Sharing Work Zone Effective Practices for Design-Build Projects

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16. Abstract

Design-build projects are becoming more prevalent as agencies seek to speed up projects to leverage resources through growing use of public-private partnerships, accelerated project timelines, and contracting out design work. There is a need, however, to explore differences between design-build processes and traditional design-bid-build processes and to produce additional best practices and guidance for agencies, owners, and stakeholders in design-build projects. This project constitutes the second phase of previous work to develop these resources. The specific objectives of this project are to identify and share best practices and guidance on work zone management, quality assurance, and transportation management plan (TMP) development for design-build projects. This information is packaged within this report as a series of lessons learned, best practices, tools for developing TMPs, and sample checklists. This material is presented in five chapters briefly summarized as follows: "Chapter 2: Lessons Learned and Best Practices in Design-Build Projects" presents bulleted lists of lessons learned and best practices in design-build projects, organized around a variety of pertinent issues and subjects in design-build processes; "Chapter 3: Transportation Management Plan Development Tools for Design-Build Projects" presents development tools for the development of TMPs in general as well as for the development of TMP components including Temporary Traffic Control Plans, Traffic Incident Management Plans, and Public Information and Outreach Plans; "Chapter 4: Quality Assurance Tips for Work Zones in Design-Build Projects" presents a concise, bulleted tip list for managing work zones in design-build projects; "Chapter 5: Quality Assurance Checklists for Work Zones in Design-Build Projects" presents a series of sample inspection checklists to aid design-builders and owners/agencies in conducting quality assurance (QA) for work zones in various phases of design-build projects; and "Chapter 6: Additional Checklists to Support Design-Builders and Owners/Agencies" presents an additional series of sample checklists to support design-builders and owners/agencies in various processes of design-build projects.

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EXECUTIVE SUMMARY

Design-build projects are becoming more prevalent as agencies seek to speed up projects to leverage resources through growing use of public-private partnerships, accelerated project timelines, and contracting out design work. There is a need, however, to explore differences between design-build processes and traditional design-bid-build processes and to produce additional best practices and guidance for agencies, owners, and stakeholders in design-build projects.

This project constitutes the second phase of previous work to develop these resources. The specific objectives of this project are to identify and share best practices and guidance on work zone management, quality assurance, and transportation management plan (TMP) development for design-build projects. This information is packaged within this report as a series of lessons learned, best practices, tools for developing TMPs, and sample checklists. The report presents these resources in five core chapters (Chapters 2, 3, 4, 5, and 6), preceded by a brief introduction (Chapter 1). The five core chapters are described briefly below:

Chapter 2: Lessons Learned and Best Practices in Design-Build Projects. This chapter presents bulleted lists of lessons learned and best practices in design-build projects, organized around a variety of pertinent issues and subjects in design-build processes. These issues and subjects include:

- Project selection.
- Design quality management.
- Construction quality management.
- Utilities/right-of-way/railroad coordination.
- Design-builder selection process.
- Writing design-build request for qualifications/proposals.
- Use of alternative technical concepts.
- Schedule performance, milestones, and progress payments.
- Change orders.
- Claims and dispute resolution.

Chapter 3: Transportation Management Plan Development Tools for Design-Build Projects. This chapter presents development tools for the development of TMPs in general as well as for the development of TMP components including temporary traffic control (TTC) plans, traffic incident management (TIM) plans, and public information and outreach (PI&O) plans. The chapter also includes best practices from a survey of selected States, including: Ohio, Florida, Colorado, and California.

Chapter 4: Quality Assurance Tips for Work Zones in Design-Build Projects. This chapter presents a concise, bulleted tip list for managing quality assurance (QA) in work zones in design-build projects.

Chapter 5: Quality Assurance Checklists for Work Zones in Design-Build Projects. Building on Chapter 4, this chapter presents a series of sample inspection checklists to aid design-builders and owners/agencies in conducting quality assurance in work zones in various phases of design-build projects. The checklists contained in this chapter are listed below.

- *Nighttime Work Zone Inspection Checklists:* These checklists are intended to allow design-builders and owners/agencies to conduct quality assurance inspections on the effectiveness of nighttime work zone operations.
- *Public Awareness and Motorist Information Strategies Checklists:* These checklists are intended to allow design-builders and owners/agencies to conduct quality assurance inspections on the effectiveness of public awareness and motorist information strategies.
- *Work Zone Incident Management Plan Checklists*: These checklists are intended to allow design-builders and owners/agencies to conduct quality assurance inspections on the effectiveness of work zone incident management plan.
- *Work Zone Inspection Checklists for Urban Freeways with Uninterrupted Flows:* These checklists are intended to allow design-builders and owners/agencies to conduct quality assurance inspections on the effectiveness of work zones for urban freeways with uninterrupted flows.
- *Work Zone Inspection Checklists for Urban Roadways with Interrupted Flows:* These checklists are intended to allow design-builders and owners/agencies to conduct quality assurance inspections on the effectiveness of work zones for urban roadways with interrupted flows.
- *Work Zone Traffic Control Inspection Checklists:* These checklists are intended to allow design-builders and owners/agencies to conduct quality assurance inspections on the effectiveness of work zone traffic control devices and operations.
- *Worker Safety Inspection Checklists*: These checklists are intended to allow design-builders and owners/agencies to conduct quality assurance inspections on the effectiveness of worker safety at work zones.

Chapter 6: Additional Checklists to Support Design-Builders and Owners/Agencies. This chapter presents an additional series of sample checklists to support design-builders and owner/agencies in various processes of design-build projects. In particular, several checklists in this chapter pertain to items and issues related to the TMP. The checklists contained in this chapter are listed below.

- *Design-Builder's Public Involvement and Outreach Checklists:* These checklists include items to be considered for a public involvement and outreach campaign.
- *Work Zone Safety Inspection Checklists:* These checklists facilitate the owner/agency's review of the safety aspects of the design-builder developed TMP during the final design phase, as well as safety inspection of an active work zone.
- *Design-Builder's Work Zone Incident Reporting Checklists*: These checklists include various actions that design-builder personnel should undertake at work zone incident sites.
- *Post-Construction Work Zone Performance Documentation Checklists:* These checklists provide work zone performance monitoring information that the design-builder and owner/agency should jointly undertake with other partners/stakeholders.

- *Pre-Construction Coordination Activities Checklists:* These checklists include various coordination activities and meetings that the design-builder and owner/agency should jointly undertake with other partners/stakeholders.
- *Owner/Agency's Master Checklists:* This section includes checklists to cover key steps associated with TMP development and implementation, from preliminary engineering through construction.
- *Owner/Agency's Pre-Request for Qualifications/Proposals Checklists:* These checklists include various TMP related items that an owner/agency should address in the preliminary engineering phase or consider incorporating during the development of the request for qualifications (RFQ)/request for proposals (RFP).
- *Owner/Agency's Proposal Evaluation Checklists:* These checklists include TMP related items that an owner/agency should consider in evaluating design-build proposals.
- *Owner/Agency's Design Review Checklists:* These checklists include various TMP related design items that an owner/agency should consider when reviewing the design-builder's design documents.
- *Owner/Agency's Design and Construction Management Plan Checklists:* These checklists include various design and construction quality management items for the owner/agency.

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LIST OF ABBREVIATIONS AND SYMBOLS

AADT	Annual Average Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
AFAD	Automated Flagger Assistance Devices
ATC	Alternative Technical Concepts
CCTV	Closed-Circuit Television
CMS	Changeable Message Signs
DQCS	Design Quality Control System
EMS	Emergency Medical Services
FHWA	Federal Highway Administration
HAR	Highway Advisory Radio
HOT	High Occupancy Toll
HOV	High Occupancy Vehicle
ITS	Intelligent Transportation Systems
MOT	Maintenance of Traffic
MOU	Memorandum of Understanding
MSDS	Material Safety Data Sheets
MUTCD	Manual on Uniform Traffic Control Devices
M&O	Maintenance and Operations
NEPA	National Environmental Policy Act
NTP	Notice to Proceed
OSHA	Occupational Safety and Health Administration
PCMS	Portable Changeable Message Signs
PIAC	Project Implementation Advisory Council
PI&O	Public Information and Outreach
PPE	Personal Protective Equipment
PS&E	Plans, Specifications, and Estimates
QA	Quality Assurance
QC	Quality Control
QSM	Quality System Manual
RFC	Release for Construction
RFI	Request for Information
RFP	Request for Proposals
RFQ	Request for Qualifications
ROPS	Rollover Protective Structures
SOQ	Statement of Qualifications
TCP	Traffic Control Plan
TIM	Traffic Incident Management
TMC	Transportation Management Centers
TMP	Transportation Management Plan
TO	Transportation Operations
TTC	Temporary Traffic Control
VSL	Variable Speed Limit
WTS	Worksite Traffic Supervisor

CHAPTER 1: INTRODUCTION

Design-build projects are becoming more prevalent as agencies seek to speed up projects to leverage resources through growing use of public-private partnerships, accelerated project timelines, and contracting out design work. While the principles advocated by the Work Zone Safety and Mobility Rule—such as impacts analysis and transportation management plans (TMP)—still apply to design-build projects, there are some adjustments needed to address differences between design-build processes and traditional design-bid-build processes. There is a need to explore issues related to design-build projects and to produce additional best practices and guidance to aid project stakeholders in the differing processes associated with design-build projects. For instance, some states have procedures that have been working very well for them that should be captured and shared.

This project constitutes the second phase of previous work to develop these resources. The specific objectives of this project are to identify and share best practices and guidance on work zone management, quality assurance, and TMP development for design-build projects. This information is packaged within this report as a series of lessons learned, best practices, tools for developing TMPs, and sample forms and checklists. The report presents these resources in the following five chapters, described briefly below:

- **Chapter 2: Lessons Learned and Best Practices in Design-Build Projects.** This chapter presents bulleted lists of lessons learned and best practices in design-build projects, organized around a variety of pertinent issues and subjects in design-build processes.
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- **Chapter 5: Quality Assurance Checklists for Work Zones in Design-Build Projects.** Building on Chapter 4, this chapter presents a series of sample inspection checklists to aid design-builders and owners/agencies in conducting quality assurance (QA) for work zones in various phases of design-build projects.
- **Chapter 6: Additional Checklists to Support Design-Builders and Owner/Agencies.** This chapter presents an additional series of sample checklists to support design-builders and owners/agencies in various processes of design-build projects. In particular, several checklists in this chapter pertain to items and issues related to the TMP.

CHAPTER 2: LESSONS LEARNED AND BEST PRACTICES IN DESIGN-BUILD PROJECTS

OVERVIEW

This chapter identifies lessons learned and best practices from design-build procedures and projects. These insights, presented in bulleted lists, are organized around the following issues or subjects: project selection; design quality management; construction quality management; utilities/right-of-way/railroad coordination; design-builder selection process; writing design-build request for qualifications/proposals; use of alternative technical concepts; schedule performance, milestones, and progress payments; change orders; claims and dispute resolution.

PROJECT SELECTION

This section presents the scenarios where design-build is more suitable than other project delivery methods. The scenarios include:

- **Project Size:** Design-build is more suitable for medium to large complex projects where innovative concepts can be applied to project design and development during the project conceptualization stage. Limited support is typically expected from the contracting industry for projects that are smaller in size (typically, less than $10 million).
- **Project Complexity and Innovation**: Design-build is more suitable for complex projects with scope for industry inputs and design-builder innovation in the design and schedule. Since there is a single point of responsibility between the designer and contractor, the design-build contracting allows for collaboration between these entities. Design-build contracting encourages innovation through:
    - Alternative technical concepts (ATC) process.
    - Best value procurement.
    - Early design-builder involvement.
    - Process optimization between designer and contractor.
    - Performance specifications (if used).

  The project should have a strong design component to allow for design-builder innovation; however, if the owner/agency advances the design too far, there will be less scope for design-builder innovation.
- **Schedule**: Design-build is more suitable for projects where there is potential to accelerate the schedule. Design-build contracting allows for concurrent design and construction processes, albeit with a shorter schedule lag, to expedite construction. The design-builder has the ability to start construction before the entire design, plans and specifications, right-of-way acquisition, and utility relocation are complete.
- **Cost Certainty**: Design-build is more suitable for projects where cost certainty is necessary. Since the costs are contractually committed early in the process, i.e. before substantial design is complete, the design-build contracting allows varying the project scope to match the price. Not only does this force the project to design to a fixed price, but it also allows the owner/agency to get the maximum scope for a fixed price in the market.

- **Design Requirements**: Design-build is not suitable for projects where the owner/agency is not clear on the project scope and requirements. The request for proposals (RFP) should articulate the project scope and requirements very clearly, since the RFP forms the basis for the contract. Change orders on design-build projects are typically less frequent than on other traditional project delivery methods. However, these change orders can be expensive if the changes have to be made to design, once the construction is underway.
- **Other Conditions**: Design-build is suitable only on projects where risks related to the environmental approvals and processes, permitting, right-of-way, railroad, hazardous materials, utility issues, and other third-party agreements are well-defined and properly allocated to the party that best manages them. Poorly defined risks, such as design risks, can be expensive, as they could result in change orders during construction.

Note: The University of Colorado, Boulder has developed a project delivery selection guidebook and matrix tool that assists owners/agencies in determining the appropriate delivery method for highway projects. This approach uses a matrix to consider three fundamental delivery methods currently in use by the highway industry: design-bid-build, design-build, and construction manager/general contractor. The approach includes four primary selection factors (delivery schedule, complexity and innovation, level of design, and initial project risk assessment) and four secondary selection factors (cost, staff experience/availability, level of oversight and control, and competition and contractor experience) in the delivery decision.

The selection matrix tool has been successfully tested and implemented for a wide range of projects of varying scope throughout Colorado.[1]

DESIGN QUALITY MANAGEMENT

This section primarily discusses the roles/responsibilities of design-builder and owner/agency on design quality management of a design-build project.

Request for Proposal Requirements

- The design-builder is typically responsible for proposing and implementing a design quality control system (DQCS).
- The owner/agency should propose and implement a design acceptance system.
- The RFP should articulate the qualifications (education, experience, and certification requirements) for the following personnel, as a minimum: quality control (QC) administrator responsible for design and construction quality, design QC manager, design manager, key personnel for design production, construction QC manager, construction manager, and key personnel for construction production.
- The design-builder should be required to prepare and follow a project-specific quality system manual (QSM) that clearly describes the QC requirements and procedures that will be implemented on the project.

[1] See the Colorado DOT's Project Delivery Selection Matrix Web page: https://www.codot.gov/business/designsupport/innovative-contracting-and-design-build/pdsm.

- The owner/agency should specify the minimum level of QC documentation that must be provided by the design-builder as well as the timeframe and format for providing the information.
- The owner/agency should specify design submittal and documentation requirements in the RFP.
- The owner/agency should understand the project requirements and should articulate them in unambiguous terms in the RFP through design requirements and performance criteria.
- A poorly written RFP, with conflicting design requirements, may create design uncertainties and misunderstandings, thus prompting bidders to build a risk contingency into their pricing.
- The RFP should identify performance criteria, methods specifications, and appropriate design and construction standards to be followed as appropriate.
- The owner/agency should consider including in the RFP a clause for transportation management plan (TMP) mandatory meeting with all the stakeholders.

Design Quality Control System

- The design-builder should develop a QSM, in accordance with the RFP requirements, and submit for the owner/agency's approval before the notice to proceed for design is issued.
- At a minimum, the design-builder's QSM should contain information for the following categories:
    - QC Organization & Roles.
    - Document Management Procedures.
    - Design Quality Control Procedures.
    - Construction Quality Control Procedures.
    - Quality Control Organization Chart and Tables.
    - Design Quality Control Forms.
    - Quality Control Inspection Report Forms.
    - Quality Control Test Report Forms.
    - Preliminary QC Inspection Schedules.
    - Preliminary QC Testing Schedules.
    - Mock-Up and Control Section Forms.

Design Submittal Requirements

- The owner/agency should establish design submittal requirements for the project.
    - Design submittals should be broken into work packages based on the sequence of construction items.
    - Design submittal of items with long lead times or many indeterminants should be identified and prioritized.
- Design-builder should provide the owner/agency with weekly documentation (in an agency-approved format) of all work performed to date and access to all teams to facilitate shorter review periods.
- The owner/agency should maintain a document management system, process, and procedures to identify, review, approve, and track changes in all documents pertinent to the project. The document management should include, as a minimum, an electronic

project filing system, standard document file naming convention, electronic file revisions and redline markups, email standards, protocols, and filing system and construction document management.

- The owner/agency should create a risk profile of design requirements. For instance, design items can be color-coded red, yellow, and green in the order of risk magnitude. Review items with the greatest risks should be addressed first.

Design Quality Control Process

- Establish a process for both informal and formal design reviews.
    - The design-builder's informal review should include "self-checks" and internal coordination with construction personnel. The owner/agency's informal review should include "over-the-shoulder" design reviews and audits while the design is in progress.
    - The owner/agency formal design review should include milestone-based work packages, interdisciplinary reviews, and independent design checks.
- Contractual relationships must not be violated.
- The owner/agency should:
    - Develop design review checklists for all aspects of the design review, including right-of-way, easement, and control of access, traffic control, transportation management plan, etc.
    - Devise a process for comments tracking and resolution.
    - Develop a process for interdisciplinary review and constructability review.
    - Develop a process for conducting independent structural design checks. Design-build team experts who are not directly involved in the design can perform the design checks, as getting a third party for design review can be expensive.
    - Develop a process to identify and manage nonconforming work.
    - Develop a process to allow for minimal design work packages as required by the design-builder for executing the construction work.

Owner/Agency's Review Process

- Over-the-shoulder review is suggested for approving the design-builder's design submittals. Physical proximity between the design-builder and owner/agency personnel is important.
- The owner/agency should assign "lead" persons for each expertise area. The lead person should be able to understand the design, specifications, and impacts of quality and design on construction and make critical decisions.
- The owner/agency should establish a realistic design review schedule to ensure timely review and approval of design submittals. The owner/agency should also establish the level of details required for design reviews. Micro-level review of designs should generally be minimized. In addition, a request for information (RFI) should be prioritized and minimized to avoid overloading both owner/agency and the design-builder.
- The owner/agency should also establish the level of details in the design submittal for release for construction (RFC) approval.

- Periodic meetings should be scheduled between the owner/agency engineers/experts and the design-build team to discuss the critical issues and approve the design submittals in a shorter timeframe.
- The review comments and responses may be provided in the format preferred by the design-builder and the owner.

CONSTRUCTION QUALITY MANAGEMENT

This section primarily discusses the roles/responsibilities of design-builder and owner/agency on construction quality management of a design-build project.

Request for Proposal Requirements

- The owner/agency should list all applicable construction requirements, including standards, specifications, and special provisions.
- The design-builder should develop a QSM that addresses the construction QC procedures.
- The design-builder should identify all QC personnel and procedures that will be used to meet the owner/agency's specification requirements.
- The RFP should list all the major work items that require QC plans.
- The owner/agency should specify the standard QC plan format in the RFP:
    - Terms and definitions.
    - Applicable specifications.
    - QC organization.
    - QC laboratories.
    - Materials control.
    - Production facility QC.
    - Field QC.

Construction Quality System

- The owner/agency and the design-builder should be involved in the construction QC process. Construction QC should include:
    - Independent checks of materials/workmanship.
    - QC inspection.
    - Work item coordination reviews.
    - Pre-production and pre-placement checks.
    - Self-inspection of work items.
- The design-builder creates and submits a QC plan for the owner/agency's approval.

Construction Quality Control Process

- The design-build team should include a construction QC manager who leads the construction QC team which performs formal construction QC.
- The owner/agency's construction manager is in charge of informal construction QC.

- QC inspection involves visual observations. Both the owner/agency and design-builder should be involved in the construction QC inspection process.
- QC sampling and testing is used to maintain control of each process, and the data may also be included in acceptance determination.
- The owner/agency is responsible for monitoring the design-builder's QC activities.
- The owner/agency independently conducts quality measurement activities such as acceptance inspection and acceptance testing.
- The owner/agency's acceptance samples should be random and independent of the design-builder's QC samples.

UTILITIES/RIGHT-OF-WAY/RAILROAD COORDINATION

This section primarily discusses the roles/responsibilities of design-builder and owner/agency during utility/right-of-way/railroad coordination.

