

How to use the Constructability Guidelines

The Constructability function personnel use a set of Guidelines that help them identify areas of concern from a constructability point of view for different types of projects. The Guidelines are organized by logical groups and resembles a checklist. It consists of items that guide the Constructability Engineers and presents areas to consider when reviewing site conditions in the field, plans, specifications, and during the ongoing working meetings with Designers, Subject Matter Experts (SMEs), and others. The Guidelines should not be considered a constructability task list for any category. It is intended to serve as an aid and presents a list of areas to examine within the categories. It goes without saying, the Guidelines do not (and could not possibly) identify everything that needs to be considered within any category. The Guidelines are not intended to limit the Constructability Engineer from recognizing other problem areas related to constructability.

Constructability

The Constructability function will be performed by individuals with knowledge of construction principles. Many have construction experience. The Constructability function personnel work with Designers, NJDOT Divisions, Units, and Subject Matter Experts (SMEs) within the Department to provide feedback and input on Capital Project Delivery projects from a constructability perspective.

Constructability is most beneficial when performed during early phases of scoping and prior to the Final Design phase. At the early stages of project development, construction knowledge and experience is least restricted by design decisions, and the Constructability function personnel are most capable of affecting the final product.

The Constructability function personnel participate in ongoing working sessions to ensure the optimum use of NJDOT construction knowledge and experience in project planning, design, procurement, and field operations to achieve overall project objectives. Constructability function personnel capitalize on construction expertise and experience, including geographical knowledge within NJDOT to develop the best solutions at the most reasonable cost.

Constructability Objectives

The following list summarizes the objectives of Constructability:

- Enhance early scoping
- Minimize scope changes
- Help reduce design related change orders
- Minimize the need for redesigns during construction
- Enhance quality of final product
- Optimize construction staging
- Promote construction safety
- Reduce conflicts/ disputes
- Make sure the project is buildable

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Constructability Involvement

Constructability function personnel begin to get involved with a project when the Project Charter has been approved and the Problem Statement is issued. They remain involved from the Scoping phase to development of the Final Design Submission.

General Approach

The Constructability function personnel participate in working groups that include the Project Manager, Designers, and other Department SMEs. Constructability function personnel examine ideas and proposals and offers feedback on those ideas from a constructability point of view.

Review Problem Statement

The Project Charter includes the Problem Statement. The Problem Statement is the kickoff for involvement of the Constructability group.

Clarify Problem Statement

The Constructability function personnel reviews the problem statement and meets with the Project Manager and appropriate Department Units to clarify the Problem Statement, if needed.

Site Visit

The Constructability function personnel prepare for and schedule an initial Site visit to gather basic information about the project and its location. The Constructability Engineer contacts the Regional Construction Engineer for input. The site visit should help identify possible unforeseen problems and unusual site conditions. Field observations will be noted and considered for future reference on project development. Refer to the Procedure on Conducting Site visits. There is also a section of the Guidelines that specifically addresses items that should be considered in preparing for and conducting site visits.

Other Categories

In addition to the lists for planning and executing site visits, Guidelines for things to consider include the following set of categories:

- Earthwork and Grading
- Pavements and Base Courses
- Pipelines and Drainage
- Drainage-Water Runoff/Soil Erosion/Sediment Control
- Structures
- Staging Plans and Traffic Control Plans
- Electrical
- Utility Issues

Few projects will use every category list in the Guidelines. The Constructability Engineer should be aware of all of the category lists and the content of each category and select the appropriate lists for any project.

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When using the lists, the Constructability Engineer needs to consider the contents of each category list and the results of analyzing it to support the proposed solutions or offer objections to the proposed solutions or to come up with alternative solutions.

Document Findings

The Constructability Engineer should prepare a summary of concerns and potential issues from a Constructability perspective and review the summary with the Project Manager, Designer and SME.

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