New Jersey Turnpike Authority
P.O. Box 5042, Woodbridge, NJ 07095

October 31, 2024

Document Change Announcement

2007 Procedures Manual
Submission Requirements
DCA2024PM-01

Subject: Revisions to
Section 3 Submission Requirements
Section 11 Constructability Review

Description of Change:

This DCA updates and clarifies submission requirements for designers, including: defining a Concept Development phase, renaming Phase A as Preliminary Engineering, renaming Post-Phase D Services as Construction Engineering Support, moving Constructability requirements to a new Section 11, and updating the design element modification request process. Furthermore, a new Project Checklist with links to corresponding reference documents replaces all previous checklists. The Authority website is updated for further clarity and to accommodate links to these reference documents.

Notice to New Jersey Turnpike Authority Staff and Design Consultants
Your New Jersey Turnpike Authority Project Manager will provide instructions on implementing these procedures.

Any questions regarding this DCA may be e-mailed to enghelp@njta.com.

The revisions may be accessed on the Authority's webpage: https://www.njta.com/doing-business/professional-services

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Section 3 - SUBMISSION REQUIREMENTS

3.1. GENERAL

The project lifecycle consists of Concept Development (CD), Preliminary Design (PD), Final Design (FD) and Post-Design Services/Construction Engineering Support. A project may be a single construction contract, or it may consist of multiple construction contracts. Unless otherwise noted in the project scope documents, a project will include all phases as described in this Section.

This Section defines the major tasks and deliverables for each project phase. The Engineer shall confirm with the Authority's Project Manager the method of delivery and number of copies required for each deliverable three weeks prior to each submission. Review timeframes will be determined on a case-by-case basis and coordinated with the Authority's Project Manager. Comment resolution summaries are to be submitted to the Authority's Project Manager two weeks after comments are received for concurrence. For Final Design deliverables, comment resolution summaries and original comments for the previous review shall also be submitted with the following deliverable.

For additional information on formatting and procedures for submittals, refer to: Guidance for Electronic and Hard Copy Submittals

3.1.1. Project Phases

3.1.1.1. Concept Development

Concept Development involves developing a well-defined and well-justified Purpose and Need Statement focusing on the primary needs to be addressed by the project. The major objectives of Concept Development are to identify and compare reasonable alternatives and strategies that address the Purpose and Need Statement and ultimately select a Preliminary Preferred Alternative (PPA). Concept Development will validate whether the project can be advanced to Preliminary Design and Final Design.

The primary activities in Concept Development include, but are not limited to, data collection, coordination with Authority subject matter experts and stakeholders (including NJDOT, other associated transportation agencies and local officials, when deemed appropriate), risk identification, development of a number of prudent and feasible conceptual alternatives, and alternatives analysis studies. The studies will consider environmental impacts, right-of-way impacts, access impacts, utility impacts, design, traffic impacts and related MPT/Staging, community involvement (as required), agency/local government input, initial and lifecycle costs, and constructability to a planning level effort.

3.1.1.2. Preliminary Design (Phase A)

Preliminary Design involves advancing the PPA through initial design, engineering, and environmental technical studies. The major objective of Preliminary Design is to develop and refine the PPA with the detail necessary to secure the approval of the Environmental Document and Design Exceptions, as well as determine preliminary ROW impacts. The Phase A milestone submission is included in Preliminary Design. Risk management and constructability reviews continue in Preliminary Design.

3.1.1.3. Final Design (Phases B, C, D)

Final Design involves continuing design tasks started in Preliminary Design to develop final contract documents. The major objective of Final Design is to produce the project's contract documents (Final Plans, Specifications, Cost Estimate) for use in soliciting bids and moving the project to Construction.

The primary activities in Final Design include, but are not limited to, completing roadway design, bridge and structure design, right-of-way and access engineering, utility engineering, securing environmental permits and clearances, environmental investigation (if required), risk management, and community outreach (as required). The Phase B, Phase C, and Phase D milestone submissions are included in Final Design.

3.1.1.4. Post-Design/Construction Engineering Support Services

As a project moves into construction, the Engineer will provide Post-Design services and Construction Engineering Support including, but not limited to, bid analysis, preparation of Changes of Plans, Shop Drawing reviews and responding to Requests for Information.

3.1.2. Project Checklist

The Authority has developed Project Checklists that list submittals required for each phase. The Major Milestone Submission Checklists document the specific deliverables for each milestone submission. The appropriate Major Milestone Submission Checklist is to be included with each milestone submission.

The template Checklist for all phases can be found at: Project Checklist

3.1.3. Multi-Phase Tasks and Deliverables

The following tasks span multiple phases of the project lifecycle and require a submittal at the earliest project phase that will be updated and re-submitted in subsequent phases.

3.1.3.1. Design Decision Report

A Design Decision Report (DDR) will be prepared and updated throughout the project lifecycle. All significant design decisions will be documented in the DDR

and submitted to the Authority's Project Manager. The DDR will be prepared in accordance with the Authority's DDR template.

Design Decision Report Template

3.1.3.2. Risk Management

The Risk Register will be updated throughout the project lifecycle. Project risks are to be assessed in areas including, but not limited to, utilities, right-of-way, access, drainage, stormwater management, environmental impacts, constructability, schedule, and cost. During each submission, the Engineer shall:

- Identify any new risks
- Review and implement risk response action plans, as necessary

Risk Register Template

3.1.3.3. Constructability

Throughout the project lifecycle, it will be necessary for the Engineer to perform a constructability review to verify the subject project is safely and logistically constructible. Constructability Reviews should begin in the earliest phase of the project and be documented in the Concept Development and Preliminary Design Reports. A standalone Constructability Review Report shall be prepared and submitted in Final Design, as noted in the Project Checklist. Requirements of the Constructability Review and Constructability Review Report are included in the "Constructability Review" section of the Procedures Manual.

3.1.3.4. Coordination With Stakeholders

Throughout the project lifecycle, it may be necessary for the Engineer to meet with stakeholders, including outside agencies, local officials, and the general public, as approved or as directed by the Authority's Project Manager. For each phase, a Stakeholder Outreach Plan shall be prepared by the Engineer and approved by the Authority's Project Manager to identify the anticipated stakeholder outreach for that phase. Recommended stakeholder outreach is described in each project phase in this Section, to be confirmed with the Authority's Project Manager based on project-specific needs.

The Engineer shall maintain a log of all communication with outside agencies. The log shall be updated throughout the project and submitted with every major milestone submittal.

The template outside agency coordination log can be found at: Outside Agency Coordination Log Template

Following each stakeholder meeting, the Engineer shall prepare and submit meeting minutes to the Authority's Project Manager including the following:

- Stakeholder and purpose for meeting
- Date and location of meeting
- List of attendees with contact information
- Topics discussed and decisions made
- Areas requiring Authority decisions
- Unresolved issues and action items with assigned responsibility, if needed
- Betterments requested and participation by outside stakeholders

3.2. CONCEPT DEVELOPMENT

3.2.1. General

During Concept Development, major tasks include Data Collection, Environmental Screening, Stakeholder Outreach, Data Analysis, Alternatives Analysis and Risk Identification, Selection of a PPA, Development of Cost Estimates, Preparation of Concept Development Report, and Development of Preliminary Design Scope.

