detour route for motorists, pedestrians and bicyclists. The NJDOT Data Warehouse should first be checked to identify if there are existing, usable counts.

During Concept Development, the Project Manager will determine whether the Designer or Bureau of Transportation Data Development (BTDD) will conduct the traffic counts. This is normally reflected in the CD Scope Statement. BTDD will usually perform traffic counts for small scale projects (pavement resurfacing, bridge deck replacement or others) through their Task Order Agreements.

Unless otherwise indicated, counts should be taken for at least 48-72 hours on Tuesdays, Wednesdays and Thursdays during non-holiday weeks. Turning movement counts should be conducted during AM and PM peak hours. Roadways with seasonal characteristics may require counts to be taken on Saturdays and possibly on weekends. Weekend counts should also be included for staging and detour analysis.

- The Task Order Consultant develops a traffic count program with the approval of the Project Manager as indicated in the CD Scope Statement and conducts the traffic counts for the study at an appropriate time. The program can include the use of Automatic Traffic Recorders (ATR), manual counts, vehicle classification counts, intersection turning movements, origin and destination surveys and pedestrian/bicyclist counts, depending on the problem being investigated.
- The Designer is required to electronically submit all traffic counts to DPM and BTDD.

Perform Supplemental Data Collection (2105)

The Project Manager or Designer should be able to identify any additional information that might be needed and what requested information was not received. If necessary, follow-up requests should be made to Management System owners, other NJDOT SMEs, as well as external sources.

Requests for NJDOT data should be made by the Project Manager.

The Project Manager:

- Develops a list of all data and information needed, including Management System data that has not been received.
- If needed, submits an Engineering Documents Unit Plan Request Form to the Engineering Documents Unit (EDU) for as-built construction plans, ROW and jurisdictional plans.
- If needed, requests traffic signal plans and jurisdictional documents from the Bureau of Traffic Engineering and Investigations and the Jurisdictional Unit respectively. This request should include route number, milepost, municipality and county.
- Instructs Designer to request other pertinent documents and information from appropriate external sources.

Forecast Travel Projections (2110)

Projected traffic volumes are used as estimated traffic volumes during the design life of the proposed project. Travel projections are essential in the CD Phase to ensure that the appropriate solution is developed for the roadway. The design life of pavement depends on the projected traffic volume and heavy truck percentages.

Traffic volumes should be projected for 20 years beyond the anticipated construction completion date for all improvements except pavement resurfacing which is projected for 10 years.

Utilizing the traffic data collected in Activity 2100, the Designer or Project Manager forecasts the traffic volumes and bicycle and pedestrian usage for the study area. The Project Manager reviews projections performed by the Designer to ensure that the appropriate growth rate is used and that the methodology used is acceptable to the Department.

The Project Manager may contact the Bureau of Systems Development and Analysis to obtain the growth rate for the proposed project study area. This growth rate must be analyzed with demographic and historical data to determine an overall appropriate rate. Specific planned developments should be accounted for in the overall background rate and added without any additional growth.

Prepare CD Mapping (2115)

Based on the mapping needs determined in Activity 2020 and included in the CD Scope Statement, the Designer prepares base mapping for the Concept Development effort to the point agreed upon with the Project Manager.

Conduct Field Inventory of Physical Conditions (2120)

It is imperative that the Project Manager becomes thoroughly familiar with the study area of the proposed project. Multiple site visits may be necessary over the course of the study. The purpose of these visits will be to conduct a site analysis and observe traffic and pedestrian circulation patterns and document existing conditions, taking note of utilities, drainage, ITS, environmental constraints and potential stakeholders. Verify information previously obtained (e.g., structure number) and other issues not covered in the problem statement. Utilize the Complete Streets Checklist while performing the field inventory.

Depending on the transportation problem to be solved, it will be very useful to bring appropriate SMEs on these field visits. Sometimes it may be necessary to have local SMEs such as local police or

municipal engineer or representatives from outside agencies participate. Coordinate with the appropriate agency/personnel.

The Project Manager:

- Determines an appropriate day for the field visit.
- Prepares study information to distribute to attendees. This may include: maps, SLD of the site, Problem Statement, bridge inspection report, Structural Inventory and Appraisal (SI&A) sheet, etc.
- Identifies the appropriate SMEs, disseminates the study information and requests their presence on the field visit.
- Reserves a vehicle for the trip.
- Debriefs SMEs, identifies possible solutions and collects information gathered by each SME either in the field or within an established time after returning to the office.

Identify Substandard Design Elements (2125)

All existing controlling substandard design elements and their limits should be identified during data collection. This is done to determine the severity of the substandard design elements and whether they are contributing to the problem and need to be brought up to standards. The Designers and the appropriate NJDOT SME will assist the Project Manager in this effort.

Once the substandard features have been identified and determined to be a contributing element to crashes in the vicinity, a decision will be made on the course of action to be taken. Some of the things that will need to be considered include:

- If the substandard element is not corrected as part of the proposed project, will this preclude NJDOT from correcting the substandard element in the future?
- How will correcting the substandard design element affect the scope, schedule and cost of the proposed project?
- If not corrected, will it impact the safety of the road users?

Decisions must be documented in the DCR. The Designer identifies all substandard design elements within the study limits and analyzes crash records to determine if there is an overrepresentation of crashes within or adjacent to the limits of a substandard element.

The Project Manager consults with NJDOT SMEs to determine what action, if any, should be taken with the substandard element. This can be done at the Scope Team or Core Group meeting or in a special meeting with the appropriate SMEs. The SMEs should be provided with the supporting data for their review.

Coordinate with Local Officials (2130)

Communication with the affected municipality is necessary for every study. However, the Project Manager, in consultation with the PIAP and the Division of Community and Constituent Relations (CCR), will determine the appropriate time to reach out to the local officials.

If necessary, a face-to-face meeting can be arranged. The Project Manager can authorize the Designer to contact the municipality via email or telephone to solicit input or request data. A NJDOT representative should be present at all meetings with local officials.

Perform Environmental Screening (2135)

An Environmental Screening is performed to identify potential environmental issues or "fatal flaws" (wetlands, protected flora and fauna, parkland, etc.) that could influence the selection of the Preliminary Preferred Alternative (PPA). Potential issues identified in Concept Development will be further investigated during Preliminary Engineering.