- Owners/agencies and design-builders should be involved in the stakeholder/partner coordination process.
- Right-of-way responsibilities need to be clearly defined in contract requirements and appropriately allocated to both the design-builder and the owner.
- Prior to releasing the RFP, the owner/agency should verify that all right-of-way can be obtained prior to execution of the contract.
- The RFP should identify the right-of-way and temporary easement availability and additional right-of-way needed.
- The owner/agency should be involved in early right-of-way acquisition and utility relocation process.
- The owner/agency should take the lead on right-of-way and temporary easement acquisition.
- The right-of-way acquisition process should begin as early as possible.
- The owner/agency should anticipate and identify difficult acquisitions early in the process and concentrate early efforts on acquisition/relocation that will require more lead time.
- The RFP should specify if the design-builder is allowed to use a right-of-way consultant, and if this is acceptable to the owner/agency, the RFP should layout the responsibilities of the design-builder and corresponding submittal requirements.
- The RFP should specify the requirements and alternatives, if the right-of-way acquisition is not completed before the beginning of construction.
- The owner/agency and design-builder should identify all known public and private utilities in and around the project location early in the design process.
- The owner/agency should determine if the utility company or the design-builder will be responsible for utility relocations.
- Responsibilities related to railroad grade crossing permits and railroad coordination should be defined by the owner/agency during the permit process.
- Regular community meetings should be conducted to keep the public informed.
- The design-builder should notify the owner/agency immediately upon the discovery of any assumed hazardous materials, as well as any historical or archaeological site.

DESIGN-BUILDER SELECTION PROCESS

This section provides information on the two-step procurement process on design-build projects, including a) a request for qualifications (RFQ) that involves determination of short-list of proposers and b) RFP that involves selection of design-builder from short-listed proposers who submit proposals.

One-Step Process versus Two-Step Process

- In a one-step process, the owner/agency issues an RFP only.
- In a two-step process, the owner/agency issues a request for an RFQ and shortlists proposers based on qualifications. The RFP is then issued to the shortlisted proposers to submit technical proposals. The technical proposals should be ranked to identify the most highly qualified proposers for the type of project.

Draft Request for Proposal Package

- To maximize design-builder innovation, the RFP should be developed with the goal of minimizing prescriptive requirements and maximizing the use of performance requirements.
- For Federal-aid design-build projects, the provisions of 23 CFR 636.201 provide for the following award criteria: lowest price, adjusted low-bid (price per quality point), meets criteria/low bid, weighted criteria process, fixed price/best design and best value.

Pre-Proposal Meeting

- Confidential meetings between the owner/agency and each proposer before the proposal evaluation helps facilitate an open discussion of ideas, concerns, and other items related to the proposal (e.g., ambiguities).
- All information discussed in the pre-proposal meetings should be kept confidential.
- Often, ATCs will be discussed at the pre-proposal meetings.

Proposal Evaluation

- Evaluation factors should be tied to the project goals.
- Evaluation factors should be clearly stated in the RFP. The evaluation process should be fair and transparent.
- Evaluators should be unbiased, trained on the owner/agency's processes, and consistent in their reviews.
- Technical proposal reviewers should not have access to the price proposals during technical proposal evaluation.
- Unsuccessful proposers should have the opportunity to participate in a debriefing session.
- The owner/agency should establish proposal scoring criteria well in advance of proposal submittal process.

- The owner/agency should consider using standardized training and scoring forms to evaluate proposals.

WRITING DESIGN-BUILD REQUESTS FOR QUALIFICATIONS/REQUESTS FOR PROPOSALS

This section deals with the owner/agency considerations while drafting RFQs/RFPs.

- The owner/agency should advertise the project as early as possible.
- Prior to drafting the RFQ/RFP, the owner/agency should identify alternative funding opportunities for the project.
- The owner/agency should clearly identify its Statement of Qualifications (SOQ) evaluation criteria and scoring system in its RFQ.
- The owner/agency should determine if a consultant is needed and, accordingly, establish the consultant's role and guidelines prior to RFQ stage.
- RFPs should contain as many performance-based criteria as possible, while limiting the number of prescriptive criteria.
- The owner/agency should use performance-based specifications only on projects where it can verify compliance.
- The project goals and risks, and the allocation of those risks, should be clearly identified in the RFP. The risk assignment should be based on the complexity and specific needs of the project.
- The owner/agency should use RFQ/RFP language that is easy to understand.
- The owner/agency should establish an internal escalation process for RFP development.
- The owner/agency should decide early in the process how RFP information will be organized and distributed to the proposers—electronic, hardcopy drawings and reports etc.
- The contract should encourage open communication between the owner/agency and design-builder.
- Coordinating with local agencies and impacted stakeholders, and describing project procedures as part of the RFP, should be considered for better defining risk and responsibilities between the owner/agency and design-builder.
- For better cost estimates, the owner/agency should consider involving an estimator throughout the RFP development phase.
- The roles and responsibilities of all parties should be clearly explained in the RFP.
- The owner/agency and the design-builder should collaborate on identifying key areas of risk on a design-build project.
- The RFP should clearly establish how the various team members should communicate with each other.
- The owner/agency should require the proposer to develop a quality management plan that documents all the QC requirements for both design and construction.
- The owner/agency should clearly define in the RFP the requirements and staffing levels for quality control/quality assurance personnel relating to design or construction.
- Internal workshops/meetings involving key technical staff should be held to review the RFP as it is developed through the project development phase.

- The RFP should outline the required process in cases where changes proposed by the design-builder triggers a National Environmental Policy Act (NEPA) re-evaluation.
- The owner/agency should consider providing supplemental geotechnical information along with the RFP.
- The owner/agency should allow additional requested elements (ARE), as part of the basic configuration or temporary configuration, wherever appropriate.
- The owner/agency should consider legal coordination throughout the RFQ/RFP development process.

USE OF ALTERNATIVE TECHNICAL CONCEPTS

This section discusses the use of ATCs on design-build projects. ATCs allow design-builders to submit innovative, cost effective solutions that are equal to or better than the owner/agency's design and/or construction criteria.

- Owners/Agencies should encourage ATCs from the proposers to allow for greater innovation on the project.
- Owner/agency should consider holding confidential one-on-one meetings with each proposer throughout this stage of the project development. This meeting allows the proposer to get their ideas vetted and reviewed by the owner/agency, before any formal submittal is made.
- The owner/agency should:
    - Provide the design-builder an opportunity for revisions to ATCs.
    - Link equal or better considerations to project goals.
    - Make sure ATC reviews are consistent.
    - Have technically qualified people review the ATCs.
    - Clearly define the ATC submittal requirements.
    - Clearly explain the ATC process.
- The owner/agency may, if necessary, include addenda to the RFP based on submitted ATCs.
- Owner/agency should require proposers to specify why approved, individual ATCs have not been incorporated into their proposals.
- Owner/agency should establish means to handle the difference in cost savings between the nonselected proposers ATCs and what the best value proposer offered during negotiations.
- Owner/agency should consider the use of separate panels to evaluate ATCs and proposals.
- ATCs that affect local agencies should have their approval as a condition of acceptance.
- The owner/agency should establish submittal dates for ATC submittals that maximize the potential benefit to both the department and proposers.

SCHEDULE PERFORMANCE, MILESTONES, AND PROGRESS PAYMENTS

This section relates to specifying maximum construction duration, establishing interim milestones, and incentive/disincentive (I/D) based payments.

- Owner/agency should clearly define in the contract the requirements for achieving project milestones, including substantial completion, final completion, and final payment.

- Owner/agency should use appropriate contractual incentives that facilitate the alignment of the performance of their design-build teams with the owner/agency's project goals.
- Payments are made after owner/agency is satisfied with the completion of the design/construction work packages.
- A schedule of values, which is a statement furnished by design-builder allocating portions of the contract sum to various portions of the work and used as the basis for reviewing design-builder's applications for payment, should be used on design-build projects.
- The design-builder should always notify the owner/agency of any project related issues that may impact the contract price and schedule, to enable the owner/agency to make informed decisions on resolving such issues.

CHANGE ORDERS

This section provides information on change orders on design-build projects. A change order is a legal and binding agreement that modifies the original contract as executed and approved by the owner/agency.

- A change order involves changes to the original scope of the contract, revisions to the confirmed/approved project schedule, and sets forth other modifications in time, money, or authorization.
- Typical types of changes include:
    - Change to scope of work.
    - Unforeseen conditions.
    - RFP/performance criteria.
- Owner/agency should clearly define design-build change order criteria and the change order approval process, including the different courses of action that should be adopted when the owner/agency or the design-builder initiates the design-build change order.

CLAIMS AND DISPUTE RESOLUTION

This section discusses claims and dispute resolution on design-build projects.

- The owner/agency should clearly outline dispute resolution process in its RFP.
- Disputes should be resolved at the lowest level possible.
- The owner/agency should establish statutory and contractual claims resolution processes and/or forums for design-build projects.
- Alternative dispute resolution processes written into the contract can promote prompt identification and resolution of disputes.
- Periodic project/contract document reviews by both the owner/agency and design-builder, along with status meetings, provide an approach to keep communication open.

CHAPTER 3: TRANSPORTATION MANAGEMENT PLAN DEVELOPMENT TOOLS FOR DESIGN-BUILD PROJECTS

INTRODUCTION

State and local transportation agencies are required to have a transportation management plan (TMP) on all Federal-aid transportation projects[2]. A TMP is a set of coordinated transportation management strategies implemented to reduce traffic and mobility impacts, improve safety, and promote coordination within and around work zones. TMPs consist of a temporary traffic control (TTC) plan and address the transportation operations (TO) and public information and outreach (PI&O) components of a project.

How Is a Transportation Management Plan Developed in a Traditional Design-Bid-Build Project?

TMPs on traditional design-bid-build projects are developed by the owner/agency (or agency consultant) in consultation with stakeholders. While some TMP items are included in the owner/agency's plans, specifications and estimates (PS&E) package for implementation by the contractor, the owner/agency is responsible for the implementation of TMP components excluded from the contract. TMPs on design-bid-build projects:

- Start with conceptual design during the preliminary engineering phase.
- Are finalized in the final design phase.
- Depend on the "significance" of the project—that is, the severity of work zone impacts/higher level of disruption and duration of project construction.

What Would Be Different Using Design-Build?

The key characteristics of design-build projects are as follows:

- Final design and construction are performed by the contractor/design-builder through a single contract.
- Project development phases are not sequential. There is an overlap between the design and construction phases.
- Roles and responsibilities of both the owner/agency and the design-builder are different from those for traditional project delivery methods.
- Risk is shared between the owner/agency and the design-builder.
- Design and construction requirements should be clearly articulated in the request for proposals (RFP) before procurement.

On design-build projects, the design-builder develops the TMP based on the partially completed TMP or TMP template provided by the owner/agency. The design-builder may implement the TMP once approved by the owner/agency. Design-build is often more suitable for projects where the schedule needs to be expedited and the owner/agency is clear about the scope of work.

[2] 23 C.F.R. § 630.1012 2016.

This document builds on a review of existing TMP-related guidance, policies, practices, and procedures compiled in the Federal Highway Administration (FHWA) Work Zone Management Program as well as State transportation agency Web sites. The following sections present flowcharts, timelines, and examples to help with developing and maintaining TMPs on design-build projects.

TRANSPORTATION MANAGEMENT PLAN SELECTION PROCESS FOR DESIGN-BUILD PROJECTS

This section includes a series of flowcharts to outline the progression of steps, roles, and responsibilities of the owner/agency and design-builder involved in performing the following activities:

- Development of transportation management plan (TMP).
- Development of temporary traffic control (TTC) plan.
- Development of a traffic incident management (TIM) plan.
- Development of a public information and outreach (PI&O) plan.
- Design-build project development.

Development of Transportation Management Plan

In a typical design-build project, the design-builder is responsible for preparation of a transportation management plan that defines the strategic plan for traffic management on the project under consideration. The design-builder's TMP should, at a minimum, address major aspects of the work for individual construction areas, phases, and stages, including lane closures, bridge closures, interchange closures, local streets, construction phasing and staging, numbers and type of major traffic shifts, detours, typical section requirements, pull out requirements, and emergency access. The TMP is reviewed and approved by the owner/agency prior to the commencement of the first phase or stage of construction. The design-builder's TMP should also include a checklist identifying specific items for public information data collection and management activities on the project. Depending on the significance of the project, the TMP may include a TTC plan, TO related items, and a PI&O plan. For nonsignificant projects, only TTC plans are used.

The TMP development process involves identification of transportation management strategies to manage the work zone impacts of the project under consideration. These strategies are re-evaluated/revised as needed before the implementation of the TMP. In the TMP development process, the owner/agency is responsible for defining requirements for (1) work zone impacts assessment and allowable impacts during project construction and (2) transportation management strategies. To facilitate the TMP development process, the design-builder has to compile project information, identify project stakeholders, define TMP strategies, develop, finalize, and implement TMP, and monitor work zone safety and mobility impacts during construction. Once the TMP plan is implemented, the owner/agency will be responsible for providing oversight over monitoring work zone safety and mobility impacts during construction. Figure 1 presents the TMP development process for a typical design-build project.

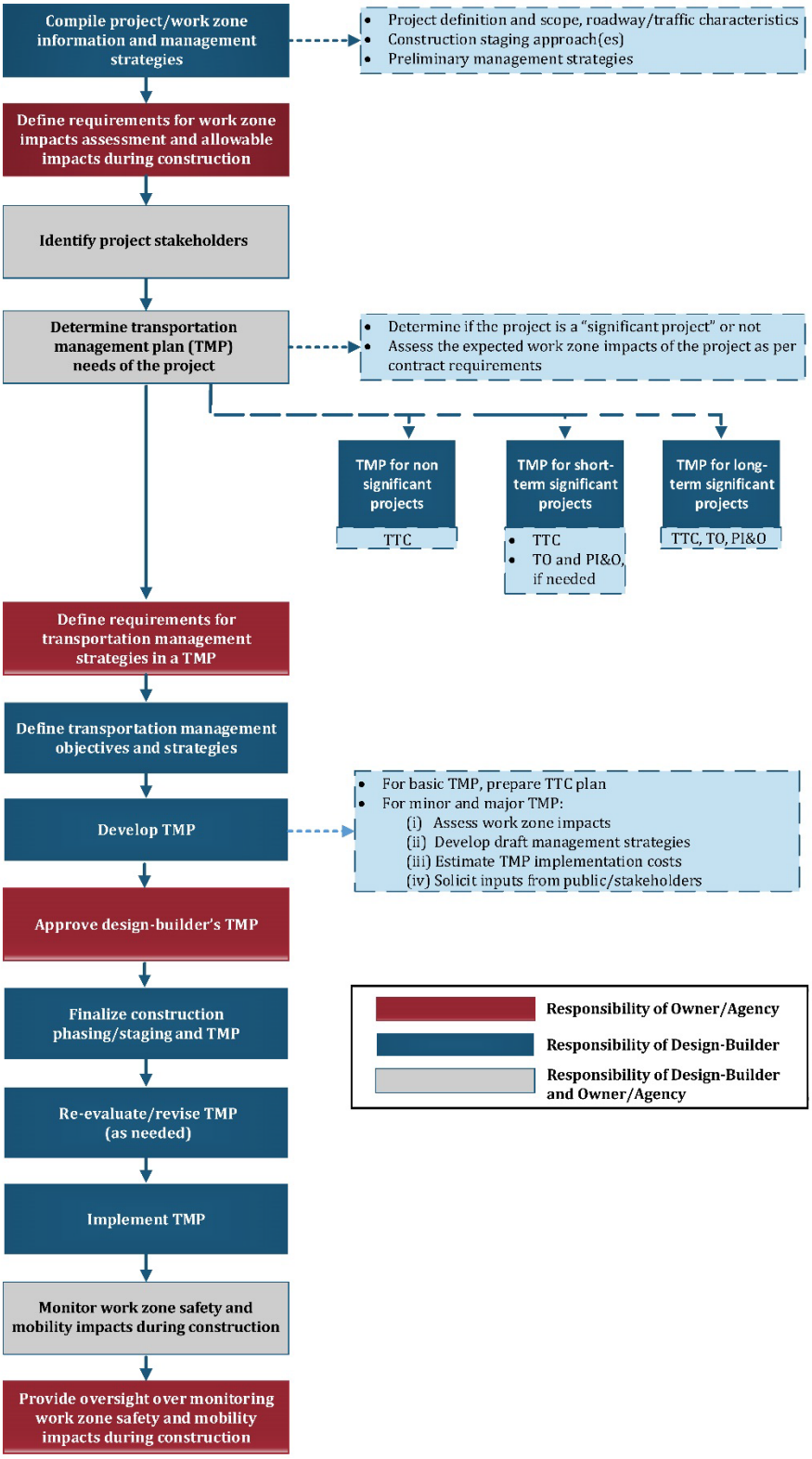

Figure 1. Flowchart. Transportation management plan development process.
(Source: Applied Research Associates, Inc.)
(Note on acronyms: Temporary Traffic Control (TTC), Transportation Operations (TO), Public Information and Outreach (PI&O).)

Development of a Temporary Traffic Control Plan

A TTC plan is a primary component of a TMP used for the maintenance and control of traffic during work conducted within the highway rights-of-way by a design-builder working within the highway rights-of-way for each project. A TTC plan could be simple or complex depending upon the type, size, complexity and duration of the project, and the anticipated work impacts generated by the project.

In a typical design-build project, a design-builder is responsible for establishing a TTC team to coordinate with affected parties. A TTC team should at a minimum include design-builder's public information officer, design-builder's traffic control supervisor, owner/agency representatives, city/local agency representatives, and other TMP stakeholders. The design-builder should submit a list of task force members to owner/agency for acceptance within a specific period after notice to proceed (NTP). The TTC team provides important input to the design-builder's PI&O plan. The design-builder will be responsible for scheduling and conducting TTC team meetings. The TTC team would be responsible for review and refinement of the TMP and its implementation, review and refinement of the design-builder's TTC plans, specifications, and details, dissemination of TTC information to task force meeting attendees, and determination of additional membership invitees affected by the TTC, as deemed necessary. It should be noted that some states refer to TTC plans as Traffic Control Plans (TCP) or maintenance of traffic (MOT) plans.

The design-builder has the option to request a variance in TTC for any closure, detour, or other access restrictions. Variance requests are primarily submitted when safety is a concern and/or other project goals (e.g., reduction of project duration) and criteria can be maximized. The owner/agency designee reviews the variance request from the design-builder, and may extend the review time if additional public information surveys are required, or if revisions are requested. The variance may require local agency approval for detours utilizing local streets that fall within the local agency's jurisdiction. The design-builder is responsible for performing all the work necessary to meet the requirements associated with TTC in accordance with the owner/agency requirements and specification. The work will include, at a minimum, facilitating safe and efficient movement of people, goods, and services around the project while minimizing impacts to residents, commuters, and businesses.

Figure 2 presents the TTC plan development process for a typical design-build project. A TTC plan should address traffic control strategies and staging in the work zone in compliance with the requirements of the owner/agency and the requirements of the Manual on Uniform Traffic Control Devices (MUTCD). While the design-builder is responsible for majority of the activities associated with the TTC plan development and implementation, the owner/agency is the entity that defines requirements for traffic control strategies, and reviews and approves the TTC plan developed by the design-builder.

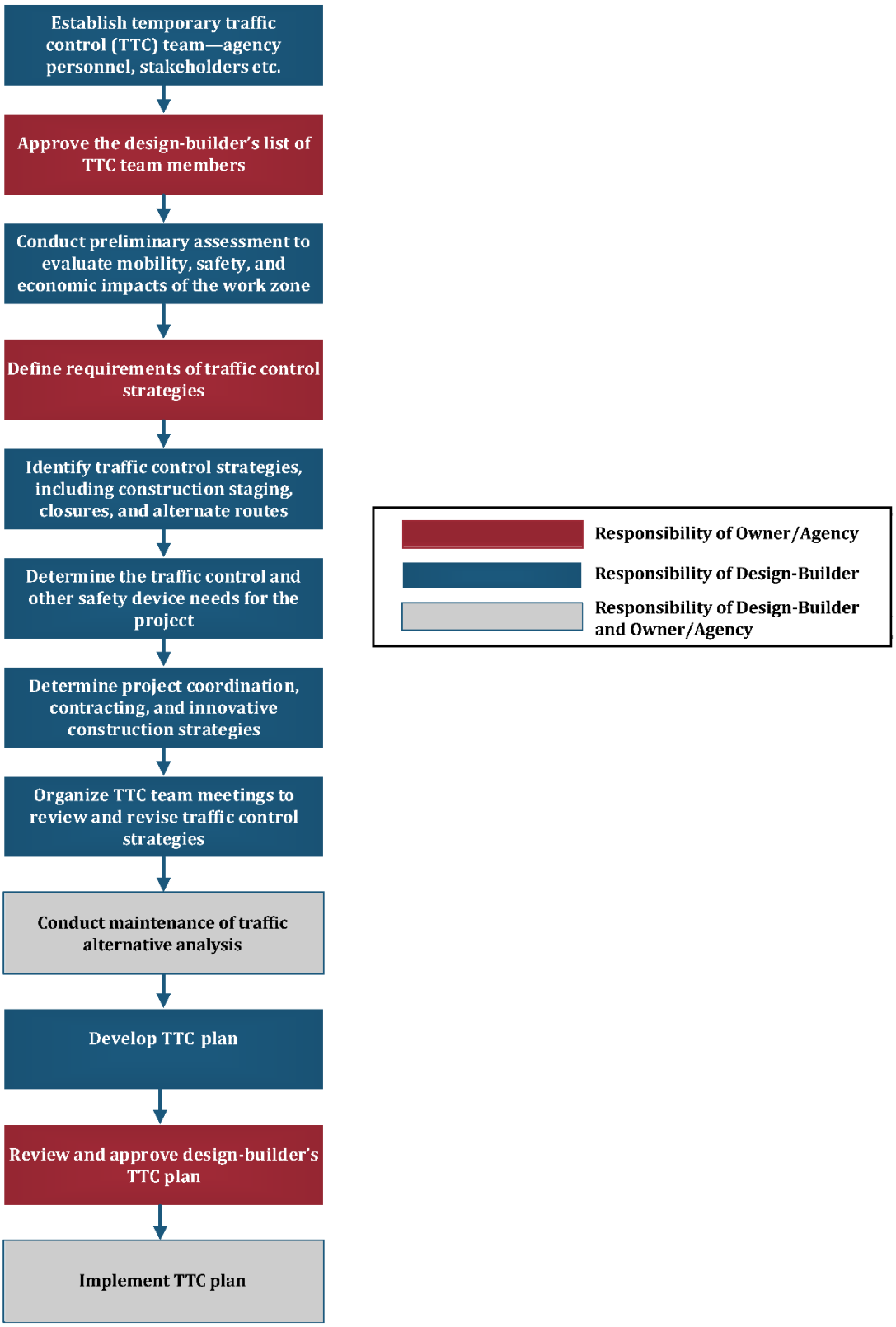

Figure 2. Flowchart. Development of temporary traffic control plan.
(Source: Applied Research Associates, Inc.)