For projects with a more limited scope, the project scope documents will indicate any Concept Development tasks and deliverables that will not be required and any Preliminary Design tasks and deliverables that will be included in Concept Development. Limited scope projects include, but are not limited to, annual maintenance contracts (bridge repairs and pavement resurfacing), emergency contracts, bridge deck and superstructure replacements within the same alignment, lighting and facility maintenance contracts, and guide rail replacement contracts.

3.2.2. Major Tasks

3.2.2.1. Data Collection

The Engineer will contact the Authority's Project Manager to obtain data necessary for the concept studies. This may include, but not be limited to, traffic counts, crash data, as-built/record plans, maintenance and jurisdictional maps/agreements, and management systems data (pavement, drainage, bridge, safety, etc.). The Engineer will evaluate this input and populate the initial Project Risk Register. The Engineer will complete an Environmental Screening, utility identification (Utility Contact Letters), assist in early coordination with State Historic Preservation Organization (SHPO), if applicable, and prepare an Environmental Justice Assessment. A Geotechnical Desk Study will be performed.

CD-level mapping will be prepared for use in project base maps. The Authority's Project Manager will confirm whether topographic or aerial mapping will be

required for the Concept Development studies. If topographic mapping is not prepared during Concept Development, it may be required during Preliminary Design. Typically, CD-level mapping shall be sufficient for 1"=100' or 1"=200' scale plan development. A Survey Control Report shall be submitted in accordance with the requirements in the "Design Surveys" section of the Procedures Manual.

3.2.2.2. Data Analysis

Data collected shall be reviewed and compared with established design criteria and standards to identify existing substandard design elements. The Engineer shall review the crash records to determine if there are crash hot spot locations within the project limits or if there is an overrepresentation of crashes within or adjacent to a substandard design element. Crash diagrams are prepared as necessary to support the crash data analysis. An environmental constraints map shall be prepared.

3.2.2.3. Purpose and Need Statement

Following data collection and analysis, the Engineer and Authority's Project Manager shall verify the Problem Statement and the Engineer shall prepare the Project Purpose and Need Statement. The Project Purpose defines the problem, and the Project Need describes the supporting data to justify the problem. The Project Purpose and Need Statement must be concise and comprehensible and not be so narrowly defined that it unreasonably points to a single solution. Avoid stating a solution as a purpose, such as "the purpose of the proposed project is to replace the bridge." Goals and Objectives are often included in the Project Purpose and Need Statement to address secondary issues that should be included in the proposed project.

The Draft Project Purpose and Need Statement will be submitted to the Authority's Project Manager following data collection and analysis. Input from Authority subject matter experts and project stakeholders will be provided to the Engineer for consideration in the Final Project Purpose and Need Statement.

3.2.2.4. Alternatives Analysis

Alternative studies will be explored with a goal of selecting the alternative providing the optimal solution meeting the Project Purpose and Need. Studies may consist of, but not be limited to, horizontal and vertical alignment shifts, channelization alternatives, alternative interchange configurations, bridge material types, retaining walls, preliminary span arrangements, and preliminary right-of-way impact comparisons. The underlying objective of each alternative should be to address the Project Purpose and Need; each alternative should

consider avoiding or minimizing impacts to the community, the environment, traffic, and utilities.

Conceptual maintenance and protection of traffic schemes shall be initiated (if standard drawings are not comprehensive); initial constructability reviews will be conducted to identify potential challenges, risks, and fatal flaws. Preliminary cost estimates and right-of-way impacts will be developed. Potential detours will be evaluated and assessed for cost and schedule savings. If identified detours include non-State highways not under Authority jurisdiction in excess of 48 hours, it is recommended to seek input from the local jurisdiction, as directed by the Authority's Project Manager.

An Alternatives Comparison Matrix will be prepared to document each alternative studied and its potential impact to right-of-way, utilities, access, drainage, stormwater management, construction cost, built and natural environment, etc. Alternatives may be eliminated if they are not feasible, are cost-prohibitive, or if impacts are significant.

3.2.2.5. Selection of Preliminary Preferred Alternative

Following consultation with the Authority's Project Manager, Authority subject matter experts, and project stakeholders, the Engineer will recommend an alternative that best meets the Project Purpose and Need as the PPA. A DDR entry shall be created and approved by the Authority's Project Manager to document selection of the PPA.

3.2.2.6. Preliminary Preferred Alternative Conceptual Plans

Conceptual Plans shall be developed for the PPA to establish preliminary horizontal and vertical alignment, stormwater management characteristics, interchange configurations and local road treatments. Conceptual Plans are to be developed accurately in CAD software at 1"=100' or 1"=200' scale, on topographic or aerial background, as directed by the Authority's Project Manager. The plans produced shall be in color, unless otherwise directed by the Authority's Project Manager, in accordance with the following legend:

- Wetlands, Water and Waterways .....aqua
- Authority Roadways (mainline, ramps, U-turns, etc.).....yellow
- Authority Shoulders.....brown
- Local Roads.....green
- Right-of-Way lines (existing and proposed) .....red
- Structure Outlines .....black
- Slope Lines.....dashed
- Cut Lines .....brown
- Fill Lines .....green

- Parks, Hatched.....green
- Mileposts, Outlined.....black

The Conceptual Plan set shall include plans, profiles, and typical sections showing, at a minimum, lane dimensions, local roadway widths, intersections, access/driveways, grading criteria, median treatments, drainage features, and approximate locations of existing utilities with conflicts identified. For additional plan requirements, see "Preliminary Plans" in the "Roadway Plan Preparation" section of the Procedures Manual.

For projects involving structures, preliminary GP&E plans shall be included in the Conceptual Plan set. Preliminary maintenance and protection of traffic plans, including conceptual barrier layout in plan view to confirm feasibility of traffic shifts, and preliminary detour plans shall also be included in the Conceptual Plan set.

3.2.2.7. Geometric Review and Reasonable Assurance of Design Exception Approval

The Engineer will determine if Design Exceptions will be required for the PPA. To obtain reasonable assurance that the Authority will grant the Design Exceptions in the Design phases, the Engineer will prepare and submit a Geometric Review package. The Geometric Review package will include a summary of existing substandard design elements and an analysis of substandard elements to remain that will require Design Exceptions. The Geometric Review package will be submitted to the Authority for review and approval, as directed by the Authority's Project Manager. Documentation of Reasonable Assurance of Design Exception Approval, provided by the Authority, is to be included in the Concept Development Report and documented in the DDR.

