

ACEC/MA
Transportation Update Breakfast
MassDOT - Highway Division
September 27, 2018

John J. Bechard, P.E.,
Deputy Chief Engineer for Project Development

Updates since State Markets Conference (4/5/18)

Developed Highway Portion of 2019-2023
CIP (Spring 2018)

Phase 2 of Commonwealth Ave. Bridge
Project (Summer 2018)

Improving project delivery (Ongoing)

Improving Project Delivery

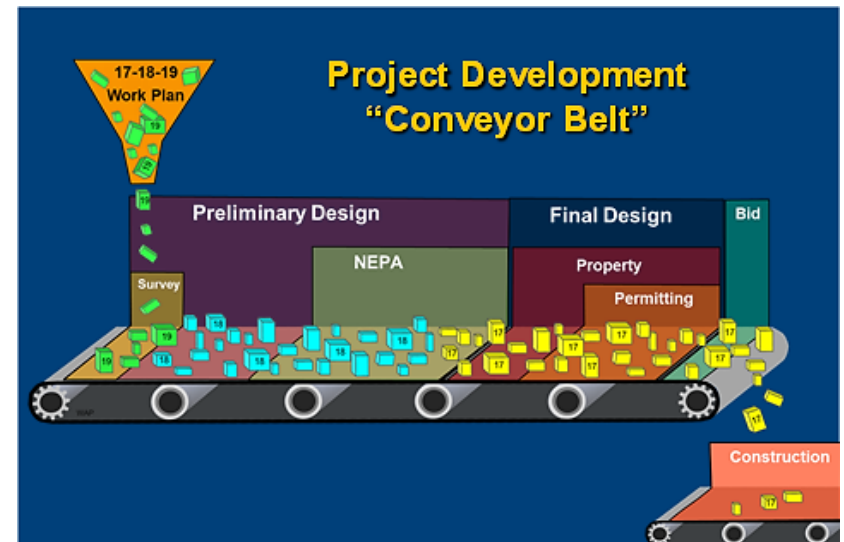


Executive Committee Members

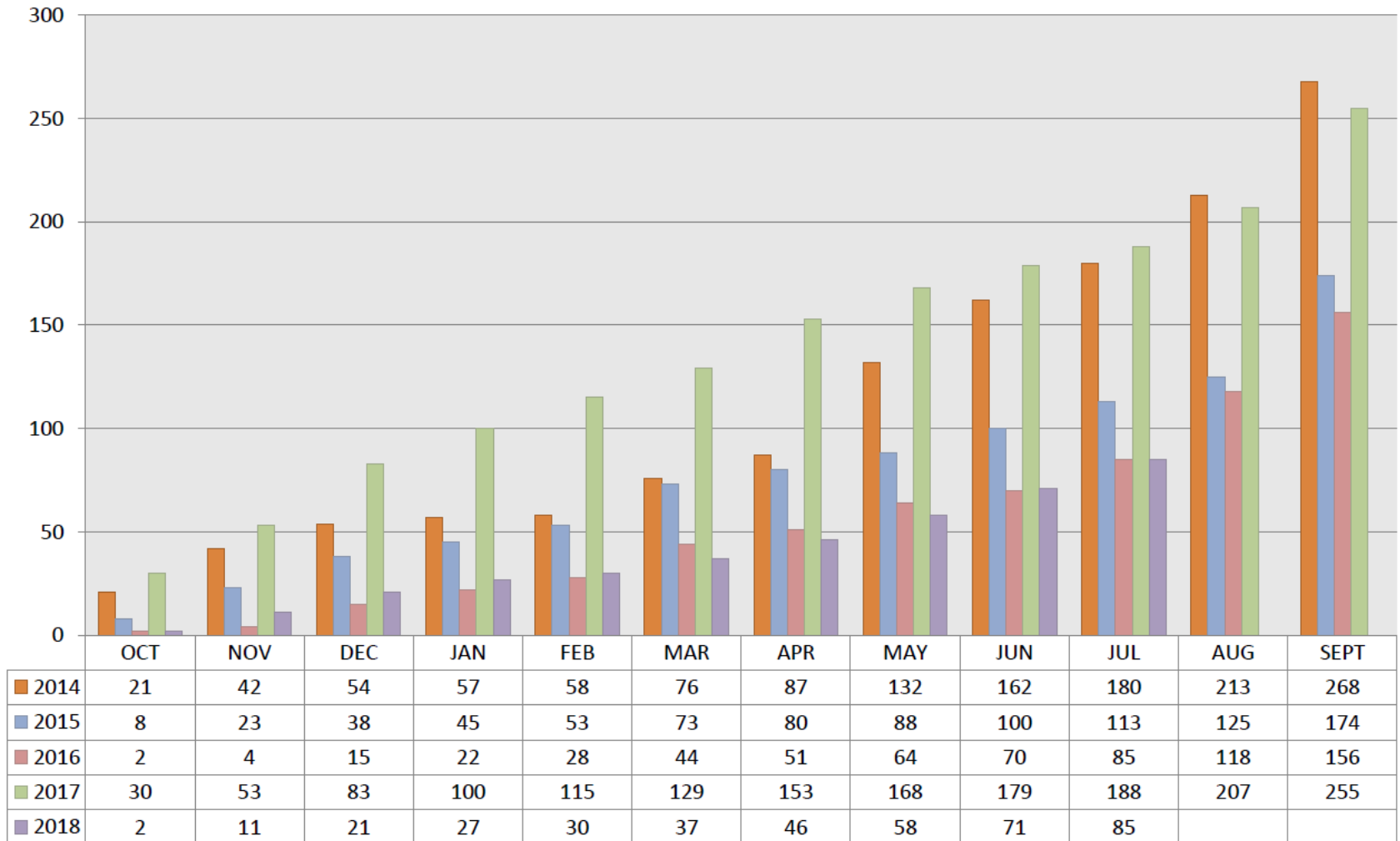
- John Bechard
- Jim Danila
- John DeLeire
- Tom DiPaolo
- Tom Donald
- Francisca Heming
- Ellen Herman
- Ko Kofitsas
- Patty Leavenworth
- Mike McGrath
- Jack Moran
- Joe Pavao
- Mary-Joe Perry
- Marie Rose
- Bill Travers