A determination is made during the initiation of the CD Phase whether the screening will be performed by the Bureau of Landscape Architecture and Environmental Solutions (BLAES) or the Designer. If the screening is to be done by BLAES:

- The Project Manager sends a request to the BLAES Manager to have an Environmental Specialist assigned to the study. The Project Manager sends a memo to the assigned Environmental Specialist with a copy to the BLAES Manager requesting the Environmental Screening. The request must include a map or aerial of the study area. The map(s) or aerial(s) shall be at a reasonable scale (project specific), and shall have the proposed study area depicted. Ideally, the Environmental Specialist would have attended the field visit.
- The Project Manager meets with the Environmental Specialist to discuss the proposed project scope and schedule.
- The Environmental Specialist prepares an Environmental Screening Report (ESR).
- The Project Manager provides the Designer with a copy of the final ESR.

Review Environmental Screening (2140)

This task will only be necessary if the Designer performs the environmental screening. The Bureau of Landscape Architecture and Environmental Solutions (BLAES) specialist assigned to the study should be the reviewer.

- The Designer submits the environmental screening to the Project Manager.
- The Project Manager submits a copy of the completed environmental screening to the BLAES Specialist.
- The BLAES Specialist reviews and provides comments or recommendations.
- The Designer makes revisions based on the comments.

Obtain Maps for Storm Water Management Rules Compliance (2145)

All proposed projects are expected to comply with the Storm Water Management (SWM) Rules.

An assessment of the proposed site is necessary to determine the impacts of the proposed project to the existing watercourses. Knowledge of the soil, land use and topography of the proposed project site will aid in the identification of suitable areas for SWM. The Designer obtains GIS data from the following sources:

- Soil survey maps from the Natural Resource Conservation Service (NRCS)
- GIS Land Uses shape files from NJ Department of Environmental Protection
- USGS Digital Elevation Model (DEM 1:24,000)

Prepare Drainage Area Maps (2150)

The Designer:

- Prepares drainage maps indicating the following :
  - watershed boundaries that contribute storm water runoff to the proposed site
  - drainage area boundaries and any additional drainage features identified in the study area
  - existing drainage areas contributing runoff to the roadway
- Determines runoff from NJDOT right of way
- Determines runoff from offsite contributing areas to the roadway
- Determines if offsite runoff can be separated from NJDOT drainage systems to reduce the volume of water
- Determines the volume of water to be treated which will provide a clear understanding of SWM measures and sizes required for the specific project area.

Send Utility Contact Letter (2155)

Utility impacts are very common to most NJDOT projects. Addressing these impacts requires coordination with the owners of all utilities encountered on each project site. The utility companies need to verify the location of their facilities or infrastructure so that a determination can be made about potential impact. They also need to provide the NJDOT with an order of magnitude utility engineering design cost estimate to perform design services.

Existing surface utilities should have been identified during the Field Inventory of Physical Conditions (2120). This should have alerted the Project Manager to all the surface utilities in the study limits and possibly the potential for sub-surface utilities as well. Because the sub-surface utilities are harder to detect, the Department relies on the utility owners to identify exactly where their infrastructure is located.

The Utility Contact Letter is the first contact the Department makes with the utility company to inform them of the pending project, request the contact information of the person in charge of the study area and solicit a cost estimate for utility engineering design.

The Designer:

- Prepares a list of all utility owners serving the study area, confirms the regional utility contacts with the Project Manager and sends them each a copy of the Utility Contact Letter.
- Informs the Project Manager of the utility company responses.

Validate and Compare with Regional Model (2160)

Travel projections using the developed growth rate are compared with the MPO's Regional Models for accuracy and consistency. This is very important for congestion related studies.

The Designer coordinates with the appropriate MPO Models.

Obtain Crash Records (2170)

If the necessary crash data was not obtained in Activity 2015, a Crash Analysis Form should be completed and sent to the Bureau of Safety, Bicycle and Pedestrian Programs (BSBPP).

- The Designer completes the Crash Analysis Form to obtain the crash history for the most recent three years and sends it to the Project Manager.
- The Project Manager forwards the request to the BSBPP.
- The BSBPP compiles the requested crash records (e.g., crash rates, collisions involving bicyclists and pedestrians, summaries, details and statewide averages) and sends to the Project Manager.
- The Project Manager forwards the crash records to the Designer.

Prepare Utility Risk Assessment Plan (2175)

Utilizing data obtained in Activity 2120 (Conduct Field Inventory of Physical Conditions) and utility information obtained in Activity 2155 (Send Utility Contact Letter), prepare the Utility Risk Assessment Plan. This plan will be utilized to complete the utility section within the Project Fact Sheet.

The Designer:

- Assesses for potential high risk utility impacts and notes those impacts on the plan.
- Consults with the utility companies to prepare the Utility Risk Assessment Plan.
- Informs the Project Manager of project specific utility risks.

The Project Manager:

- Decides if the specific utility risks should be included these within the project Risk Register.

Perform Data Analysis

Prepare Crash Analysis & Crash Diagram (2200)

Highway crashes are a strong indicator of whether a segment of roadway with deficient or substandard elements is a priority for improvements. They also identify unsafe areas of roadway where repairs may be needed.

An analysis of crash types (motor vehicle, pedestrian and bicycle) and severity will demonstrate the type of improvements necessary. The analysis will also justify whether or not a particular design element must be corrected by providing documentation for design exceptions.

This information will be useful at scope team and core group meetings.

The Designer:

- Prepares the collision diagram from the crash data obtained from the Bureau of Safety, Bicycle and Pedestrian Programs.
- Plots all crashes on one diagram
- Analyzes the data to identify types of overrepresented crashes and any substandard features that may be the contributing element.

Conduct Existing Traffic Analysis (2205)

Level of Service (LOS) Analysis is necessary to determine the existing capacity of the roadway. The analysis is usually conducted for the existing year, construction year and design year no-build condition.

This information will help the Department to determine whether improvements to the roadway are warranted. It also helps to determine the amount of widening and appropriate improvement for the location. The Designer should be aware that LOS only measures conditions from a driver's perspective and ignores the perspective of other users such as pedestrians and bicyclists. Examples of projects that could improve motor vehicle LOS but worsen conditions for pedestrians and bicyclists include removal of existing shoulder; narrowing of curb lane; creating large corner radii; or widening an intersection. When performing LOS analysis, the Designer should consider the perspective of all roadway users.