For more information on Design Exceptions and requirements of the Geometric Review Package, see Design Exception Guidance Document

3.2.2.8. Concept Development Report

The CD Report documents all of the information used to develop the PPA. The report shall be prepared in accordance with the Authority's latest CD Report Template. The CD Report should include, at a minimum, a project description, Project Purpose and Need, design parameters, existing inventory and condition, traffic and crash summary, summary of alternatives studied, environmental concerns, schedule considerations, cost estimates, problem areas requiring further investigation in the next phase of design, summary of meetings held, proposed construction staging, anticipated ROW impacts, anticipated environmental permits and environmental mitigation

considerations. The anticipated Environmental Document (to be obtained in Preliminary Design) should be described, as well as documentation of anticipated Design Exceptions and the Authority's concurrence.

The DDR log for Concept Development is to be included as an appendix to the CD Report to document all major design decisions for the project.

The Alternatives Comparison Matrix and Project Risk Register are to be included as appendices to the CD Report. Project risks, including any major utility risks, identified earlier in Concept Development will be assessed and updated if necessary and any newly identified risks will be added.

The Engineer will submit the Draft CD Report to the Authority for review, as directed by the Authority's Project Manager. Following the Authority's review, the Engineer will compile a Comment Resolution Summary, address comments, and submit the Final CD Report to the Authority along with a copy of the Comment Resolution Summary.

The sample Concept Development Report Table of Contents can be found at: Concept Development Report Template This template can be modified to meet project needs.

3.2.2.9. Preliminary Design Scope Statement

The Engineer will evaluate and prepare a suggested scope of work for Preliminary Design and submit to the Authority's Project Manager to assist in preparation of the project solicitation documents.

3.2.2.10. Stakeholder Outreach

The Engineer shall prepare a Stakeholder Outreach Plan to outline the anticipated stakeholder outreach during Concept Development. The Stakeholder Outreach Plan is to be submitted to the Authority's Project Manager for approval. Stakeholder Outreach in Concept Development should seek to introduce the project to the affected stakeholders and obtain their input to be used in development of the project alternatives. The Concept Development Stakeholder Outreach Plan should include the following:

- List of activities/meetings
- Purpose and objective for each meeting
- Target audience for each meeting
- Outreach methods
- Need for translation services

The level of stakeholder outreach and outside agencies to be consulted will depend on the scope of the project and its perceived impacts. For projects with impacts to non-Authority roadways, a Local Officials Briefing is recommended

and a Public Information Center may be considered for larger projects to better understand how the project may impact the public. Coordination with utility companies can also be included in the Stakeholder Outreach Plan.

3.2.3. Deliverables

- Concept Development Stakeholder Outreach Plan
- Project Risk Register
- Environmental Screening
- Utility Contact Letters
- Environmental Justice Assessment
- Geotechnical Desk Study
- Survey Control Report
- Crash Diagrams
- Project Purpose and Need Statement
- Alternatives Comparison Matrix
- Preliminary Preferred Alternative Conceptual Plans
- Preliminary ROW Impact Plan
- Preliminary Cost Estimate
- Geometric Review Package
- Concept Development Report
- Design Decision Report
- Preliminary Design Scope Statement
- Outside Agency Coordination Log

3.3. PRELIMINARY DESIGN (PHASE A)

3.3.1. General

During Preliminary Design, the PPA developed in Concept Development will be advanced through initial design, engineering, and technical studies to an approximate 30 percent completion level of design. Major tasks include Stakeholder Outreach, Approved Environmental Document, Approved Design Exception, Preliminary ROW Documents, Utility Identification, Risk Assessment, and Preparation of Preliminary Plans. If topographic mapping was not prepared during Concept Development, this mapping should be prepared at the start of Preliminary Design.

For projects with a more limited scope or those that did not have a Concept Development phase, the project scope documents will indicate any Preliminary Design tasks and deliverables that will not be required and any Concept Development or Final Design tasks and deliverables that are to be included in Preliminary Design. Limited scope projects include, but are not limited to, annual maintenance contracts (bridge repairs and pavement resurfacing), emergency contracts, bridge deck and superstructure

replacements within the same alignment, lighting and facility maintenance contracts, and guide rail replacement projects.

Some disciplines, such as Right of Way and Environmental/Drainage, will have milestones that do not align with Preliminary Design (Phase A Major Milestone Submission). Those submittals will also be captured on the Project Checklist.

3.3.2. Major Tasks

3.3.2.1. Project Plan

At the start of Preliminary Design, the PPA chosen in Concept Development shall be further developed and refined. This should be done in conjunction with additional stakeholder input, as needed, through the Stakeholder Outreach Plan. A focus should be placed on portions of the design that may result in additional ROW and access impacts, not identified during Concept Development. The PPA designs will be developed to a level of detail necessary to prepare and obtain approval of the Environmental Document and final approval of Design Exceptions.

Once the PPA is refined, the Engineer will submit the "Project Plan" to the Authority's Project Manager for review. Following the Authority's review, the Engineer will compile a Comment Resolution Summary, address comments, and submit the Final Project Plan to the Authority along with a copy of the Comment Resolution Summary. The Authority's Project Manager will provide approval that the Project Plan can be used to develop the Phase A plans. A copy of this approval shall be included in the Preliminary Design Report and documented in the DDR.

3.3.2.2. Environmental Document

The Environmental Screening Report prepared during Concept Development should be utilized in conjunction with the approved Project Plan to prepare the required Environmental Document. If the project did not have a Concept Development phase, an Environmental Screening should be prepared to identify the Areas of Concern for use in the development of the Environmental Document. Environmental Engineering guidance is outlined in the "Environmental Engineering" section of the Design Manual.

If the Environmental Screening Report identified the need for a noise analysis, the Engineer shall prepare the analysis in accordance with the Authority's Policy for Traffic Noise Analysis and Abatement, as well the "Traffic Noise Analysis and Abatement" section of the Procedures Manual. A Traffic Noise Analysis and Abatement Report shall be prepared and included as part of the Environmental Document.

The Engineer will prepare the required Environmental Document. For the majority of the Authority's projects, which are solely self-funded, with no Federal oversight, the required document will be prepared per EO 215 guidance (Exemption Letter, Environmental Assessment or Environmental Impact Statement, as applicable). Documentation following the National Environmental Policy Act (NEPA) process (Categorical Exclusion, Environmental Assessment or Environmental Impact Statement, as applicable) may be required for some projects. If a project includes a Federal Individual Permit such as a USCG Bridge Permit or USACE Section 404 or Section 10 and it cannot utilize a Nationwide permit, the NEPA process shall be followed, as required by the applicable Federal Lead Agency.

The Engineer shall submit the Environmental Document to the appropriate party(ies) for review and approval. Following the agency(ies) review, the Engineer will compile a Comment Resolution Summary, address comments, and resubmit the updated Environmental Document along with a copy of the Comment Resolution Summary for final approval. The approved Environmental Document shall be included in the Preliminary Design Report.