Why are we here?

- Diagnosis - Inefficient process that is unreliable, unmanageable, and most importantly...unsustainable.
- Symptoms
 - 4th quarter adv. Performance
 - Adv. To NTP Performance
 - Too many resubmissions
 - Conditional ROW Certs.
 - Bidder's questions
 - # of Addendums
 - Change orders



MASSDOT ADVERTISING PROGRAM
NUMBER OF PROJECTS ADVERTISED FROM FY14 TO PRESENT (CUMULATIVE)

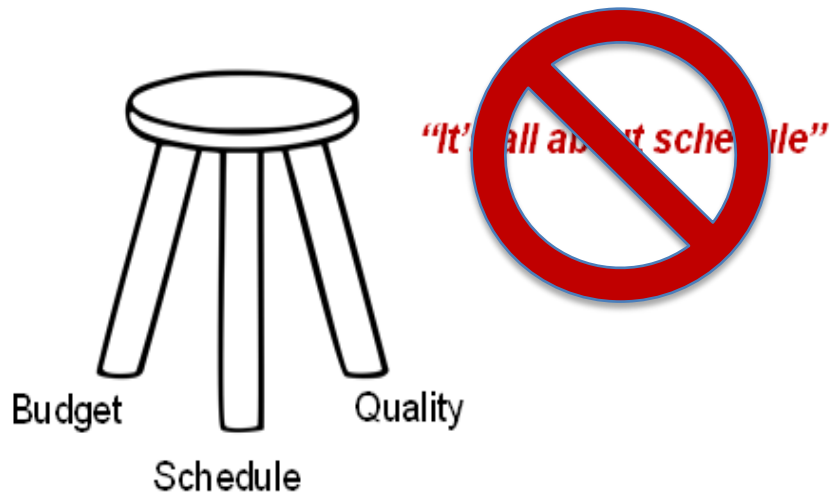


It is acknowledged that investing time to properly document the project need; develop an appropriate scope, schedule, and estimate of work; and produce high quality bid documents, will result in projects that...

- Better address community needs and concerns
- Expedite bid and award process
- Result in fewer claims, change orders, cost overruns and schedule delays.

Goal

Improve On Time and On Budget Performance "Cradle to Grave" while maintaining and improving the quality of the end product.



