



Project Execution Preliminary Design Consultant Roles and Responsibilities

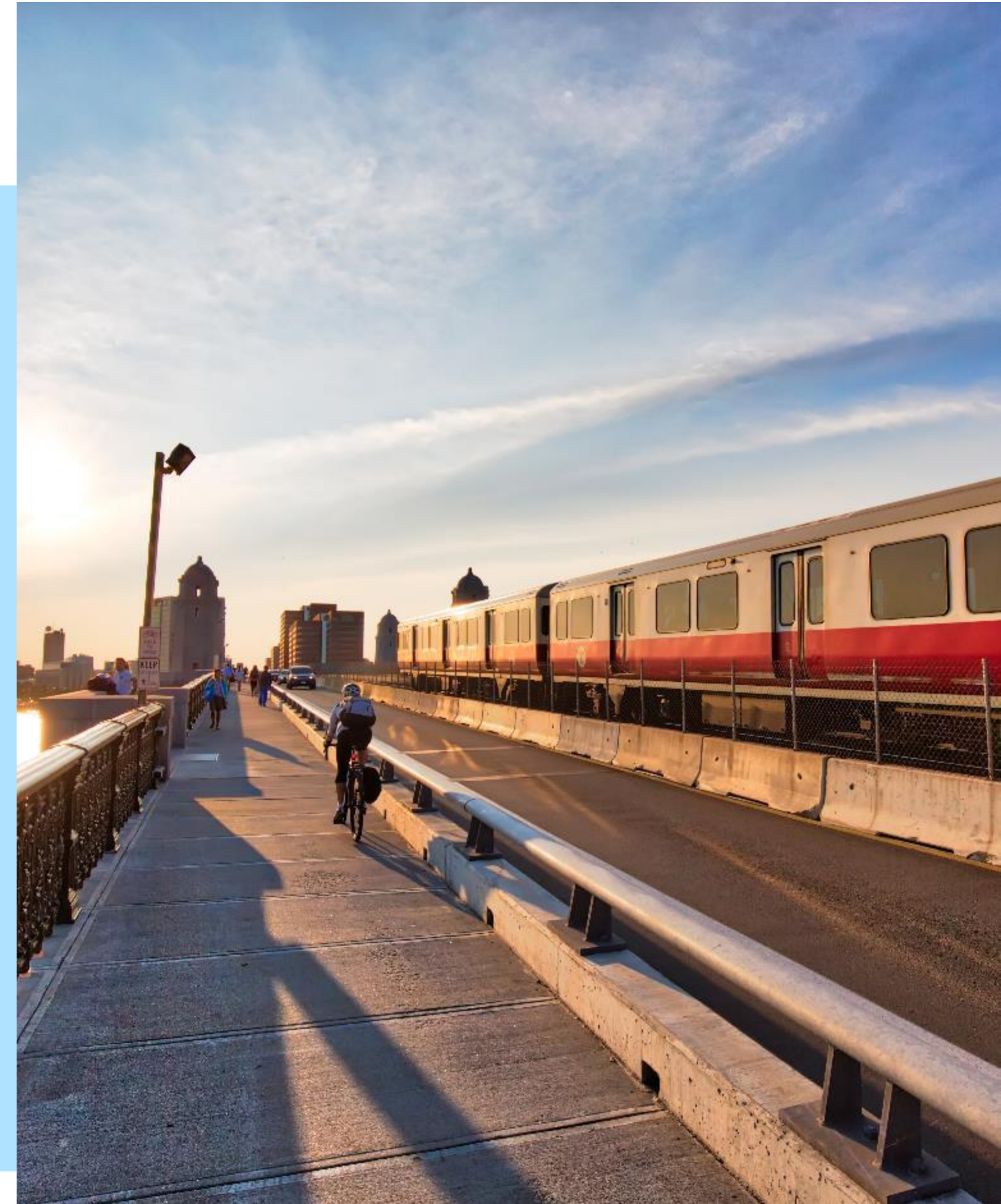
December 17th, 2025 ACEC

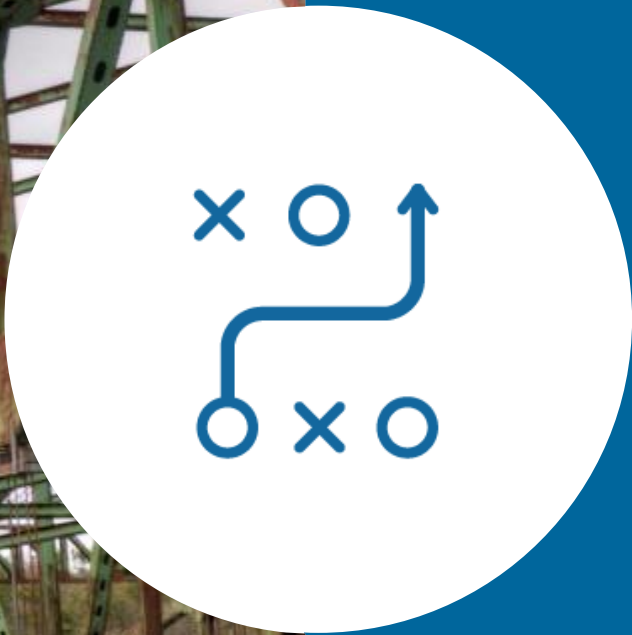
Introduction

Purpose: Clarify PDC's execution-phase role.

Outcomes:

- Understand review responsibilities.
- Understand submittal routing best practices
- Major Projects Project Manager vs. District Construction Personnel
- Know the key MassDOT reviewers for collaboration
- Conducting **contract-based reviews**.
- Support MassDOT without overstepping into design
- Act as an extension of staff to provide technical review