Development of a Traffic Incident Management Plan

In a typical design-build project, a design-builder is responsible for the development of a detailed TIM plan in addition to the TMP to manage traffic incidents and operations on the project under consideration. The design-builder's TIM plan should be in conformance with owner/agency requirements and specifications. The TIM plan should, at a minimum, include information on:

1. Coordination with the PI&O plan.
2. Incident detection and identification.
3. Incident response.
4. Incident site management.
5. Incident clearance (including but not limited to accidents and disabled vehicles).
6. Dissemination of traveler information and notification regarding incidents.
7. Emergency services notification, including local police departments, agency patrol, local fire departments, ambulance services, and other emergency response providers.
8. Notification of school districts with possible impacts to their school bus routes, student drop-offs and/or pedestrian facilities.
9. Geographic and other special constraints.
10. Information on available resources.
11. TIM operational procedures.

The design-builder's TIM plan will be reviewed and approved by the owner/agency within a specified timeframe after issuance of the NTP. The design-builder cannot begin work that impacts traffic before the owner/agency accepts the TIM plan.

Figure 3 presents the TIM plan development process for a typical design-build project. The process begins with identification of project stakeholders, followed by establishment of the TIM team, development of TIM strategies, and finally, development of the TIM plan. The primary role of the design-builder is to identify project stakeholders and develop needs and enhancements, goals and objectives, preliminary strategies, and a final strategic plan associated with TIM. The owner/agency defines the requirements of TIM strategies and assists the design-builder in establishing a TIM team and identifying TIM team leaders.

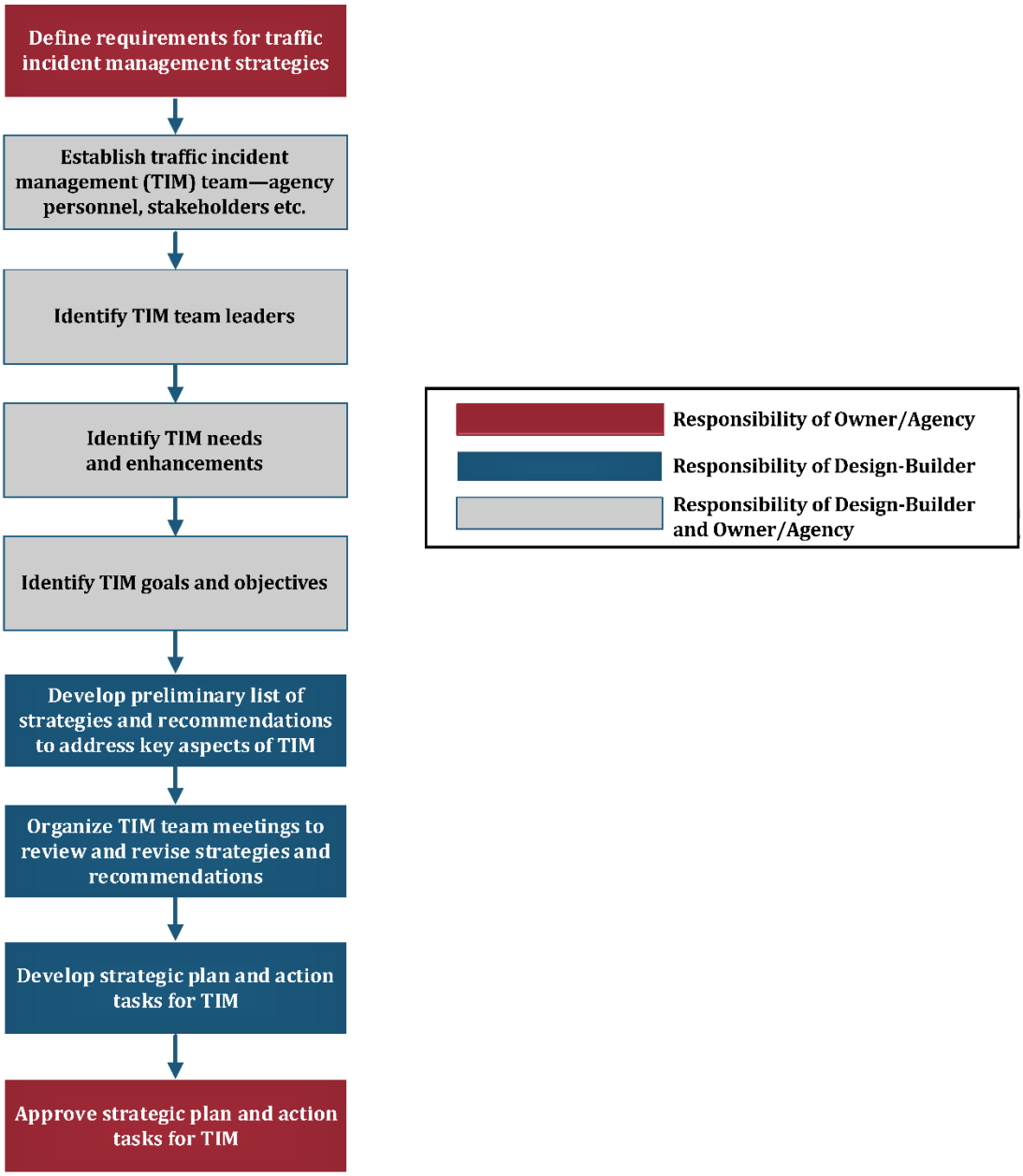

Figure 3. Flowchart. Traffic incident management plan.
(Source: Applied Research Associates, Inc.)

Development of a Public Information and Outreach Plan

For the public information and outreach on a typical design-build project, the owner/agency and design-builder are responsible for coordination with the traveling public, businesses, communities, local agencies, emergency responders, utility owners, and other third parties. In most cases, the owner/agency takes the lead on the development of the PI&O plan and functions as the official spokesperson for the project and point of contact for the media. In addition, the owner/agency is also responsible for distributing outreach content, marketing the outreach plan, and maintaining the project Web site and social media content. The owner/agency also performs quality assurance of any information and outreach activities performed by the design-builder.

The design-builder is responsible for supporting the owner/agency's public and media outreach activities. The design-builder provides the necessary materials and information for the owner/agency to use in the PI&O efforts. The design-builder also provides daily content for the project Web site and social media. The design-builder's responsibilities also include supporting the owner/agency's coordination efforts with the public, stakeholders, partners, and third parties; providing outreach and technical staff, as necessary, for owner-organized public forums; and assisting the owner/agency in responding to media enquiries.

Figure 4 presents the PI&O plan development process for a typical design-build project. While the design-builder is responsible for these activities, the owner/agency is expected to define the requirements of PI&O strategies. The owner/agency will also assist the design-builder in identifying stakeholders, establishing the PI&O team, identifying internal and external resources for the PI&O campaign, obtaining public/stakeholder feedback, and implementing the PI&O plan.

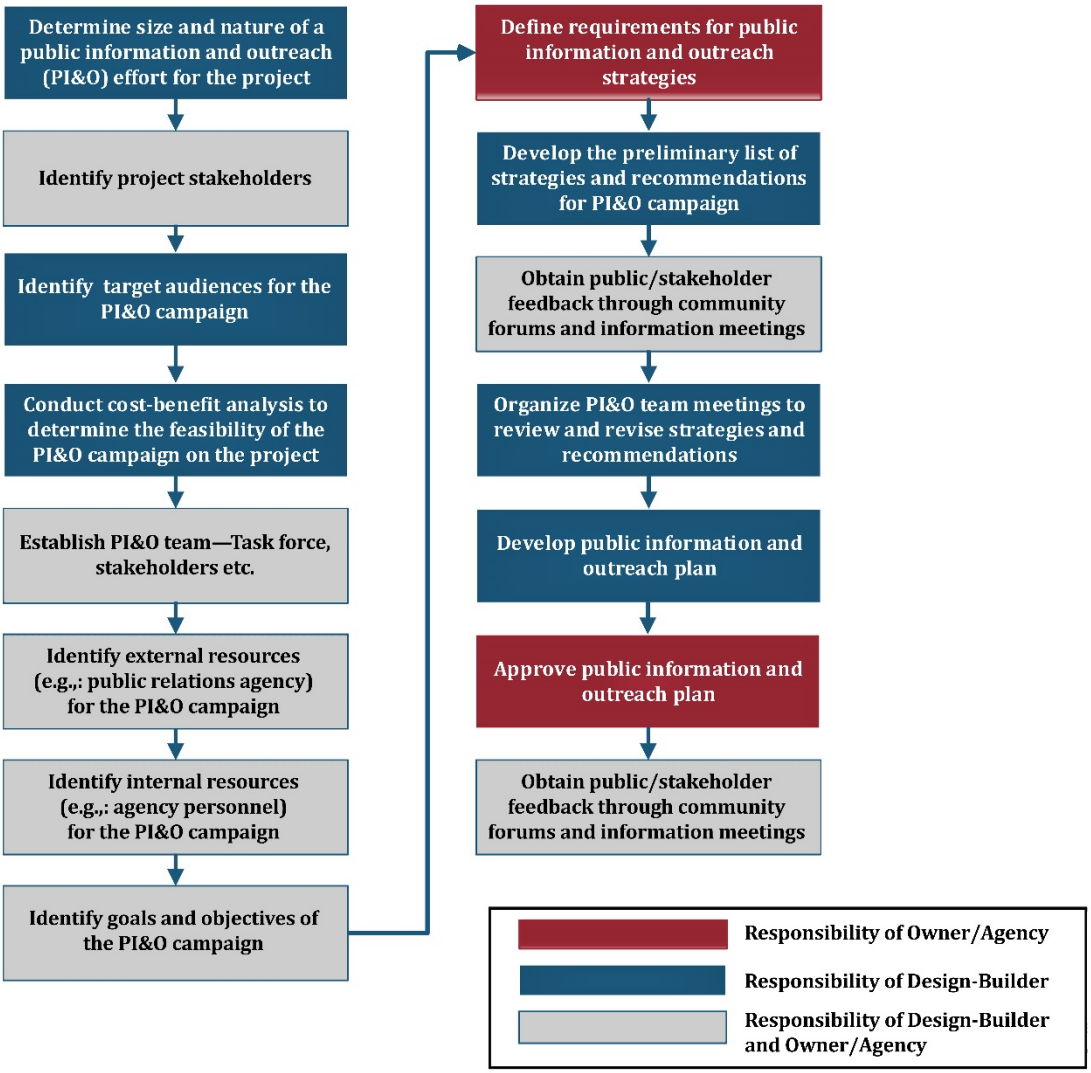

Figure 4. Flowchart. Public information and outreach plan.
(Source: Applied Research Associates, Inc.)

Design-Build Project Development Process and Timelines

Design-build projects facilitate an accelerated project delivery schedule due to the overlap between design and construction activities. This section presents the progression of events leading to the development and implementation of the TMP, work zone performance assessment, maintenance, and operations. The TMP and work zone evaluation process has been outlined for the following phases: concepts planning, preliminary engineering, preliminary design, procurement, final design, construction, performance assessment, and maintenance and operations. The owner/agency is responsible for all activities in the concepts planning, preliminary engineering, and preliminary design phases.

Based on the preliminary design, once the owner/agency has developed the design-build criteria package, a request for qualifications/proposals (RFQ/RFP) is issued and proposals are invited. During this procurement phase, the owner/agency has the option to invite alternative technical concept ATC proposals. The ATC process involves meetings between the owner/agency and the proposer, review and approval of ATC submittals, and incorporation of approved ATCs in the RFP by the owner/agency. Once the owner/agency has awarded the project to a design-builder, the design-builder is responsible for the final design. The owner/agency may choose to review the proposed design from the design-builder. Once the design is finalized, the design-builder is responsible for construction of the project. The construction phase is followed by the performance assessment phase, wherein the owner/agency assesses project performance and revises its work zone impacts/management process as needed. Based on the project experience, the owner/agency can then improve its procedures and guidelines for maintenance and operations.

Figures 5 and 6 present the ATCs and TMP development and work zone evaluation process and timeline for a typical design-build project.

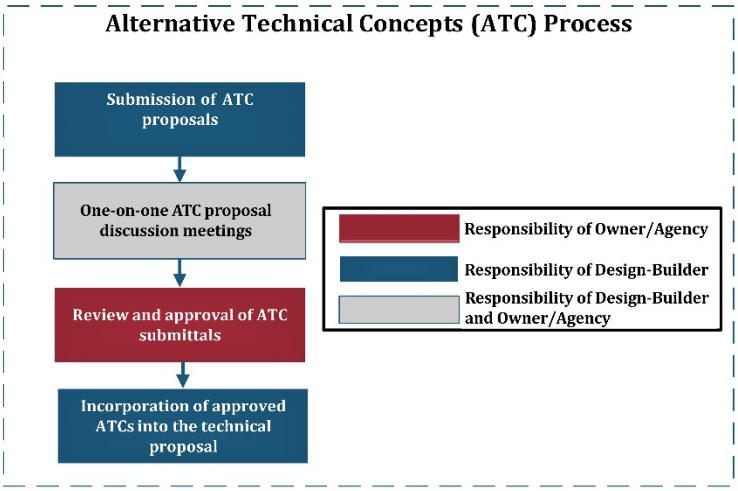

Figure 5. Flowchart. Alternative technical concepts.
(Source: Applied Research Associates, Inc.)

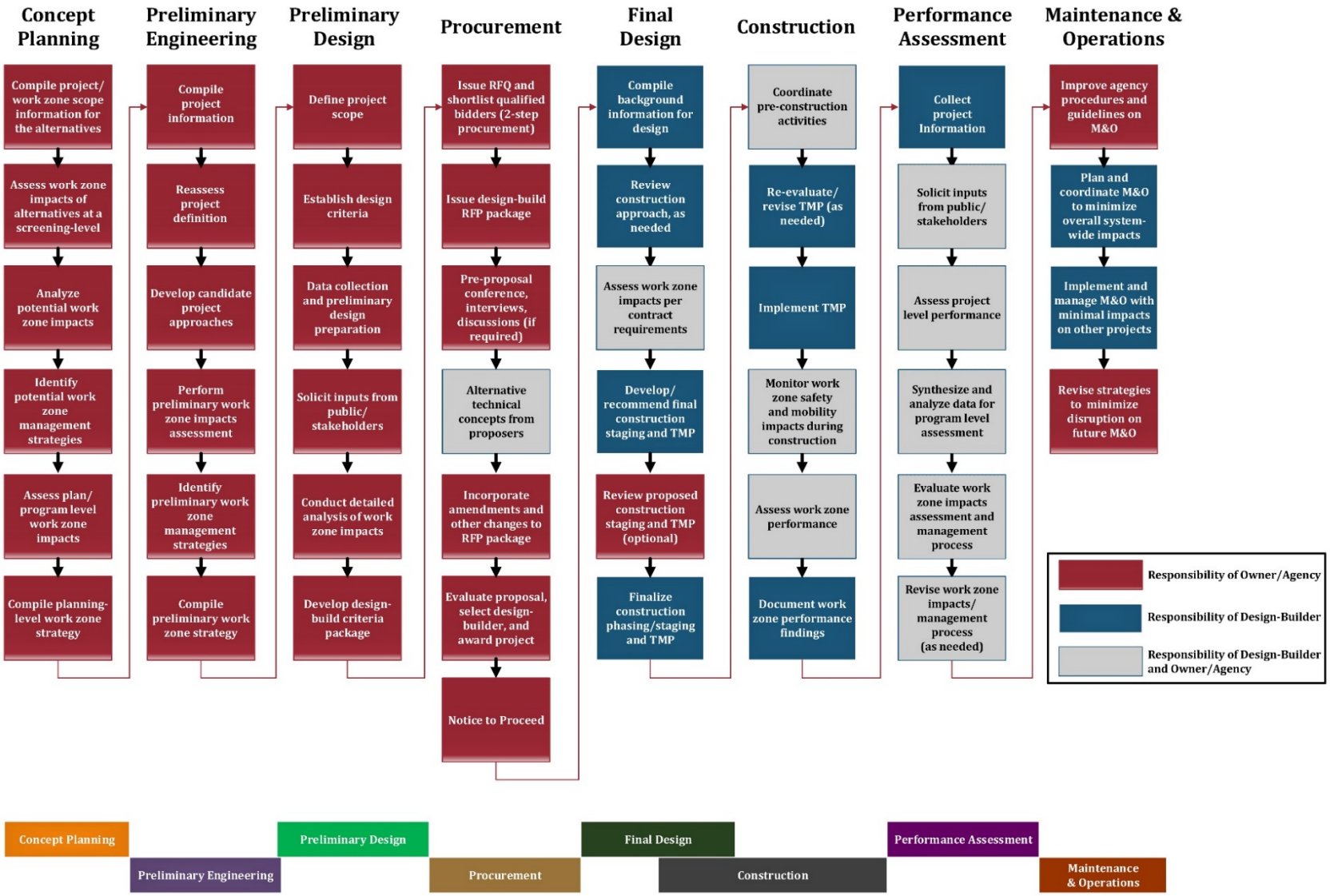

Figure 6. Flowchart. Design-build project development.
(Source: Applied Research Associates, Inc.)
(Note on acronyms: Transportation Management Plan (TMP), Request for Proposals (RFP), Maintenance and Operations (M&O).)

REVIEW OF TRANSPORTATION MANAGEMENT PLAN RELATED CLAUSES IN SAMPLE DESIGN-BUILD PROJECTS

TMP related clauses that were reviewed for sample design-build projects are presented in table 1.

Table 1. Transportation management plan related clauses in design-build projects.

- Standards and requirements.
    - The request for proposals (RFP) clauses generally identify various standards that are applicable to the design-builder's design and construction documents. These standards include American Association of State Highway and Transportation Officials (AASHTO), Federal Highway Administration (FHWA), and State standards, technical memoranda, specifications and special provisions pertinent to traffic engineering, traffic control devices (e.g., signs, signals, and pavement markings), work zone requirements, etc.
    - The RFP references typically include supplemental information that is specific to the project.
- Best value/evaluation criteria —points for transportation management plans (TMP)/maintenance of traffic (MOT) plans.
    - A two-step process is generally followed: a request for qualifications (RFQ) is issued, and shortlisted respondents are invited to submit a proposal in response to an RFP.
    - The selection process typically began with a pass/fail evaluation to determine whether the proposals were responsive to the requirements of the RFP. The evaluation includes both technical and price criteria, and it may include oral presentations and interviews. The evaluation criteria include descriptions of qualitative or quantitative ratings. Technical factors to be used in the proposal evaluation are also listed.
    - Among the States surveyed, the weightage for "maintenance of traffic" in technical evaluation ranges from 8 to 20 percent of the total score.
- Incentives/disincentives, lane rentals, A + B bidding.
    - The owners specified the time-related clauses, including the incentive/disincentive (I/D) amount, lane rental values, and target completion dates, in the RFP. To specify the time-related clauses in the RFP, not only did the owners complete the work zone impact analyses for the project, but they also specified the strategies for work zone traffic control and construction. The owners appear to be prescriptive in specifying the time related clauses as well as the traffic control strategy, possibly owing to the fact that these projects are significant in terms of work zone impacts.

Table 1. Transportation management plan related clauses in design-build projects (continued).