3.3.2.3. Design Exception Report

The Engineer shall review the Geometric Review Package and Assurance of Design Exceptions included in the CD Report to determine if there are any additional substandard elements to remain on the project as a result of the latest Project Plan. Controlling Design Elements that require Design Exceptions are defined in the Design Exception Guidance Document. For any other design element modifications, concurrence from the Authority Project Manager and/or Authority subject matter experts shall be documented in the Design Decision Report.

The Engineer shall prepare the Design Exception Report (DER) and submit to the Authority's Project Manager for review and approval. Following the Authority's review, the Engineer will compile a Comment Resolution Summary, address comments, and submit the Final DER for approval. Documentation of the Authority's approval of the DER shall be included in the Preliminary Design Report and in the DDR.

If additional Design Exceptions are identified in future phases of Design, the DER shall be amended and resubmitted for approval.

For more information on Design Exceptions and requirements of the DER, see Design Exception Guidance Document

3.3.2.4. Preliminary ROW Plans

The Engineer will review the preliminary ROW and access impacts identified in Concept Development, in conjunction with the Project Plan refined during Preliminary Design, to finalize the list of parcel acquisitions required for the project. In addition to ROW required due to roadway widening or realignment, it is the responsibility of the Engineer to determine ROW needed for utility relocation, construction easements, drainage, traffic signal equipment, construction access, etc. ROW acquisition is a long duration process and often on the schedule critical path. The Engineer is responsible for completeness of the ROW acquisition needs in development of the preliminary ROW plans. For additional ROW Engineering guidance and deliverable requirements, see the "Right of Way" section of the Procedures Manual.

3.3.2.5. Utility Identification

The Engineer will review the utility conflicts identified in Concept Development, in conjunction with the Project Plan refined during Preliminary Design, to determine if there are any further utility conflicts. If the project did not have a Concept Development phase, the utility contact letters shall be sent out at the start of Preliminary Design. Utility base maps prepared from as-built information and information provided by the utility companies, during the contact letter process, will be sent to the utility companies for verification. The utility base maps will be updated based on the verification information received and should show the proposed conflicts. Test holes shall be performed in Preliminary Design for verification of underground utilities that potentially require relocation to avoid added costs, ROW, or schedule delays due to late discovery during Final Design. A Utility Status Schedule shall be maintained by the Engineer throughout Preliminary Design and documented in the Preliminary Design Report. The Engineer will prepare Utility Orders for utility company preliminary engineering efforts. For additional guidance on the utility process, see the "Utility Installations, Relocations and Adjustments" section of the Procedures Manual.

3.3.2.6. Preliminary Plans/Phase A Plan Submission

The Preliminary Plans are to be prepared graphically at 1"=50' or 1"=30' scale and are to be 30 percent complete. A single submission should cover an entire project or Design Section. Specific requirements for the Phase A Plan Submission, including number of copies of each plan type, are detailed in the "Major Milestone Submission Checklist – Preliminary Design (PD) (Phase A)." Unless otherwise noted, the Phase A Plan Submission is to include:

- Title Sheet

- Preliminary Roadway Plans showing horizontal geometry and ROW lines
- Profiles
- Typical Sections
- Boring Logs and Special Soils Treatment Recommendation
- Preliminary ROW Plans
- Conceptual Lighting Plans
- Conceptual ITS Plans
- Conceptual Drainage Plans
- Utility Conflict Plans
- Structure Sketches for New and Major Bridges
- Conceptual Structural Plans
- Toll Plaza Building Preliminary Plans
- Conceptual Signing and Striping Layouts
- Maintenance Building Layout and Recommendations
- Preliminary Environmental Plans
- Conceptual Noise Wall Locations
- Conceptual Construction Sequence
- Schematics for Maintenance and Protection of Traffic
- Conceptual Staging Plans

Details on how to perform Preliminary Design and prepare documents by discipline can be found in the other Sections of the Design and Procedures Manuals.

3.3.2.7. Preliminary Design Report

The PD Report is used to document all major tasks performed during Preliminary Design. The report shall be prepared in accordance with the Authority's latest PD Report Template. The PD Report should include, at a minimum, summary of the Preliminary Design scope statement, constructability constraints and considerations, summary of the Project Plan, schedule considerations, preliminary stormwater management design, preliminary ROW and construction cost estimates, as well as all design criteria and discussions highlighting critical issues to be further investigated during Final Design.

The DDR log for Preliminary Design is to be included as an appendix to the PD Report to document all major design decisions for the project.

The utility impact plans and status schedule, the Geotechnical Engineering Report, pavement recommendation (as needed), and summary of meetings with stakeholders (outside agency coordination log) are to be included as appendices to the PD Report. Project risks identified in Concept Development

will be assessed and updated if necessary and any newly identified risks will be added to the Risk Register.

The Approved Project Plan, Environmental Document, and Design Exception Reports are to be included as appendices to the PD Report.

The Engineer will submit the PD Report to the Authority for review, as directed by the Authority's Project Manager. Following the Authority's review, the Engineer will compile a Comment Resolution Summary, address comments, and submit the Final PD Report to the Authority along with a copy of the Comment Resolution Summary.

The sample Preliminary Design Report Table of Contents for standard design projects and for maintenance reserve projects can be found at: Preliminary Design Report Template and Preliminary Design Report Template (Maintenance Reserve) These templates can be modified to meet project needs.

3.3.2.8. Final Design Scope Statement

The Engineer will evaluate and prepare a suggested scope of work for Final Design to assist the Authority's Project Manager in preparation of the project solicitation documents. Major milestone phase submittals and additional pre-phases should be considered at this time.

3.3.2.9. Stakeholder Outreach

The Engineer shall prepare a Stakeholder Outreach Plan to outline the anticipated stakeholder outreach during Preliminary Design. Stakeholder outreach in Preliminary Design should seek to inform the affected stakeholders about the PPA that is advancing through design and obtain written concurrence from State, County, and Municipal agencies regarding the proposed impacts on all affected roadways in terms of construction, maintenance and protection of traffic or detours, and intent of participation in betterments. The Stakeholder Outreach Plan should include the following:

- List of project stakeholders
- Purpose and goals of stakeholder outreach
- List of activities/meetings
- Purpose and objective for each meeting
- Target audience for each meeting

The level of stakeholder outreach and outside agencies to be consulted will depend on the scope of the project and its perceived impacts. For projects with impacts to non-Authority roadways, a Local Officials Briefing is recommended and a Public Information Center may be considered for larger projects to better

understand how the project may impact the public. If a Public Information Center was held during Concept Development, it may be forgone until Final Design at the discretion of the Authority's Project Manager. Coordination with utility companies can also be included in the Stakeholder Outreach Plan.