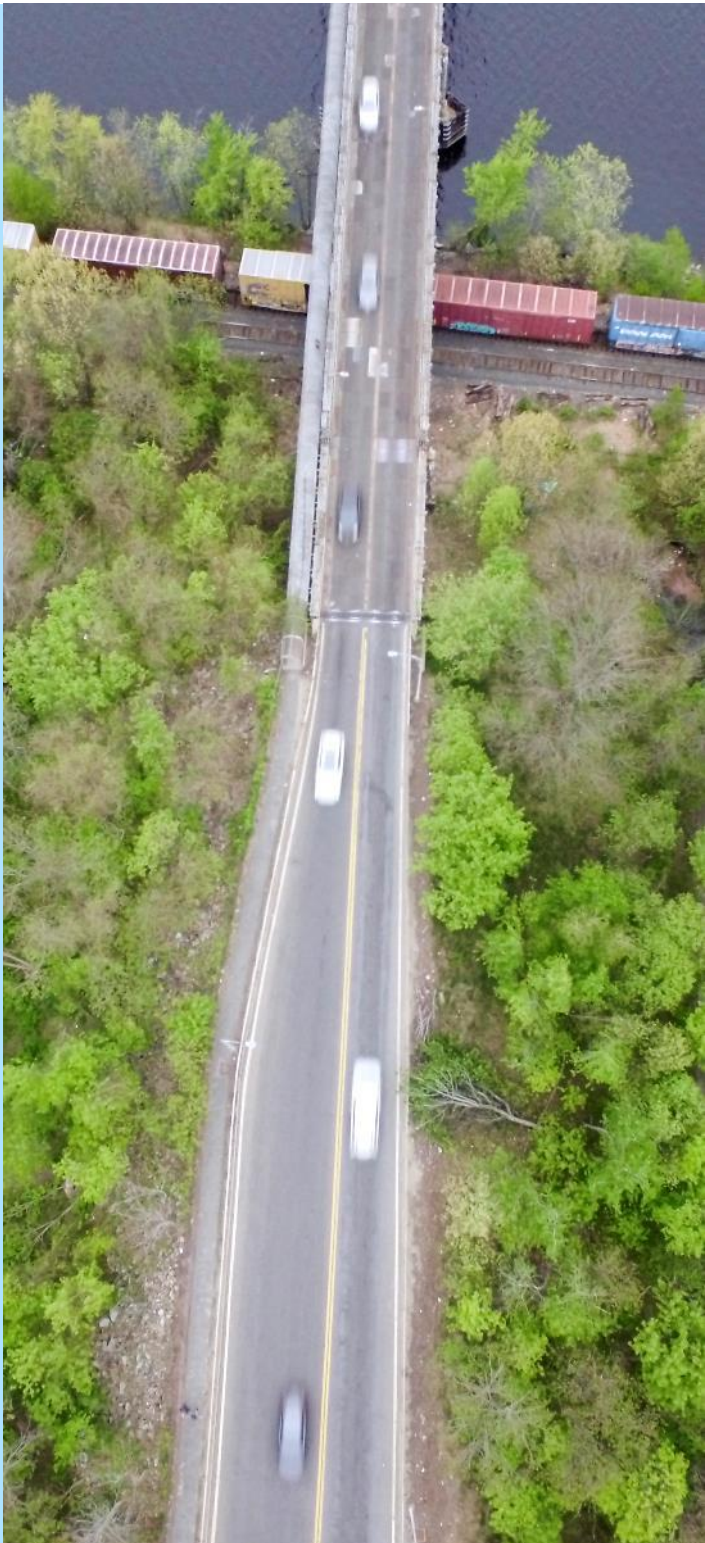
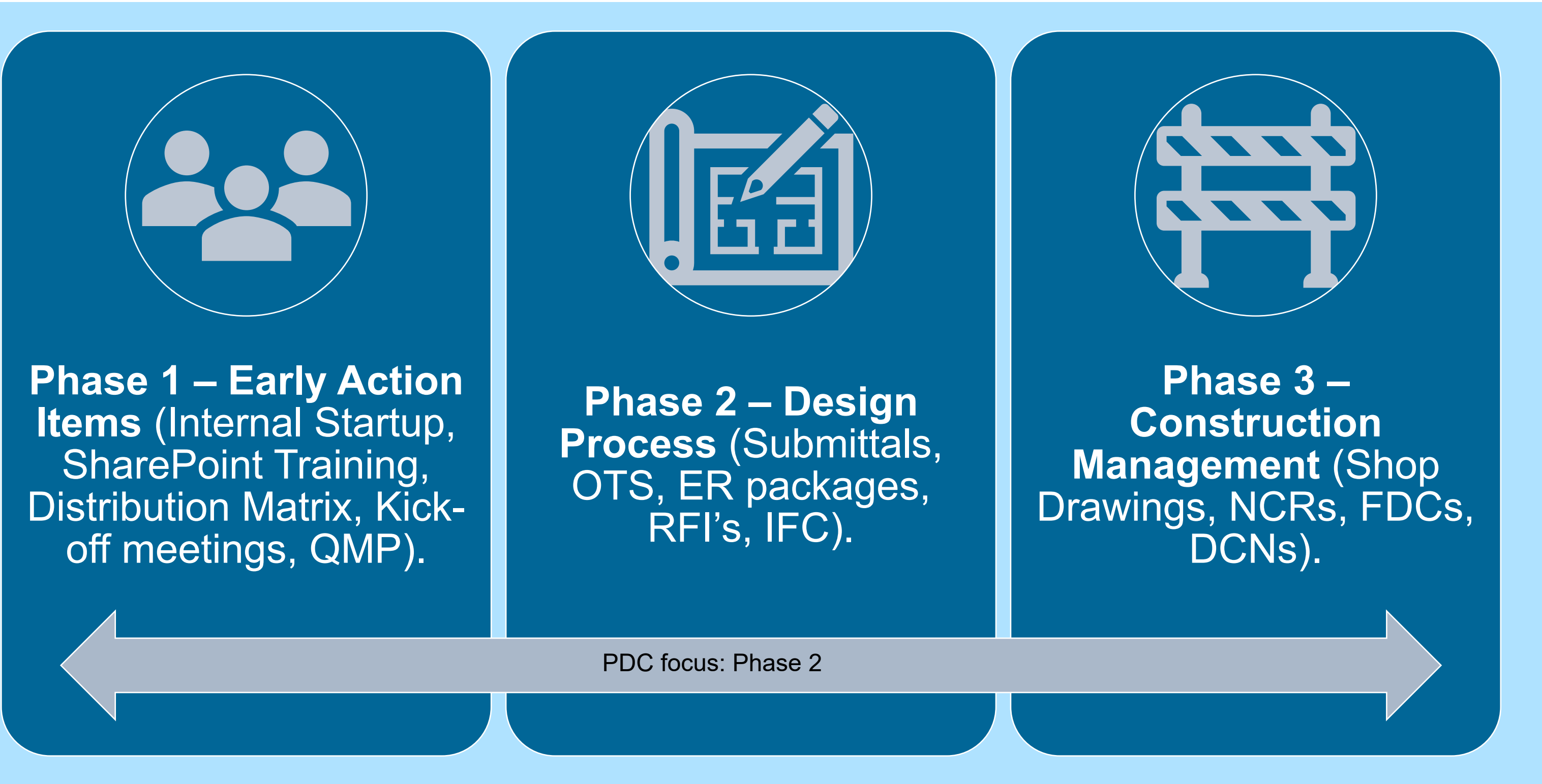