The Designer:

- Performs LOS analysis for the study location using Highway Capacity Software, SYNCRO or equivalent software.
- Documents results of the analysis in the Project Fact Sheet and Alternatives Matrix.

Conduct Scour and Seismic Retrofit Analysis (2210)

Scour and seismic retrofit analysis is performed to assess the structure for seismic retrofit eligibilty, scour countermeasures and other deficiencies. The Bridge Inspection Report and the Structural Inventory & Appraisal Sheet (SI&A) should indicate if the structure is scour critical. Seismic analysis will depend on the type of structure and the scope of work planned.

The Designer:

- Determines if a Seismic Retrofit Analysis is necessary with the NJDOT SMEs concurrence
- Performs Seismic Retrofit Analysis for the most feasible alternative
- Develops scour countermeasures if the structure is determine to be scour critical

Conduct Hydrologic & Hydraulic Analysis (2230)

A Hydrologic and Hydraulic (H&H) Analysis is usually performed to determine the appropriate bridge opening and culvert size needed to discharge the flood waters of a 25 or 100 year flood event. It also helps in the design of a collection and conveyance system for highway drainage.

As undersized structures can cause flooding, it is equally important to ensure that a structure is not over-designed adding unnecessary cost to the proposed project.

The Designer:

- Surveys the cross section of the stream/waterway and bridge fascia opening and performs the H&H analysis for the waterway.
- Determines if the existing opening is sufficient or needs modification.
- Consults with the Storm Water Management (SWM) SME and the State Department of Environmental Protection (DEP) to discuss findings, modifies if necessary.

- Makes adjustments to the alternatives as needed.

Conduct ITS Needs Assessment (2235)

The NJDOT Intelligent Transportation Systems (ITS) database provides information on existing ITS facilities statewide.

This database should be reviewed to determine if there are existing ITS facilities within the study area. When developing ITS recommendations, the Bureau of Intelligent Transportation Systems Engineering should be consulted to determine if any additional ITS facilities are planned or recommended. Utilize the following guidelines:

http://www.state.nj.us/transportation/eng/elec/ITS/ITSDB.shtm

http://www.state.nj.us/transportation/eng/elec/ITS/guidelines.shtm

Prepare Project Fact Sheet (2240)

The fact sheet describes the problem being investigated and summarizes the available information. It identifies the location of the problem, describes the problem and includes management system and other data (e.g., congestion ranking, crash data, existing traffic analysis) that is useful in highlighting the nature of the problem being investigated. It should be updated as new information is obtained.

The Fact Sheet serves several purposes. It is primarily used as a public outreach document. It provides a snapshot of the study and is used both internally and externally and can be tailored for different audiences. For example, a fact sheet that is developed for internal use may need to be revised for the public by minimizing use of technical jargon.

- The Designer prepares a draft fact sheet and submits to the Project Manager for review.
- The Project Manager reviews and provides comments.
- The Designer revises and finalizes the document.

Prepare Draft Purpose and Need Statement (2250)

After the data analysis and coordination with local officials, the team is now able to adequately define the problem and prepare the draft Purpose and Need Statement.

The Purpose and Need of the proposed project is essential in establishing the basis for the alternatives developed and, eventually, the selection of a Preliminary Preferred Alternative. The Purpose defines the problem and the Need describes the supporting data for the problem. The Purpose and Need Statement must be concise and comprehensible, and not be so narrowly defined that it unreasonably points to a single solution. The positive outcome that is expected should be stated. For example, a purpose may be to "reduce congestion in the corridor." It should avoid stating a solution as a purpose, such as "the purpose of the proposed project is to replace the bridge."

When preparing the Purpose and Need Statement, consider improving provisions for all roadway users (e.g., pedestrians, bicyclists, transit riders) in conformance with the Complete Streets Policy.

Goals and Objectives are sometimes included in the Purpose and Need Statement to address secondary issues that have been determined should be included in the proposed project.

For additional information:

- The Designer prepares the draft Purpose and Need Statement and submits to the Project Manager for review.
- The Project Manager and Environmental SME reviews and provides comments.
- The Designer revises the draft Purpose and Need Statement.
- The Project Manager solicits input from internal and external stakeholders (Scope Team and Local/Municipal Officials).

Hold Scope Team Meeting (2260)

Scope Team Meetings are designed to introduce the study to various SMEs and attempt to obtain input from all areas on the proposed project location. Scope team members will be able to hear concerns from other areas and may come to realize that solving one problem may create another.

Project Scoping is a TEAM effort. Therefore, it becomes critical that all scope team members thoroughly evaluate a proposed project and fully participate in the process.

The Project Manager:

- Assembles a list of SMEs which makes up the scope team.
- Schedules the meeting and notifies the attendees by email of meeting date and location.
- Sends study information to meeting attendees.

Hold Initial Local Officials Briefing (2270)

The Initial Local Officials Briefing is held to inform the local officials that the NJDOT is studying a problem in their jurisdiction, to discuss and obtain input on the Purpose and Need and solicit any additional information that might prove useful. Local support of the proposed project will help in acquiring a Resolution of Support at the end of the CD Phase. Additional coordination will vary depending on the complexity or controversial nature of the proposed project and detour of traffic.

The Initial Local Officials Briefing is scheduled by an Office of Community Relation (CCR) representative. The CCR coordinates with the municipal representatives (Manager, Administrator, Engineer, Planner or appropriate representative) to determine a time and location convenient for the local officials to meet with NJDOT staff and the Designer. The location is usually within the municipality's offices. The meeting should be set at least three weeks in advance.

Resources that may be brought to the meeting include a handout, study location map/aerial, profile plans, traffic flow diagrams, collision diagrams, environmental concerns and photographs. The Designer prepares the meeting handouts and presentation materials.

Complete Purpose and Need Statement (2280)

The Purpose and Need Statement can be finalized once input has been obtained from key stakeholders (local officials, scope team). Alternatives development can begin once the Purpose and Need Statement has been finalized and the data analysis tasks have been completed. The Designer revises the draft Purpose and Need Statement based on the Project Manager's, Environmental SME and any applicable SME suggestions and incorporates input from the key stakeholders.