3.3.3. Deliverables

- Preliminary Design Stakeholder Outreach Plan
- Project Plan
- Traffic Noise Analysis and Abatement Report
- Environmental Document
- Design Exception Report
- Utility Base Maps with conflicts identified
- Utility Status Schedule
- Utility Orders
- Phase A Plan Submission
- Preliminary Design Report
- Preliminary Stormwater Management Report
- Design Decision Report
- Preliminary Lighting Report
- Geotechnical Engineering Report
- Pavement Recommendation (as needed)
- Final Design Scope Statement
- Initial ROW Estimate
- Preliminary Construction Cost Estimate
- Preliminary Construction Schedule
- Project Risk Register
- Outside Agency Coordination Log
- Preliminary ROW Plans (GPPMs, ETMs, sample IPPMs, ROW Impact Matrix, sample Jurisdictional Limit Map, Tax Maps and Records, CADD, and GIS files)
- QPL Pilot Form

3.4. FINAL DESIGN (PHASES B, C, D)

3.4.1. General

In Final Design, preliminary designs will be developed to final completion. The contract plans and documents will be developed to 100 percent completion suitable for construction advertisement and bidding for advancement to Construction.

For projects with a more limited scope, the project scope documents will indicate the Final Design tasks and deliverables that will not be required and any tasks and deliverables from previous phases that will be included in Final Design. Limited scope projects include, but are not limited to, annual maintenance contracts (bridge repairs and pavement

resurfacing), emergency contracts, bridge deck and superstructure replacements within the same alignment, lighting and facility maintenance contracts, and guide rail replacement contracts.

During the preparation of final design documents, Major Milestone Submissions are to be made to the Authority's Project Manager. These submissions are required at various stages in development to allow for review (1) of the content; (2) for specifics; and (3) for completeness. Major Milestone Submissions for Phases B through D must be delivered as one per construction contract within a project or Design Section. These Major Milestone Submissions are defined as follows:

- Pre-Phase B Submission – Preliminary submission of bridge designs, utility checklists, and signing layouts, draft Constructability Review Report, may include preliminary MPT Coordination Report
- Phase B Submission – Contract documents are 70 percent complete
- Pre-Phase C Submission – Subset of full 95 percent complete contract documents for utilities, lighting, ITS, and Maintenance and Protection of Traffic
- Phase C Submission – Contract documents are 95 percent complete and subject to thorough review by the Authority
- Phase D Submission – Contract documents are 100 percent complete and ready for advertisement

Following project advertisement, additional submittals may be required during the bidding period; these are described below under Post-Phase D Services.

To address scalability of projects, other interim submissions such as Pre-Phase D may be added at the discretion of the Authority's Project Manager. Some disciplines, such as Right of Way and Environmental/Drainage will have milestones that do not align with the typical phase submissions; those submittals will be captured on the Project Checklist and delivery requirements and timing are to be confirmed with the Authority's Project Manager.

Review comments for each of the Final Design Major Milestone Submissions will be forwarded to the Engineer approximately three weeks after each submission. The Engineer shall provide a comment resolution summary two weeks after the comments are received, unless noted otherwise by the Authority's Project Manager.

3.4.2. Major Tasks

During Final Design, major tasks include Stakeholder Outreach, Preparation of Final Contract Documents and engineering support during bidding.

3.4.2.1. Risk Assessment

Prior to each Major Milestone Submission, the project risk register is to be reviewed. Previously identified risks will be assessed and updated if necessary and any newly identified risks will be added to the Risk Register.

3.4.2.2. Design Decision Report

All significant design decisions are to be documented in the DDR and submitted to the Authority's Project Manager. The DDR log shall be included with each Major Milestone Submission.

3.4.2.3. Design and Preparation of Contract Documents

Details on how to perform final design and prepare contract documents by discipline can be found within the Procedures and Design Manuals as follows:

- Design Surveys
  See the "Design Surveys" section of the Procedures Manual for design survey requirements and Survey Control Report requirements.
- Geotechnical Engineering
  See the "Geotechnical Engineering" sections of the Procedures Manual and Design Manual for Geotechnical Engineering tasks, submittals by Phase, and for guidance on geotechnical analysis and design tasks by Phase.
- Roadway Design and Plan Preparation
  See the "Roadway Plan Preparation" section of the Procedures Manual for guidance on preparation of Contract Plans. See the "New Jersey Turnpike Geometric Design," "Garden State Parkway Geometric Design," and "Guide Rail/Median Barrier/Attenuator Design" sections of the Design Manual for guidance on roadway design.
- Structures Plan Preparation
  See the "Structures Plan Preparation" and "Structures Design" sections of the Procedures Manual and Design Manual for guidance on preparation of Contract Plans for major reconstruction of bridges and other structures, bridge repair contracts, and architecture/buildings and guidance on structures design.
- Utilities
  See the "Utility Installations, Relocations and Adjustments" section of the Procedures Manual for guidance on utility installations, relocations, and adjustments and utility submittals.
- Right of Way
  See the "Right of Way" section of the Procedures Manual for details on the ROW Engineering process, submittals by Phase, and guidance on ROW plan preparation.
- Stormwater Management and Drainage Design
  See the "Drainage Design" section of the Design Manual for guidance on drainage and environmental design, plan preparation, submission criteria, and permits.

- Signing and Striping
  See the "Signing and Striping" section of the Design Manual for guidance on signing and striping design, plan preparation, and submittal requirements.
- Lighting and Power Distribution
  See the "Lighting and Power Distribution Systems" section of the Design Manual for guidance on Lighting and Power Distribution Systems design, plan preparation, and submittal requirements by Phase.
- ITS and Communications Systems
  Per the "ITS and Communication Systems" section of the Design Manual, contact the Authority Project Manager for project-specific ITS requirements.
- Traffic Control
  See the "Traffic Control During Construction" section of the Design Manual for guidance on Traffic Control plan preparation, Maintenance and Protection of Traffic Plans, Traffic Impact Report, and submittal requirements by Phase.
- Landscaping
  See the "Landscaping" section of the Design Manual for Landscaping design considerations and guidance for plan preparation.
- Facility Buildings/Toll Plazas
  See the "Facility Buildings/Toll Plazas" and "Structures Plan Preparation" sections of the Design Manual and Procedures Manual for guidance on design and plan preparation for various facility buildings and toll plazas.
- Environmental Engineering
  See the "Environmental Engineering" section of the Design Manual for guidance on conducting environmental investigations and submittal requirements by Phase.
- Constructability Review
  See the "Constructability Review" section of the Procedures Manual for guidance on conducting constructability reviews, report preparation, and submittal requirements by Phase.

3.4.2.4. Stakeholder Outreach

The Engineer shall prepare a Stakeholder Outreach Plan to outline the anticipated stakeholder outreach during Final Design. Stakeholder Outreach in Final Design should seek to update the affected stakeholders about the status of the project and inform stakeholders of anticipated impacts due to construction. The Stakeholder Outreach Plan should include the following:

- List of activities/meetings
- Purpose and objective for each meeting
- Target audience for each meeting

The level of stakeholder outreach and outside agencies to be consulted will depend on the scope of the project and its perceived impacts. For projects with impacts to non-Authority roadways, a Local Officials Briefing is recommended and a pre-construction Public Information Center is recommended for larger projects to inform the public about the construction schedule and anticipated impacts to traffic during construction. The Stakeholder Outreach Plan shall include any required public hearings to comply with regulatory agencies, permit requirements, and EO 172 requirements, as applicable to the project.