MassDOT Design-Build Execution Phases

PROJECT EXECUTION PDC ROLES AND RESPONSIBILITIES

MassDOT Design-Build Execution Phases



PROJECT EXECUTION PDC ROLES AND RESPONSIBILITIES

PDC Role in Execution

Responsibilities

- Technical oversight and compliance reviews.
- Track and route submittals (SharePoint/EDMM).
- Participate actively in **Bluebeam review sessions** – comment in **real time** to avoid duplication, conflicting remarks, or delays.
- Provide **contract-based draft responses** on RFIs and NCRs.
- Adhere to review timelines
- Review/recommendation of any waiver request from BM/PDDGB

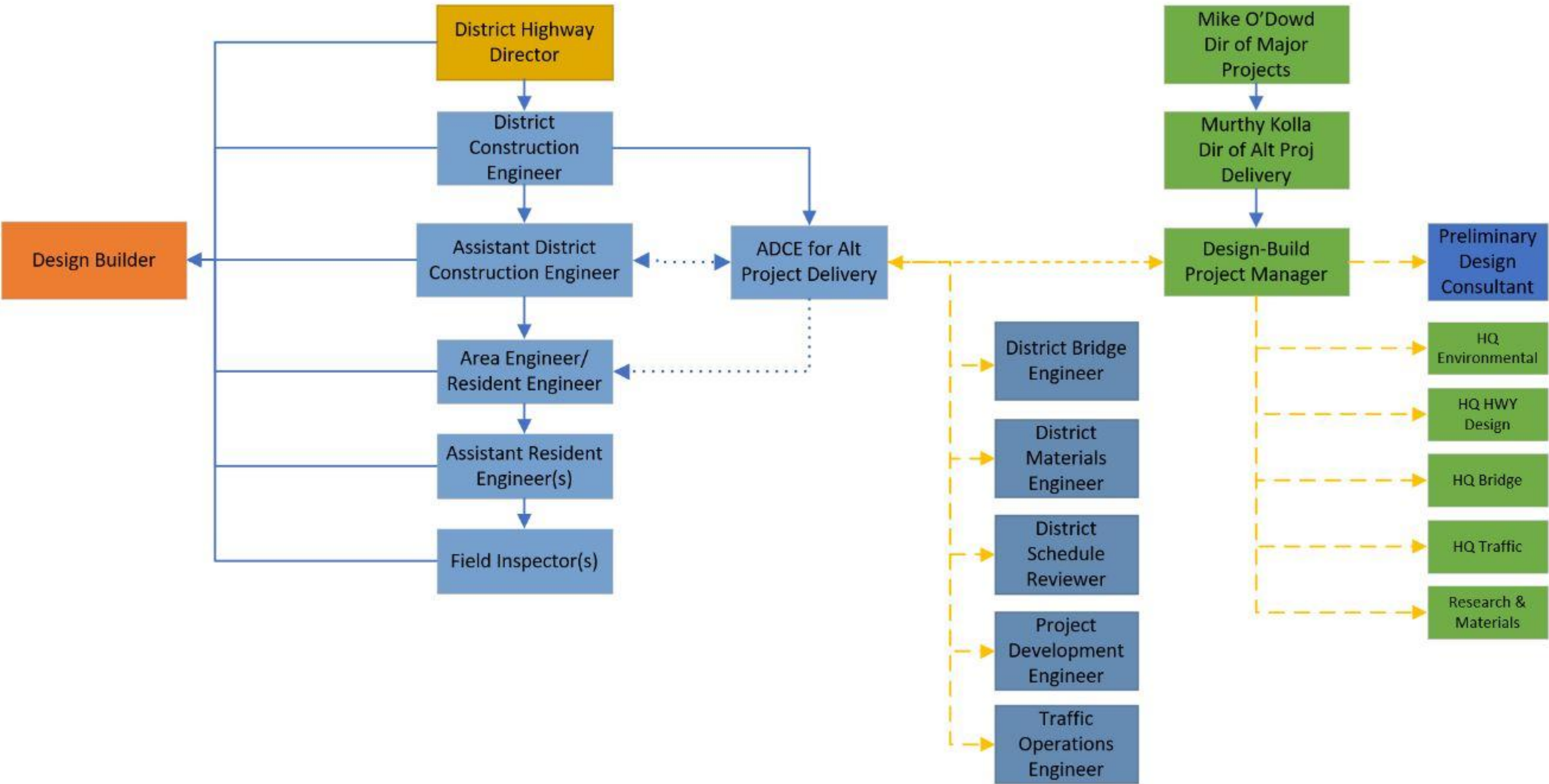
Limitations

- MassDOT District Construction, with the assistance of the DB-PM is responsible for managing the project, not the PDC
- Avoid scope creep and prescriptive comments.
- **Do not favor or promote the original preliminary design** — reviews must be objective to awarded RFP/ATCs and contract requirements.
- Interface with the Design-Builder **only through MassDOT DB PM/District**