Perform Alternative Analysis

Develop Alternatives (2300)

The key purpose of the Concept Development Phase is to explore feasible options and select the most cost effective alternative that best solves the transportation problem. Each option is weighed against criteria to determine the best solution. The underlying objective of each alternative should be to satisfy the Purpose and Need. Each alternative developed should consider avoiding or minimizing impacts to the community (e.g., displacement of residential or commercial property, impacts to access), the environment or utilities. Impacts to any of these entities will have to be mitigated which can considerably affect the proposed project cost and schedule. In addition to minimizing impacts to the environment, utilities, and the community, alternatives should incorporate appropriate design standards. Consideration should also be given to an alternative's constructability.

Obtain Stakeholder Input on Developed Alternatives (2310)

Before the Preliminary Preferred Alternative is officially determined, it is necessary to obtain key stakeholder input on the alternatives being considered to determine community or key stakeholder preference. Stakeholders may include a Community Action Committee (CAC), County and Municipal officials, railroad owners or other agencies. This effort may require meetings with each group or soliciting feedback by email.

The Project Manager should reference the PIAP and Community Profile to determine if the study has the potential to be controversial and, therefore, would require additional meetings and input from key stakeholders. Key community stakeholders can provide some input on the public involvement strategies being considered and in the identification of other interested parties.

- The Project Manager consults the PIAP and Community Profile to determine the stakeholders to be consulted.
- The CCR or Designer schedules the meeting.
- The Designer prepares meeting material.
- If meetings are not necessary, Designer sends materials to appropriate stakeholders via email for review.
- The Project Manager updates PIAP.

Prepare Railroad Agreement (2315)

If it is anticipated that a proposed project will impact a railroad, or if the purpose of the proposed project is to address safety issues at a railroad crossing, coordination between NJDOT and the railroad owner will be necessary. The Project Manager should consult with the NJDOT Railroad SME to discuss the study and verify that the proper steps are being taken.

The Project Manager:

- Prepares a funding agreement for railroad review work.
- Sends four (4) copies of the Railroad Engineering Construction Authorization (RECA) to the railroad company.

Develop Preliminary Detour & Construction Staging Plans (2320)

Construction staging plans are intended to identify the design of the construction zone, how the proposed project will be constructed (stages) and how the traffic will be managed during construction, including provisions for pedestrians and bicyclists when closing roads, bridges or sidewalks. The design of the construction zone should also incorporate the safety of the workers and the public within the work zone.

Depending on the scope and complexity of the proposed project, early consultation with Mobility Operations (formerly Traffic Operations), Quality Management Services, Traffic Engineering and Construction Engineering is recommended to design a plan that is safe and cost effective with minimal impacts to the public.

Not all construction staging will require detour routes. However, when they do, a detailed analysis of the proposed detour route should be performed. The detour route should have the capacity for the additional vehicular volume. If necessary, contingency plans should be put in place to make appropriate improvements to the proposed detour route before construction.

The Designer:

- Develops construction staging plans for the most feasible alternatives (not necessary to develop plans for all alternatives being considered)
- Prepares a construction sequence narrative that summarizes each stage
- Coordinates with Mobility Operations, and Quality Management Services to ensure that what is being developed is feasible and cost effective
- Coordinates with external stakeholders such as local municipal and county officials when local or county roads will be utilized as detour routes.
- Coordinates with North or South Mobility Operations and Mobility Engineering – Workzone. Coordination is performed to assure conformity with the people responsible for highway lane closings and detours on State highways. Traffic Operations provides guidance regarding the lane closure hours/days/duration for construction.

Perform Risk Assessment on Alternatives (2330)

Each alternative should be evaluated based on its potential impact to ROW, utilities, access, drainage, SWM, construction cost, built and natural environment, walking, bicycling and transit conditions, etc. A comprehensive understanding of all components will ensure a more accurate assessment. The community profile and site visits will help determine the potential impacts of each alternative.

Alternatives might be eliminated at this point if the impact is deemed too great and not feasible. Impact Assessment will help in developing the Alternatives Matrix for comparing each alternative.

The Designer:

- Determines the impact of each alternative.
- Coordinates with the Project Manager to determine which alternatives are worthy of advancing.
- Documents the impact of each advancing alternative within the Alternatives Matrix.

Develop Preliminary Construction Cost Estimates (2340)

Construction cost estimates are essential to key decisions at various stages during the life of the proposed project. Cost estimates during the planning phase play an important role in the selection of the Preliminary Preferred Alternative (PPA). While estimates during this phase are basically conceptual, they should reflect good, consistent estimating standards. According to FHWA, estimates at this phase should be based on historical averages of similar type projects based on scope and location type characteristics. *Trns•port* is NJDOT software that can be used to obtain historic construction cost data. Estimates done at this phase should include all costs for probable impacts to utilities, SWM mitigation, ROW and any others that might be determined by the alternative analysis.

Estimates made during the development of alternatives should also be revised and updated for the PPA before the CD Phase is finalized. Assumptions should be noted for future reference.

- The Designer develops a cost estimate for each alternative.
- The Project Manager consults NJDOT historic data to compare with the Designer's estimate.
- The Project Manager consults with the Utility Unit for utility cost estimates and the ROW Unit for ROW cost estimates.

Conduct Proposed Traffic Analysis (2350)

Traffic Analysis is an important component to alternatives development and eventually to the selection of the Preliminary Preferred Alternative. Traffic analysis for each alternative helps to determine if a proposed solution will obtain the desired outcome. The scope of the analysis will depend on the proposed project and the anticipated impacts. Proposed projects that may have a regional impact might require the development of a project specific model to analyze the impact. Volumes of pedestrian and bicyclist users need to be included in the traffic analysis, if appropriate.

The Designer:

- Performs the Level of Service (LOS) analysis for each alternative for the existing year, the construction year and the design year (20 years beyond the construction year).
- Conducts a failure year analysis if an alternative fails prior to the design year.
- If necessary, develops a traffic simulation for the existing no-build condition and most feasible alternative, to analyze the conditions on a network-wide basis.

Obtain Reasonable Assurance of Design Exception Approval (2360)

During data collection, design elements were identified within limits of the proposed project that do not conform to the required design standards. A determination has to be made whether the substandard elements identified should be improved or remain in their non-conforming state.