If detours will be required for the project, the Local Officials Briefing(s) will provide an opportunity to present the detour plan and request written approval from the local jurisdictions. Roadway closure of non-State highways not under Authority jurisdiction in excess of 48 hours require written approval from local jurisdictions. Certification reports shall be submitted to the State in accordance with N.J.A.C.16:27-4.2(f), copies of which shall be provided to the Authority.

Traffic Impact Notices should be prepared for the Pre-Phase C submission and finalized for the Phase C Submission. These notices will be utilized by the construction consultant and construction liaison to alert motorists of upcoming work via traffic bulletins on the radio, internet, local newspaper, and the SafeTrip NJ App.

3.4.2.5. Pre-Phase B Submission

When indicated in the project scope documents, or as directed by the Authority's Project Manager, a Pre-Phase B Submission will be required to provide an update on utility coordination, present preliminary signing layouts, present preliminary structures plans, or provide the preliminary MPT Coordination report.

For new bridge construction and major bridge reconstruction projects, the Pre-Phase B submission requirements are described in the "Structures Plan Preparation" section of the Procedures Manual. Utility submittals at Pre-Phase B are described in the "Utility Installations" section of the Procedures Manual. The preliminary signing layout submittal is described in the "Signing and Striping" section of the Design Manual.

Specific requirements for the Pre-Phase B submission, including number of copies of each plan type, are detailed in the "Major Milestone Submission Checklist – Final Design (FD) - Pre-Phase B." The Pre-Phase B submission may include:

- Plans and report for each new structure and wall within the contract
- Condition Assessment Reports
- Utility Checklists
- Utility Scheme of Accommodation Plans
- Utility Owner Preliminary Cost Estimates
- Preliminary Signing Layout
- Preliminary MPT Coordination Report
- Draft Constructability Review Report

3.4.2.6. Phase B Submission

The Phase B submission occurs for each construction contract at the stage of plan development when the horizontal and vertical alignment have been computed but the work has not progressed to the point of computing detailed quantities (70 percent complete contract documents). Development of the supplementary specifications should begin during this phase of the project lifecycle but are not a required deliverable unless otherwise directed by the Authority's Project Manager.

If additional Design Exceptions have been identified since approval of the Design Exception Report in Preliminary Design, the Design Exception Report shall be amended and resubmitted for approval.

Specific requirements for the Phase B submission, including number of copies of each plan type, are detailed in the "Major Milestone Submission Checklist – Final Design (FD) - Phase B." Unless otherwise noted, the Phase B submission is to include:

- Plans
  - Maintenance and Protection of Traffic Schematics
  - Typical Sections
  - Construction Plans
  - Drainage and Grading Plans
  - Landscape Plans
  - Signing and Striping Plans
  - Lighting Plans
  - ITS Plans
  - Preliminary Construction Details
  - Cross Sections
  - Structural Plans
  - Detour Plans, including written approval from local jurisdictions
  - Fencing and Construction Access Details
  - List of Standard Drawings and Reference Drawings

  - Draft IPPMs, Draft Metes and Bounds Descriptions, Updated Impact Matrix, Draft Jurisdictional Limit Map
  - Updated GIS shape files, as requested
- Calculations
  - Stormwater Management and Drainage Calculations
  - Hydrologic and Hydraulic Calculations
  - Sign Lighting & Roadway Lighting Design Calculations
  - Computed Horizontal and Vertical Alignment data
  - Earthwork Quantities
- Reports
  - Preliminary Geotechnical Engineering Report, including design calculations
  - Traffic Impact Report
  - Constructability Review Report
  - Construction Sequence
  - Scour Report
  - Non-Standard Bearing Report
  - Updated Design Exception Report, if necessary
- Other
  - Engineer's Estimate
  - Phase B Request for Unit Codes
  - Construction Schedule
  - Approved Utility Checklists and Schemes with Preliminary Cost Estimates
  - Environmental Permit Applications
  - Pre-Phase B Comment Resolution Summary (if applicable)
  - Outside Agency Coordination Log
  - Risk Register
  - QPL Pilot Form (if not submitted at Phase A)

3.4.2.7. Pre-Phase C Submission

The Pre-Phase C submission is used as a milestone between the Phase B and Phase C submissions to keep the project on schedule regarding the utility orders, outside agency approvals, Jurisdictional Agreements, and lighting and ITS design elements. The Pre-Phase C submission requires 95 percent complete maintenance and protection of traffic (MPT) plans and supplementary specifications (MPT Sections only) to provide the Authority's Operations Department an opportunity to review the MPT section of the contract documents prior to the Phase C submission. Once traffic shifts are known, the Engineer should commence the shoulder pavement evaluation study to be included with the Phase C submission.

Specific requirements for the Pre-Phase C submission, including number of copies of each plan type, are detailed in the "Major Milestone Submission Checklist – Final Design (FD) - Pre-Phase C." Unless otherwise noted, the Pre-Phase C submission is to include:

- Utility Orders
- Final approvals from State, County, Municipal agencies, as required
- Utility Service to Authority Facilities
- Jurisdiction and Maintenance Agreements
- Lighting and ITS Pre-Phase C Submission
- Initial submission to NJ Department of Community Affairs Division of Codes and Standards, if applicable
- 95 percent complete MPT Plans
- Supplementary Specifications (MPT Sections only)
- Draft Traffic Impact Notices
- Construction Schedule
- Constructability Review Report, updated as needed

3.4.2.8. Phase C Submission

The Phase C submission is 95 percent complete contract documents consisting of plans, supplementary specifications, quantity calculations, and engineer's estimate. All items required for construction, such as ROW, permits, and utility orders, are complete.

For Facility Buildings and Toll Plazas, a complete submission of all plans, specifications, design calculations, and fees to the Department of Community Affairs submission is required and should be completed during this phase of the project lifecycle. For more details regarding this submission, refer to the "Facility Buildings/Toll Plazas" section of the Design Manual.

Initial submittal of the Materials Acceptance Review Matrix is included with the Phase C Submission. Refer to the Shop Drawing Review Guidelines for additional information on preparation of this matrix.

