Problem Screening Guideline

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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 guidance on performing the Problem Screening Phase of the NJDOT Project Delivery Process. This guide is intended for use by the Division of Capital Investment Strategies, Division of Project Management and others involved in this phase of work.

Introduction

Problem Screening (PS) is the first phase of work in the New Jersey Department of Transportation (NJDOT) Project Delivery Process. As such, all Problem Statements are first introduced to the Department in this phase. Problem Statements are submitted from different sources such as an NJDOT Management System, Metropolitan Planning Organization (MPO), or internal/external stakeholder. The purpose of this PS Phase is to verify the problem, discuss the need and recommend a course of action.

Two Department service areas take the lead in the execution of the PS Phase; Capital Investment Planning and Development (CIPD) and the Division of Project Management (DPM). Each service area contributes to the Problem Screening Recommendation Report, which is routed to the Capital Program Screening Committee (CPSC)/ Capital Program Committee (CPC) for approval.

The Division of Capital Investment Planning and Development performs the initial portion of the PS Screening effort.

CIPD staff evaluates the Problem Statement and to ensure that it is in agreement with the Statewide Capital Investment Strategy goals and Complete Streets Policy and determine the path that a Problem Statement could reasonably follow. CIPD staff also evaluates existing NJDOT data (traffic/crash data, bicycle and pedestrian) to determine if the problem is in concern or conflict with any other existing or proposed work. It is important to note that the PS Screening should be performed with only the existing data that is readily available within the NJDOT from various databases or from past studies. Only, if absolutely necessary, data will be obtained by contracting out to consultant.

Decisions are made in the PS Screening effort that will dictate the direction of each Problem Statement, which may include, but not be limited to, advancement of the Problem Statement to the Concept Development (CD) Phase, advancement of the Problem Statement to Maintenance or Operations for a quick fix, or withdrawal of the Problem Statement.

The Division of Project Management (DPM) performs Field Investigation.

A critical task of the Field Investigation is coordination with internal stakeholders (e.g., Subject Matter Experts (SMEs)) and, if needed, with the external stakeholders (such as local officials). The Field Investigation should be done within 60-90 working days.

The following are the major work efforts involved in PS Screening

Review Problem Statement

The Problem Statement is a document that describes an apparent transportation problem. It identifies the type of transportation problem (e.g., safety, congestion, operational, etc.), the location of the problem, route, milepost, limits, municipality and county. The Division of Capital Investment Planning and Development (CIPD) receives and reviews all Problem Statements submitted from internal/external stakeholders and weighs its merit against data and information contained in the Department's various management systems. Upon receipt of the Problem Statement, CIPD:

- Reviews and checks the Problem Statement form (TP-1) to ensure that all pertinent information regarding the transportation problem in question is included and the problem is well defined.
- Reviews the Problem Statement for possible duplication of an existing project/proposed project/Problem Statement.

Request Management System Input

During the Problem Statement Review, it is imperative that a search of all the management systems be conducted to determine the ranking/priority of the Problem Statement, which will support the need to advance the transportation problem. The following are the nine management systems in the Department:

1. Safety Management System
2. Congestion Management System
3. Drainage Management System
4. Bridge Management System
5. Pavement Management System
6. Maintenance Management System
7. Rock Fall Management System
8. Smart Growth Management System
9. Pedestrian Safety Management System

CIPD sends a memo to the owners of applicable management systems and other SMEs requesting the following information:

- Relative ranking/priority on the management system
- Available traffic data
- Recently completed or concurrent work-orders/projects
- Other relevant information

The request memo includes a brief description of the problem being investigated, milepost, county and municipality.

Check for Conformance to CIPD Goals

It is imperative that all Problem Statements are effectively, efficiently and consistently screened in agreement with the Department's 10-Year Statewide Capital Investment Strategy and project prioritization. As such, CIPD:

- Identifies whether correcting the potential transportation deficiency noted in the Problem Statement is in general conformity to NJDOT's Capital Investment Strategy goals and objectives and is consistent with the Complete Streets Policy.
- Recommends advancing the Problem Statement provided funding is available and subject to asset category investment targets.
- Checks if a Problem Statement is listed in a NJDOT Management System and identifies ranking/priority of the transportation problem.