- TMP requirements, roles, and responsibilities.
    - Overall, the owners appeared to specify the TMP strategies in the RFP while allowing the design-builders to fill in the details and implement the strategies. For instance, in the "Fast 14" Massachusetts I-93 project, the owner/agency prescribed the use of crossovers as the traffic control strategy but left the details of designing crossovers as well as the plan sheets to the design-builder. Accordingly, the design-builder has the responsibility to perform, furnish, and install necessary devices and coordination to implement the strategies. Performance criteria are typically used only to determine design details.
    - Typical responsibilities of the design-builder include but not limited to:
        - Provide design details, such as revised signal timings, in accordance with the data provided by the owner.
        - Obtain necessary construction access permits for road closures.
        - Coordinate with various stakeholders.
        - Prepare access plans for commercial, construction and emergency vehicles.
        - Provide pedestrian access.
        - Prepare designs for temporary roadways and undertake improvements at intersections, ramps, and roadways.
        - Undertake inspection of the work zone traffic control.
    - The RFP typically requires that the TMP should be prepared in accordance with the applicable standards and references, subject to the owner/agency's approval.
    - The RFP typically requires design-builders to provide plan of proposed location and details for staging areas, work zone access/egress, and enclosure/storing of equipment during both working and nonworking hours.
- MOT plan, sequencing and staging.
    - The design-build RFPs included the following requirements for the MOT plan:
        - Major stages/phases of work.
        - Construction duration of each major stage/phase.
        - Roadway/ramp closures and restrictions and their duration of each major stage/phase.
        - Detour routes.
        - Construction access plan.
        - Incident management plan.
        - Staffing qualifications.
    - The owners specified the construction approach for these projects that would drive the decisions on TMP strategies.

Table 1. Transportation management plan related clauses in design-build projects (continued).

- Closure information.
  - The owners typically specify the routes that are allowed or restricted for closure and their closure timings; however, the RFPs solicit innovative ideas in design and construction to reduce closure durations.
  - The RFPs typically require the design-builder to notify pertinent authorities and stakeholders of any planned closure/restrictions in advance.
  - The design-builder is typically required to submit an emergency access plan for each closure type and period.
- Access during construction.
  - The RFPs typically require that emergency access shall be provided to work sites at all times.
- Coordination with police, fire, and emergency.
  - The design-builder is responsible for creating a crisis communications plan.
  - A representative from the police/fire/emergency response community is included in coordination and review meetings.
  - Typically, the design-builder is responsible for creating a safety plan and implementing it to ensure work zone safety.
- Coordination with other projects.
  - The owner/agency will typically list known or anticipated projects within the area, or that may be affected. However, it is up to the design-builder to coordinate with those projects.
- Special events.
  - One RFP specifically called out various events and noted days of the week and time of day when closures were not allowed. Events ranged from the State fair to university football games.
- Public information (PI) strategies.
  - The RFPs typically list several media that are used to disseminate information to the public.
  - The RFPs also typically list all the people/groups of people to whom information is required to be distributed.
  - Typically, the design-builder is responsible for managing the public information and keeping everyone up-to-date.
  - Typically, the design-builder is responsible for developing materials for the owner/agency to use for informing the public.
  - Typically, the design-builder is responsible for creating a PI plan.

SURVEY OF STATES ON DESIGN-BUILD PRACTICES

Representatives from several States were surveyed to identify their work zone related design-build practices and how they allocated risks to the design-builder during the different design-build project development phases. The States surveyed included Ohio, Florida, Colorado, and California. The survey results indicated that, in general, the States:

- Specify who will develop, review, and approve the TMP and the various TCPs for the project, as well as the review timelines in the RFP.
- May specify in the RFP the timeframe for TMP needs to be updated and the entity responsible for the updates.
- Typically have their staff and design-builder's TMP staff work from the field offices.

The following subsections provide information on the best practices of the States surveyed.

Ohio

- Owner/agency specifies in the RFP the review timeframes TMP and the various TCPs for the project.
- Owner/agency requires design-builder team's worksite traffic supervisor (WTS) to inspect, evaluate, propose necessary modifications to, and document the effectiveness of, the traffic control devices and/or traffic operations on a daily basis.
- Design-builder team's WTS conducts a weekly night inspection of the work zone setup for daytime work operations, and one daytime inspection per week for nighttime projects. Design-builder team's WTS is involved with documentation of several project events, including:
    - Initial traffic control setup (day and night review).
    - Daily traffic control setup and removal.
    - When construction staging causes a change in the traffic control setup.
    - Crash occurrences within the construction area.
    - Removal of traffic control devices at the end of a phase or project.
    - All other emergency traffic control needs.
- Design-builder team's WTS is also responsible for:
    - Reviewing/inspecting work zones daily to ensure compliance with owner/agency's specifications and drawings.
    - Monitoring crash occurrences in the work zone.
- Owner/agency uses incident management plan (for weather, special events, incidents) for larger design-build projects in metropolitan areas.
- Owner/agency considers allowance of closures and closure durations in the design-build project development process.
- Owner/agency offers training to the design-builder on work zone MOT. It is geared toward designing and producing proper MOT plans and does touch on Ohio Department of Transportation MOT policies and procedures.
- On the technical proposal scoring, agency allots 5 to 20 percent weightage to the MOT element.

- Agency's work zone speed policy allows design-builders to reduce the speed limit when certain conditions and factors are met.
- Owner/agency has partnership with Office of Safety, Department of Public Safety to provide selected interstate work zones with additional speed limit enforcement dollars.
- Owner/agency maintains monthly metrics for reviewing work zone mobility and work zone crashes.
- Owner/agency uses law enforcement officers to provide assistance during setup and tear-down of work zones.
- Owner/agency is involved in all MOT-related decisions.
- Owner/agency controls public information and outreach with support from the design-builder.
- Owner/agency's TMP managers are responsible for reviewing the various stages of TMP designs.
- Owner/agency evaluates traffic impacts through reporting to a Project Impact Advisory Council (PIAC).
- Owner/agency reevaluates TMP and overall traffic management of a design-build project in the event of considerable impacts to traffic or backups.
- Owner/agency specifies requirements for PI&O and leads PI&O effort.

Florida

- Agency's RFP specifies when the TMP needs to be updated and the entity responsible for the updates.
- On RFPs of some projects, owner/agency may specify the use of traffic management centers (TMC) or portable cameras to monitor incidents in the work zones.
- Owner/agency staffs are assigned to develop, implement, and monitor the TMP.
- Owner/agency has multidisciplinary team review the effectiveness of TMPs in the field.
- Owner/agency has different review procedures for each TMP component (TTC, TO, and PI&O) versus the full TMP.
- Owner/agency does not consider MOT as a separate item in its proposal scoring matrix.
- Owner/agency has specifications that define design-builder's responsibility for events within and outside of the work zones.
- Owner/agency has benefit-cost guidelines for work zone impacts mitigation strategies.
- Owner/agency considers work zone impacts earlier in the design-build project development process.
- Owner/agency's work zone impacts assessment extend beyond the project to network level.
- Owner/agency, along with the design-builder, conducts a post-construction work zone performance assessment on every design-build project.
- While the design-builder constructs and maintains the work zones, the owner/agency operates the work zones.

Colorado

- Owner/agency requires the design-builder to have regular MOT task force meetings and prepare a TMP that includes a detailed approach to the development of TCPs and methods of handling traffic on the project.
- Agency's design-build staff reviews, accepts, and monitors the TMP.
- Allows flexibility with some of the allowed lane restrictions through MOT variance process.
- One of owner/agency's best practices is to adhere to the State and Federal guidelines and policies along with regular monitoring and inspection of work zones.
- Owner/agency has established goals and measures (e.g., queues, delay time) for work zone performance.
- Owner/agency considers work zone impacts in the preliminary design phase.

California

- Owner/agency includes provisions in the RFP for the design-builder to collect and/or analyze safety data (e.g., accident reporting) to monitor and manage work zone impacts.
- Owner/agency has included in the RFP of some projects the types of impacts assessment the design-builder is required to perform to assess the likely impacts to traffic and facilities from the construction. In many cases, however, the owner/agency has already performed an initial impacts assessment and included closure windows to reflect that assessment.
- Owner/agency uses standard plans for traffic control/management to ensure motorist and worker safety during work zone operations.
- Owner/agency has a TMP related clause/note about reporting work zone incidents in its RFP.

CHAPTER 4: QUALITY ASSURANCE TIPS FOR WORK ZONES IN DESIGN-BUILD PROJECTS

This chapter presents a concise tip list for managing work zones in design-build projects.

- Stakeholders/partners/third parties should be consulted regarding the development and implementation of a transportation management plan (TMP).
- The owner/agency and, as needed, the Federal Highway Administration (FHWA) should approve the TMP. The TMP should be consistent with Federal and State regulations on work zone safety and mobility.
- Personnel and equipment resource lists should be maintained to ensure timely traffic incident response and work zone safety.
- Temporary traffic control devices should be removed or covered when construction work is not in progress.
- All construction personnel should be trained on Occupational Safety and Health Administration (OSHA) standards on work zone safety.
- The level and frequency of owner/agency audit and oversight construction reviews should be established.
- All traffic control elements should be in compliance with Manual on Uniform Traffic Control Devices (MUTCD) requirements.
- Traffic control plans should be in compliance with Americans with Disabilities Act (ADA) regulations.
- Nighttime work zones should be adequately illuminated.
- Glare control devices should be used during nighttime operations in work zones.
- Work zone construction personnel should always be equipped with personal protective equipment (PPE).
- Coordination procedures with the law enforcement agencies should be established.
- Designated and qualified owner/agency or contracting personnel should be available around the clock to facilitate incident responses or address worker safety issues.
- A maintenance program should be established for all work zone construction vehicles and equipment.
- Owner/agency oversight should be provided for monitoring work zone safety and mobility impacts during construction.
- A task force should be established for maintenance of traffic (MOT), traffic incident management (TIM), and public information and outreach (PI&O).
- Pre-work safety meetings should be conducted on a frequent basis.
- Alternate routes/detour routes should be established and accessible for all road users (bicyclists, pedestrians, trucks, motorcycles, cars, etc.).
- Emergency traffic control plans should be maintained and updated as needed during the life of the construction project.
- Emergency evacuations plans should be tested prior to implementation.
- Quality assurance/quality control reviews should be conducted by an independent third party. These reviews should not be conducted by the design-builder.

CHAPTER 5: QUALITY ASSURANCE CHECKLISTS FOR WORK ZONES IN DESIGN-BUILD PROJECTS

This chapter presents a series of sample inspection checklists to aid design-builders and owners/agencies in conducting quality assurance in work zones in various phases of design-build projects. The checklists contained in this chapter are listed below.

- *Nighttime Work Zone Inspection Checklists:* These checklists are intended to allow design-builders and owners/agencies to conduct quality assurance inspections on the effectiveness of nighttime work zone operations.
- *Public Awareness and Motorist Information Strategies Checklists:* These checklists are intended to allow design-builders and owners/agencies to conduct quality assurance inspections on the effectiveness of public awareness and motorist information strategies.
- *Work Zone Incident Management Plan Checklists*: These checklists are intended to allow design-builders and owners/agencies to conduct quality assurance inspections on the effectiveness of work zone incident management plan.
- *Work Zone Inspection Checklists for Urban Freeways with Uninterrupted Flows:* These checklists are intended to allow design-builders and owners/agencies to conduct quality assurance inspections on the effectiveness of work zones for urban freeways with uninterrupted flows.
- *Work Zone Inspection Checklists for Urban Roadways with Interrupted Flows:* These checklists are intended to allow design-builders and owners/agencies to conduct quality assurance inspections on the effectiveness of work zones for urban roadways with interrupted flows.
- *Work Zone Traffic Control Inspection Checklists:* These checklists are intended to allow design-builders and owners/agencies to conduct quality assurance inspections on the effectiveness of work zone traffic control devices and operations.
- *Worker Safety Inspection Checklists*: These checklists are intended to allow design-builders and owners/agencies to conduct quality assurance inspections on the effectiveness of worker safety at work zones.

For more information on Design-Build Projects and Work Zone Management visit the FHWA Office of Innovative Program Delivery Web site at: http://www.fhwa.dot.gov/ipd/ and the FHWA Work Zone Management Web site: http://ops.fhwa.dot.gov/wz/index.asp

NIGHTTIME WORK ZONE INSPECTION CHECKLISTS

Below are sample checklists intended to allow design-builders and owners/agencies to conduct quality assurance inspections on the effectiveness of nighttime work zone operations.

General Project Information	
Project no.	
Type of project	
Location	
Date (mm/dd/yyyy)	Click here to enter a date.

Work Zone Information	
Length of work zone (mi)	
No. of lanes per direction (before construction)	
No. of lanes per direction (during construction)	
Lane width (ft)	
Shoulder width (ft)	
Nighttime work zone speed limit (mph)	
Annual average daily traffic (AADT)	
Truck volume	
Allowable working hours	

Lighting Specifications							
Question(s)	Roadway Luminaires on Poles	Portable Light Plant Towers	Balloon Lighting	Factory-Installed Lights on Equipment	Others	N/A	Comments, if any
What system/type of lighting is used?	☐	☐	☐	☐	☐	☐	☐
Comments							

Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Is uniformity of illuminance (uniformity ratio) measured?	☐	☐	☐	

Question(s)	Level I - Low Accuracy Tasks	Level II- Moderate Accuracy Tasks	Level III - High Accuracy Tasks	N/A	Comments, if any
What are the State-specified illumination levels/thresholds for the following task categories?					

Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Are the work zone illumination levels/thresholds in accordance with State specifications?	☐	☐	☐	

Lighting Equipment				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Is the lighting equipment installed accurately?	☐	☐	☐	
Is the lighting equipment oriented and mounted accurately?	☐	☐	☐	
Are portable generators used to operate any of the lighting equipment?	☐	☐	☐	
Is the lighting equipment spaced correctly?	☐	☐	☐	

Illumination for Construction Operations					
Question(s)	Level I - Low Accuracy Tasks	Level II- Moderate Accuracy Tasks	Level III - High Accuracy Tasks	N/A	Comments, if any
What illumination levels and average minimum illuminance are maintained for the following tasks?					
• Excavation—regular, lateral ditch, channel	☐	☐	☐	☐	
• Embankment, filling and compaction	☐	☐	☐	☐	
• Barrier walls, traffic separators	☐	☐	☐	☐	
• Milling and removal	☐	☐	☐	☐	
• Resurfacing	☐	☐	☐	☐	
• Concrete pavement construction	☐	☐	☐	☐	
• Subgrade stabilization and construction	☐	☐	☐	☐	
• Base courses—clay, cement, asphalt	☐	☐	☐	☐	
• Surface treatment	☐	☐	☐	☐	
• Waterproofing/sealing	☐	☐	☐	☐	
• Sidewalk construction	☐	☐	☐	☐	
• Riprap placement	☐	☐	☐	☐	

Illumination for Construction Operations (continued)					
Question(s)	Level I - Low Accuracy Tasks	Level II- Moderate Accuracy Tasks	Level III - High Accuracy Tasks	N/A	**Comments, if any**
• Guardrail/fencing installation	☐	☐	☐	☐	
• Pavement markings/markers placement	☐	☐	☐	☐	
• Landscaping/grassing/ sodding	☐	☐	☐	☐	
• Highway signing installation during construction	☐	☐	☐	☐	
• Traffic signal installation	☐	☐	☐	☐	
• Highway lighting system construction	☐	☐	☐	☐	
• Bridge deck construction	☐	☐	☐	☐	
• Drainage structures, culverts and sewers construction	☐	☐	☐	☐	
• Construction of other concrete structures	☐	☐	☐	☐	
• Others, please specify below	☐	☐	☐	☐	
o	☐	☐	☐	☐	
o	☐	☐	☐	☐	
o	☐	☐	☐	☐	
o	☐	☐	☐	☐	

Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Is there a need for additional personnel for nighttime construction operations?	☐	☐	☐	
Is there a need for additional lighting in the work area during construction operations?	☐	☐	☐	

Illumination for Maintenance Operations					
Question(s)	Level I – Low Accuracy Tasks	Level II – Moderate Accuracy Tasks	Level III – High Accuracy Tasks	N/A	Comments, if any
What illumination levels and average minimum illuminance are maintained for the following tasks?					
• Maintenance of earthwork/embankment	☐	☐	☐	☐	
• Reworking shoulders	☐	☐	☐	☐	
• Barrier wall or traffic separator installation/removal/repair	☐	☐	☐	☐	
• Milling and removal	☐	☐	☐	☐	
• Resurfacing	☐	☐	☐	☐	
• Repair of concrete pavement	☐	☐	☐	☐	
• Crack filling	☐	☐	☐	☐	
• Pot filling	☐	☐	☐	☐	
• Surface treatment	☐	☐	☐	☐	
• Waterproofing/sealing	☐	☐	☐	☐	
• Sidewalk repair and maintenance	☐	☐	☐	☐	
• Riprap maintenance	☐	☐	☐	☐	
• Resetting guardrail/fencing	☐	☐	☐	☐	
• Pavement markings/markers placement and removal	☐	☐	☐	☐	
• Landscaping/grassing/soddin g	☐	☐	☐	☐	
• Highway signing installation for maintenance operations	☐	☐	☐	☐	
• Traffic signals maintenance	☐	☐	☐	☐	
• Highway lighting system—repair and maintenance	☐	☐	☐	☐	
• Bridge deck rehabilitation and maintenance	☐	☐	☐	☐	

Illumination for Maintenance Operations (continued)					
Question(s)	Level I – Low Accuracy Tasks	Level II – Moderate Accuracy Tasks	Level III – High Accuracy Tasks	N/A	Comments, if any
• Drainage structures maintenance and rehabilitation	☐	☐	☐	☐	
• Sweeping and cleanup	☐	☐	☐	☐	
• Others, please specify below	☐	☐	☐	☐	
o	☐	☐	☐	☐	
o	☐	☐	☐	☐	
o	☐	☐	☐	☐	
o	☐	☐	☐	☐	
Is there a need for additional personnel for nighttime maintenance operations?	☐	☐	☐		
Is there a need for additional lighting in the work area during maintenance operations?	☐	☐	☐		

Illumination for Traffic Operations				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Is there a pre-approved lighting plan in place?	☐	☐	☐	
Will visibility for users be affected by lane drops/lane shifts/onsite obstructions?	☐	☐	☐	
Is there any existing street lighting available?	☐	☐	☐	
Is there a light trespass to the adjoining properties?	☐	☐	☐	
Is there a need for additional temporary traffic control?	☐	☐	☐	
Do the covered walkways need to be lighted for nighttime use?	☐	☐	☐	
Do the temporary traffic control zone and approaches need to be lighted?	☐	☐	☐	
Are retroreflective hand-signaling devices (STOP/SLOW paddles, flags) needed?	☐	☐	☐	
Is there a need for the flagger/spotter stations to be illuminated?	☐	☐	☐	
Are messages on changeable message signs (CMS) readable and comprehensible to the users?	☐	☐	☐	
Are flashing arrow panels used?	☐	☐	☐	
Are the arrow panel elements operated on a dimmed mode?	☐	☐	☐	
Are floodlights needed to illuminate the work area, equipment crossings, and other areas during nighttime work?	☐	☐	☐	
Are warning lights visible under foggy conditions?	☐	☐	☐	
Does the lighting design take into account geometric constraints such as limited or no shoulders, bridges, working adjacent to open lanes of traffic, horizontal and vertical curvature of the roadway, and intersections?	☐	☐	☐	

Glare Control					
Question(s)	Hoods	Louvers	Shields	Others	Comments, if any
What glare control devices are used during nighttime operations in the work area?	☐	☐	☐	☐	
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)	
Are there any glare control measures used?	☐	☐	☐		
Is there a light trespass from the lighting equipment to the adjoining properties?	☐	☐	☐		
Does floodlighting produce a disabling glare condition for approaching road users, flaggers, or workers?	☐	☐	☐		
Are luminaires aimed either parallel or perpendicular to the roadway?	☐	☐	☐		
Are barrier walls and glare avoidance screens used?	☐	☐	☐		

Safety of Workers, Flaggers, and Users				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Are traffic drums and cones placed closely to prevent intrusions?	☐	☐	☐	
Do construction crew personnel use high-visibility apparel (Type 3) in the work area?	☐	☐	☐	
Is nighttime safety training conducted for all workers in the work area?	☐	☐	☐	

Contingency Plan				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Is there a contingency plan in the event of power outage (e.g., use of portable generators and/or other electrical devices)?	☐	☐	☐	
Is the hazardous materials response in compliance with Environmental Protection Agency (EPA) regulations?	☐	☐	☐	
Are there additional lighting equipment/traffic control devices available for emergency situations?	☐	☐	☐	

PUBLIC AWARENESS AND MOTORIST INFORMATION STRATEGIES CHECKLISTS

Below are sample checklists intended to allow design-builders and owners/agencies to conduct quality assurance inspections on the effectiveness of public awareness and motorist information strategies.