Specific requirements for the Phase C submission, including number of copies of each plan type, are detailed in the "Major Milestone Submission Checklist – Final Design (FD) - Phase C". Unless otherwise noted, the Phase C submission is to include:

- Plans (complete plan set)
  - Construction Plans, including quantities, pay items, and final construction details
  - Cross Sections
  - Final MPT Plans

  - ROW Plans (Draft Final GPPMs/ETM Sheet Set, remaining Final IPPMs and Metes & Bounds Descriptions)
- Calculations
  - Roadway and Structure Quantity Calculations
  - Road User Cost Calculations
  - Liquidated Damages Calculations
  - Lighting and Electrical Calculations, if required
- Reports
  - Constructability Review Report, updated as needed
  - Final Geotechnical Engineering Report, including design calculations
  - Draft Load Rating Report
  - Shoulder Pavement Assessment Report
  - Lane Occupancy Charge Report
- Other
  - Phase C Request for Unit Codes
  - Supplementary Specifications (including Appendix Q and with track changes)
  - Supplementary Specifications for Comptroller approval (for Contracts over $12.5M)
  - Utility Service to Authority Facilities
  - Engineer's Estimate, without rounding or contingencies
  - Summary of Environmental Permit Status
  - Completed Highway Agency Stormwater General Permit Post-Construction Program Design Checklist for Individual Projects form (Authority form)
  - Construction Schedule
  - Outside Agency Coordination Log
  - Final Traffic Impact Notices
  - Materials Acceptance Review Matrix
  - Results of the Shoulder Pavement Evaluation Study
  - Phase B and Pre-Phase C (if applicable) Comment Resolution Summary
  - Risk Register

3.4.2.9. Phase D Submission

The Phase D submission is 100 percent complete contract documents consisting of plans, supplementary specifications, and engineer's estimate. This submission is a full package ready for bid. The Final ROW documents may be submitted in advance of the Phase D submission to begin the ROW acquisition process, as directed by the Authority's Project Manager.

Specific requirements for the Phase D submission, including number of copies of each plan type, are detailed in the "Major Milestone Submission Checklist – Final Design (FD) - Phase D." Unless otherwise noted, the Phase D submission is to include:

- Final Plans, signed and sealed
- Final Plans title sheet, signed (mylar)
- Final CADD Contract Deliverable
- Advertisement Packet
  - Signed Plans
  - Supplementary Specifications
  - Engineer's Estimate
  - Reference Drawings and/or Reference Material (electronic only)
  - Standard Drawings (electronic only)
- Final Supplementary Specifications
- Construction Schedule
- Fiber Optic Cable Design Review Certification Form
- Outside Agency Coordination Log and written approval from local jurisdictions for roadway closures of non-State highways not under Authority jurisdiction in excess of 48 hours
- Phase C Comment Resolution Summary
- Final Constructability Review Report
- Boring Logs (included as part of the plans)
- Approved Environmental Permits
- Final ROW Plans (final submission all ROW documents, updated ROW Impact Matrix, updated Tax Maps and Records, updated CADD & GIS files), signed and sealed as directed
- Final Quantity Calculations
- Final Load Rating Report
- Updated Materials Acceptance Review Matrix
- Risk Register
- Engineer's Estimate, signed, without rounding or contingencies

3.4.2.10. Post-Phase D Services

Following the Phase D Submission, the Engineer will provide support to the Authority's Project Manager during the Bid phase. When required, the Engineer will assist the Authority's Project Manager with pre-bid meetings or presentations. Addenda will be prepared and submitted as necessary, per the "CapEx & Specifications Guidelines" and, if required, changes to the Engineer's Estimate can be made.

The final signed Engineer's Estimate shall be submitted to the Authority's Project Manager no later than three business days before the bid opening. The Estimate shall be of the format as provided in the Sample Engineer's Estimate. The Authority's Project Manager will send the Engineer's Estimate to the GCE for final signature.

One business day after bid opening, the Engineer shall review all results and check them for any irregularities, such as an unbalanced bid. The Engineer shall then transmit a formal letter of recommendation as to the award of the contract to the Authority's Project Manager. The Authority's Project Manager will send a copy to the GCE for review and the GCE will either approve or disagree with it.

Any changes to the plans made via addenda shall be documented in the conformed pans. The Engineer shall incorporate these changes to submit the conformed CADD deliverable to the Authority a minimum of one week prior to the Construction Hand-Off Meeting. The Authority will develop the conformed supplementary specifications, including addenda letters.

CapEx & Specifications Design Guidelines

Sample Engineer's Estimate

3.4.3. Deliverables

- Final Design Stakeholder Outreach Plan
- Project Risk Register
- Design Decision Report
- Outside Agency Coordination Log
- Pre-Phase B Submission
- Phase B Submission
- Pre-Phase C Submission
- Phase C Submission
- Phase D Submission
- Addenda
- Final Engineer's Estimate
- Bid Analysis & Recommendation Letter
- Conformed Plans CADD Submission

3.5. CONSTRUCTION ENGINEERING SUPPORT

3.5.1. General

During Construction, the Engineer will provide support to the Authority by preparing for and attending the pre-construction meeting, preparing Changes of Plan (as required), reviewing Shop Drawings, and responding to Requests for Information.

The Resident Engineer (RE) will also provide support to the Authority during the Construction Phase by preparing As-Built Plans.

3.5.2. Major Tasks

3.5.2.1. Construction Hand-off Meeting

Prior to the construction kick-off meeting with the Authority Construction Liaison, construction inspection team, and the Contractor; the Designer will hold a Construction Hand-off Meeting with the Authority Design and Construction Liaisons and the construction inspection team to discuss special items noted in the Constructability Report, review permits, and contract-specific requirements. Additionally, the Material Acceptance Criteria Matrix (Matrix) should be reviewed to understand responsibilities of the Designer and construction inspection team. Any changes made to the Matrix shall be updated by the Designer and a final version should be forwarded to the construction inspection team.

3.5.2.2. Changes of Plan

If, during the course of construction, the Resident Engineer (RE) determines that a formal Change of Plan (COP) is necessary, the Authority's Engineering Department will direct the Engineer to prepare it. The procedures for preparing a COP are located in the "CapEx & Specifications Design Guidelines." To prevent costly construction delays, the Engineer shall expeditiously prepare a COP, including cost estimate for changes, as directed by the Authority's Engineering Department.

CapEx & Specifications Design Guidelines

3.5.2.3. Shop Drawing Reviews

During the course of construction, the RE will forward to the Engineer shop drawings and working drawings for review and approval. The Engineer shall review and return all shop drawings and working drawings to the RE or the Authority, as appropriate, in accordance with Subsection 104.08 of the Specifications and the "Shop Drawing Review Guidelines."

Shop Drawing Review Guidelines

3.5.2.4. Requests for Information

During the course of construction, the RE may forward to the Engineer a Request for Information (RFI). To prevent costly construction delays, the Engineer shall expeditiously prepare a response to the RFI.

3.5.2.5. Lighting System Review

After lighting systems have been constructed, the Engineer shall perform a verification of the lighting installation to ensure it has been installed according to the approved design. This procedure is outlined in the "Lighting and Power Distribution Systems" section of the Design Manual and will be required before the Authority's Engineering Department issues final acceptance for any lighting system.

3.5.2.6. As-Built Plans

CADD files for all COPs shall be forwarded to the Authority's Project Manager for use in preparation of As-Built Plans. As-Built Plans will be prepared in accordance with the "As-Built Plan Preparation Guidelines."