Coordination with Subject Matter Experts

During the Problem Statement Review, CIPD will coordinate with several SMEs (e.g., Bureau of Traffic Engineering, Bicycle, Pedestrian Office, and Operations) to investigate if the Problem Statement can be addressed with a quick fix (such as striping work, signage, etc). Coordination with other SMEs such as the Bureau of Traffic Data and Safety, Pavement and Drainage Units, and the Division of Project Management for possible quick fix solutions and management systems evaluations may also be required. Sometimes the SMEs may recommend that geometric improvements may be needed and, due to the complexity of the transportation problem, it should advance to a Field Investigation.

Problem Statement Review Recommendation

Once the Problem Statement has been reviewed and checked for conformance with CIPD goals, CIPD is prepared to make the following decisions and recommendations:

- Advance Problem Statement to Concept Development
- Advance to the Bureau of Maintenance Engineering & Support or Traffic Engineering & Investigations if the Problem Statement appears to be a quick fix project. Any quick fix by means of maintenance work order should take the opportunity to improve safety, access and mobility for non-motorized travel without compromising the safety, efficiency or function of the facility. Similar to projects involving construction and recreation, all maintenance projects must provide alternate routes for bicyclists and pedestrians during the repair of the street.
- Advance to a Field Investigation because there is not enough information in the Problem Statement Review to make a decision of which path the Problem Statement should follow. A copy of the Management System Input and any other documentation will be provided to DPM by CIPD.
- Withdraw Problem Statement due to lack of need or duplication.

A Problem Screening Report is prepared to document all findings of the Problem Statement review. The report is provided to the Problem Statement initiator and the Division receiving the Problem

Screening (DPM or Maintenance). Once decisions and recommendations are made, Problem Statement database updates are made to reflect changes in status until the Problem Statement is assigned.

Data Collection

Review Problem Statement

The Division of Project Management receives all requests for Field Investigations from CIPD. Upon receipt of the Field Investigation Request, the Project Manager:

- Reviews and checks the Problem Statement form (TP-1) to ensure that all the pertinent information regarding the transportation problem in question is included and the problem and project goals are well defined.
- Verifies the problem by contacting the author; uses the straight line diagram to verify problem location.
- If there is missing information, DPM contacts the author of the Problem Statement and completes the information.
- Obtains all data collected during the Problem Statement Review. Such data includes, but is not limited to, recent Management System Input, Traffic Data/Crash Data, etc.

Conduct Field Trip

CIPD notifies DPM that a field investigation is needed for a particular problem. A field investigation would be necessary to further define the problem and provide a cursory evaluation of potential constraints to advancement. The Project Manager may conduct the first field visit without the SMEs in order to become familiar with the transportation problem, surrounding area and potential issues. The first field visit should also be used to generate questions and prepare for any meetings with the SMEs.

Request Management System Input

The Management System Input will be provided in the Problem Statement Review Package. However, the information may be outdated depending on when the Problem Statement Review or Request for Management System Input was completed. A comparison of the updated Management System Input versus the input from the Problem Statement Review will be performed to reassess the need of the Problem Statement.

Perform Supplemental Data Collection (2105)

Additional data and information may be needed to assess the transportation problem.

Requests for NJDOT data should be made by the Project Manager unless the Project Manager authorizes a consultant to do so. The Project Manager may:

- Request all data and information needed to evaluate the Problem Statement.

- Obtain As-built plans and jurisdictional plans by submitting an Engineering Documents Unit Plan Request Form to the Engineering Documents Unit.
- Send a request to the Bureau of Traffic Engineering and Investigations for traffic signal plans. This request should include route number, milepost, municipality and county.
- Request other pertinent document and information from appropriate external source.

Conduct Field Meeting/Investigation

Field visits with internal stakeholders (SMEs) and external stakeholders (e.g., local officials) to the project site are essential to verify and evaluate the Problem Statement and existing conditions. It also allows an informal meeting to discuss some of the important issues in the field and potential solutions. The field visit should include the following:

- Soliciting information on existing conditions, note existing features such as utility, ROW, access, drainage, environmental constraints, ITS, transit, bicycle and pedestrian accommodations, etc. and verifying information previously obtained (e.g., structure number), and other issues not covered in the Problem Statement.
- Discussing potential solutions to the problem. Potential solutions should consider safe access and mobility for all users.
- Confirming the Problem Statement with input received from the SMEs and external stakeholders in the field. Determine if the project needs to be further studied in Concept Development or can be addressed as a Maintenance project. If it is determined that there is no need, the Problem Statement will be withdrawn.
- Identifying other potential stakeholders.