General Project Information	
Project no.	
Type of project	
Location	
Date (mm/dd/yyyy)	Click here to enter a date.

Work Zone Information	
Length of work zone (mi)	
No. of lanes per direction (before construction)	
No. of lanes per direction (during construction)	
Lane width (ft)	
Shoulder width (ft)	
Work zone speed limit (mph)	
Annual average daily traffic (AADT)	
Truck volume	
Allowable working hours	

Public Information and Outreach Strategies				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Has the size and nature of a public information and outreach effort for the project been determined?	☐	☐	☐	
Are there different public information and outreach strategies for projects with smaller and shorter duration work zones, as compared to those with bigger and longer duration work zones?	☐	☐	☐	
Has a cost-benefit analysis been conducted for the public information and outreach campaign?	☐	☐	☐	
Have internal resources (e.g., agency personnel, agency owned facilities, equipment) been identified for developing and implementing the public information and outreach campaign?	☐	☐	☐	
Have external resources (e.g., public relations agency) been identified for developing and implementing the public information and outreach campaign?	☐	☐	☐	
Have public information and outreach campaign partners/stakeholders (e.g., State and local agencies, planned special event coordinators) been identified?	☐	☐	☐	
Are there any procedures or protocols related to coordinating with the outreach campaign partners/stakeholders?	☐	☐	☐	
Has a community task force been established that includes stakeholders likely to be impacted by the work zone (e.g., businesses, residents)?	☐	☐	☐	
Have target audiences for the public information and outreach campaign been identified?	☐	☐	☐	
Are there different outreach campaign strategies in place to address residents near the work zone who do not speak English?	☐	☐	☐	

Public Information and Outreach Strategies (continued)				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are there different outreach campaign strategies in place for special demographics (e.g., elderly, children, disabled)?	☐	☐	☐	
Are the communication strategies tailored to the project context, the message being conveyed, and the funding constraints?	☐	☐	☐	
Has the communication timing for the outreach campaign been determined?	☐	☐	☐	
Does the outreach campaign include activities before and after project completion?	☐	☐	☐	
Are there strategies to update or remove the project Web site after the project is completed?	☐	☐	☐	
Are there strategies to evaluate and improve the effectiveness of public information and outreach campaigns?	☐	☐	☐	

Public Awareness Strategies				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are brochures and mailers containing project-related information (e.g., project start date, project schedule, route description, detour description) distributed to motorists, pedestrians, local residents/communities, businesses, and other local public entities?	☐	☐	☐	
Are press releases/media alerts provided to news media, impacted businesses, and others?	☐	☐	☐	

Public Awareness Strategies (continued)				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are newsletters containing project-specific information sent to the media, businesses, local residents, and others?	☐	☐	☐	
Are mass media resources used to provide progress updates or information regarding major changes to the work zone configuration and management approach?	☐	☐	☐	
Are press kits and business survival kits used (containing tips and tactics for success during work zone construction, business survival videos, and general project information)?	☐	☐	☐	
Are public service announcements (PSAs) used to support the main messages of a project's communication plan?	☐	☐	☐	
Is there a public information center at or near the project site that contains materials such as scale model displays, maps, brochures, and videos about the project?	☐	☐	☐	
Is there a traveler information system and an associated toll-free telephone number /hotline established to provide traffic or travel information for the work zone?	☐	☐	☐	
Is there a public Web site set up to provide information on traffic, planned closures, and alternate travel routes?	☐	☐	☐	
Are public meetings/hearings, workshops, and communication events organized?	☐	☐	☐	
Is there a strategy established for coordinating with community, business, and media groups that are likely to be impacted by the work zone activities?	☐	☐	☐	
Are there any strategies established to market existing/new rideshare programs?	☐	☐	☐	
Are videos, slides, presentations, or other Web-based mechanisms used to supplement public meetings, public information center displays, or press releases?	☐	☐	☐	

Motorist Awareness Strategies				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Is information about the work zone disseminated via the regularly scheduled traffic reports on commercial radio stations?	☐	☐	☐	
Are changeable message signs (CMS) used to notify the road users of work zone related activities (e.g., lane and road closures, incidents, potential work zone hazards)?	☐	☐	☐	
Are variable speed limit signs used to ensure work zone safety by reducing speeding and speed variations?	☐	☐	☐	
Is a highway advisory radio (HAR) system used to inform motorists of the radio frequency where information is available?	☐	☐	☐	
Is there a highway information network/Web site established to help stakeholder groups obtain information about specific work zones?	☐	☐	☐	
Are 511 traveler information systems in place to provide static or real-time work zone related information?	☐	☐	☐	
Is there a strategy for coordinating with the freight community (e.g., trucking companies) to identify and disseminate work zone information to these stakeholders?	☐	☐	☐	
Are there transportation management centers (TMCs) established for coordinating and managing road user information dissemination activities?	☐	☐	☐	

WORK ZONE INCIDENT MANAGEMENT PLAN CHECKLISTS

Below are sample checklists intended to allow design-builders and owners/agencies to conduct quality assurance inspections on the effectiveness of work zone incident management plan.

General Project Information	
Project no.	
Type of project	
Location	
Date (mm/dd/yyyy)	Click here to enter a date.

Work Zone Information	
Length of work zone (mi)	
No. of lanes per direction (before construction)	
No. of lanes per direction (during construction)	
Lane width (ft)	
Shoulder width (ft)	
Work zone speed limit (mph)	
Annual average daily traffic (AADT)	
Truck volume	
Allowable working hours	

Incident Coordination				
Question(s)	Yes	No	N/A	Comments, if any
Are there any procedures or protocols related to coordinating with the following agencies? Please check the boxes as applicable.				
• Federal agencies	☐	☐	☐	
• State agencies	☐	☐	☐	
• Local transportation agencies	☐	☐	☐	
• State and local law enforcement personnel	☐	☐	☐	
• Public and volunteer fire and rescue agencies	☐	☐	☐	
• Regional, county, or local 911 dispatch	☐	☐	☐	
• Towing and recovery providers	☐	☐	☐	
• Emergency medical service providers	☐	☐	☐	
• State and local hazardous material recovery personnel	☐	☐	☐	
• Media agencies	☐	☐	☐	
• State and local offices of emergency management	☐	☐	☐	
• Public relations/public information specialists	☐	☐	☐	
• Utility agencies	☐	☐	☐	
• Other agencies (please list below)	☐	☐	☐	
o				
o				
o				
o				
o				

Incident Coordination (continued)					
Question(s)	Construction and maintenance	Sporting events/ Concerts /Conventions etc.	Weather-related/ Catastrophic events	N/A	Comments, if any (if No, identify action items)
Are there incident coordination strategies specific to any of the following events? Check boxes as applicable.	☐	☐	☐	☐	

Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Is a pre-qualified list of available and contracted towing and recovery operators maintained?	☐	☐	☐	
Is a pre-identified (approved) contact list of resources (including special equipment) for traffic clearance and hazardous materials response maintained?	☐	☐	☐	

Pre-Incident Checks				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Has all the incident response onsite equipment been pre-staged?	☐	☐	☐	
Is the offsite equipment used for incident response maintained in working condition?	☐	☐	☐	

Incident Response Plan				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Are there criteria used to identify major/minor traffic incidents (e.g., traffic incident levels or codes)?	☐	☐	☐	
Are there designated agency or contracting personnel available around the clock to respond to a fatal crash or a major hazardous materials incident?	☐	☐	☐	
Are the traffic control procedures during incidents in compliance with all applicable regulations?	☐	☐	☐	
Are there equipment staging and emergency procedures onsite?	☐	☐	☐	
Are there specific procedures in place for quick clearance of the work site?	☐	☐	☐	
Are there any alternate equipment staging strategies for incident clearance?	☐	☐	☐	
Is there an adequate lateral and longitudinal buffer zone between the work area and moving traffic?	☐	☐	☐	
Is there a need for a two-way interagency voice communications system for direct, onsite communications between incident responders?	☐	☐	☐	
Is there a need for data and video information transfer between agencies and applications?	☐	☐	☐	
Is there a need to establish traffic management centers (TMCs) to coordinate incident notification and response?	☐	☐	☐	
Is there a need to develop technical infrastructure for surveillance and rapid detection of traffic incidents?	☐	☐	☐	
Is there a review plan in place for performance targets related to incident response?	☐	☐	☐	

Incident Monitoring				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Are checks on equipment safety carried out?	☐	☐	☐	
Is a historical record of incidents, incident types, and incident impacts in the work area maintained?	☐	☐	☐	
Is there a need for work zone safety audits?	☐	☐	☐	

Traffic Operations Management				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Are intrusion alarms used in the work area?	☐	☐	☐	
Are portable changeable message signs (PCMS) used?	☐	☐	☐	
Are variable speed limit (VSL) signs used?	☐	☐	☐	
Are flagging operations used?	☐	☐	☐	
Are temporary lighting devices used?	☐	☐	☐	
Are temporary traffic signals used?	☐	☐	☐	
Are temporary rumble strips used?	☐	☐	☐	
Are there any access restrictions for pedestrians and bicycles?	☐	☐	☐	
Are intelligent transportation systems (ITS) used for traffic monitoring/management?	☐	☐	☐	
Are surveillance systems such as closed-circuit television (CCTV), loop detectors, lasers, or probe vehicles employed?	☐	☐	☐	
Is there a need for alternate/detour routes?	☐	☐	☐	

Emergency Measures				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Is there a strategy to deploy additional personnel and logistics to the incident site?	☐	☐	☐	
Is there an emergency detour plan available to accommodate overheight/overweight/oversize vehicles?	☐	☐	☐	
Are there emergency traffic control plans available?	☐	☐	☐	
Has including incentive/disincentive clauses for incident response been considered?	☐	☐	☐	

Training				
Question(s)	Yes	No	N/A	Comments, if any
Are the project personnel trained and qualified?	☐	☐	☐	
Are there incident response field/simulation training options available to the construction crew?	☐	☐	☐	
Is project safety training conducted onsite?	☐	☐	☐	

Traffic Demand Management				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Are reversible lanes used if there are capacity restrictions or if there are no alternate routes?	☐	☐	☐	
Is there a dynamic lane closure system in place to reduce vehicle conflicts?	☐	☐	☐	
Are there any work hour restrictions for peak travel?	☐	☐	☐	
Are there any rideshare promotion strategies available during incidents?	☐	☐	☐	
Are there any shuttle services available during incident events?	☐	☐	☐	
Are there transit service improvement strategies to reduce work zone traffic demand during incidents?	☐	☐	☐	
Are high occupancy vehicle (HOV) lanes used?	☐	☐	☐	
Are queue warning systems used?	☐	☐	☐	

Traffic Bottlenecks				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Is there a real-time communication system in place to alert users about roadside incidents?	☐	☐	☐	
Is there a need to increase lateral clearance in the incident area?	☐	☐	☐	
Are there detour strategies for motorists affected by traffic bottlenecks?	☐	☐	☐	
Have you considered any measures to cover the incident with mesh screens?	☐	☐	☐	
Have you considered any other measures to block the view of a traffic incident?	☐	☐	☐	
Is the lane merge and diverge in accordance with State specifications?	☐	☐	☐	

Inclement Weather Conditions				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Are there provisions to send out real-time weather-related alerts to the traveling public?	☐	☐	☐	
Are there weather alert traffic signs available?	☐	☐	☐	
Are there procedures related to snow and ice clearance?	☐	☐	☐	
Is there a treatment strategy to improve pavement and bridge deck conditions that can cause potential safety hazards?	☐	☐	☐	
Are there variable speed limit (VSL) signs or changeable message signs (CMS) being used for weather-related activities?	☐	☐	☐	
Are there provisions to modify traffic signal timing during inclement weather conditions?	☐	☐	☐	
Are there strategies available to track traffic performance in inclement weather conditions (e.g., fog, snow)?	☐	☐	☐	
Is there an evacuation strategy for lane submersion scenarios?	☐	☐	☐	

Communications				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Is there a provision to merge/integrate and interpret information from multiple sources?	☐	☐	☐	
Are advanced response vehicles used that include a mobile communications platform, global positioning system (GPS) and other features?	☐	☐	☐	
Are traffic radios, highway advisory radios, or 511 traveler information systems used?	☐	☐	☐	
Are press releases/media alerts used?	☐	☐	☐	
Are there telephone hotlines available?	☐	☐	☐	
Are social media platforms used for providing incident-related information to the users?	☐	☐	☐	
Is a project Web site set up to provide updated incident information?	☐	☐	☐	

Performance Measures				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Is there a method in place to collect and analyze traffic incident-related performance measures?	☐	☐	☐	
Question(s)	Performance Measures		N/A	Comments, if any
List the performance measures that are used to monitor incident-related responses.	1.		☐	
	2.			
	3.			
	4.			

WORK ZONE INSPECTION CHECKLISTS FOR URBAN FREEWAYS WITH UNINTERRUPTED FLOWS

Below are sample checklists intended to allow design-builders and owners/agencies to conduct quality assurance inspections on the effectiveness of work zones for urban freeways with uninterrupted flows.

General Project Information	
Project no.	
Type of project	
Location	
Date (mm/dd/yyyy)	Click here to enter a date.

Work Zone Information	
Length of work zone (mi)	
No. of lanes per direction (before construction)	
No. of lanes per direction (during construction)	
Lane width (ft)	
Shoulder width (ft)	
Work zone speed limit (mph)	
Annual average daily traffic (AADT)	
Truck volume	
Allowable working hours	

Temporary Traffic Control Strategies				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are all traffic control elements in compliance with applicable requirements?	☐	☐	☐	
Are there any traffic control strategies available for full roadway closures?	☐	☐	☐	
Are there offsite detours/alternate routes available in case of full roadway closures?	☐	☐	☐	
Are there traffic control strategies available for any lane shifts or closures?	☐	☐	☐	
Are there traffic control strategies available for any single- or dual-lane work zone crossovers?	☐	☐	☐	
Are there traffic control strategies available for the use of reversible lanes or reversible express lanes during construction?	☐	☐	☐	
Are there alternative ramps/routes available in case of any full/partial ramp closures?	☐	☐	☐	
Are there alternative routes available in case of any freeway-to-freeway interchange closures?	☐	☐	☐	
Are there traffic control strategies available for nighttime work zone operations?	☐	☐	☐	
Is additional lighting plan/lighting equipment available to improve visibility during nighttime/inclement weather conditions?	☐	☐	☐	
Are there emergency traffic control plans available?	☐	☐	☐	
Are there any work hour restrictions for peak hour work zone operations?	☐	☐	☐	
Is the traffic control plan in compliance with Americans with Disabilities Act (ADA) regulations?	☐	☐	☐	
Are there advance signs (warning and regulatory) available to notify motorists about freeway work zone conditions/restrictions?	☐	☐	☐	
Are advance warning signs used at approaching interchanges?	☐	☐	☐	
Are changeable message signs (CMS) used?	☐	☐	☐	
Are arrow panels used?	☐	☐	☐	
Are channelizing devices used?	☐	☐	☐	
Are speed advisory and control strategies used?	☐	☐	☐	
Are impact attenuators used?	☐	☐	☐	

Freeway Management and Operations				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Is there a need for lane restrictions?	☐	☐	☐	
Is there a need for time-of-day restrictions?	☐	☐	☐	
Is there a need for speed restrictions?	☐	☐	☐	
Is there a need for detour route restrictions?	☐	☐	☐	
Are separate truck lanes used?	☐	☐	☐	
Are auxiliary/speed-change lanes used?	☐	☐	☐	
Are climbing lanes used?	☐	☐	☐	
Are shoulders and/or narrow lanes used?	☐	☐	☐	
Are contraflow lanes used?	☐	☐	☐	
Are concurrent flow lanes used?	☐	☐	☐	
Are managed lane facilities used?	☐	☐	☐	
Are there strategies for freeway lane restriping?	☐	☐	☐	
Are smart corridors used?	☐	☐	☐	
Are there strategies (e.g., increasing length of weaving area) to increase the capacity and safety of the weaving sections and the ramps that are part of the interchange?	☐	☐	☐	
Are there strategies for roadside removal or relocation of roadside obstacles on the freeway?	☐	☐	☐	
Are there strategies for improving skid resistance on freeways?	☐	☐	☐	

Freeway Management and Operations (continued)				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are environmental sensor stations and road weather information systems used?	☐	☐	☐	
Are traffic flow sensors used?	☐	☐	☐	
Are dynamic lane closure systems used?	☐	☐	☐	
Are there strategies for speed limit reduction/variable speed control?	☐	☐	☐	
Are temporary traffic barriers used?	☐	☐	☐	
Are movable traffic barrier systems used?	☐	☐	☐	
Are crash cushions used?	☐	☐	☐	
Are temporary rumble strips used?	☐	☐	☐	
Are intrusion alarms used?	☐	☐	☐	
Are warning lights used?	☐	☐	☐	
Are overhead lane control signals used?	☐	☐	☐	
Are freeway mainline meters used?	☐	☐	☐	
Are interchange connector meters used?	☐	☐	☐	
Are automated flagger assistance devices (AFADs) used?	☐	☐	☐	
Is there a project task force/committee established?	☐	☐	☐	
Are there inter- and intra-agency coordination strategies established for effective freeway operations?	☐	☐	☐	

Ramp Management and Operations				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are ramp meters used?	☐	☐	☐	
Are there any strategies for ramp closures?	☐	☐	☐	
Are there strategies for ramp terminal treatments?	☐	☐	☐	
Are special use treatments used, including high occupancy vehicle (HOV) bypass lanes, exclusive HOV ramps, and ramps dedicated for the sole use of construction, delivery, or emergency vehicles?	☐	☐	☐	
Are emergency escape ramps provided?	☐	☐	☐	
Are there strategies for ramp widening (e.g., channelization)?	☐	☐	☐	
Is there a provision for temporary suspension of ramp metering?	☐	☐	☐	
Are there training manuals for ramp management available to the construction personnel?	☐	☐	☐	
Are inspections conducted on systems, software, and other devices that support ramp management?	☐	☐	☐	
Are ramp conditions monitored using sensors located at the ramp and along the freeway?	☐	☐	☐	
Are there outreach strategies to inform motorists about the ramp management program and associated activities?	☐	☐	☐	
Are there inter- and intra-agency coordination strategies established for effective ramp operations?	☐	☐	☐	

Demand Management				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are the interstate closure and restriction times pre-approved by the State highway agency?	☐	☐	☐	
Are rideshare incentive strategies used?	☐	☐	☐	
Are high occupancy vehicle (HOV) lanes used?	☐	☐	☐	
Are high occupancy toll (HOT) lanes and/or express toll lanes used?	☐	☐	☐	
Are bus-only facilities used?	☐	☐	☐	
Are park-and-ride facilities used?	☐	☐	☐	
Are transit centers used?	☐	☐	☐	
Are there any established HOV/HOT lane enforcement programs/strategies?	☐	☐	☐	
Are variable work hours employed by employers near the work area?	☐	☐	☐	
Are congestion/peak-period pricing strategies used?	☐	☐	☐	

Freeway Lighting Operations				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Is freeway and interchange lighting provided in areas with higher traffic volumes or geometry constraints?	☐	☐	☐	
Are long underpasses and tunnels along the freeways illuminated during daylight hours?	☐	☐	☐	
Are rest areas lighted, including the entrance and exit, the interior roadways, parking areas, and activity areas?	☐	☐	☐	
Is lighting provided at truck weighing stations, inspection and enforcement areas, park-and-ride lots, toll plazas, and escape ramps?	☐	☐	☐	

Work Zone Safety Management				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Is there a contact list available for construction safety supervisors/inspectors?	☐	☐	☐	
Are there procedures in place for conducting work zone safety audits?	☐	☐	☐	
Are there procedures in place for conducting windshield surveys of work zone condition?	☐	☐	☐	
Is there an established transportation management plan (TMP) monitoring/inspection team?	☐	☐	☐	
Is there a strategy for conducting regular team meetings for work zone related activities?	☐	☐	☐	
Is there a strategy for onsite safety training for work zone personnel?	☐	☐	☐	
Is personal protective equipment (PPE) used by construction crew personnel at the work site?	☐	☐	☐	
Are there standard operating procedures to address worker safety and minimize work to be performed near vehicles and equipment?	☐	☐	☐	
Are there safe work practices for night work and backing equipment?	☐	☐	☐	
Are positive separation measures such as barriers, road closures, shadow vehicles, and buffer space used?	☐	☐	☐	

Equipment Maintenance and Operations				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Is there a scheduled maintenance program for all work zone construction vehicles and equipment?	☐	☐	☐	
Are there any safety features installed in the work area (e.g., reverse alarm, video cameras)?	☐	☐	☐	
Are inspections conducted on all vehicles, equipment, and safety devices prior to each work shift?	☐	☐	☐	
Are electrical devices inspected regularly?	☐	☐	☐	
Are hazardous materials labeled and kept in specifically identified cabinets?	☐	☐	☐	
Are collision avoidance/proximity warning systems and/or other monitoring technologies installed on construction vehicles and equipment?	☐	☐	☐	
Is all equipment operated or repaired only by people who have been trained and authorized to work with that piece of equipment?	☐	☐	☐	