Objectives

Process

- Processes should be reliable, repeatable, sustainable.
- Quality Assurance by MassDOT
Quality Control by Designer
- Risk based approach

Objectives

Performance

- Eliminate 4th quarter Adv. Frenzy
- Reliable Cost Estimates
- Reliable Advertisement dates
- Advertisement to NTP Efficiency

Project Delivery Changes



- Project Initiation
- Pre-25% Project Coordination
- Understanding ROW
- Design/Design Review
- Cost Recovery and Consultant Evaluation
- Project Management Training
- Improving Public Hearings
- Cost Estimating
- Post Construction Conferences

Project Initiation

- Risk Register developed to identify Project level Cost and Schedule risk
- PRC letter to communities sunsets their approval at 2 years if no Design NTP
- Projects with significant cost and/or scope changes will be sent back to PRC for approval.
- MaPIT
- Revise SOP accordingly

Project Initiation

MaPIT

- New web-based application designed to help both state and municipal proponents:
 - Map, create, and initiate roadway projects in ProjectInfo
 - Screens against all relevant in-house GIS resources
- This integrated application replaces a paper based process with electronic workflow, while increasing transparency of the project development and scoring.



Pre-25% Project Coordination



Purpose is to define project scope and project risks prior to 25% Design Submission

- Discussions at or beyond 25% submission leads to project scope changes that may have been avoided thru early coordination.
 - Results in cross section changes due to HTP requirements, utility changes and more often than not, ROW impacts-the disciplines that require the earliest lead time.

How do we minimize these project changes?

Scoping site visit - define project risks early that impact utilities and ROW.

- Invitees include:
 - *District Projects Engineer*
 - *DUCE*
 - *District Bridge*
 - *District Bike/Ped. Coordinator*
 - *Complete Streets Engineer*
 - *Environmental Coordinator*
 - *ROW Representative*
 - *Municipal Coordinator*
 - *Designer PM and MassDOT PM*
- Define possible ADA, DER and HTP requirements during the scoping of the project
- Public/Municipal coordination or meetings prior to DPH
- Hold a pre-25% OTS meeting with District, Designer and PM to determine an agreed upon scope and cross section prior to 25% Design/DPH
 - *Identify other issues that we can address early to prevent post 25% scope changes*
 - *Scoping Checklists*
 - *Initiating early design tasks (i.e. – survey, borings, inspections, traffic counts, etc.)*

Design/Design Review

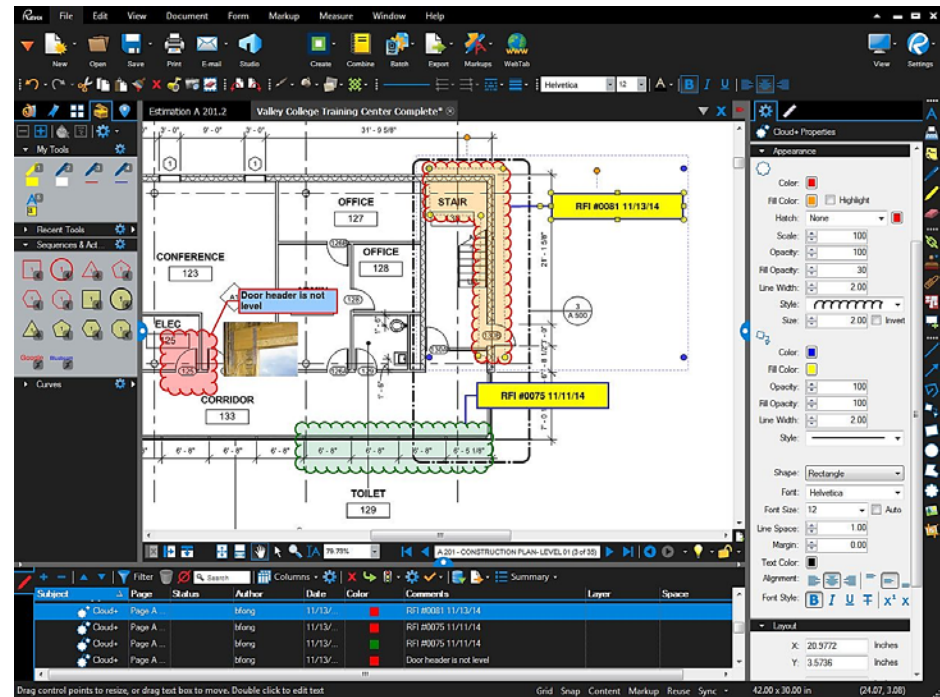


- Scale back the level of MassDOT review by taking a Risk Based approach to our current process.
 - Reduce Review Time and Reduce the # of Reviewers
- Use of Consultants short-term to get started on 2019 – 2021 projects.
- Use of Master Schedules and Scheduler
- Control Scope Creep
- Revisit Project Controls and 3rd Party Reviews
- Use Bluebeam to support and help expedite the review process.
 - Bluebeam implementation is underway and well received.
 - Full implementation for FFY2019.