Typical Design-Build Project Organizational Chart



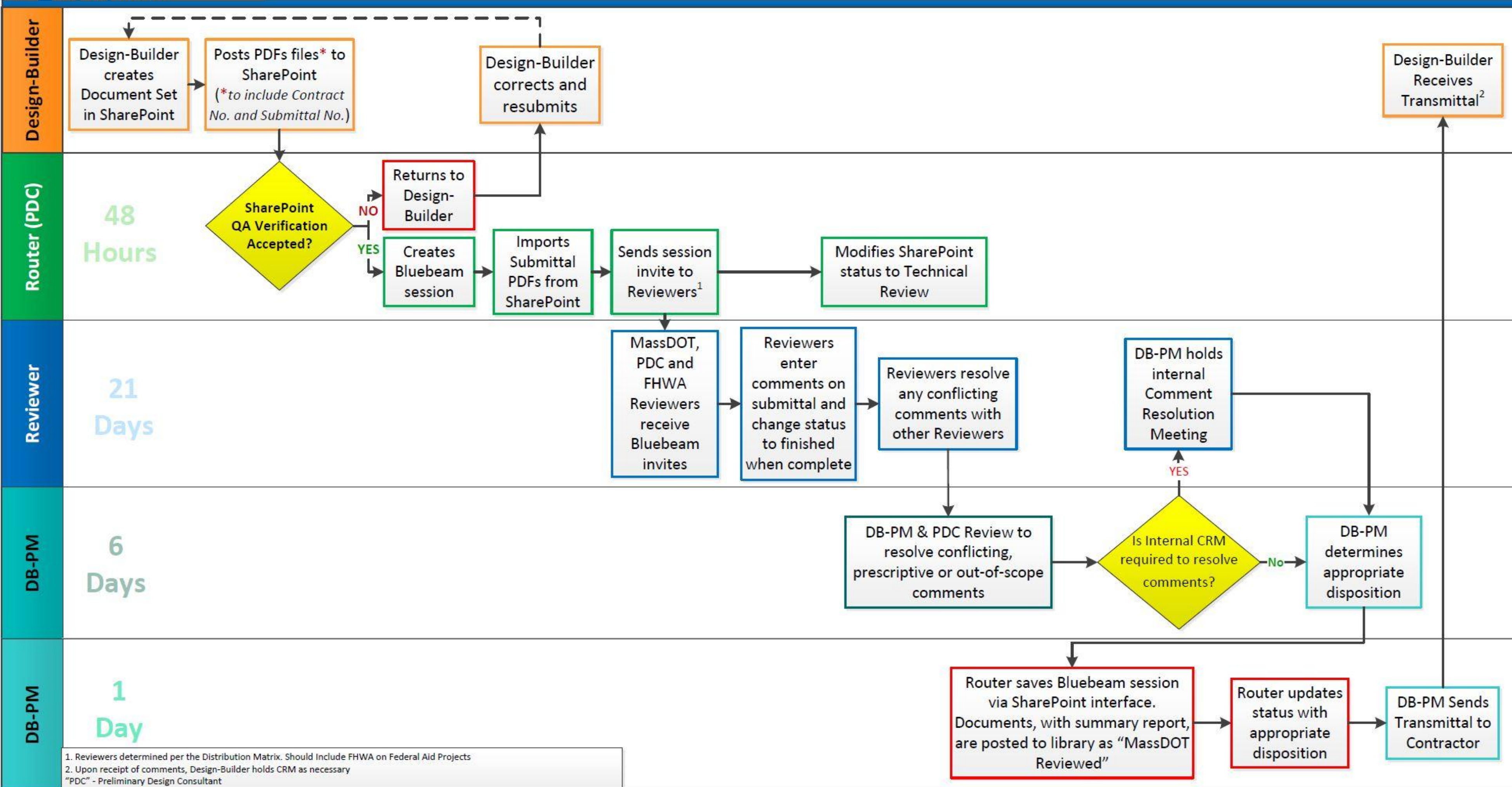
PROJECT EXECUTION PDC ROLES AND RESPONSIBILITIES

Execution-Phase Design Review Process

- Design Submittals and Early Release Designs
- Submittal Routing including coordinating with Key Reviewers
- Compliance Reviewer, not Designer.
- Continuity of staff involved with Preliminary Design
- Review for completeness and conformance.
- **Real-time Bluebeam commenting is required** to ensure timely review, reduce redundant remarks, and improve coordination.
- PDC should review all comments when session closes, and flag any comments for discussion with DB-PM.
- Internal Comment Resolution Meetings (CRMs) for unresolved issues.
- Provide a recommendation of disposition for the submittal to MassDOT
- Provide recommendation letter to accept the IFC drawings for FHWA concurrence



Design-Build SharePoint/Bluebeam Review Process



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Technical Review Discipline

What Comments Should Be	• Based on RFP, ATCs, and referenced standards. • Objective, compliance-focused. • Technical design errors or QC issues
What Comments Should Not Be	• Prescriptive redesign suggestions. • Rooted in “protecting” the preliminary design prepared during procurement. • Overriding EOR’s engineering judgment. • “Suggestions” or comments that state “Consider...”
Engineering Judgment	• The EOR is responsible for stamped design. • PDC ensures compliance, not alternative design solutions. • Disagreements → elevate through MassDOT
Best Practices	• Comment only where contract or standards apply. • Stay neutral – focus on project delivery, not personal preferences. • Always route comments through MassDOT, never directly to the DB. • Review of revised submissions should be limited to back-checking and reviewing new info

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Bluebeam Review

QC Issues

- PDC is not tasked with Quality Control of Design
- If submission is riddled with errors; such as drafting errors, MassDOT does **not** expect the PDC to correct each one.
- A blanket comment (TYP) is appropriate and elevate issue to MassDOT

Group Comments Where Feasible

- Use Bluebeam tools and best practices.
- If adding multiple leaders and markup, be sure to group elements to avoid unnecessary clutter in RCR form.
- Makes reconciling comments significantly easier

Comment in Real Time

- MassDOT is asking the PDC reviewer to act as supplemental MassDOT staff
- Providing comments in real time allows MassDOT to see what has already been reviewed.
- Comments can be QC'd by the PDC senior staff, as necessary, after the 21-day review period.

Maintain Open Communication

- Elevate to MassDOT DB-PM if core information needed to complete your review is missing.
- Working collaboratively with the DB Engineer, supplemental information can be provided to avoid unnecessary "Revise and Resubmit"