Freeway Incident Management				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are intelligent transportation systems (ITS) technologies used for traffic monitoring/management?	☐	☐	☐	
Are closed-circuit television (CCTV), loop detectors, lasers, or probe vehicles used for work zone surveillance?	☐	☐	☐	
Are traffic screens used?	☐	☐	☐	
Are reference location signs used?	☐	☐	☐	
Are there any procedures or protocols related to coordinating with the following agencies? Please check the boxes as applicable.	☐	☐	☐	
• Freeway service patrol/law enforcement agencies	☐	☐	☐	
• Fire and rescue agencies	☐	☐	☐	
• Emergency medical services (EMS)	☐	☐	☐	
• Transportation agencies	☐	☐	☐	
• Hazardous materials responders	☐	☐	☐	
• Towing and recovery providers	☐	☐	☐	
• Media/information service providers	☐	☐	☐	
• Others (please specify below)	☐	☐	☐	
o	☐	☐	☐	
o	☐	☐	☐	
o	☐	☐	☐	
o	☐	☐	☐	
Is there an incident command system established?	☐	☐	☐	
Is there an evacuation liaison team (ELT) established?	☐	☐	☐	

Freeway Emergency Management				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are there evacuation and reentry management strategies for vehicles during emergency situations such as hurricanes, floods, earthquakes, winter storms, wildland fires, and homeland security concerns?	☐	☐	☐	
Are there strategies to deploy additional personnel during emergency situations?	☐	☐	☐	
Are advance emergency warnings provided to the travelers?	☐	☐	☐	
Are there strategies to disseminate disaster-related traveler information, including evacuations and reentry information, to the general public?	☐	☐	☐	
Are there strategies to coordinate with stakeholders on emergency operations?	☐	☐	☐	
Are there military deployment strategies established?	☐	☐	☐	

Public Information Strategies				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Is there a freeway management system (FMS) in place?	☐	☐	☐	
Have freeway management centers (FMCs) been established?	☐	☐	☐	
Are brochures and mailers used?	☐	☐	☐	
Are press releases/media alerts used?	☐	☐	☐	
Are newsletters used?	☐	☐	☐	
Are mass media resources, including earned and paid media used?	☐	☐	☐	
Have public information centers been established?	☐	☐	☐	
Are telephone hotlines used?	☐	☐	☐	
Are project Web sites used?	☐	☐	☐	
Has a community task force been set up?	☐	☐	☐	
Are public meetings/hearings, workshops, and communication events organized?	☐	☐	☐	
Is there a strategy for coordinating with media/schools/businesses/emergency services/neighboring States?	☐	☐	☐	
Are there any strategies for organizing work zone education and safety campaigns?	☐	☐	☐	
Are work zone safety highway signs used?	☐	☐	☐	
Are rideshare promotions available?	☐	☐	☐	
Are videos, slides, presentations, and/or other Web-based mechanisms available?	☐	☐	☐	
Are traffic radios used?	☐	☐	☐	
Are temporary motorist information signs used?	☐	☐	☐	
Are variable speed limit (VSL) signs used?	☐	☐	☐	
Are highway advisory radio (HAR) systems used?	☐	☐	☐	
Are changeable message signs used?	☐	☐	☐	
Is there a highway information network/Web site?	☐	☐	☐	
Are 511 traveler information systems used?	☐	☐	☐	
Is there a strategy for coordinating with the freight community (e.g., trucking companies)?	☐	☐	☐	

Performance Measures				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are performance measures established to evaluate the effectiveness of freeway management strategies?	☐	☐	☐	
Is there stakeholder involvement in the identification of performance measures and their applications?	☐	☐	☐	
Are there strategies for safety and mobility performance evaluations on ramps and freeways?	☐	☐	☐	
Is there a data repository for freeway performance monitoring and evaluation?	☐	☐	☐	

Worker Training				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Is there a training plan established on the operator's visual limits of the specific equipment being used in the work zone?	☐	☐	☐	
Are there frequent pre-work safety meetings to discuss the work to be performed, safety hazards, and safe work procedures?	☐	☐	☐	
Is nighttime safety training conducted for all workers in the work area?	☐	☐	☐	
Are all construction personnel trained on Occupational Safety and Health Administration (OSHA) standards for work zone safety?	☐	☐	☐	
Are the workers trained on the implementation of internal traffic control plans on each project?	☐	☐	☐	
Is operator training conducted for personnel involved with heavy equipment, including forklifts, cranes, and hoists?	☐	☐	☐	
Are workers trained for hazardous conditions on the work site?	☐	☐	☐	
Are there incident response field/simulation training options available to the construction crew?	☐	☐	☐	
Is there a qualified and designated work zone traffic control supervisor on the work site?	☐	☐	☐	
Is there a qualified and designated work zone traffic control technician on the work site?	☐	☐	☐	

WORK ZONE INSPECTION CHECKLISTS FOR URBAN ROADWAYS WITH INTERRUPTED FLOWS

Below are sample checklists intended to allow design-builders and owners/agencies to conduct quality assurance inspections on the effectiveness of work zones for urban roadways with interrupted flows.

General Project Information	
Project no.	
Type of project	
Location	
Date (mm/dd/yyyy)	Click here to enter a date.

Work Zone Information	
Length of work zone (mi)	
No. of lanes per direction (before construction)	
No. of lanes per direction (during construction)	
Lane width (ft)	
Shoulder width (ft)	
Work zone speed limit (mph)	
Annual average daily traffic (AADT)	
Truck volume	
Allowable working hours	

Temporary Traffic Control Strategies				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are there any traffic control strategies available for full roadway closures?	☐	☐	☐	
Are there offsite detours/alternate routes available in case of full roadway closures?	☐	☐	☐	
Are there traffic control strategies available for any lane shifts or closures?	☐	☐	☐	
Are there traffic control strategies available for any single- or dual-lane work zone crossovers?	☐	☐	☐	
Are there traffic control strategies available for any reversible lanes or reversible express lanes?	☐	☐	☐	
Are there traffic control devices and strategies available for nighttime work zone operations?	☐	☐	☐	
Is additional lighting available to improve visibility during nighttime/inclement weather conditions?	☐	☐	☐	
Are there emergency traffic control plans available?	☐	☐	☐	
Are there any work hour restrictions for peak hour work zone operations?	☐	☐	☐	
Is the traffic control plan in compliance with Americans with Disabilities Act (ADA) regulations?	☐	☐	☐	
Are there temporary signs (warning and regulatory) available to notify motorists about work zone conditions/restrictions?	☐	☐	☐	
Are changeable message signs (CMS) used?	☐	☐	☐	
Are arrow panels used?	☐	☐	☐	
Are channelizing devices used?	☐	☐	☐	
Are pavement markings, traffic signs, barriers, delineators, and channelizing devices retroreflective?	☐	☐	☐	
Are the traffic sign(s) clean?	☐	☐	☐	
Are the traffic sign(s) legible?	☐	☐	☐	
Are flaggers, spotters, and uniformed traffic control officers used?	☐	☐	☐	
Are temporary traffic signals used?	☐	☐	☐	
Are unwarranted signals removed/covered?	☐	☐	☐	
Are speed advisory and control strategies used?	☐	☐	☐	
Are impact attenuators used?	☐	☐	☐	

Traffic Operations				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are the traffic control, worker safety, vehicle regulations, equipment, etc. compliant with applicable regulations?	☐	☐	☐	
Are there any truck/heavy vehicle restrictions?	☐	☐	☐	
Are separate truck lanes used?	☐	☐	☐	
Are dynamic lane closure systems used?	☐	☐	☐	
Are there railroad crossing controls?	☐	☐	☐	
Are there strategies for coordination with adjacent construction sites?	☐	☐	☐	
Are there strategies for speed limit reduction/variable speed limits on work zones?	☐	☐	☐	
Are temporary traffic barriers used?	☐	☐	☐	
Are movable traffic barrier systems used?	☐	☐	☐	
Are crash cushions used?	☐	☐	☐	
Are temporary rumble strips used?	☐	☐	☐	
Are intrusion alarms used?	☐	☐	☐	
Are warning lights used?	☐	☐	☐	
Are automated flagger assistance devices (AFADs) used?	☐	☐	☐	
Is there a project task force/committee?	☐	☐	☐	
Are flagger stations placed in advance of the traffic signal?	☐	☐	☐	
Are flaggers clearly visible to the approaching traffic?	☐	☐	☐	
Are flagger/spotter station(s) preceded by advance warning sign(s)?	☐	☐	☐	
Are flagger/spotter station(s) illuminated during nighttime construction activities?	☐	☐	☐	

Demand Management				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are there strategies for transit service improvements?	☐	☐	☐	
Are there strategies for the use of shuttle services in the work zone area?	☐	☐	☐	
Are there strategies to manage supply of onsite and offsite parking lots?	☐	☐	☐	
Are variable work hours employed by impacted employers?	☐	☐	☐	
Are there improvement strategies for signal timing/coordination?	☐	☐	☐	
Are there improvement strategies for streets/intersections?	☐	☐	☐	
Are there strategies for bus turnouts in and around work area?	☐	☐	☐	
Are there any vehicle turn restrictions or prohibitions?	☐	☐	☐	
Are there strategies to reduce the occurrence of intersection conflicts?	☐	☐	☐	
Are there parking restrictions to improve work zone access?	☐	☐	☐	

Pedestrian and Bicycle Safety				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are there traffic control strategies for pedestrian/bicycle access improvements?	☐	☐	☐	
Are pedestrian routes compliant with the Americans with Disabilities Act (ADA) and available to pedestrians throughout the duration of the work zone?	☐	☐	☐	
Are advance information, transition information, work zone information, and ingress and egress directions available for pedestrians?	☐	☐	☐	
Are audible and detectible devices available for pedestrians with disabilities?	☐	☐	☐	
Is there temporary nighttime lighting for pedestrian walkways throughout the work area?	☐	☐	☐	
Are detour routes available for pedestrians whenever sidewalks are closed or blocked?	☐	☐	☐	
Is physical separation from the work space and vehicular traffic, overhead protection, etc. provided to the pedestrians?	☐	☐	☐	
Are marked intersection crosswalks used?	☐	☐	☐	
Is there continuous pedestrian access to businesses, residences, transit stops, etc.?	☐	☐	☐	
Are pedestrian signals deactivated and covered for closed crosswalks?	☐	☐	☐	
Are there strategies to improve pedestrian signal displays?	☐	☐	☐	
Are separate bicycle lanes used?	☐	☐	☐	
Are curb extensions used?	☐	☐	☐	

Signalized Intersections				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are there strategies employed to reduce the frequency and severity of intersection conflicts (e.g., multiphase signal operation, signal coordination, emergency vehicle preemption, and channelization)?	☐	☐	☐	
Are sight triangles kept clear for improved driver visibility?	☐	☐	☐	
Is access to properties restricted using driveway closures or turn restrictions?	☐	☐	☐	
Are cross-median accesses near intersections restricted?	☐	☐	☐	
Are there strategies to provide skid resistance in intersections and on approaches?	☐	☐	☐	
Are there strategies to restrict or eliminate parking on intersection approaches?	☐	☐	☐	
Are highway safety programs used to increase driver awareness?	☐	☐	☐	
Are channelization/signing and prohibited right turns on red used to restrict or eliminate left- or right-turning vehicle maneuvers?	☐	☐	☐	
Are there coordination strategies with law enforcement agencies in place to address drivers who run red lights at intersections?	☐	☐	☐	
Are there strategies to improve the visibility of traffic signals at intersections?	☐	☐	☐	
Are adaptive control signals used?	☐	☐	☐	
Is positive guidance provided to drivers approaching signalized intersections?	☐	☐	☐	
Are curb ramps used?	☐	☐	☐	
Are pedestal or post-mounted signals used?	☐	☐	☐	
Are span wire signals used?	☐	☐	☐	
Are mast arm signals used?	☐	☐	☐	
Are there strategies to change signal timing or phasing at intersections?	☐	☐	☐	

Unsignalized Intersections				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are there strategies to improve access management near unsignalized intersection?	☐	☐	☐	
Are there strategies to close or relocate intersections if necessary?	☐	☐	☐	
Are there conflicting driveway accesses near unsignalized intersections?	☐	☐	☐	
Are shoulder bypass lanes used at T-Intersections?	☐	☐	☐	
Are turn acceleration lanes used at divided highway intersections?	☐	☐	☐	
Are longer turn lanes used?	☐	☐	☐	
Are offset turn lanes used?	☐	☐	☐	
Are there full-width paved shoulders used as through lanes?	☐	☐	☐	
Are signs and/or channelization used to restrict or eliminate turning movements at intersections?	☐	☐	☐	
Are there strategies to reduce or eliminate intersection skews?	☐	☐	☐	
Are the approaches stop- or yield-controlled?	☐	☐	☐	
Are there strategies to eliminate parking spots that restrict sight distances?	☐	☐	☐	
Are pavement loop detectors used?	☐	☐	☐	
Are flashing lights used to warn drivers?	☐	☐	☐	
Are advanced warning and guide signs used to warn drivers of the intersections?	☐	☐	☐	
Are breaks used in centerlines, edge-lines, and lane lines to show the presence of intersection?	☐	☐	☐	
Is there a collision countermeasure system established?	☐	☐	☐	
Are pavement markers and/or pavement markings used at intersections?	☐	☐	☐	

Unsignalized Intersections (continued)				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are there strategies to improve lighting at intersections?	☐	☐	☐	
Are splitter islands used, primarily at skewed intersections?	☐	☐	☐	
Are stop bars used to increase driver awareness?	☐	☐	☐	
Are temporary rumble strips used on the intersection approaches?	☐	☐	☐	
Are flashing beacons used at stop-controlled intersections?	☐	☐	☐	
Are there strategies to convert from two-way to all-way stop control?	☐	☐	☐	
Are speed limit signs posted on intersection approaches?	☐	☐	☐	
Is striping provided in the median areas of the intersections?	☐	☐	☐	
Are lane assignment signings/markings used?	☐	☐	☐	
Are rotaries, neighborhood traffic circles, mini/single-lane/multi-lane roundabouts used?	☐	☐	☐	

Work Zone Safety Management				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Is there a contact list available for construction safety supervisors/inspectors?	☐	☐	☐	
Are there procedures in place for conducting work zone safety audits?	☐	☐	☐	
Are there procedures in place for conducting windshield surveys of work zone condition?	☐	☐	☐	
Is there a transportation management plan (TMP) monitoring/inspection team established?	☐	☐	☐	
Is there a strategy for conducting regular team meetings for work zone related activities?	☐	☐	☐	
Is there a strategy for onsite safety training for work zone personnel?	☐	☐	☐	
Is high visibility apparel used by all construction personnel?	☐	☐	☐	
Are there standard operating procedures to address worker safety and minimize work to be performed near vehicles and equipment?	☐	☐	☐	
Are there safe work practices for night work and backing equipment?	☐	☐	☐	
Are positive separation measures used, such as barriers, road closures, shadow vehicles, and buffer space?	☐	☐	☐	

Equipment Maintenance and Operations				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Is there a scheduled maintenance program for all work zone construction vehicles and equipment?	☐	☐	☐	
Are there any safety features (e.g., reverse alarm, video cameras) installed in the work area?	☐	☐	☐	
Are inspections conducted on all vehicles, equipment, and safety devices prior to each work shift?	☐	☐	☐	
Are electrical devices inspected regularly?	☐	☐	☐	
Are hazardous materials labeled and kept in specifically identified cabinets?	☐	☐	☐	
Are collision avoidance/proximity warning systems and/or other monitoring technologies installed on construction vehicles/equipment?	☐	☐	☐	
Is all equipment operated or repaired only by people who have been trained and authorized to work with that piece of equipment?	☐	☐	☐	

Lighting Operations				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Is there a pre-approved lighting plan in place?	☐	☐	☐	
Is there any existing street lighting available?	☐	☐	☐	
Is overhead lighting installed at crosswalks and intersections?	☐	☐	☐	
Are glare control devices such as hoods, louvers, shields etc. used?	☐	☐	☐	
Are barrier walls and glare avoidance screens used to discourage gawking and to reduce headlight glare from oncoming motor vehicle traffic?	☐	☐	☐	
Is there additional lighting equipment available for poor visibility situations?	☐	☐	☐	
Are there strategies to increase/decrease luminance levels of existing lighting systems when needed?	☐	☐	☐	

Traffic Incident Management				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are intelligent transportation systems (ITS) technologies used for traffic monitoring/management?	☐	☐	☐	
Are transportation management centers (TMCs) used?	☐	☐	☐	
Are closed-circuit television (CCTV), loop detectors, lasers, or probe vehicles used for work zone surveillance?	☐	☐	☐	
Are traffic screens used?	☐	☐	☐	
Is there a strategy for coordinating with towing and recovery providers?	☐	☐	☐	
Are there any procedures or protocols related to coordinating with the following agencies? Please check the boxes as applicable.	☐	☐	☐	
• Law enforcement agencies	☐	☐	☐	
• Fire and rescue agencies	☐	☐	☐	
• Emergency medical services (EMS)	☐	☐	☐	
• Transportation agencies	☐	☐	☐	
• Hazardous materials responders	☐	☐	☐	
• Towing and recovery providers	☐	☐	☐	
• Media/information service providers	☐	☐	☐	
• Others (please specify below)	☐	☐	☐	
o	☐	☐	☐	
o	☐	☐	☐	
o	☐	☐	☐	
o	☐	☐	☐	
Is there an established incident command system?	☐	☐	☐	
Are there designated and qualified agency or contracting personnel available around the clock to respond to incidents?	☐	☐	☐	

Public Information Strategies				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are brochures and mailers used?	☐	☐	☐	
Are press releases/media alerts used?	☐	☐	☐	
Are newsletters used?	☐	☐	☐	
Are mass media resources used?	☐	☐	☐	
Have public information centers been established?	☐	☐	☐	
Are telephone hotlines used?	☐	☐	☐	
Are project Web sites used?	☐	☐	☐	
Is a community task force set up?	☐	☐	☐	
Are public meetings/hearings, workshops, and communication events organized?	☐	☐	☐	
Is there a strategy for coordinating with media/schools/businesses/emergency services/neighboring States?	☐	☐	☐	
Are there strategies for coordinating with utility agencies?	☐	☐	☐	
Are there any strategies for organizing work zone education and safety campaigns?	☐	☐	☐	
Are rideshare promotions available?	☐	☐	☐	
Are videos, slides, presentations, and/or other Web-based mechanisms available?	☐	☐	☐	
Are traffic radios used?	☐	☐	☐	
Are temporary motorist information signs used?	☐	☐	☐	
Are variable speed limit signs used?	☐	☐	☐	
Are highway advisory radio (HAR) systems used?	☐	☐	☐	
Is there a highway information network/Web site established?	☐	☐	☐	
Are 511 traveler information systems used?	☐	☐	☐	
Is there a strategy for coordinating with the freight community (e.g., trucking companies)?	☐	☐	☐	
Are transportation management centers (TMCs) established?	☐	☐	☐	

Performance Measures				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are performance measures established to evaluate the effectiveness of transportation management strategies?	☐	☐	☐	
Is there stakeholder involvement in identifying performance measures and their applications?	☐	☐	☐	
Are there strategies for safety and mobility performance evaluations on intersections?	☐	☐	☐	
Is there a repository for intersection performance monitoring and evaluation data?	☐	☐	☐	

Worker Training				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Is there a training plan to address the operator's visual limits (e.g., blind spots) when using a particular piece of equipment in the work zone?	☐	☐	☐	
Are there frequent pre-work safety meetings to discuss the work to be performed, safety hazards, and safe work procedures?	☐	☐	☐	
Is nighttime safety training conducted for all workers in the work area?	☐	☐	☐	
Are all construction personnel trained on Occupational Safety and Health Administration (OSHA) standards for work zone safety?	☐	☐	☐	
Are workers trained on the implementation of internal traffic control plans on each project?	☐	☐	☐	
Is operator training conducted for personnel involved with heavy equipment, including forklifts, cranes, and hoists?	☐	☐	☐	
Are workers trained for hazardous conditions at the work site?	☐	☐	☐	
Are there incident response field/simulation training options available to the construction crew?	☐	☐	☐	
Is there a qualified and designated work zone traffic control supervisor on the work site?	☐	☐	☐	
Is there a qualified and designated work zone traffic control technician on the work site?	☐	☐	☐	

WORK ZONE TRAFFIC CONTROL INSPECTION CHECKLISTS

Below are sample checklists intended to allow design-builders and owners/agencies to conduct quality assurance inspections on the effectiveness of work zone traffic control devices and operations.

General Project Information	
Project no.	
Type of project	
Location	
Date (mm/dd/yyyy)	Click here to enter a date.