Design/Design Review

Bluebeam Software is a PDF viewer - it allows for instantaneous sharing of project plans and information.

- Designed for the A&E industry
- Eliminates delays in plan distribution
- Comments and markups to the plans are seen in real time
- More efficient reviews and consistency between reviewers
- PINFO remains as file repository and tracking
- Inexpensive to use and saves paper and printing costs



Cost Estimating

- Projects with significant cost and/or scope changes will be sent back to PRC for approval (MassDOT SOP)
- New Cost Estimating guidance:
 - Issued in Calendar year 2017
 - Reviewed/Assessed in FFY 2018
 - Implementing for FFY 2019

Performance Measures



- Current Performance Measures
 - Advertise 80% of original STIP (88.9%)
 - Even 4 quarter Advertising
 - 120 days from Adv. To NTP
- Proposed Performance Measure
 - Three-Quarter Advertisement Schedule
 - Actual Adv. within 30 days of Scheduled Adv. Identified just prior to TIP Year

Proposed Program Improvements

- Transition to 3-Quarter Advertisement Schedule
 - ◆ Phase in over 3 years
- Institute advertising date performance measure
 - ◆ Track # days between originally scheduled and actual advertising date

Three-quarter Adv. Program Implementation

- FFY '19
 - ◆ Move a portion of **State** projects to 1st Quarter FFY '20
- FFY '20
 - ◆ No 4th Quarter **State** projects
 - ◆ Move a portion of **Regional Target** projects to 1st Quarter FFY '21
- FFY '21
 - ◆ No 4th Quarter projects!
 - ◆ If project readiness date is 4th quarter, advertisement will be in 1st quarter of next TIP year

Three-quarter Adv. Program Implementation - Risks

Risk: Fall short of Obligation Authority

Mitigation: Work with OTP on sensible TIP amendments.

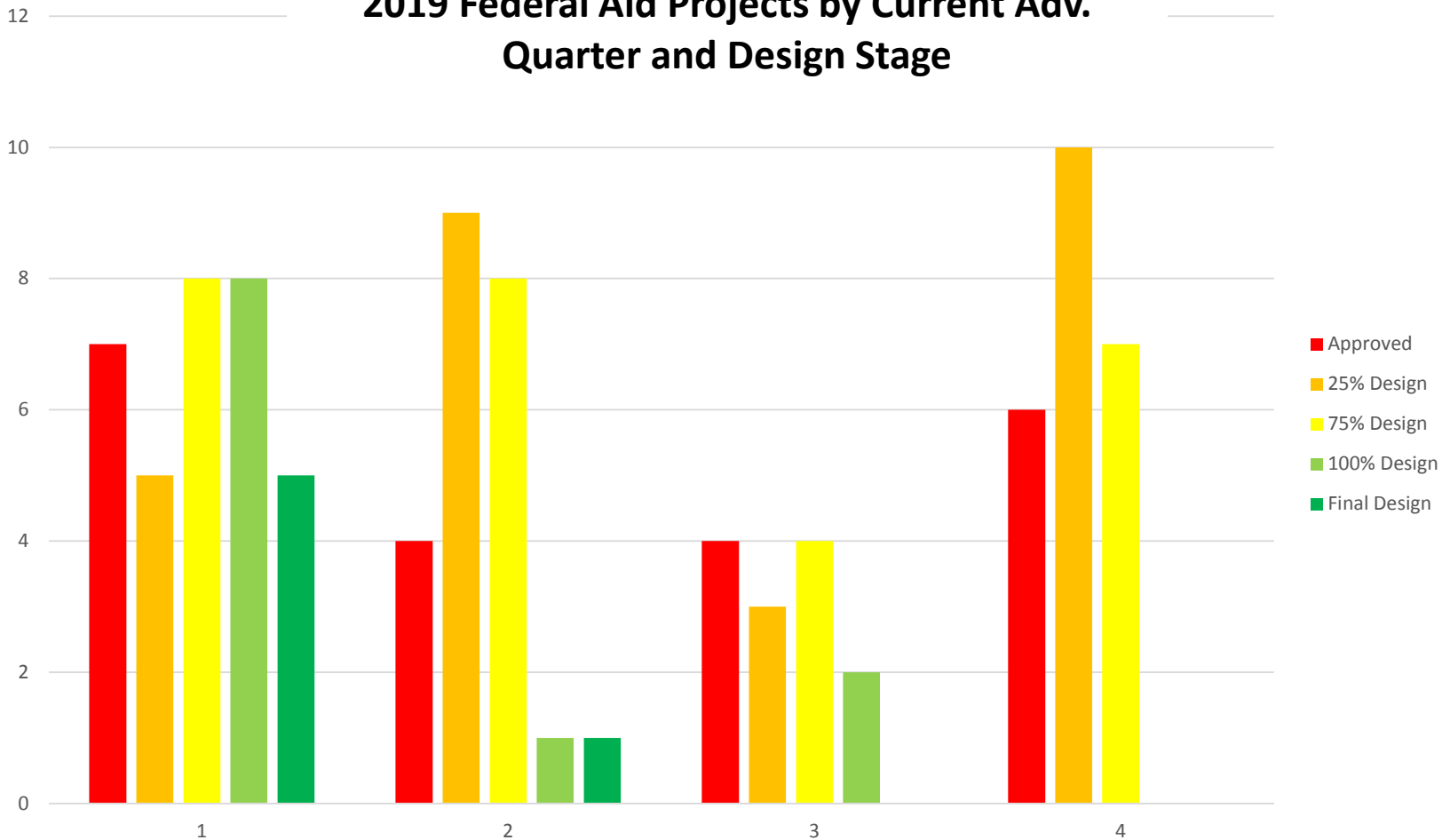
Risk: Concern from Regional/Municipal Partners