As-Built Plan Preparation Guidelines

3.5.3. Deliverables

- Conformed Submission
- Changes of Plan
- Shop Drawing Reviews
- Request for Information Responses
- As-Built Plans

Table of Contents

Section 11 - CONSTRUCTABILITY REVIEW

11.1. PURPOSE AND INTENT

The purpose of the Constructability Review is to verify that projects are safely and logistically constructible using means and methods available to the local contractor community. The intent of the review is not to identify the actual means and methods a contractor will use to construct the project or to identify all means and methods possible to construct the project. The intent is to identify obstacles before a project is advertised to reduce or prevent delays and unnecessary cost overruns as well as verify that the prepared contract documents are "biddable and buildable" and that the work described in those documents is theoretically capable of being completed as follows:

- Within the time provided for each stage and for the overall Contract
- Using available construction work force, materials, equipment and methods
- Allowing for the physical space necessary for the work and storage, and available site access
- Without affecting the safety of the traveling public and without significantly affecting the flow of traffic (i.e., adhering to operational constraints)
- Without affecting the integrity of the Authority's infrastructure / structures to remain
- Respecting external control factors such as environmental / permit restrictions (i.e., in-water work restrictions), seasonal weather, and coordination with local road, rail, and utility crossings (where present)
- With due consideration of current or planned projects in the vicinity, as determined by project-specific maintenance and protection of traffic (MPT) requirements. For the purposes of the Constructability Review Report, the limit of consideration is defined as approximately 3 miles from the outer limits of defined roadway MPT limits visible to the traveling public. This limit may be extended on a project-by-project basis where approved by the Authority.

Constructability reviews shall be completed by qualified construction personnel and shall meet qualifications defined in the OPS RFEOI/RFP. The staff performing the constructability review shall not solely be members of the design team, i.e., construction supervision personnel or an independent constructability expert shall be part of the review team.

A copy of the Final Constructability Review Report should be provided to the Construction Manager at the Design to Construction handoff meeting.

11.2. WHEN TO SUBMIT THE REPORT

The constructability review should be initiated during Concept Development (or initial project phase) as part of the Preliminary Preferred Alternative selection process. Initial constructability review findings are to be included in the Concept Development Report and further elaborated on in the Preliminary Design Report. A standalone Constructability Review Report is to be submitted

with the Final Design Phase Major Milestone Submissions (Phases B through D) as noted in the project checklist. Comments to the Constructability Review Report provided by the reviewers are to be addressed with a comment resolution summary document and returned with the major milestone submission review comments.

The draft Constructability Review Report shall be submitted no later than four (4) weeks prior to the formal Phase B submission. It is understood that at the Phase B level of development, estimates of work durations and costs will not be exact. The Constructability Review Report is to be updated and resubmitted with each Major Milestone Submission in Final Design as the design progresses. The final Constructability Review Report shall be submitted coincident with the Phase D submission package.

11.3. General Report Format

The Constructability Review Report will generally follow the format below, but may vary based on the type of construction proposed. The Engineer is advised to consult the Authority Project Manager for specific format requirements prior to assembling the draft report for its initial submission at Pre-Phase B. It is highly recommended that the Engineer submits a proposed table of contents to the Authority Project Manager for concurrence prior to proceeding with the draft report.

11.3.1. Introduction

Provide a general description of the work including type, location, milepost limits, total anticipated project construction duration, and milepost-to-milepost limits of traffic lane shifts (taper point to taper point or placement of advance signing, whichever is greater) where present with any potential detours or roadway closures.

11.3.2. Construction Methods

Describe anticipated methods of construction with respect to protecting adjacent traffic, facilities / roadways underneath, size of equipment to be used, temporary works or erection support placement and staging of components to be erected, and anticipated duration and timeframe of construction activities subdivided by construction stage.

11.3.3. Existing Structure Demolition

Describe methods of demolishing major existing structures with respect to protecting adjacent traffic, facilities / roadways underneath, maintaining integrity of structures to remain, size of equipment to be used, behavior changes to the existing structure from partial demolition (if anticipated), placement and staging of both demolition equipment and demolition spoils, and anticipated duration and timeframe of demolition activities subdivided by construction stage.

11.3.4. Limits of Traffic Effects

Where existing traffic must be shifted, show in schematic form the severity of the move as a cross section through the work zone. Also list the limits of the traffic effects, i.e.,

impacts to entrance / exit ramps and toll plazas, and detours or alternate routes, as the outer limits of the project lane shift taper point mile posts. Also, the availability of lane closings to implement shifts shall be reviewed. The Engineer should review the need for special provisions such as stand-by wrecker service or special traffic / queue monitoring systems, especially if the length of closing / shift requires such measures and / or the number of lanes are reduced, or shoulders are eliminated during peak travel periods.

The Engineer shall verify with the Authority Project Manager whether other projects (Authority and non-Authority) are anticipated to be taking place concurrently to the subject project within the vicinity of the work zones, and where force account work in the Contract is to be provided to allow for emergency maintenance of other structures / infrastructure within the limits of the work zones.

The Engineer shall identify the improvements to be addressed by the Contract prior to the traffic shift so flow of traffic in the shifted position is maintained for the stage duration (i.e., installation of additional / new safety features, construction of pavement, reconstruction of existing pavement, pavement repairs, welding of inlet grates).

The Engineer shall identify any anticipated detours or High Intensity Construction Cycle (HICC) work as may be required to complete the work or to respect stakeholder limited timeframe accessible work (such as railroads or other facility owners).

11.3.5. Specialty Equipment or Water Work

Identify specialty construction equipment as it may be required to construct the project, such as large cranes, barge based work, transport equipment for large or heavy prefabricated bridge components, etc. Where long lead times to obtain specialty equipment may be anticipated or if limited use of specialty equipment is required by adjacent facility owners, the Design shall adjust the project duration as appropriate.

11.3.6. Construction Staging and Storage Areas

Ensure adequate lay-down areas for equipment and materials and identify on the plans where and how the contractor will access the construction site for supply of labor and materials and for placement of equipment including temporary construction easements and rights of entry. Need for barges or trestles should be considered for shallow draft water work. Use of schematic representations and relevant dimensions of the laydown areas and access routes to the construction site should be included in the report.

11.3.7. Approximate Construction Schedule

Create a baseline schedule that roughly estimates the order of various construction operations and their durations. The schedule should account for mobilization time for the contractor, winter shut-downs for concrete work, black-out periods for environmental concerns or utility work, any external restrictions such as seasonal traffic, water work limits, stakeholder constraints (railroad closures, navigable channel impacts) and adjacent roadway project work, lead times for complex or specialty construction items and

coordination efforts where long lead times are anticipated such as for local agency approvals or DEP/USCG/ACOE review periods.

The approximate construction schedule need only be submitted with the draft Constructability Review Report up to the Phase B submission. For the Phase C and Phase D submissions, the overall construction schedule is expected to be submitted as a separate deliverable.

REVISION SUMMARY

Revision	Date	Revised by	Summary
0	June 2024		Original document