Work Zone Information	
Length of work zone (mi)	
No. of lanes per direction (before construction)	
No. of lanes per direction (during construction)	
Lane width (ft)	
Shoulder width (ft)	
Work zone speed limit (mph)	
Annual average daily traffic (AADT)	
Truck volume	
Allowable working hours	

Traffic Control Operations				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Is there a lane/shoulder/ramp closure?	☐	☐	☐	
Is contact information for the general contractor and subcontractors available?	☐	☐	☐	
Are all site personnel trained on the specific internal traffic control plan?	☐	☐	☐	
Are there designated onsite worker and visitor parking areas?	☐	☐	☐	
Are there designated work area locations for storing materials and servicing equipment?	☐	☐	☐	
Are traffic control devices installed per approved plans?	☐	☐	☐	
Are traffic control devices kept clean and in proper position per regulatory requirements (such as the Manual on Uniform Traffic Control Devices, or MUTCD)?	☐	☐	☐	
Are temporary traffic control devices removed when the work is not in progress?	☐	☐	☐	
Are missing or knocked down traffic control devices replaced or reset?	☐	☐	☐	
Are records maintained for traffic control operations, including starting and ending times, location, names of personnel, traffic controls used, etc.?	☐	☐	☐	
Is the regulatory speed limit within the work zone posted?	☐	☐	☐	
Is there a designated pathways for pedestrian travel?	☐	☐	☐	
Is there a designated pathways for bike traffic?	☐	☐	☐	
Are warnings provided to travelers on hazardous areas, such as trenching, sideslopes, ditches?	☐	☐	☐	
Are temporary traffic signals needed?	☐	☐	☐	
Are temporary traffic control zone problems and modifications to the layouts documented?	☐	☐	☐	
Is there a lateral and longitudinal buffer zone between the work area and moving traffic?	☐	☐	☐	

Traffic Control Layout				
Question(s)	Two-Lane, Two-Way Roads	Multi-Lane Undivided Roads	Multi-Lane Divided Roads	Comments, if any
Are the necessary traffic control plan layouts included in the project construction plans? Check boxes as applicable.	☐	☐	☐	

Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Are any changes in the traffic control layout (e.g., existing traffic signs are removed or relocated or any regulatory sign is installed for construction or maintenance work) approved by the appropriate government authorities?	☐	☐	☐	
Are the traffic control layouts in compliance with applicable regulations?	☐	☐	☐	

Communication Procedures				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Are surveillance closed-circuit television (CCTV), loop detectors, lasers, or probe vehicles needed?	☐	☐	☐	
Are intelligent transportation systems (ITS) considered for traffic monitoring/management?	☐	☐	☐	
Is there a public outreach plan for any changes in the traffic control plans?	☐	☐	☐	
Is there a designated communication channel between equipment operators and other personnel?	☐	☐	☐	

Nighttime/Inclement Weather Conditions				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Is there temporary lighting for nighttime operations?	☐	☐	☐	
Is additional lighting plan/lighting equipment available to improve visibility?	☐	☐	☐	
Are there weather alert traffic signs available?	☐	☐	☐	
Are there variable speed limit (VSL) signs or changeable message signs (CMS) being used for weather related activities?	☐	☐	☐	

Americans with Disabilities Act (ADA) Considerations				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Is the traffic control plan in compliance with Americans with Disabilities Act (ADA) regulations?	☐	☐	☐	
Are continuous cane-detectable edges needed along the pedestrian pathways?	☐	☐	☐	
Is there a need for continuous detectable edging throughout the length of the facility, except for gaps where pedestrians or vehicles will be turning or crossing?	☐	☐	☐	
Is there a need to keep pedestrian pathways clear of debris and drained to prevent accumulation of trash or mud that can cause a tripping or slipping hazard?	☐	☐	☐	
Are temporary curb ramps available for pedestrians diverted to temporary routes along the work zone?	☐	☐	☐	
Is there a need for temporary curb ramps to have marked edges that are noticeable by pedestrians with visual impairments?	☐	☐	☐	
Is there a need for temporary curb ramps to have level landings at top to provide additional safety to the pedestrians?	☐	☐	☐	

Americans with Disabilities Act (ADA) Considerations (continued)				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Are warning signs about upcoming temporary traffic control zones placed well ahead of the work zone?	☐	☐	☐	
Do traffic signs have special instructions that may be informative to disabled road users (e.g., on availability of alternative access routes)?	☐	☐	☐	

Advanced Warning Signs				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Is the appropriate number of signs used?	☐	☐	☐	
Are there any missing sign(s)?	☐	☐	☐	
Are the sign(s) clean?	☐	☐	☐	
Are the sign(s) legible?	☐	☐	☐	
Are the sign(s) retroreflective?	☐	☐	☐	
Are appropriate legends used?	☐	☐	☐	
Are there any unneeded sign(s) in the work area?	☐	☐	☐	
Are there sign(s) posted when no work is carried out?	☐	☐	☐	
Are the sign(s) of placed at appropriate height?	☐	☐	☐	
Are the sign(s) visible?	☐	☐	☐	
Are the sign(s) spaced properly?	☐	☐	☐	
Have the sign colors faded?	☐	☐	☐	
Are the arrow panels (A, B, C, or D) placed properly?	☐	☐	☐	
Are the arrow panels delineated/ shielded?	☐	☐	☐	
Are the arrow panels removed when not in use?	☐	☐	☐	
Are stationary sign supports used?	☐	☐	☐	
Are stationary sign supports installed per Department of Transportation (DOT) specifications?	☐	☐	☐	
Are portable changeable message signs (PCMS) used?	☐	☐	☐	
Are portable sign stands used?	☐	☐	☐	
Are signs removed or covered when not in use?	☐	☐	☐	

Channelizing Devices				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Is spacing provided for channelizing devices?	☐	☐	☐	
Is the number of channelizing devices adequate for required taper length?	☐	☐	☐	
Is appropriate number of channelizing devices used?	☐	☐	☐	
Are the channelizing devices ballasted?	☐	☐	☐	
Are appropriate battery mounts used for all devices?	☐	☐	☐	

Pavement Markings				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Are temporary pavement markings used in the work area?	☐	☐	☐	
Are the pavement markings in accordance with MUTCD specifications?	☐	☐	☐	
Are conflicting pavement markings removed?	☐	☐	☐	
Are the pavement markings retroreflective?	☐	☐	☐	

Flagging				
Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Are flaggers/spotters used in the work area?	☐	☐	☐	
Are flaggers clearly visible to the approaching traffic?	☐	☐	☐	
Are flagger/spotter station(s) preceded by advanced warning sign(s)?	☐	☐	☐	
Is there adequate stopping distance for the approaching traffic?	☐	☐	☐	
Are flagger/spotter station(s) illuminated during night time construction activities?	☐	☐	☐	
Are automated flagger assistance devices (AFADs) used?	☐	☐	☐	
Is the flagging technique in compliance with State specifications?	☐	☐	☐	
Question(s)	Slow/Stop Paddles	Flags	N/A	Comments, if any
Which signaling device is used?	☐	☐	☐	
Question(s)	Visual	Two-Way Radio	N/A	Comments, if any
What type of communication is used between flaggers?	☐	☐	☐	

Roadside Safety					
Question(s)	Concrete Barrier	Guardrail	Other	N/A	Comments, if any
Which type of temporary barrier is used?	☐	☐	☐	☐	

Question(s)	Yes	No	N/A	Comments, if any (if No, identify action items)
Is there drop-off delineation in the work area?	☐	☐	☐	
Is there a minimum 1-inch buffer to barrier?	☐	☐	☐	
Are portable barriers used?	☐	☐	☐	
Are the barriers connected?	☐	☐	☐	
Are impact attenuators used?	☐	☐	☐	
Are the vertical panels oriented properly?	☐	☐	☐	
Are the lights used for delineation functioning properly?	☐	☐	☐	

WORKER SAFETY INSPECTION CHECKLISTS

Below are sample checklists intended to allow design-builders and owners/agencies to conduct quality assurance inspections on the effectiveness of worker safety at work zones.

General Project Information	
Project no.	
Type of project	
Location	
Date (mm/dd/yyyy)	Click here to enter a date.

Work Zone Information	
Length of work zone (mi)	
No. of lanes per direction (before construction)	
No. of lanes per direction (during construction)	
Lane width (ft)	
Shoulder width (ft)	
Work zone speed limit (mph)	
Annual average daily traffic (AADT)	
Truck volume	
Allowable working hours	

Safety Operational Procedures				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are there standard operating procedures to address worker safety and minimize work to be performed near vehicles and equipment?	☐	☐	☐	
Are there processes established for reviewing and approving any changes in the work zone setup needed due to safety concerns?	☐	☐	☐	
Are construction equipment checked to minimize blind spots?	☐	☐	☐	
Are advance warning signs placed at the proper distances to adequately warn drivers per MUTCD requirements?	☐	☐	☐	
Are there safe work practices for night work and backing equipment?	☐	☐	☐	
Are worksites designed to minimize backing vehicles and equipment?	☐	☐	☐	
Are there competent personnel to provide adequate oversight and supervision for all work zone related activities?	☐	☐	☐	
Are there procedures established to ensure that construction vehicle drivers only back under the direction of a spotter?	☐	☐	☐	
Are there procedures established to ensure daily communication between the prime and subcontractors to discuss any changes or revisions in construction traffic flow?	☐	☐	☐	
Are the channel construction vehicles and equipment away from workers using visual safety devices (retroreflective barrels, delineators, portable barricades, cones)?	☐	☐	☐	
Are there signs installed to guide workers on foot with respect to traffic areas, vehicle flow, and worker-free zones?	☐	☐	☐	
Are positive separation measures such as barriers, road closures, shadow vehicles, and buffer space used?	☐	☐	☐	

Safety Operational Procedures (continued)				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are utility ditches flagged or barricaded?	☐	☐	☐	
Are transition area tapers provided?	☐	☐	☐	
Are there escape routes available for workers faced with unsafe situations?	☐	☐	☐	
Are there procedures in place to notify law enforcement agencies about unsafe/abusive motorists?	☐	☐	☐	
Are records of worker injuries maintained?	☐	☐	☐	
Are there established procedures for reporting worker injuries?	☐	☐	☐	
Are the worker safety, traffic control, vehicle regulations, equipment, etc. compliant with the State/MUTCD regulations?	☐	☐	☐	
Is a hazard assessment of the work area conducted prior to the commencement of the work?	☐	☐	☐	
Is a contact list of hazardous materials response personnel available?	☐	☐	☐	
Is a contact list of emergency medical responders available?	☐	☐	☐	
Is a contact list of fire and rescue agencies available?	☐	☐	☐	

Speed Management				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are reduced speed limits enforced as applicable?	☐	☐	☐	
Are speed advisories established?	☐	☐	☐	
Are there stricter fines/penalties for speeding motorists?	☐	☐	☐	
Is photo enforcement established in the work zones as deemed necessary?	☐	☐	☐	
Are changeable message signs (CMS) used?	☐	☐	☐	
Are portable speed trailers used in the work area?	☐	☐	☐	
Are truck mounted attenuators or law enforcement used in case of high speed traffic?	☐	☐	☐	

Traffic Control				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are traffic signs and signals clear and visible?	☐	☐	☐	
Are traffic signs and signals in conflict with other traffic control devices?	☐	☐	☐	
Are traffic signs removed or covered during no work conditions?	☐	☐	☐	
Are traffic lanes used when working in aerial lifts over a traffic lane or a shoulder?	☐	☐	☐	
Are traffic drums and cones placed closely to prevent intrusions?	☐	☐	☐	
Are spotters used during limited visibility situations?	☐	☐	☐	
Are internal traffic control plans used to minimize the backing of construction vehicles and equipment in the work area?	☐	☐	☐	
Are accessible areas within the swing radius of the rear of the rotating superstructure of the crane barricaded?	☐	☐	☐	
Are sensors, handheld radios, and intrusion alarms used to prevent worker injuries?	☐	☐	☐	
Are alternatives to flaggers used when traffic control is required under hazardous conditions that limit visibility (e.g., high traffic speeds, inclement weather, and night work)?	☐	☐	☐	

Worker Safety				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Is personal protective equipment (PPE) used by construction crew personnel at the work site?	☐	☐	☐	
Are the workers equipped with appropriate protective clothing for adverse weather conditions?	☐	☐	☐	
Is eye and face protection used, such as safety glasses with side shield, and face shields?	☐	☐	☐	
Are safety-toed footwear and hard hats used?	☐	☐	☐	
Do all construction personnel have access to hearing protection, such as ear plugs/muffs, while in the work zone?	☐	☐	☐	
Are fall protection measures such as harnesses and lanyards used?	☐	☐	☐	
Are work gloves chosen according to job-site hazards expected (e.g., chemical resistant gloves to avoid potential chemical contact or heavy-duty work gloves to handle debris)?	☐	☐	☐	
Is respiratory protection such as filtering facepieces used?	☐	☐	☐	
Are high-visibility safety apparel, headwear, eyewear, and footwear compliant with American National Standards Institute (ANSI) standards?	☐	☐	☐	
Are glare-free light balloons and glare screens used to control glare that could blind workers?	☐	☐	☐	
Are there procedures to ensure worker safety against electrical hazards such as buried utilities, overhead power lines, etc.?	☐	☐	☐	
Are there procedures to ensure worker safety against environmental hazards such as heat stress, cold stress, sunburn, etc.?	☐	☐	☐	
Are there procedures to ensure worker safety against drowning and hypothermia hazards?	☐	☐	☐	
Are first aid kits available and adequately stocked?	☐	☐	☐	

Equipment Maintenance and Operations				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Is there a scheduled maintenance program for all work zone construction vehicles and equipment?	☐	☐	☐	
Are there any safety features (e.g., reverse alarm, video cameras) installed in the work area?	☐	☐	☐	
Are inspections conducted on all vehicles, equipment, and safety devices prior to each work shift?	☐	☐	☐	
Are electrical devices inspected regularly?	☐	☐	☐	
Are hazardous materials kept in specifically identified cabinets?	☐	☐	☐	
Are Material Safety Data Sheets (MSDS) available for all hazardous materials?	☐	☐	☐	
Are defective vehicles, equipment, and safety devices reported and removed from service until repairs are conducted?	☐	☐	☐	
Are collision avoidance/proximity warning systems and/or other monitoring technologies installed on construction vehicles and equipment?	☐	☐	☐	
Are all equipment operated or repaired only by people who have been trained and authorized to work with that piece of equipment?	☐	☐	☐	
Are operator manuals available for equipment used in the work area?	☐	☐	☐	
Are rollover protective structures (ROPS) used on equipment?	☐	☐	☐	
Are edge guards used on trailers to prevent rollovers?	☐	☐	☐	
Are full-width loading ramps installed on transport trailers?	☐	☐	☐	

Communications				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Are there any established communication procedures for spotters, machine operators, truck drivers, and workers on foot?	☐	☐	☐	
Is there any procedure in place to restrict the usage of personal cellular phones, headphones, and other devices that could cause distractions?	☐	☐	☐	
Are two-way radios provided to construction personnel for coordination of vehicular and equipment activity?	☐	☐	☐	
Are whistles, air-horns, or other devices used to warn workers when they are in danger?	☐	☐	☐	
Are advance media campaigns used to advise the users of upcoming work zone activities?	☐	☐	☐	

Worker Training				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Is there a training plan established to address the operator's visual limits (e.g., blind spots) when operating equipment in the work zone?	☐	☐	☐	
Are there frequent pre-work safety meetings to discuss the work to be performed, safety hazards, and safe work procedures?	☐	☐	☐	
Is nighttime safety training conducted for all workers in the work area?	☐	☐	☐	
Are construction personnel trained to work next to motor vehicle traffic in a way that minimizes their vulnerability?	☐	☐	☐	
Are the workers trained on the implementation of internal traffic control plans on each project?	☐	☐	☐	
Are workers trained for hazardous conditions on work site?	☐	☐	☐	

Worker Training (continued)				
Question(s)	Yes	No	N/A	Comments (if No, identify action items)
Is operator training conducted for personnel involved with heavy equipment, including forklifts, cranes, and hoists?	☐	☐	☐	
Are all construction personnel trained on Occupational Safety and Health Administration (OSHA) standards for work zone safety?	☐	☐	☐	

CHAPTER 6: ADDITIONAL CHECKLISTS TO SUPPORT DESIGN-BUILDERS AND OWNERS/AGENCIES

This chapter presents an additional series of sample checklists to support design-builders and owners/agencies in various processes of design-build projects. In particular, several checklists in this chapter pertain to items and issues related to Transportation Management Plan (TMP) development. The checklists contained in this chapter are listed below.

- *Design-Builder's Public Involvement and Outreach Checklist:* This checklist includes items to be considered for a public involvement and outreach campaign.
- *Work Zone Safety Inspection Checklist:* This checklist facilitates the owner/agency's review of the safety aspects of the design-builder developed TMP during the final design phase, as well as safety inspection of an active work zone.
- *Design-Builder's Work Zone Incident Reporting Checklist*: This checklist includes various actions that design-builder personnel should undertake at work zone incident sites.
- *Post-Construction Work Zone Performance Documentation Checklist:* This checklist provides work zone performance monitoring information that the design-builder and owner/agency should jointly undertake with other partners/stakeholders.
- *Pre-Construction Coordination Activities Checklists:* These checklists include various coordination activities and meetings that the design-builder and owner/agency should jointly undertake with other partners/stakeholders.
- *Owner/Agency's Master Checklist:* This checklist includes checkpoints to cover key steps associated with TMP development and implementation, from preliminary engineering through construction.
- *Owner/Agency's Pre-Request for Qualifications/Proposals Checklist:* These checklists include various TMP related items that an owner/agency should address in the preliminary engineering phase or consider incorporating during the development of the request for qualifications (RFQ)/request for proposals (RFP).
- *Owner/Agency's Proposal Evaluation Checklist:* This checklist includes TMP related items that an owner/agency should consider in evaluating design-build proposals.
- *Owner/Agency's Design Review Checklist:* This checklist includes various TMP related design items that an owner/agency should consider when reviewing the design-builder's design documents.
- *Owner/Agency's Design and Construction Management Plan Checklist:* This checklist includes various design and construction quality management items for the owner/agency.

DESIGN-BUILDER'S PUBLIC INVOLVEMENT AND OUTREACH CHECKLISTS

These checklists include items to be considered for a public involvement and outreach campaign in a design-build project.

General Project Information	
Project no.	
Project type	
Project location	
Project start date (mm/dd/yyyy)	Click here to enter a date.

Framework for the Campaign	
1. Define goals and objectives of the public information and outreach (PI&O) campaign	☐
2. Determine size and nature of the PI&O effort for the project	☐
3. Determine approach, resources, and scope of the outreach campaign	☐
4. Conduct cost-benefit analysis for the campaign	☐
5. Identify internal resources (e.g., agency personnel, agency-owned facilities, and equipment) and external resources (e.g., public relations agency) for the campaign	☐
6. Identify partners/stakeholders and define their roles for the campaign	☐
7. Identify target audience for the campaign	☐
8. Set up community task force for the campaign that includes various stakeholders (e.g., businesses, residents)	☐
9. Identify forums and distribution channels, such as public meetings and direct mail, to distribute the campaign messages	☐
10. Develop the draft PI&O plan to implement outreach strategies (e.g., timelines, points of contact, action items)	☐
11. Determine PI&O campaign success criteria	☐
12. Validate and revise PI&O plan based on inputs from stakeholders/partners	☐

Identification of Stakeholder Groups	
Motorists	☐
Pedestrians	☐
Bicyclists	☐
Transport companies	☐
Businesses	☐
Residents	☐
City/county officials	☐
Emergency responder	☐
Bus lines	☐
Ferries	☐
Mass transit	☐
Law enforcement	☐
Others, please specify:	

Development of Outreach Strategies	
1. Determine outreach campaign products and formats to be used based on budget available	☐
2. Identify communication strategies (e.g., brochures, mailers, press releases) to convey project-related information	☐
3. Determine outreach campaign strategies for before and after project completion	☐
4. Identify target audience for each communication strategy	☐
5. Determine design and message for each campaign product	☐
6. Develop content of the outreach campaign product	☐
7. Tailor communication strategy to the project context, message being conveyed, and the budget constraints	☐
8. Produce outreach campaign products	☐

Implementation of Outreach Strategies	
1. Determine communication timing for the outreach campaign	☐
2. Identify outreach opportunities and product distribution channels	☐
3. Document communication timing, outreach opportunities, and product distribution channels in the PI&O plan	☐
4. Identify newer outreach partners and outreach opportunities	☐
5. Develop and maintain outreach personnel and resource lists	☐
6. Distribute campaign products through product distribution channels	☐

Evaluation and Improvement of Outreach Strategies	
1. Review and update each outreach strategy	☐
2. Review the communication processes	☐
3. Develop mechanisms (e.g., surveys) to collect traveling public and stakeholders' feedback as project progresses	☐
4. Evaluate campaign effectiveness at the end of the project	☐
5. Document lessons learned	☐

WORK ZONE SAFETY INSPECTION CHECKLISTS

These checklists facilitate the owner/agency's review of the safety aspects of the design-builder developed TMP during the final design phase, as well as safety inspection of an active work zone.