Mitigation: Aggressive communication to proponents. Message importance of Construction NTP over Adv. Date

Remain flexible for exceptions to honor previous commitments

FFY 2019 Forecast

2019 Federal Aid Projects by Current Adv. Quarter and Design Stage



Advertising Date Performance Measure

- **Measure:** # days between scheduled advertising date and actual
- **Target:** Actual date within 30 days of original scheduled advertising date
 - ♦ July '18 - PM's review FY 19 project schedules & submit realistic advertisement dates
 - ♦ Aug '18 - Management Review w/PM's
 - ♦ Sept '18 – Adv. dates are “locked down”
 - ♦ Regular PM/Management review of project schedules

Project Delivery Process Improvements

Timeline by project stage

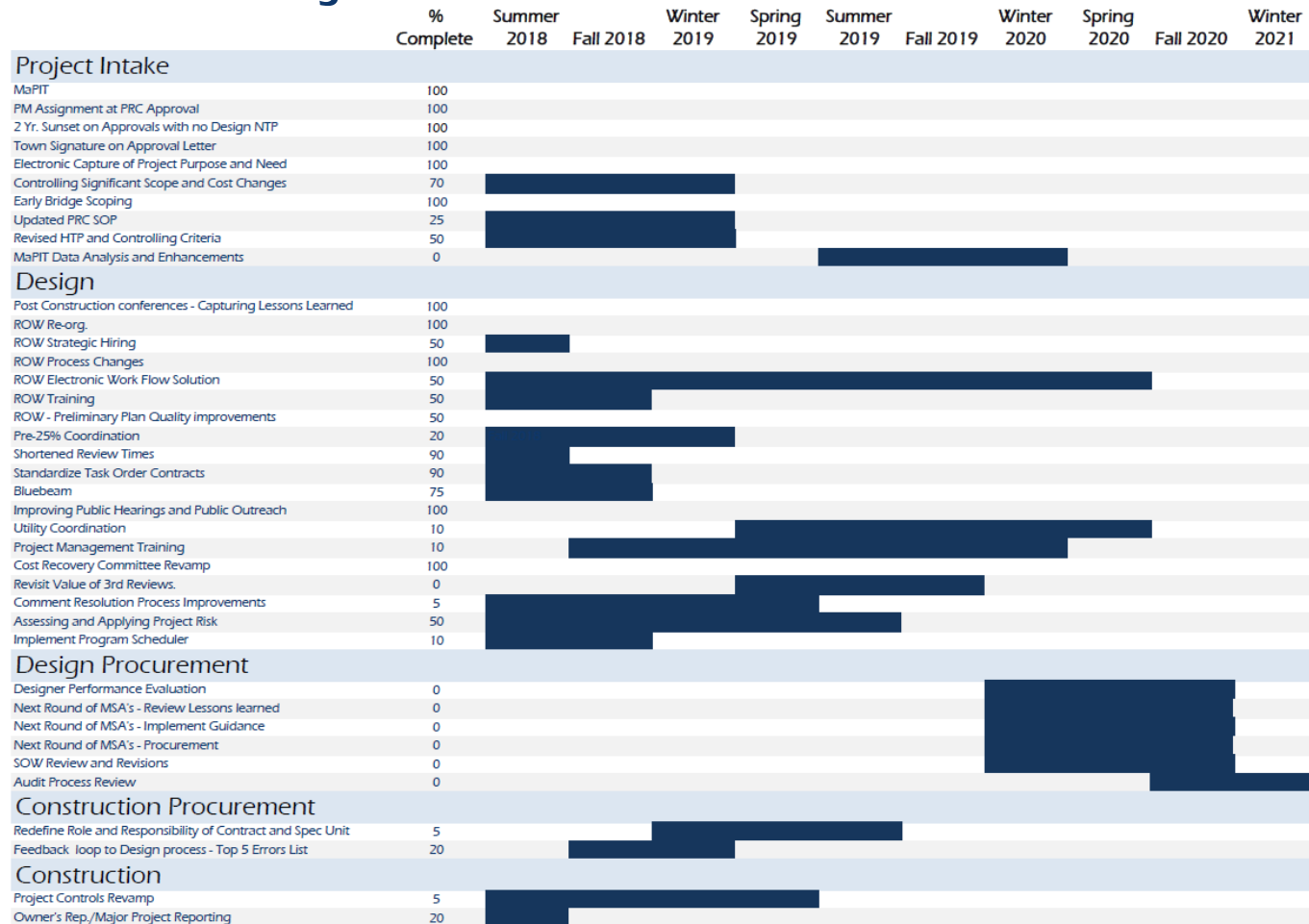
Project Intake	Design	Design Procurement	Construction Procurement	Construction
2016 -2018	2017-2019	2019-2020	2019-2020	In development



Institutionalize Risk Assessment & Management

Project Delivery Process Improvements

Schedule of major tasks



MassDOT Contract Opportunities



- Master Service Agreement (MSA) Contracts-2 yr. extensions
- Design Services to support CIP/STIP through MSA Contracts
- Specialty Services to support Highway Division activities
 - Environmental, Right of Way, etc.
- Successor to Master Service Agreements (MSA) in 2019-2020
- Right-of-Way
 - ROW Activities
 - ROW Plan Preparation and Review
- Project Controls
 - Estimating
 - Scheduling
 - Claims Analysis



Additional Opportunities: Municipal Contracts



MassDOT / ACEC Municipal Project Guide

- Provides perspective on relationships
- Stresses importance of soliciting and retaining qualified consultants