PROJECT EXECUTION PDC ROLES AND RESPONSIBILITIES

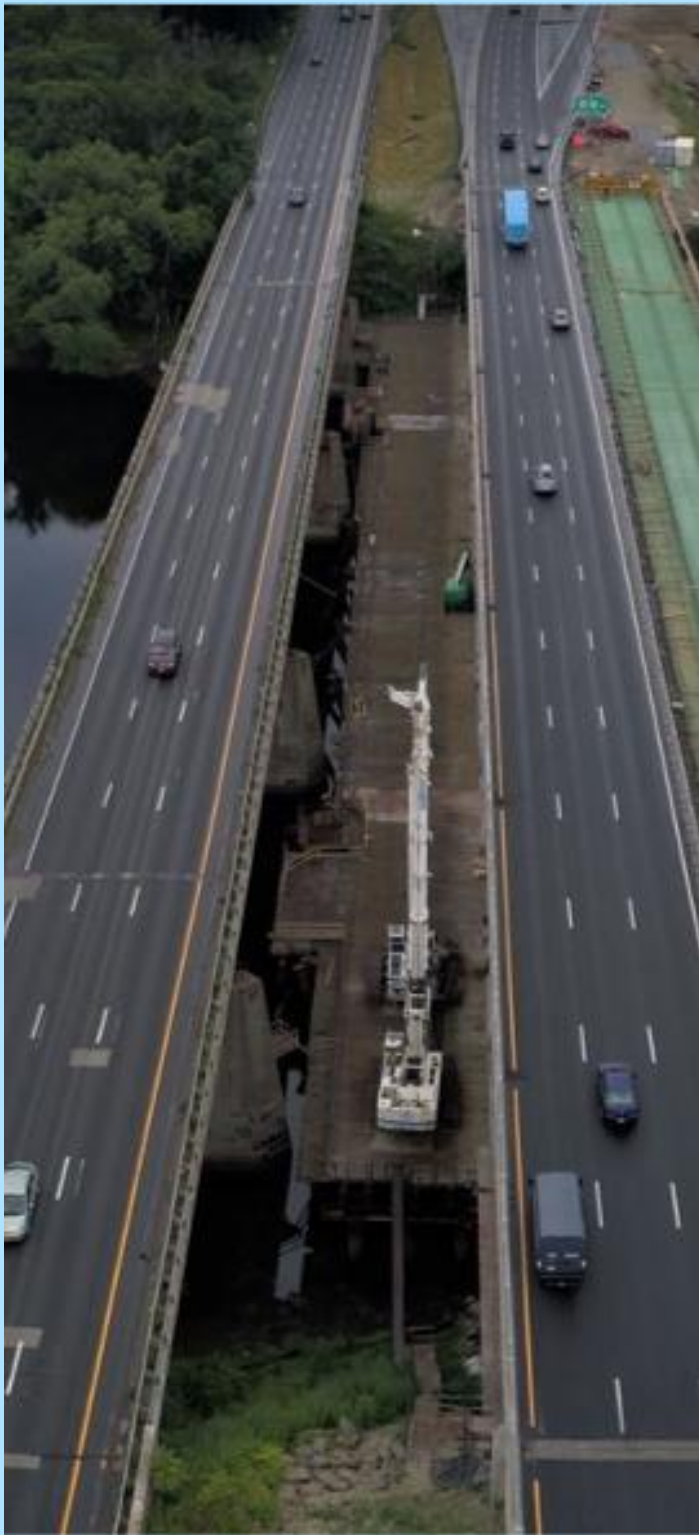
Appropriate Review Commenting

Do

- Cite specific contract language or standards.
- State the issue objectively (what is non-compliant).
- Provide general feedback on quality of Submission to MassDOT, such as drafting errors
- Flag any deviations from the Technical Proposal**

Don't

- Suggest alternative designs (“Add another pier”).
- Impose preferences (“We usually do it this way”).
- Defend preliminary design concept (“Our preliminary design showed X”).
- Make Open Ended Comments
- Comment on Means and Methods



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Appropriate Review Commenting

Poor Comment

“Add an additional lane here for safety.”

Problem:

Prescriptive, scope creep, no contract reference.

Better Comment:

“Proposed lane configuration does not match contract RFP Vol II, Section 4. Recommend correction to maintain contract compliance.”



PROJECT EXECUTION PDC ROLES AND RESPONSIBILITIES

Appropriate Review Commenting

Poor Comment:

“Consider using precast barrier instead of cast-in-place.”

Problem:

Reviewer preference, redesign suggestion.

Better Comment:

“Barrier detail shown does not meet MassDOT Standard Detail 602.3. Revise to conform to referenced standard.”



PROJECT EXECUTION PDC ROLES AND RESPONSIBILITIES

Best Practices for PDCs

? Always ask: “Is this comment tied to a contract requirement or standard?”

🕒 Engage in real time in **Bluebeam** to reduce rework.

↩️ Avoid bias toward PDC’s preliminary design – the awarded DB proposal governs.

! Maintain independence, neutrality, and MassDOT-first communication.

👥 Coordinate with MassDOT Design-Build Reviewers during the review period.

💬 Note aspects of the review that may warrant more discussion once noticed.

📋 Provide MassDOT Reviewers with the insight they need to make decisions on design aspects.



PROJECT EXECUTION PDC ROLES AND RESPONSIBILITIES

Structural Design Review – Notable Items



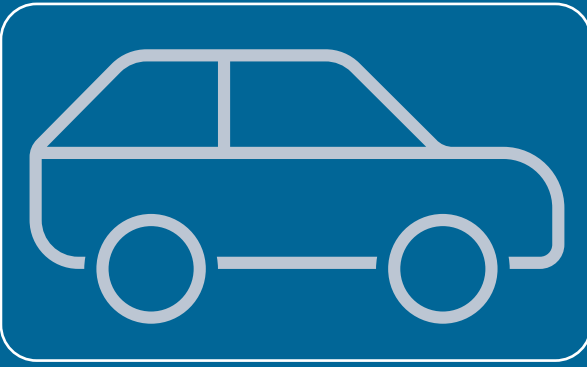
MassDOT Bridge Manual

- Part I includes design requirements and supplemental AASHTO requirements.
- Part II and III provide standardize typical bridge details.
- Deviations from Part I requirements will need discussion with Design-Build Structural Review and may result in a Bridge Manual Waiver.
- Details in Part II and III standard details may not apply.



Structural Review Approach

- Review should consist of a structural concept review evaluating assumptions and modeling.
- This is not just a review for Bridge Manual Conformance and detailing.
- Typically the PDC will perform a structural review and will meet with the Design-Build Structural Review to review findings and proposed comments.