General Project Information	
Project no.	
Project type	
Project location	
Project start date (mm/dd/yyyy)	Click here to enter a date.

Framework for the Campaign	
1. Define goals and objectives of the public information and outreach (PI&O) campaign	☐
2. Determine size and nature of the PI&O effort for the project	☐
3. Determine approach, resources, and scope of the outreach campaign	☐
4. Conduct cost-benefit analysis for the campaign	☐
5. Identify internal resources (e.g., agency personnel, agency-owned facilities, and equipment) and external resources (e.g., public relations agency) for the campaign	☐
6. Identify partners/stakeholders and define their roles for the campaign	☐
7. Identify target audience for the campaign	☐
8. Set up community task force for the campaign that includes various stakeholders (e.g., businesses, residents)	☐
9. Identify forums and distribution channels, such as public meetings and direct mail, to distribute the campaign messages	☐
10. Develop the draft PI&O plan to implement outreach strategies (e.g., timelines, points of contact, action items)	☐
11. Determine PI&O campaign success criteria	☐
12. Validate and revise PI&O plan based on inputs from stakeholders/partners	☐

Identification of Stakeholder Groups	
Motorists	☐
Pedestrians	☐
Bicyclists	☐
Transport companies	☐
Businesses	☐
Residents	☐
City/county officials	☐
Emergency responder	☐
Bus lines	☐
Ferries	☐
Mass transit	☐
Law enforcement	☐
Others, please specify:	

Development of Outreach Strategies	
1. Determine outreach campaign products and formats to be used based on budget available	☐
2. Identify communication strategies (e.g., brochures, mailers, press releases) to convey project-related information	☐
3. Determine outreach campaign strategies for before and after project completion	☐
4. Identify target audience for each communication strategy	☐
5. Determine design and message for each campaign product	☐
6. Develop content of the outreach campaign product	☐
7. Tailor communication strategy to the project context, message being conveyed, and the budget constraints	☐
8. Produce outreach campaign products	☐

Implementation of Outreach Strategies	
1. Determine communication timing for the outreach campaign	☐
2. Identify outreach opportunities and product distribution channels	☐
3. Document communication timing, outreach opportunities, and product distribution channels in the PI&O plan	☐
4. Identify newer outreach partners and outreach opportunities	☐
5. Develop and maintain outreach personnel and resource lists	☐
6. Distribute campaign products through product distribution channels	☐

Evaluation and Improvement of Outreach Strategies	
1. Review and update each outreach strategy	☐
2. Review the communication processes	☐
3. Develop mechanisms (e.g., surveys) to collect traveling public and stakeholders' feedback as project progresses	☐
4. Evaluate campaign effectiveness at the end of the project	☐
5. Document lessons learned	☐

DESIGN-BUILDER'S WORK ZONE INCIDENT REPORTING CHECKLISTS

These checklists include various actions that design-builder personnel should undertake at work zone incident sites.

General Project Information	
Project no.	
Project type	
Project location	
Project start date (mm/dd/yyyy)	Click here to enter a date.

Work Zone Incident Management	
1. Identify stakeholders/partners/responding agencies for work zone incident management team	☐
2. Define work zone incident management needs	☐
3. Identify work zone traffic impacts	☐
4. Define roles and responsibilities, limitations, and requirements of work zone incident management team	☐
5. Establish contact list and contact procedure of the team members	☐
6. Identify existing protocols of communication between team members	☐
7. Develop inter-agency agreements for incident management	☐
8. Establish communication routines among the team	☐
9. Identify goals and objectives of the incident management system	☐
10. Develop work zone incident management alternatives	☐
11. Evaluate work zone incident management alternatives	☐
12. Implement work zone incident management alternatives	☐

Work Zone Incident Response	
1. Identify agency/design-builder personnel available to respond to a fatal crash or a major incident involving hazardous materials	☐
2. Establish an incident command system, if needed	☐
3. Establish traffic management center(s) to coordinate incident notification and response	☐
4. Identify alternate equipment staging strategies for incident clearance	☐
5. Establish procedures for quick clearance of work site during incidents	☐
6. Identify potential work zone bottlenecks	☐
7. Maintain a contact list of incident responder agencies	☐
8. Develop and maintain an emergency traffic control plan	☐
9. Identify alternate routes/detour routes for all road users (e.g., trucks, motorcycles)	☐
10. Identify additional personnel and logistics to be deployed to work zone in the event of an incident	☐

Work Zone Incident Evaluation and Reporting	
1. Coordinate with law enforcement agencies to obtain crash reports	☐
2. Determine if the work zone incident indicates work zone safety concerns	☐
3. Evaluate maintenance of traffic (MOT) features at the incident location of the work zone	☐
4. Conduct night inspections in case of night time incidents	☐
5. Maintain logs of incidents, incident type, and incident impacts in the work zone	☐
6. Re-evaluate/revise work zone safety procedures/policies if needed	☐

POST-CONSTRUCTION WORK ZONE PERFORMANCE DOCUMENTATION CHECKLISTS

These checklists provide work zone performance monitoring information that the design-builder and owner/agency should jointly undertake with other partners/stakeholders.

General Project Information	
Project no.	
Project type	
Project location	
Project start date (mm/dd/yyyy)	Click here to enter a date.

Post-Construction Work Zone Performance	
1. Collect and synthesize information on project and work zone characteristics	☐
2. Review transportation management plan (TMP) strategies	☐
3. Collect public/stakeholder inputs through surveys, and project/program level feedback mechanisms	☐
4. Perform project-level work zone performance assessment on work zone safety, mobility, construction efficiency and effectiveness, and public perception	☐
5. Gather information on measured and monitored work zone impacts, including travel time delays and work zone incidents	☐
6. Review maintenance of traffic (MOT) plans and other traffic control related documentation	☐
7. Conduct night time work zone reviews to assess night time work zone performance	☐
8. Assign a quality rating to various work zone traffic control components	☐
9. Assess work zone safety for fatal crashes that occur within the project limits	☐
10. Assess work zone mobility on significant projects	☐
11. Synthesize and analyze the performance assessment data and information gathered from the various sources	☐
12. Document lessons learned on the work zone performance	☐
13. Develop recommendations for policy, process, and/or procedural changes	☐
14. Evaluate and revise, as necessary, the work zone impacts assessment and management process/practices/procedures	☐

PRE-CONSTRUCTION COORDINATION ACTIVITIES CHECKLISTS

These checklists include various coordination activities and meetings that the design-builder and owner/agency should jointly undertake with other partners/stakeholders.

General Project Information	
Project no.	
Project type	
Project location	
Project start date (mm/dd/yyyy)	Click here to enter a date.

Pre-Construction Coordination	
1. Design-builder coordination on lane closures with all county/city/local/media agencies to avoid conflict with special events	☐
2. Owner/agency coordination with Federal Highway Administration (FHWA) on any National Environmental Protection Act (NEPA) document re-evaluations	☐
3. Owner/agency coordination with the State historic preservation authorities	☐
4. Design-builder coordination with contractors of other active projects and localities in the vicinity	☐
5. Design-builder coordination with regulatory agencies on the type of State/Federal water-quality permits required prior to the construction	☐
6. Design-builder coordination with the environmental regulatory agencies that provide threatened and endangered species oversight	☐
7. Design-builder coordination with county/city/local agencies on detour routes	☐
8. Owner/agency coordination with right-of-way/utility/railroad authorities	☐
9. Design-builder coordination with utility companies and local agencies on removal/relocation of utilities	☐
10. Agency/design-builder coordination with law enforcement agencies	☐
11. Agency/design-builder coordination with traffic incident responding agencies	☐
12. Agency/design-builder coordination with media agencies on public information and outreach	☐
13. Agency/design-builder coordination with local businesses/schools/hospitals	☐
14. Design-build coordination with transit authorities on transit and bus stop relocation	☐
15. Design-builder coordination with local communities/neighborhoods adjacent to work sites	☐
16. Schedule and organize meetings with stakeholders/partners for development of transportation management plan (TMP), traffic incident management (TIM) plan, and public information and outreach (PI&O) plan	☐
17. Obtain inputs from public/stakeholders/partners through community forums and informational meetings	☐

OWNER/AGENCY'S MASTER CHECKLISTS

This section include checklists to cover key steps associated with TMP development and implementation, from preliminary engineering through construction.

General Project Information	
Project no.	
Project type	
Project location	
Project start date (mm/dd/yyyy)	Click here to enter a date.

Transportation Management Plan Checklist	
1. Define the requirements for work zone impacts assessment and allowable impacts during construction	☐
2. Determine if the project under consideration is "significant"	☐
3. Assess expected work zone impacts of the project as per contract requirements	☐
4. Assess transportation management plan (TMP) needs of the project	☐
5. Establish work zone performance measures and thresholds	☐
6. Define requirements for transportation management strategies	☐
7. Define requirements for traffic incident management strategies	☐
8. Define requirements for public information and outreach strategies	☐
9. Review the TMP for the major aspects of construction, including: Yes ☐ No ☐ N/A ☐ Lane closures Yes ☐ No ☐ N/A ☐ Bridge closures Yes ☐ No ☐ N/A ☐ Interchange closures Yes ☐ No ☐ N/A ☐ Local streets Yes ☐ No ☐ N/A ☐ Construction phasing and staging Yes ☐ No ☐ N/A ☐ Numbers and type of major traffic shifts Yes ☐ No ☐ N/A ☐ Detours Yes ☐ No ☐ N/A ☐ Typical section requirements Yes ☐ No ☐ N/A ☐ Pull out requirements Yes ☐ No ☐ N/A ☐ Emergency access Yes ☐ No ☐ N/A ☐ Others	
10. Review the TMP for the following key elements: temporary traffic control, transportation operations, and public information	☐
11. Review the design-builder's maintenance of traffic (MOT) plan	☐
12. Review the design-builder's list of MOT team members	☐

Transportation Management Plan Checklist (continued)	
13. Review the design-builder's traffic incident management (TIM) plan	☐
14. Lead preparation of public information and outreach plan	☐
15. Review design-builder's traffic signal timing plan and adjustments to the plan	☐
16. Review design-builder's proposed lane closure hours	☐
17. Coordinate with local agencies on detour routes that fall within local agencies' jurisdiction	☐
18. Review design-builder's MOT variance requests	☐
19. Conduct public information surveys as needed	☐
20. Perform snow removal operations within the project limits, if necessary	☐
21. Monitor work zone safety and mobility impacts during construction on an as-needed basis	☐

OWNER/AGENCY'S PRE-REQUEST FOR QUALIFICATIONS/PROPOSALS CHECKLISTS

These checklists include various TMP related items that an owner/agency should address in the preliminary engineering phase or consider incorporating during the development of the request for qualifications (RFQ)/request for proposals (RFP).

General Project Information	
Project no.	
Project type	
Project location	
Project start date (mm/dd/yyyy)	Click here to enter a date.

Pre-Request for Qualifications/Proposals Requirements	
1. Identify experienced personnel/consultant to assist with the development of the RFQ/RFP	☐
2. Identify the type of funding to include in the RFP bid documents	☐
3. Obtain necessary approvals for any Federal funding, as deemed necessary	☐
4. Obtain any existing memorandum of understanding (MOU) between the owner/agency and stakeholders	☐
5. Determine the proposal selection schedule	☐
6. Establish the time period for services and/or products to be delivered	☐
7. Establish time of performance requirements in the scope of services	☐
8. Establish a payout schedule	☐
9. Develop the technical proposal to be included in the RFP package	☐
10. Determine the entity (owner/agency or design-builder) responsible for transportation management plan (TMP) development	☐
11. Establish a review and approval process for the TMP and various traffic control plans (TCPs) for the project	☐
12. Establish review timelines for TMP and various TCPs for the project	☐
13. Identify the agency personnel responsible for TMP review and approval	☐
14. Determine the frequency for TMP review	☐
15. Identify the consultant, if necessary, responsible for TMP review	☐
16. Identify the types of work zone impacts assessment the design-builder is required to perform	☐
17. Establish timelines for updating the TMP	☐

Pre-Request for Qualifications/Proposals Requirements (continued)	
18. Identify the entity (owner/agency or design-builder) responsible for updating the TMP	☐
19. Determine if traffic management centers (TMCs) or portable cameras will be used to monitor incidents in the work zones	☐
20. Identify the technology applications (e.g., queue warning systems, temporary TMC) to be included in the TMP	☐
21. Establish a public/stakeholder feedback process for TMP development	☐
22. Define the level of coordination/involvement for public information and outreach on the project	☐
23. Develop the bid price proposal to be included in the RFP package	☐
24. Determine the subcontracting language to be included in the RFP	☐
25. Establish disadvantaged business enterprise (DBE) goals and requirements for each category of services on the project (e.g., design, right-of-way)	☐
26. Establish the scope of services for the project, including the project objectives, design services and requirements, specifications, etc.	☐
27. Ensure that the TMP needs are in compliance with State and Federal polices, specifications, standards, and procedures	☐

OWNER/AGENCY'S PROPOSAL EVALUATION CHECKLISTS

These checklists include TMP related items that an owner/agency should consider in evaluating design-build proposals.

General Project Information	
Project no.	
Project type	
Project location	
Project start date (mm/dd/yyyy)	Click here to enter a date.

Proposal Evaluation	
1. Identify members for the proposal evaluation committee	☐
2. Involve technical experts and stakeholders to develop the evaluation criteria based on the risks and goals of the project	☐
3. Develop the proposal evaluation and scoring criteria	☐
4. Define relative weight for each evaluation criterion	☐
5. Include safety, mobility, and quality aspects as part of the value-based criteria	☐
6. Include appropriate level of scoring for safety, mobility, and quality elements in the proposal evaluation criteria	☐
7. Check if the proposal details conforms to agency's guidelines and/or procedural requirements	☐
8. Evaluate the technical and price proposal	☐
9. Discuss the project goals and risks	☐
10. Rank the proposal evaluation criteria, including project scope, schedule, timeline, project management approach, environmental impacts, design criteria, material warranty, etc.	☐
11. Review the proposal for maintenance of traffic (MOT), construction access, and work zone impacts on the traveling public	☐
12. Review the proposal for temporary traffic control plan (TTCP), transportation operation strategies, and public information plan, as applicable.	☐
13. Assign points to criteria and sub-criteria	☐
14. Weigh the technical proposal based on project goals and risks	☐
15. Provide recommendations to technical review and selection committee	☐

OWNER/AGENCY'S DESIGN REVIEW CHECKLISTS

These checklists include various TMP related design items that an owner/agency should consider when reviewing the design-builder's design documents.

General Project Information	
Project no.	
Project type	
Project location	
Project start date (mm/dd/yyyy)	Click here to enter a date.

Design Review	
1. Determine if the contract documents describe the location and design features and the construction requirements in sufficient detail to facilitate construction and the estimation of construction costs of the project	☐
2. Verify that the contract documents contain the following: Yes ☐ No ☐ N/A ☐ Title Sheet Yes ☐ No ☐ N/A ☐ Typical Sections Yes ☐ No ☐ N/A ☐ Summary of Quantities Yes ☐ No ☐ N/A ☐ Plan Sheets Yes ☐ No ☐ N/A ☐ Profile Sheets Yes ☐ No ☐ N/A ☐ Drainage Sheets Yes ☐ No ☐ N/A ☐ Cross Sections Yes ☐ No ☐ N/A ☐ Traffic Control Plans Yes ☐ No ☐ N/A ☐ Signing Plans Yes ☐ No ☐ N/A ☐ Lighting Plans Yes ☐ No ☐ N/A ☐ Traffic Signal Plans Yes ☐ No ☐ N/A ☐ Special Detail Sheets Yes ☐ No ☐ N/A ☐ Structure Plans Yes ☐ No ☐ N/A ☐ Utility Relocation Plans Yes ☐ No ☐ N/A ☐ Landscaping Plans Yes ☐ No ☐ N/A ☐ Other: _____	☐
3. Verify whether the project conforms to Federal-aid standards for geometric and structural design	☐
4. Review and approve any design exceptions incorporated into the project	☐
5. Confirm whether the project will involve new or revised interstate access	☐
6. Confirm whether the project will involve railroad/airport/utility/right-of-way coordination	☐
7. Verify that right-of-way, easement, and control of access lines are shown on the plans	☐

Design Review (continued)	
8. Evaluate whether all temporary and permanent traffic control devices are consistent with the current edition of the Manual on Uniform Traffic Control Devices (MUTCD)	☐
9. Evaluate whether the transportation management plan (TMP) provided is consistent with Federal and State regulations on work zone safety and mobility	☐
10. Check to see if the project has been classified as "significant" per the State's work zone safety and mobility policy	☐
11. Verify whether the incident management plan has been approved by the agency	☐
12. Verify whether the public information and outreach plan has been approved by the agency	☐
13. Verify whether the TMP has been approved by the agency	☐
14. Verify whether the TMP has been approved by the Federal Highway Administration (FHWA), if applicable under the State agency/FHWA stewardship plan	☐
15. Check to see if the highway clear zone and safety appurtenances are in accordance with the current edition of the American Association of State Highway and Transportation Officials (AASHTO) Roadside Design Guide	☐
16. Verify whether appropriate accommodations have been provided for bicyclists and pedestrians	☐
17. Verify whether pedestrian facilities and appurtenances have been designed in accordance with Americans with Disabilities Act (ADA) requirements	☐
18. Verify whether the project utilizes the current version of the State agency's standard drawings	☐
19. Verify whether the project utilizes the current version of the State agency's standard specifications for construction of roads and bridges	☐
20. Confirm that the contract documents include a specification and method of payment for all bid items	☐
21. Determine if any materials (excluding those supplied by a utility company for utility relocation) are to be supplied by a public agency or through a noncompetitive bid process	☐

OWNER/AGENCY'S DESIGN AND CONSTRUCTION MANAGEMENT PLAN CHECKLISTS

These checklists include various design and construction quality management items for the owner.

General Project Information	
Project no.	
Project type	
Project location	
Project start date (mm/dd/yyyy)	Click here to enter a date.

Roles and Responsibilities	
1. Define quality management roles and responsibilities in the RFQ/RFP	☐
2. Identify the agency/design-builder personnel responsible for technical review of the design deliverables	☐
3. Identify the agency/design-builder personnel responsible for checking design calculations	☐
4. Identify the agency/design-builder personnel responsible for checking material quantities	☐
5. Identify the agency/design-builder personnel responsible for reviewing plans and specifications	☐
6. Identify the agency/design-builder personnel responsible for approval of progress payments for design progress	☐
7. Identify the agency/design-builder personnel responsible for approval of post-award design quality management, quality assurance (QA), and quality control (QC) plans	☐
8. Identify the agency/design-builder personnel responsible for technical review of the construction shop drawings	☐
9. Identify the agency/design-builder personnel responsible for technical review of the construction material submittals	☐
10. Identify the agency/design-builder personnel responsible for checking pay quantities	☐
11. Identify the agency/design-builder personnel responsible for performing routine construction inspection during the project	☐
12. Identify the agency/design-builder personnel responsible for QC testing	☐
13. Identify the agency/design-builder personnel responsible for verification/acceptance testing	☐
14. Identify the agency/design-builder personnel responsible for approval of progress payments for construction progress	☐
15. Identify the agency/design-builder personnel responsible for assessing compliance of the construction work to the owner/agency standards	☐

Quality Assurance Practices	
1. Maintain design criteria checklists	☐
2. Develop construction testing matrix	☐
3. Evaluate the qualifications of the design-builder quality manager	☐
4. Evaluate the qualifications of the design quality manager	☐
5. Evaluate the qualifications of the construction quality manager	☐
6. Review the design-builder's design quality management plan	☐
7. Review the design-builder's design QA plan	☐
8. Review the design-builder's design QC plan	☐
9. Review the design-builder's construction quality assurance plan	☐
10. Review the design-builder's construction quality control plan	☐
11. Establish the level and frequency of audit and oversight design reviews (concerning QA and validity of contractor payments) to be performed by the State agency, Federal Highway Administration (as applicable), independent consultants, and/or other agencies as applicable	☐
12. Establish the frequency of owner/agency involvement for construction coordination (progress) and/or partnering meetings	☐
13. Establish procedures for coordinating with permitting agencies, utility companies, and railroad companies (as applicable) during construction	☐
14. Establish the level and frequency of owner/agency inspections to identify and correct any deficiencies in the project construction that are not in compliance with the owner/agency plans, specifications, and other binding documents	☐
15. Establish the level and frequency of audit and oversight construction reviews (concerning QA and validity of contractor payments) to be performed by the State agency, Federal Highway Administration (as applicable), independent consultants, and/or other agencies as applicable	☐
16. Establish documentation and submission procedures to ensure that the design-builder follows established construction QA procedures	☐

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