According to federal guidelines, a determination to maintain a non-conforming design element should be assessed on the basis of cost benefit and compatibility with the adjacent roadway. If severe impacts are associated with improving the substandard element, a lesser design element might be approved, as long as safety is not jeopardized.

Reasonable assurance of a design exception approval for all design exceptions is provided by Quality Management Services. Depending on the scope of the proposed project and the nature of the problem,

early coordination with Quality Management Services may be warranted as this may impact the selection of the Preliminary Preferred Alternative (PPA). An alternative may not advance without reasonable assurance.

- The Designer provides the Project Manager with all supporting data.
- The Project Manager requests the Bureau of Safety, Bicycle and Pedestrian Programs (BSBPP) prepare a Design Exception Crash Analysis Memorandum.
- BSBPP submits the completed Design Exception Crash Analysis Memorandum to the Project Manager.
- The Project Manager prepares a memorandum listing the anticipated substandard elements for the alternatives being developed for which Reasonable Assurance is requested and submits a hard copy to Quality Management Services. The memorandum includes:
    - Purpose and need of project
    - Typical section
    - Location of anticipated substandard elements
    - Existing/proposed/standard for each anticipated substandard element (a range of values is sufficient if exact dimensions are not known yet)
    - Order of Magnitude of what it would take to obtain the standard for each anticipated substandard element. This Order of Magnitude estimate would be a general idea of the issues (ROW, utilities, environmental, etc.) without getting into specific impacts (detailed costs, number of ROW parcels, permits, etc.) which would normally be obtained during further advancement of the project (Preliminary Engineering).
    - Crash information for each anticipated substandard element
    - Design Exception Crash Analysis Memorandum prepared by BSBPP
- The Project Manager submits hard copy base mapping and alternative plans to Quality Management Services that provide enough information/detail to adequately allow for a review of the locations of the substandard elements.
- Quality Management Services reviews the package and provides the Project Manager with a Reasonable Assurance decision.
- The Designer updates the Design Communications Report (DCR) to reflect agreement between Quality Management Services and the Project Manager.

Perform Storm Water Management (SWM) Analysis (2370)

Once the drainage area of the proposed project has been mapped, a Hydraulics and Hydrology analysis can be done and related impact on the existing system can be determined. Storm Water Management strategies can then be determined based on the need and location. Depending on the location of the proposed project and proposed strategy, soil testing may be required. The Storm Water Management SME can help determine when testing should be performed.

Current (2010) regulations state that SWM compliance is required for an alternative that increases the impervious surface by more than one-quarter acre or creates over one acre of ground disturbance.

- The Designer evaluates the developed alternatives to determine if SWM compliance is necessary by consulting the current New Jersey Department of Environmental Protection regulations.

- The Designer evaluates non-structural strategies to address SWM.
- The Designer determines Total Suspended Solids (TSS) removal rates and recharge potential to comply with all SWM rules, if non-structural strategies are feasible.
- The Project Manager coordinates with the NJDOT SWM SME to determine if soil testing is necessary.
- The Designer conducts soil tests in potentially suitable areas to determine soil permeability and the seasonal water table, as well as any other information that will conform to regulations.
- The Designer determines any necessary right of way needs.

Prepare Alternatives Matrix (2380)

An alternatives matrix provides a comprehensive look at all elements, constraints, benefits, etc. of each alternative being considered for selection. A good matrix provides all the pertinent information which will allow the key stakeholders to make an informed decision, ensuring that the most feasible and cost effective alternative will advance.

The matrix is usually provided to the core group for their review prior to the core group meeting. Therefore, providing the information in a format that is easily viewed is also as important as the information included in the matrix.

The matrix should define each alternative, list advantages and disadvantages, estimated construction cost, potential impacts and costs for utilities, right of way, access, environmental and historic impacts. The matrix should include constructability, design exceptions, design criteria, structural information and safety related information. If applicable, the matrix should also list pedestrian, bicycle and transit accommodations included for each alternative.

Included with the matrix should be the conceptual design plan of each alternative overlaid on the base map. Additional data such as traffic volumes and level of service analysis for each alternative should be included on each alternative's plan. The matrix should not be limited to the information listed above. The Project Manager and Designer can agree to add other information. The Project Manager should indicate the expectation for the matrix during scope development so that the consultant is aware of what is expected and what the final document should look like.

Select Preliminary Preferred Alternative

Coordinate with Permitting Agencies (2400)

The Bureau of Landscape Architecture and Environmental Solutions (BLAES) is responsible for all coordination between the Department and external environmental permitting agencies. The Environmental Screening indicates the possible permits that might be required before a proposed project advances to construction. The number and types of permits required for a project depends on the location and potential resources. Multiple permits are sometimes necessary.

The following agencies are permitting agencies in New Jersey: Highlands Council/DEP, Pinelands Commission, Coastal Area Facility Review Act (CAFRA), Meadowlands Commission, Delaware and

Raritan Canal Commission, State Historic Preservation Office, Division of Land Use Regulation Program, Army Corps of Engineers.

The BLAES Specialist:

- Makes a determination if early coordination is necessary for the study.
- Informs the permitting agency about the pending proposed project.
- Provides available information to the permitting agency.
- Invites the permitting agency to attend the core group meeting.

Obtain SME Input (2410)

As the alternatives analysis advances it may be necessary to convene meetings with various internal or external SMEs to clarify or solve issues before selecting the Preliminary Preferred Alternative (PPA). Ideally, the Value Engineering review is performed after a PPA is selected. Depending on the complexity of the problem, it may be necessary to obtain early input from Quality Management Services before a PPA is selected. Also, if an alternative being developed will require maintenance, it is wise to obtain input from the Maintenance Unit on the alternatives under development to ensure that the proposed projects does not have any major fatal flaw or that the proposed alternative can be properly maintained by Maintenance.

The Project Manager should exercise good judgment to determine when to utilize the expertise of SMEs. When dealing with complex issues or 'out of the box' solutions, it is advisable to obtain some reasonable assurance that the solution will be supported by the Department's SMEs before presenting to the Core Group.

The Project Manager:

- Determines which SMEs should be contacted.
- Schedules the meeting (formal/informal) and presents the problem to the SME.
- Informs the Designer of the meeting outcome if they did not attend the meeting.
- Informs key stakeholders of major revisions.
- If fill material is proposed on any of the developed alternatives, notify the Office of Maritime Resources to determine the availability of dredged material.