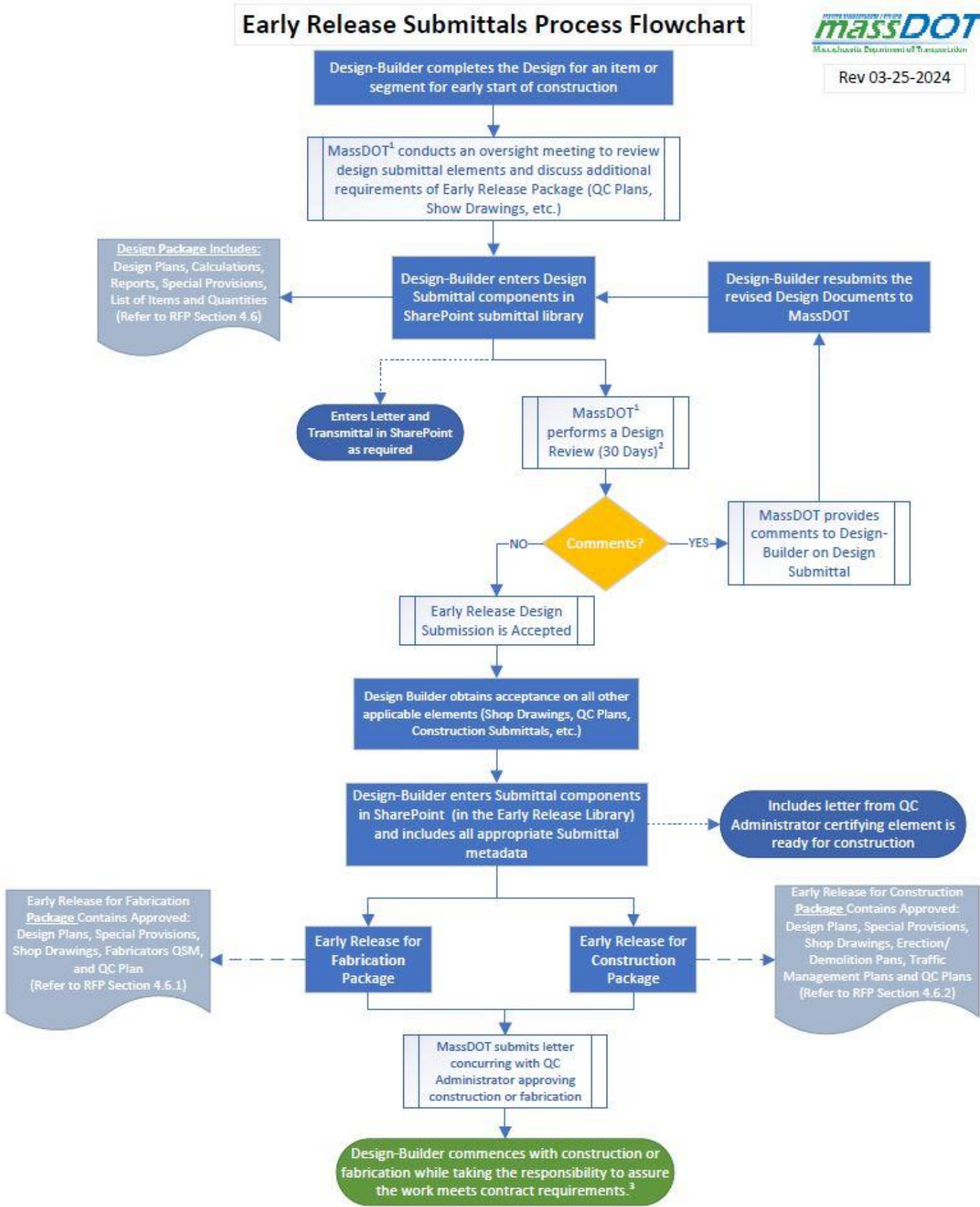
Staged Construction Considerations and Bridge Opening Requirements

- Proposed Structure – preliminary rating factors for bridges in staged and final conditions.
- Existing Structure – preliminary rating factors for existing bridge in staged condition.
- Repairs to Existing Structure – evaluation if repairs are needed before staging to prevent posting



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Early Release Designs



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Permit Amendment Review – Notable Items

The PDC and EM may be separate teams. In those cases, both teams would review the permit modification packages.

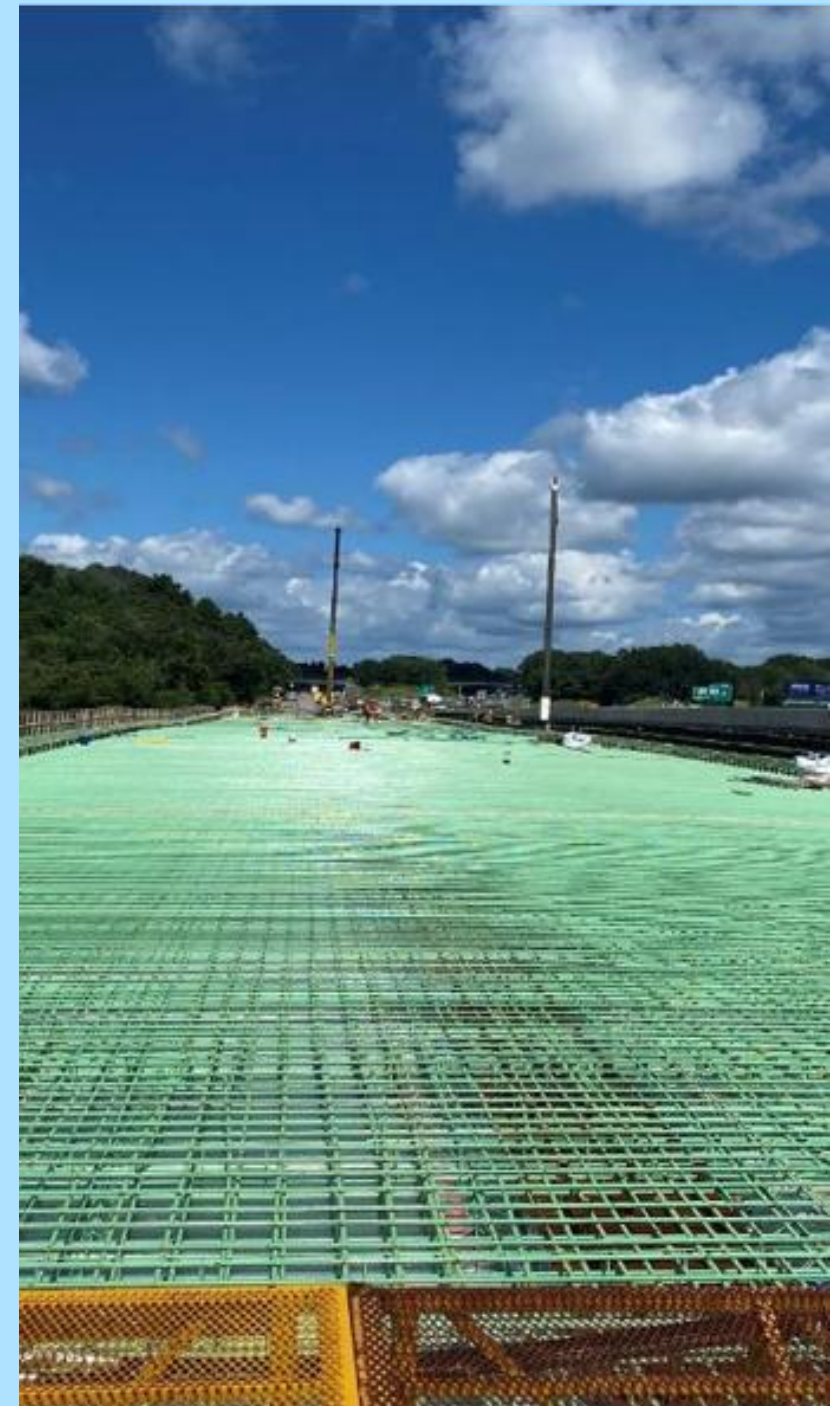
- The PDC review covers various disciplines such as traffic and hydraulic review.
- The EM is focused on environmental compliance and will oversee compliance during construction.

Both parties offer positive and productive input, but comments should be coordinated to avoid conflict and redundancy.

The PDC should review permit modification documents to apply technical and institutional knowledge gained during the initial permitting process.