The Project Manager:

- Determines the SMEs that should attend the field visit, which will depend on the type of transportation problem to be solved.
- Prepares project information to distribute to attendees. This may include, maps, Straight Line Diagram (SLD) of the site, Problem Statement, photos, crash data, etc.
- Disseminates the project information to the appropriate SMEs and requests their presence on the field visit.
- Provides some guidance to each SME so that they know what is expected of them. Plan to either collect the information gathered in the field or within a set time after they return to the office.

Some potential Internal/External Stakeholders that are invited to attend may be:

- Applicable SME Units
- Municipal/County Representative
- Municipal/County Engineer
- Local Police Department
- FHWA

Typically, the SMEs that are always invited to attend are Environmental and Quality Management Services.

Request Field Investigation Environmental Screening

The Environmental Screening is performed to identify environmental concerns, constraints or fatal flaws (wetlands, protected flora and fauna, parkland, etc.) that could influence the range of possible solutions and decision of which path the Problem Statement will follow.

A determination is made during the initiation of the Field Investigation whether the screening would be performed by the Bureau of Landscape Architecture and Environmental Solutions (BLAES) or a DPM consultant. If the screening is to be done by BLAES staff, the Project Manager:

- Requests (via an e-mail) to the BLAES Manager to have an Environmental Specialist assigned to the study. The BLAES Manager will inform the Project Manager when an Environmental Specialist has been assigned.
- Meets with the Environmental Specialist to discuss the project scope and limits.
- Sends a memo to the assigned staff with a copy to the Manager requesting the Environmental Screening. The request must include three copies of a map or an aerial. The map(s) or aerial(s) shall be at a reasonable scale (project specific), and shall have the project study area depicted. Ideally, the Environmental Specialist would attend the field visit.
- Provides the consultant with a copy of the final Environmental Screening Report (ESR) performed by the Environmental Specialist (if a consultant is involved).

If Environmental Screening is to be performed by a DPM consultant, the Project Manager will coordinate with BLAES and the DPM consultant. A copy of the draft and final Environmental Screening will be provided to the Environmental Specialist with a copy to the Environmental Manager.

Request Crash Rates and Crash Records

Crash Rates become critical in supporting the need for the Problem Statement, especially when the Problem Statement is not listed in the Safety Management System. Crash Rates determine how an overall section of the roadway where the Problem Statement is located compares with the statewide average rate.

Crash Records or Police Reports are also a strong indicator of whether a segment of a roadway with deficient or substandard elements is actually in need of repair and attention and thus, further support the need for the Problem Statement.

The Project Manager will submit a request for crash rates and crash summary reports (via an Analysis Request Form sent by e-mail) from the Bureau of Safety Programs (BSP). Crash rates and Crash Summary Reports will include all data for crashes occurring at the specified location for the past three years. They also help identify unsafe areas of roadway where repairs are needed.

Analyze Crash Rates and Crash Records

The Project Manager or DPM consultant will analyze the crash rate, crash summary reports and identify crash type with overrepresented crashes that may be associated with any known sub-standard features that may be the contributing element.

Obtain Existing Traffic Data

The data should consist of Average Daily Traffic (ADT), Peak hour volumes, pedestrian and bicycle counts, transit ridership or truck percentages, and should be obtained from existing files and databases if possible. The Project Manager:

- Checks the Bureau of Transportation Data Development Database to obtain existing traffic counts. This Database can be found in the NJDOT-Intranet traffic website.
- Checks past studies for traffic counts or bicycle/pedestrian counts that were done in the vicinity of the transportation problem.

Conduct Existing Traffic Analysis

Existing Traffic Analysis (motorists, pedestrians and bicyclists) may be conducted by analyzing traffic data or by performing Level of Service Analysis (LOS). This information will help the department to determine whether improvements to the roadway in question are warranted. The DPM consultant or Project Manager:

- Performs LOS analysis for the study location.
- Documents results of the analysis in the Field Investigation Report.