Conduct Concept Design Constructability-Risk Analysis Workshop (2415)

The Designer:

- Coordinate scheduling of a Concept Design Constructability-Risk Analysis (CDCRA) Workshop
- facilitate the CDCRA workshop to collaborate on the review of the current Alternatives and Alternative Matrix

Perform Quantitative Risk Analysis (2425)

For projects with a total construction cost over $100 million and if approved by the Project Manager and concurred with by the Executive Regional Manager, the Designer performs quantitative risk analysis. Quantitative risk analysis provides the Project Manager and Core Group with additional cost

and schedule impact information to assist in selecting the Preliminary Preferred Alternative. Quantitative risk analysis results in a more accurate estimation of probability of occurrence and a numerical value in days of schedule impact and dollars of cost impact.

The Designer:

- Includes each major risk for each alternative, utilizing the Sample Risk List as necessary.
- Calculates the probability of occurrence and magnitude of schedule and cost impact for each risk that is added to the worksheet.
- Performs quantitative risk analysis for each risk that has a high or very high probability of occurrence and a high or very high magnitude of impact.
- Documents the quantitative risk analysis in the Quantitative Risk Analysis Report.

The Project Manager:

- Consults with the Designer to determine how best to calculate the cost and schedule impacts.

Revise Alternatives Matrix (2420)

As input from other SMEs is obtained, the alternatives matrix must be updated to reflect any changes or additions.

- The Designer revises the matrix and submits to the Project Manager for approval.
- The Project Manager reviews and approves revisions.

Hold Core Group Meeting (2430)

The purpose of the Core Group Meeting is to solicit input from SMEs to aid in the selection of a Preliminary Preferred Alternative (PPA). Their involvement ensures that the alternative that is advanced to Preliminary Engineering (PE) is technically and environmentally sound.

- The Project Manager identifies the appropriate SMEs to attend the Core Group Meeting.
- The Project Manager coordinates with the Designer to determine an appropriate date for the meeting and prepares the necessary materials.
- The Project Manager schedules the meeting, reserves a conference room and sends out the meeting notice and study information to the appropriate NJDOT staff.
- The Project Manager and Designer present the alternatives to the group.
- The Project Manager moderates the meeting and leads the discussion towards the goal of selecting the PPA.

Conduct Value Engineering Review (2435)

Value Engineering (VE) is defined as a systematic process of review and analysis of a project, during the concept and design phases, by a multidiscipline team of persons not involved in the proposed project.

For any project authorized by the FHWA prior to October 1, 2012, the FHWA requires that a VE analysis be performed on the project if the estimated cost is $25 million or more (which includes project development, design, right of way, and construction costs) and on bridge projects with an

estimated cost of $20 million or more. For all projects authorized after October 1, 2012, the limits have been raised to $50 million or more for roadway projects and $40 million for bridge projects. Even though VE analysis is not mandatory for projects that fall below the new limit, the Project Manager is encouraged to request a VE study to ensure that the maximum improvements can be delivered on the limited budget. The Project Manager shall contact the VE Unit and give a briefing session.

Early Value Engineering involvement ensures that the selected Preliminary Preferred Alternative addresses the problem in a cost effect manner.

The Project Manager:

- Arranges a briefing session for VE team members
- Arranges a field trip

Hold Local Officials Briefing (2440)

A Local Officials Briefing is held to present the alternatives to the municipal and county officials to solicit their input. Resources that may be brought to the meeting include the Project Fact Sheet, map/aerial, alternative plans, profile plans, detour route, construction staging, traffic flow diagrams, crash collision diagrams, environmental concerns/screening, photographs, etc. The presentation will demonstrate and define the Core Group's draft PPA.

If the local officials support the draft PPA, a Resolution of Support is requested; which is issued by the Municipal Council. Sometimes a presentation to the Council is necessary to obtain the resolution. The Division of Community and Constituent Relations (CCR) will determine if a presentation to the Council is necessary.

- The Project Manager requests a CCR representative schedule a briefing with local officials.
- The Project Manager, Designer and CCR representative attend the briefing.

Prepare Value Engineering Technical Report (2445)

If a VE Technical Report is required, the Bureau of Quality Management Services prepares a VE Report. The Bureau of Quality Management Services submits a copy to the Project Manager for inclusion in the CD Report.

Hold Town Council Presentation (2450)

A Resolution of Support is an official document that indicates municipal support for the proposed project and is required prior to the CPSC presentation and before the CD Report is finalized.

Time should be allowed for the proposed project's Resolution of Support to be drafted and placed on the agenda of the Municipal Council Meeting. Coordination between NJDOT and the Municipality is necessary to get the proposed project on the agenda. The Division of Community and Constituent Relations (CCR) is usually responsible for communicating with the Municipality; however, the Project Manager can also contact the Municipality.

- The CCR notifies the Project Manager if a presentation to the Council was requested.
- The Project Manager and Designer prepare for the presentation.

- The Project Manager and Designer present to the Town Council.

Hold Public Information Center (2460)

The Public Information Center (PIC) is an open house type meeting intended to display the study information for public review and discussion. The Project Manager, SMEs and Designers are available for one-on-one interaction with the public, to answer any questions and respond to any concerns they may have about the proposed project.

Announcements are mailed to individuals who may be directly impacted by the proposed project. Other forms of advertisement are utilized to inform those who may be indirectly impacted and other interested parties. The team should ensure that traditionally underserved individuals including minorities, the elderly and individuals with Limited English Proficiency (LEP) in the study area are provided every opportunity to participate. Depending on the demographics of the study area, meeting announcements should be printed in a second language. If necessary, a translator should also be in attendance to assist any attendee with LEP.

The PIC should be held at a location that is easily accessible by all (ADA accessible) including individuals who use public transportation, and is held during a time that is convenient to all including working individuals.

When presenting a proposed plan to public officials or the general public, it is not recommended to include a plotted profile or other potentially confusing technical information on the plan display board. Instead, it is recommended to have a 5:1 plotted profile, a typical section of the roadway and other related documents available as needed. The plan presented should be easy to understand and should mimic the proposed conditions to the greatest extent possible. This may include items such as traffic striping, lane arrows, signs, traffic signals, etc., as they would appear in the completed condition. The plan view should be at a scale that is easy to read (as large as possible), and should not be cluttered with unnecessary detail.