The PDC & EM will review mitigation plans for adequacy and appropriateness, including but not limited:

- Wetland mitigation ratios are met or exceeded;
- In-kind wetland mitigation areas are appropriately designed and are likely to be successful;
- Wetland mitigation areas are set at appropriate elevations and are expected to have appropriate hydrology (from groundwater, not stormwater runoff);
- Wetland mitigation areas proportionally mitigate for the impacted wetland community types; and
- Presence of invasive species adjacent to the wetland mitigation area are considered.



PROJECT EXECUTION PDC ROLES AND RESPONSIBILITIES

Permit Amendment Review – Notable Items

MassDOT must ensure that the plan change meets DOT and regulatory standards, but that the DB team is offered appropriate flexibility during permitting.

MassDOT, as the permit holder, is required to deliver a permit amendment package that is technically accurate and complete.

Incomplete and inaccurate modification requests may cause issues when constructing mitigation in the field and accounting for all required mitigation during permit close out.

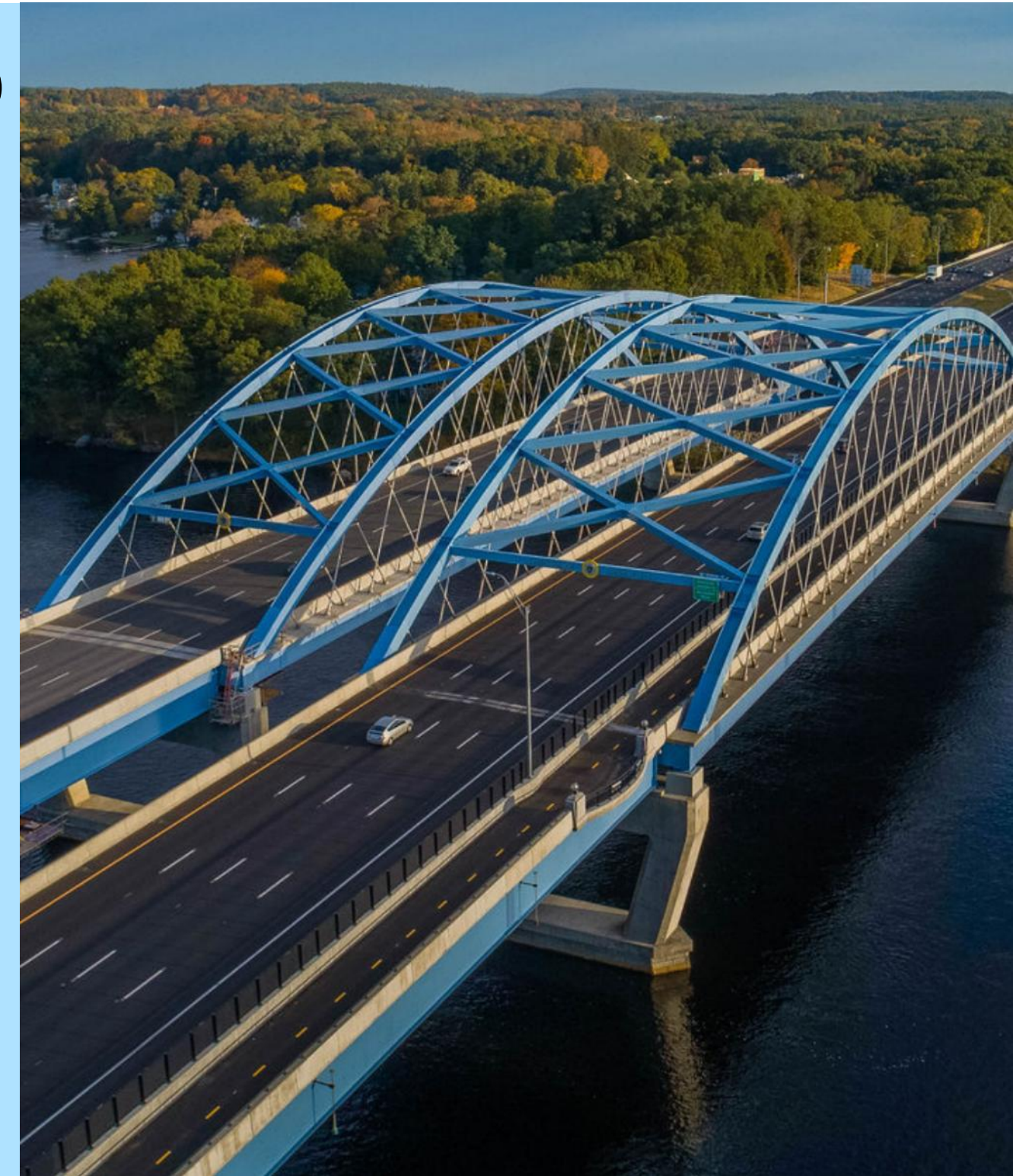
The DB team assumes some level of risk when changing the design. However, it is in all parties' best interest to deliver a permit amendment package that meets standard regulatory expectations and MassDOT business practices.



PROJECT EXECUTION PDC ROLES AND RESPONSIBILITIES

Construction Procedure Reviews

- In addition to Milestone Submission (75%/100% & Structural Submissions) MassDOT requests the PDC to assist in reviewing Construction Submittals that may affect Public Safety.
- Review should be focused on:
 - Was the submission prepared in accordance with the QMP?
 - Needs to be reviewed and approved by EOR before MassDOT Review.
 - Are all QC signoffs included
 - Does the submission adhere to the RFP Requirements?
 - Does the general design approach make sense?
 - Is the procedure consistent with standard practice?
 - Is the detailing in the submission as-expected and logical for the proposed work?
- Review should focus on “Big Picture” that could impact safety and not means and methods.



PROJECT EXECUTION PDC ROLES AND RESPONSIBILITIES

Shop Drawings & Fabrication

- The Preliminary Design Consultant is tasked with a 48 Hour “Completeness Check”
- Review the drawings to ensure conformance to MassDOT Standards
 - The drawings are legible and meet all Bridge Manual requirements, such as title block, formatting, properly stamped etc.
 - The PDC should also confirm the design and special provisions for the element of work have been approved for fabrication/construction
 - The review should **not** consist of reviewing the technical details of the shop drawings
- The burden is on the Engineer of Record to ensure Shop Drawings meet the requirements of the approved design.
- If, during execution of work, errors are found in the Shop Drawings, and NCR should be initiated to document the issue, rather than just sending the shops back to the designer to revise and resubmit
- Outside of the standard review process, at the discretion of the MassDOT Project Manager, the PDC may be tasked with doing a more thorough review, to ensure the Design Builder is following the QMP.