- Provides a one-page, step-by-step Project Summary Guide
- Provides Consultant Procurement Guidelines

✓ Resource – Municipal Project Summary Guide

<http://www.massdot.state.ma.us/highway/DoingBusinessWithUs/LocalAidPrograms/MunicipalProjectSummaryGuide/TheProcess.aspx>

Any questions?



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Thank you

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Major Components of Highway Division

Project Costs – Items on right are recent process improvements which are intended to account for risk/uncertainty

Construction Estimate

- AKA Office Estimate
- At conceptual design, based on aggregate cost factor (e.g. cost/unit area)
- As design progresses, based on unit costs and quantities of work items

Allowance Items

- Includes Traffic Police
- Based on Guidance from Construction Section

Construction Contingency

- % of office estimate, for use in quantity overruns

Inflation

- FHWA Recommends 4%, compounded annually to the mid point of construction
- TIP currently used 4% to year of Advertisement
- Cash flow system calculates 4% to midpoint of construction

Design Contingency

- Based on Historical Data, to account for risk in design
- Value decreases as design becomes better defined

Utility Contingency

- Line item for conceptual cost of utilities
- Attributed to utilities once specific scope is identified, or removed

Introduced in Summer 2017

Updates since State Markets Conference (4/5/18)

Developed Highway Portion of 2019-2023 CIP

Phase 2 of Commonwealth Ave. Bridge Project

Changes to improve project delivery:

- **Introduction of Pre-25% Project Coordination**
- **Full utilization of Bluebeam**
- **Transition to 3 quarter Federal Advertising program**