- The Project Manager consults with a CCR representative on the date and venue for the PIC.
- The CCR representative or Designer makes the necessary arrangements for the venue.
- The Project Manager and Designers prepare for the PIC (prepare mailing labels, PIC Flyers and Display Board of the Preliminary Preferred Alternative), and decide what materials to display and which SMEs should attend.
- The Project Manager contacts the Division of Civil Rights and requests the appropriate language translator for the meeting as needed.
- The Project Manager, CCR representative, SMEs and other necessary staff attend the PIC.

Finalize Preliminary Preferred Alternative (2470)

The Preliminary Preferred Alternative (PPA) can be finalized once all the outreach with all the key stakeholders and the public is complete and all comments and input is received. The Project Manager instructs the Designer to finalize the PPA by making any necessary adjustments to the PPA based on the Public Information Center.

Investigate Need for Traffic Regulation Orders (2485)

A Traffic Regulation Orders (TRO) is required to establish or revise existing traffic regulations and/or traffic control devices along State highways, non-State highways having an impact on a State highway, or any public road when seeking to restrict commercial vehicles, or to close a roadway for more than 48 continuous hours. Send all submissions to the Manager, Bureau of Traffic Engineering.

The Designer will investigate the need for any TROs for the PPA, following NJDOT Policy and Procedures #907, Adoption of Traffic Regulations. The Designer will notify the PM of the TRO need investigation outcome. The PM notifies the appropriate municipal officials about the future need for any TRO resolutions (upon reaching substantial construction completion) to support the TRO process. NJAC 16:27, 4.

Prepare Concept Development Report

Complete PPA Constructability-Risk Report (2500)

The constructability review is an opportunity for Construction SMEs to formally review the Preliminary Preferred Alternative (PPA) and provide input to improve the construction methods or construction staging. The desired result is to incorporate Division of Construction Management's comments and ultimately produce construction plans that will reduce the construction duration. Depending on the scope and complexity of the proposed project it may be necessary to have a special meeting with the Construction SME to discuss the plans.

The Division of Construction Management is divided into regions. Identify the appropriate regional contact for the proposed project.

- The Project Manager determines if a meeting with a representative of the Regional Construction Engineer is necessary.
- The Project Manager schedules a meeting with the appropriate Regional Construction Engineer and submits plans prior to the meeting. (Allow at least three weeks for review).
- If a meeting is not necessary, the Project Manager submits the construction staging plans and the PPA to the Regional Construction Engineer for review. Include the Route and Section Number, Mileposts, Municipality and County. Request comments in writing. (Allow at least three weeks for review).

Confirm Environmental Document (2510)

The type of environmental document that will be obtained during Preliminary Engineering is determined by the Bureau of Landscape Architecture and Environmental Solutions (BLAES) in consultation with FHWA.

There are five types of Environmental Documents:

- Certified Categorical Exclusion (CCE) – Very limited in scope and do not cause significant environmental impacts.
- Categorical Exclusion (CE) – Limited environmental impacts within a Project.

- Environmental Assessment (EA) – Unsure of the environmental impacts within a proposed project.
- Environmental Impact Statement (EIS) – Multiple, sizable impacts within a proposed project.
- New Jersey Executive Order 215 – Environmental document applicable to state funded projects only (not applicable to projects using any percentage of Federal funding).

The determination is based on the complexity of the proposed project, possibility for controversy and the severity of the proposed impacts. If necessary, a meeting can be scheduled with BLAES personnel to discuss the issue.

- The Project Manager requests that BLAES determine the probable environmental documentation.
- BLAES informs (email or memo) the Project Manager which Environmental Document will be satisfactory for the proposed project.
- The Project Manager informs the Designer and the information is included in the CD Report.

Prepare PE PIAP (2515)

Public Involvement during the PE Phase should be a continuation of the process which had begun during the CD Phase. However, it is important to evaluate the CD program and make necessary changes to improve the public involvement during PE.

- The Project Manager, Designer and Division of Community and Constituent Relations (CCR) representative evaluate the CD Public Involvement Action Plan (PIAP) and make recommendations for the PE PIAP.
- The Designer drafts the PE PIAP and submits to the Project Manager.
- The Project Manager sends the PE PIAP to the CCR representative for comment
- The Designer incorporates any comments, finalizes the PE PIAP and submits to the Project Manager for signatures.
- The Project Manager forwards the PE PIAP to the CCR for signature.

Prepare PE Scope Statement (2520)

The PE Scope Statement documents the activities, major milestones and deliverables necessary to complete PE. The Scope Statement is prepared by the CD Designer prior to the selection of a PE Designer and is used in the development of the proposed project schedule, independent cost estimate (ICE) and PE Designer's fee proposal.

- The CD Designer develops the PE Scope Statement and selects the appropriate activities needed to complete PE.
- The CD Designer submits a copy of the scope statement to the Project Manager for review.
- The Project Manager consults appropriate SMEs to help determine the appropriate PE activities.
- The CD Designer revises and finalizes the PE Scope Statement with recommendations from SMEs.

Prepare System Engineering Review Form (2535)

All proposed Information Technology Systems (ITS) features must conform to the ITS Architecture and Systems Engineering requirements. The Project Manager should contact the ITS SME for guidance, if not familiar with the ITS guidelines.

- The Designer determines the ITS Purpose and Need.
- The Project Manager and Designer consult with Mobility Operations Center (formerly Traffic Operations Center (TOC)) to discuss ITS needs.
- The Designer completes the Systems Engineering Review Form (SERF) if ITS deployment is programmatic.
- The Designer develops a Concept of Operations Report it deployment is not programmatic.
- The Project Manager and Designer satisfy seven sections under the SERF by informing and coordinating with impacted stakeholders.
- The Project Manager submits a copy of the SERF and Concept of Operation Report (if required) to Mobility Operations for review and approval.
- The Designer includes the SERF and Concept of Operation Report (if required) in the CD Report for FHWA review and approval.

Prepare CD ROW & Access Impact Plan and Matrix (2540)

As alternatives are developed, right of way (ROW) needs are identified for each alternative. Once the PPA is selected, the focus is placed on the ROW needs of the selected PPA.