PROJECT EXECUTION PDC ROLES AND RESPONSIBILITIES

Conformance Checks

- On a regular basis, the DB-PM should work with the PDC to perform a **conformance check** of a shop drawing (see below).
- This process should occur outside of the normal distribution of Shop Drawings, and should not prevent Shop Drawings from advancing to fabricators
- The PDC will have 21 days to perform a complete review of the DB Approved Shop Drawing and ensure complete compliance with the QMP
- This should also include confirming the DB Approved Shop Drawing does not propose significant deviations from the Accepted Design Drawings.
 - Comments generated should focus on substantial deviations from the design intent and not minor changes consistent with detailing practices.
- Once complete, the PDC shall provide the DB-PM with a summary of comments.
- If the review revealed significant deviations for the approved IFC drawings, MassDOT will document the deficiency with an NCR and Shop Drawings may be required to be subject to further review before being released for fabrication.



PROJECT EXECUTION PDC ROLES AND RESPONSIBILITIES

RFIs (Requests for Information)

- **PDC's Role:**

- Review all RFIs submitted to MassDOT.
- Provide **recommended draft responses** citing contract/standard to DB-PM.
- Recommendation should be provided within 5 business days
- In coordination with DB-PM/RE coordinate response with MassDOT technical staff
- Identify if the RFI represents a design development issue or if it triggers a DCN.

- DB PM/RE finalizes official response.

Example

✗ 'This design approach seems risky – don't use it.'

✓ 'Requested design modification differs from BTC. As per Section 2.8, this requires a DCN and MassDOT determination.'



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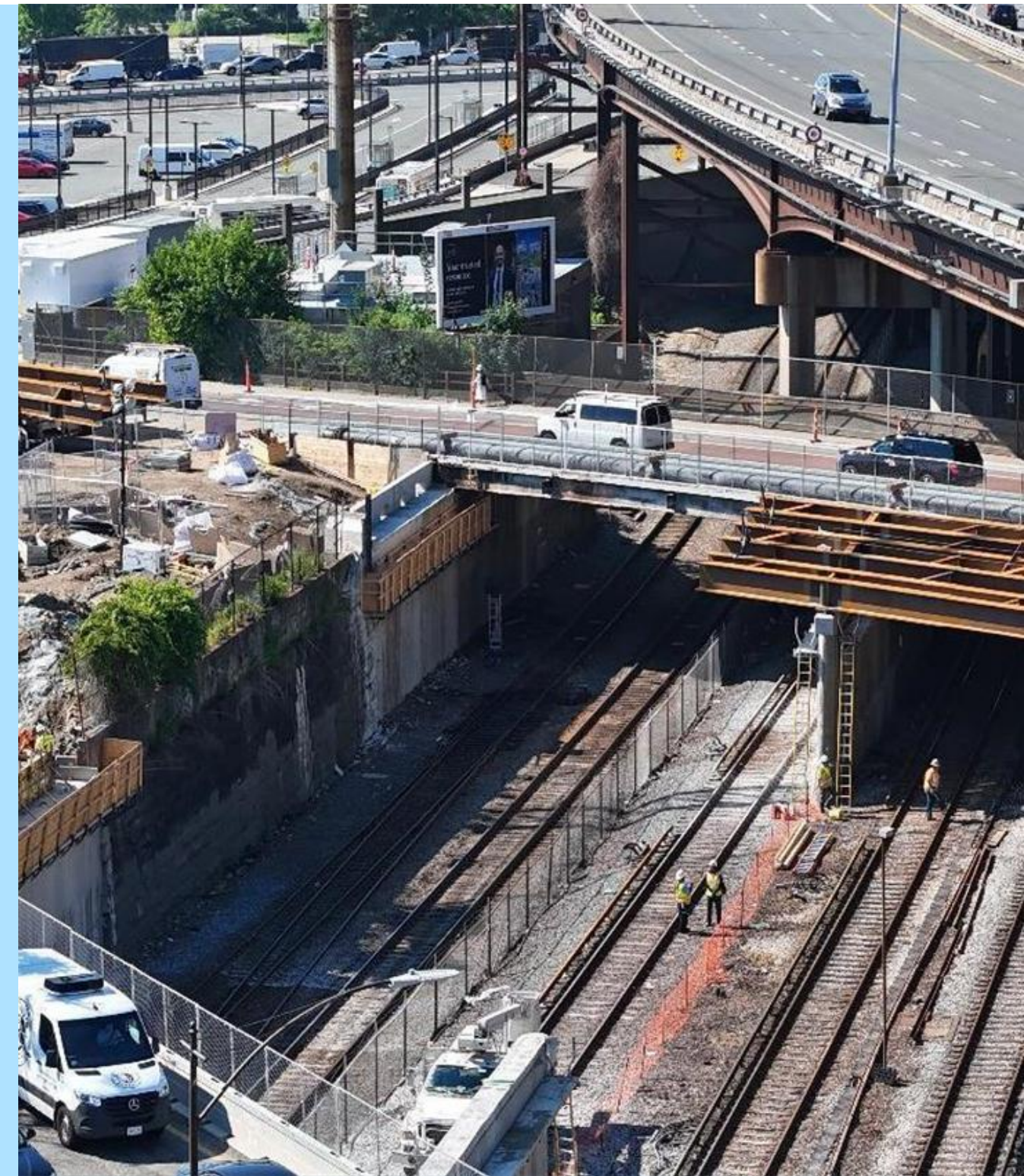
NCRs (Non-Conformance Reports)

- Issued when DB work does not meet contract/QMP.
- **PDC's Role:**
 - Review NCRs and DB proposed resolution.
 - Provide **contract-based recommendation** (accept, reject, or require corrective/preventive action).
 - Identify if the NCR represents a design development issue or if it triggers a FDC.
 - In coordination with DB-PM/RE coordinate response with MassDOT technical staff
- MassDOT decides on final acceptance.

Example –

✗ 'This method should not be allowed.'

✓ 'Submitted method is not in conformance with Section 450 of the Standard Specifications. Recommend NCR remains open until corrective action is documented.'



PROJECT EXECUTION PDC ROLES AND RESPONSIBILITIES

Wrap-Up

- Preliminary Design Consultant = compliance reviewer, not designer.
- Respect Engineer of Record's engineering judgment.
- Support MassDOT with **objective, contract-based recommendations**.
- Use Bluebeam effectively, avoid design bias, and utilize appropriate communication channels.
- Design-Builder is responsible for Quality Control of their design. PDC should highlight if design does not meet QMP.
- MassDOT District Construction, with the assistance of the DB-PM is responsible for managing the project, not the PDC





Discussion

Open discussion

Questions

Comments

Suggestions

Feedback