Perform Preliminary Utility Investigation

A Preliminary Utility Investigation becomes particularly important for drainage Problem Statements. Sometimes it is helpful to know what subsurface utility is along the roadway to determine possible utility impacts and resulting order of magnitude estimate for any proposed solutions. Through observation, the Project Manager records existing visible utilities/potential utilities impacts while conducting the *Field Meeting/Investigation.*

Field Investigation Screening Local Outreach Meeting (optional depending on the complexity of the project)

Early communication with local officials is critical in thoroughly defining the need. Local officials are familiar with the area; know the issues surrounding the transportation problem. As such, they will be able to provide detailed input as to the existing conditions or perceptions of the existing conditions (how it is affecting their town, traffic patterns, pedestrian patterns, future plans, etc.) and contribute to the project need. Local outreach is important to reach consensus in defining the problem and possibly finding a range of solutions to the problem. The Project Manager:

- Requests (via an e-mail) a Local Officials Meeting from the Division of Community and Constituent Relations (CCR). CCR will coordinate with the city, township, municipal Manager, Administrator, or appropriate representative a time and location convenient for the local officials. The location is usually within the host's municipal offices or on-site. The meeting should be set at least three weeks in advance. CCR will notify the Project Manager of the date, time and place of the meeting. Sometimes the Project Manager may assist CCR in arranging the Local Officials Meeting and authorize the Task Order Consultant to contact the municipality via email or telephone. Therefore, it is important to notify CCR and invite them to the Local Officials Meeting.
- Prepares meeting materials. These may include map/aerial of transportation problem location, management system input and an agenda.
- Prepares meeting minutes to document input from local officials. Minutes will be incorporated in the Field Investigation Report. A copy of the minutes will be sent to the local officials.
- Solicits additional data or information that the DOT does not gather. Additional data needs will depend on the type of problem. This may include police reports of the most recent crashes, a copy of township master plan, bicycle/pedestrian plans, transit plans, traffic studies conducted by county or local municipality, information about recently completed or pending work orders.

Revised Problem Statement Scope/Project Limits

The Project Manager analyzes the collected data, meets with SMEs and external stakeholders again to determine if the transportation problem identified is correct and based on their input, the Project Manager:

- Reviews the original Problem Statement.
- Further refines the definition of the Problem Statement.

The main reason to refine the definition of the Problem Statement and project limits is to thoroughly verify and define the problem and overall project goals.

Alternatives

A discussion should be undertaken by all stakeholders to consider the range of alternatives.

Develop Order-of-Magnitude Cost Estimates

The Project Manager or DPM consultant will develop approximate cost estimates for a range of improvements if appropriate.

Prepare Draft Problem Screening Report

The draft Problem Screening Report is prepared by CIPD and documents all the work that was completed during Field Investigation and includes the findings and recommendations. It may contain the following:

- Original Problem Statement
- Management System Rankings/Input
- Traffic/Crash Data (when appropriate)
- Environmental Screening Report
- Minutes of Field Trip Investigation and Local Officials Meeting (provided by DPM)
- Photographs
- Recommendation to advance to Concept Development for further study, Maintenance for the implementation of Quick Fix Solution, withdraw the Problem Statement or defer to a future Study & Development Program.

Prepare Final Problem Screening Report

CIPD will incorporate comments received from reviewing the draft Problem Screening Report into the final report. The report includes an Executive Summary, management Systems Overview, Risk Analysis, the Field Investigation summary if applicable, and the Final Problem Statement Screening Recommendation.

CPSC/CPC Approval

CPC Approval is requested by CIPD when the project advances to maintenance or CD without a field investigation. CPC approval is requested by DPM when a field investigation is performed.

When the Field Investigation is completed, the Project Manager:

- Prepares a memo on behalf of the Executive Regional Manager to the CIPD Director to inform of the Field Investigation findings and recommendations. Request for advancement by CPC is made at this time.

CIPD:

- Reviews the Field Investigation recommendations and, if appropriate, requests that the proposed project be placed on the CPSC Agenda for recommendation and approval.
- If appropriate, checks if funding is available to advance the proposed project for further study.