The ROW and Access Impact Plan and Matrix should identify each affected parcel by block and lot, land use of each property, type of acquisition required (partial, full or easement), parking impact and the exact amount of property needed.

The ROW plan will show the area of takings, type of use of properties, and any potential easements needed for the proposed project.

- The Designer develops the ROW and Access Impact Plan and Matrix.
- The Designer uses the base map to develop the ROW plan.
- The Project Manager and ROW Regional Office review the ROW and Access Impact Plan and Matrix and provide comments.
- The Designer incorporates the comments and finalizes the ROW and Access Impact Plan and Matrix.

Prepare CD ROW & Access Cost Estimate (2550)

The Right of Way (ROW) and Access Cost Estimate is necessary to develop a realistic construction cost estimate for the proposed project. The Bureau of ROW is responsible for preparing the ROW and Access Cost Estimate.

- The Project Manager submits a request for a ROW and Access Cost Estimate to the Division of ROW. The request should include the ROW and Access Impact Plan and Matrix, map of the proposed project location and tax maps.

- The Regional ROW Office prepares the ROW and Access Cost Estimate, which includes the right of way cost, relocation cost, appraisal fees, contingencies, cost to acquire, incidentals, and other relevant fees.
- The Division of ROW submits the ROW and Access Cost Estimate to the Project Manager.

Complete CD Quality Certification (2560)

The Designer is required to notify the Department that the Concept Development work was performed in accordance with the approved CD Scope Statement by completing and submitting the CD Quality Certification Form. The Project Manager will approve and sign the CD Quality Certification Form after CPC approves the completion of Concept Development.

Execute Project Assignment Contract (2565)

The Project Manager completes the Project Assignment Contract and send it to the Executive Regional Manager for negotiation/agreement. In-House Division Director (Division of Highway and/or Traffic Design and Division of Bridge Engineering and Infrastructure Management) signs and forwards to Director, Division of Project Management. Once all directors sign, the Contract is forwarded to the Assistant Commissioner, Capital Program Management for approval.

Prepare Draft Concept Development Report (2570)

The Draft Concept Development (CD) Report is a compilation of all the information used to develop the Preliminary Preferred Alternative (PPA). The report is produced in accordance with the CD Report Template.

Due to Project Customization, the CD Report may not include every item in the CD Report Template. However, there are items that should be included in every CD Report. Consult the Project Customization Guidelines.

The Designer prepares the Draft CD Report and submits to the Project Manager within the time frame agreed to in the schedule.

Review Draft CD Report and Address Comments (2580)

This first round of reviews allows internal staff to review the Draft CD Report before it is sent to FHWA.

- The Project Manager and any selected SMEs review the Draft CD Report and provide comments to the Designer.
- The Designer makes revisions based on comments received and prepares the document for FHWA review.

Obtain Concept Development (CD) Approvals

FHWA Reviews & Approves CD Report (2600)

FHWA approval is required for all CD studies. The approval confirms satisfaction with the analysis and final selection of the PPA. Final approval is obtained when all issues and concerns have been addressed.

- The Project Manager submits one (1) copy of the Draft CD Report to FHWA.
- The FHWA reviews and provides comments to the Project Manager within 30 days.
- The Project Manager reviews FHWA's comments and instructs the Designer to provide answers to any questions and make any necessary changes to the Draft CD Report.
- The FHWA approves the Draft CD Report when satisfied with answers to questions or changes to the Draft CD Report are made.

Present to Capital Program Screening Committee (2610)

The Capital Program Screening Committee (CPSC) consists of NJDOT Directors (voting members), NJTPA, FHWA, DVRPC and SJTPA. The three MPOs and FHWA are non-voting members. The Committee is responsible for deciding what Problem Statements are advanced for study and development and whether a study should advance from one phase to another.

The Project Manager makes a presentation to the committee at the completion of the CD Phase with a recommendation to advance to the PE Phase or consider another course of action. The Committee either concurs with the recommendation of the presenter or recommends an alternate course of action. The CPSC's recommendation is later presented to the Capital Program Committee (CPC). Consultants are not allowed to participate.

The presentation is usually 5-10 minutes long and should provide pertinent information to allow the members to make an informed decision. The Purpose and Need, major issues (environmental, ROW, community opposition), cost, and user and community benefits of the proposed project should be emphasized.

DPM conducts Peer Reviews prior to the CPSC presentation.

DPM Peer Review:

The main purpose of an internal peer review is to help prepare the Project Manager to make a clear and concise presentation to the CPSC. A secondary benefit of the peer review is to ensure that the proposed project has gone through the CD process properly and to share information with other DPM staff on matters that they may not have encountered in their work but may at some point in the future. The duration of these meetings is usually limited to ½ hour. It is the responsibility of the Project Manager to schedule the Peer Review and notify Executive Regional Managers and staff.

The Project Manager:

- Schedules and holds a Peer Review.
- Submits a memorandum to the Division of Capital Investment Planning and Development requesting placement on the agenda for the next CPSC Meeting. The memo provides information such as: UPC number, Milepost, Municipality, County, etc., a short overview of

the problem, the solution being proposed and a recommendation. Attachments to the memo include an aerial or map of the study area and a SLD.

- Requests the Designer to prepare all the necessary display material for the presentation.
- Presents at the CPSC Meeting.

The CPSC:

- Endorses the Project Manager's recommendation or recommends another course of action.

CPC Approves Advancement (2620)

The Capital Program Committee is a higher level committee; its members include the Deputy Commissioner and all Assistant Commissioners. The Agenda items from the CPSC are discussed with the associated recommendation. The purpose of this meeting is to obtain concurrence on the CPSC recommendation. The CPC concurs with the CPSC or makes another recommendation.

Directors are invited to attend the CPC meeting but do not vote. Project Managers do not attend unless requested.

After the CPC approves advancement to the next appropriate phase, the Project Manager begins the consultant selection process.

Finalize CD Report (2630)

The CPC decision signals the completion of the Concept Development Phase.

- The Project Manager informs the Designer of the outcome of the CPC meeting and instructs the Designer to finalize the CD Report.
- The Project Manager provides the Designer with any outstanding document to be included in the report.
- The Designer completes the necessary changes and finalizes the document.
- The Project Manager distributes the final report to FHWA.