massDOT Transportation Innovation CONFERENCE

MassDOT DBB Delays and Mitigation

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PRESENTATION OVERVIEW

Main Topics

01 CTDs as an Early Risk-Visibility Tool

Using Contract Time Determinations to surface schedule risk before advertisement.

02 Practical Delay Driver Framework

A four-category framework that maps observed delays to ownership and response.

03 Mitigation by Delay Category

Targeted strategies for owner, contractor, third-party, and force majeure delays.

04 What MassDOT Can Do Differently

Forward-looking practices to strengthen schedule discipline and outcomes.

CTDs: Bridging Transition from Design to Construction

A CTD translates design assumptions into a defensible contract duration — and a baseline for everything that follows.

WHAT A CTD IS

Contract time set before advertisement

- Design and construction assumptions converted into time
- Built from production rates and known constraints
- Documented, defensible, and reviewable before bidding

WHY IT MATTERS

Risk made visible early — and managed

- Known risks surfaced before the contract is awarded
- A baseline for validating the contractor's schedule
- Provide the Contract time from NTP to CFC

Delay Drivers Framework

Four categories that align cause, ownership, and response.

OWNER-DESIGNER RELATED DELAYS

- Incomplete Design
- Inaccurate CTDs
- Site Access / Permits
- Environmental
- Differing Site Conditions
- Design Changes
- Material Changes
- Delayed Reviews

CONTRACTOR RELATED DELAYS

- Lack of Progress
- Safety Violations / Accidents
- Construction quality / workmanship
- Low Productivity
- Suppliers Delay
- Subcontractors Delay
- Submittals Revisions

THIRD-PARTY DELAYS

- Utilities
- Railroads
- MBTA
- Municipalities
- Federal / State / Local Government

FORCE MAJEURE DELAYS

- Labor Strikes / disputes
- War, Riots, terrorism, rebellion, sabotage
- Pandemic, epidemic
- Extraordinary Weather
- Archaeological, paleontological Discovery
- Change in Law

Owner-Designer Related Delays

01

Owner-Designer Related Delays

Some Owner-Designer-related delays can be identified and managed before the contract is advertised.

TYPICAL DRIVERS

- Incomplete Design
- Inaccurate CTDs
- Site Access / Permits
- Environmental
- Differing Site Conditions (latent/unknown)
- Design Changes
- Material Changes
- Delayed Reviews

Contractor Related Delays

02

Contractor Related Delays

Best managed through visibility, recovery requirements, and timely intervention.

TYPICAL DRIVERS

- Lack of Progress
- Safety Violations / Accidents
- Construction quality / workmanship
- Low Productivity
- Suppliers Delay
- Subcontractors Delay
- Submittals Revisions

Third-Party Delays

03

Third-Party Delays

Coordination with third parties must be planned and tracked as scheduled work — not assumed.

TYPICAL DRIVERS

- Utilities
- Railroads
- MBTA
- Municipalities
- Federal / State / Local Government

Force Majeure Delays

04

Force Majeure Delays

Cannot be prevented, but impacts can be documented and potentially mitigated through recovery planning.

TYPICAL DRIVERS

- Labor Strikes / disputes
- War, Riots, terrorism, rebellion, sabotage
- Pandemic, epidemic
- Extraordinary Weather
- Archaeological, paleontological Discovery
- Change in Law

Delay Mitigation Framework

A repeatable cycle that links pre-award planning to in-construction performance.

1 IDENTIFY

Identify risks before advertising

2 BUILD IN

Build known constraints into the schedule

3 ENFORCE

Enforce contract schedule requirements

4 ASSIGN

Assign ownership and needed-by dates

5 TRACK

Track performance during construction

6 RECOVER

Require recovery when schedule slips

Mitigation of Owner-Designer Related Delays

Driver → Mitigation action

DELAY DRIVER	MITIGATION ACTION
Incomplete Design	Validate design completeness before advertisement
Inaccurate CTDs	Validate contract time before advertisement
Site Access / Permits	Confirm readiness before advertisement
Environmental	Reflect restrictions in the design and CTD
Differing Site Conditions (latent/unknown)	Document assumptions; track impacts
Design Changes	Track decisions, impacts, and time consequences
Material Changes	Track decisions, impacts, and time consequences
Delayed Reviews	Monitor review turnaround

Mitigation of Contractor Related Delays

Driver → Mitigation action

DELAY DRIVER	MITIGATION ACTION
Lack of Progress	Require formal recovery planning
Safety Violations / Accidents	Integrate safety controls into the work plan
Construction quality / workmanship	Strengthen QA / QC checkpoints
Low Productivity	Track planned versus actual production
Suppliers Delay	Monitor procurement readiness
Subcontractors Delay	Monitor subcontractor readiness
Submittals Revisions	Track aging and resubmissions

Mitigation of Third-Party Delays

Driver → Mitigation action

DELAY DRIVER	MITIGATION ACTION
Utilities	Use utility fragnets and monthly updates
Railroads	Define access, flagging, and force-account work
MBTA	Track approvals, outages, and access windows
Municipalities	Maintain a coordination matrix
Federal / State / Local Government	Track approval milestones

Mitigation of Force Majeure Delays

Driver → Mitigation action

DELAY DRIVER	MITIGATION ACTION
Labor Strikes / disputes	Plan contingency sequencing
War, Riots, terrorism, rebellion, sabotage	Document impacts as they occur
Pandemic, epidemic	Maintain emergency response procedures
Extraordinary Weather	Use realistic weather calendars
Archaeological, paleontological Discovery	Define discovery protocols in advance
Change in Law	Track regulatory impacts and recovery actions

What MassDOT Can Do Differently

Expand SPRAT

Improve and broaden adoption of the Streaming Project Risk Assessment Tool.

Strengthen CTDs

Use Contract Time Determinations as active construction-planning tools, not paperwork.

Embed Constraints

Require known constraints to be reflected explicitly in the baseline schedule.

Schedule Coordination

Treat third-party coordination as scheduled work with owners and dates.

Active Recovery

Mitigate contractor-related delays through documented recovery planning.

Early Warning

Use schedule reviews as early-warning tools, not compliance exercises.

Lessons Learned

Carry recurring delay trends forward into future SPRAT assessments, CTDs, and contract time validation.