

## Key Notes for certain slides for 10/18/2019 MassDOT and ACEC/MA Webinar

Thank you to MassDOT Deputy Administrator/Chief Engineer Patty Leavenworth and team for providing these notes.

Team Introductions. Chief – Outline purpose of Webinar. Successful Capital Program Delivery relies on solid policies and procedures, but more importantly, it relies on a successful team. MassDOT recognizes that the consultant industry is a critical member of that team. Several years ago we partnered with ACEC/MA to help flesh out critical areas of the process that could use improvement. That partnership led to improvements such as post construction project review, improving cost estimating, and launching pre-25% coordination, among other things. It also led to many improvements that MassDOT has made internally as well. We have been striving to bring our A game to every facet of project delivery. In FFY 2019 we set high expectations for our Project Managers and District support staff and they brought their A game. The purpose of this Webinar is to share our lessons learned from FFY 2019, but also share our performance information and targets with you so that you can have a better understanding of what we are trying to accomplish and how the consultant industry plays an important part of that performance so that going forward, we can own these goals together. Our hope is that you will adopt these targets as your own and that collectively we bring our A Game.

I think we can all agree that it is desirable to have a program that is On-time and On-Budget. Here are just a few of the major reasons why it is beneficial. We want the public to have confidence in our transportation plans, whether it is a town counting on a project to start construction on schedule, the public seeing their tax dollars hard at work, or being able to demonstrate through system performance that our investment strategies were followed. A well balanced and on time program also allows us all to use our staff more efficiently, instead of work coming in large waves or experiencing the historic “crunch” time at the end of each fiscal year. When schedules and budgets are off it also causes us to have to amend the STIP multiple times. This is not only time consuming and inefficient, it has a ripple affect across future years of the program. Investment plans rely on modeling our assets and predicting asset performance based on certain levels of investment. But when those investments are not made on time or project costs are off, then the predicted outcomes, such as a reduction in structurally deficient deck area can be at risk. This just further erodes public confidence. Lastly, on time and on budget project development leads to increase predictability during the project’s construction phase.

Slide 5: These are some of the performance indicators the Highway Division uses to measure the health of our capital delivery program. As you can see, performance in many areas as been fair to poor and I’m going to go into a little more detail on each of these. The good news is that each year we consistently deliver a full program, meaning that we obligate all of our available federal aid, and other funding sources in the non-federal aid category and we fully spend out our budgeted construction dollars. And because we obligate our full allotment of federal aid, each year we also get about \$50M in funds redistributed from states who have not used their full obligation. The bad news is that the way we’ve been delivering the program is highly inefficient and vulnerable to failure because every year we are pushing the envelope to meet our delivery targets.

Slide 6: I’m going to talk about the first two indicators, on time advertising and advertisement distribution together. What is on time advertising. We have defined on-time to mean the actual date

the project advertised occurs within 30 days of when it was scheduled to be advertised at the beginning of the federal fiscal year. The distribution of advertisements is a measure of how many projects we advertise in each quarter. We acknowledge that the more even this distribution is, the more stable the program is, i.e. more efficient use of staff, more predictable work flow, less schedule driven decision making, etc. This chart shows on time performance in 2018 and this represents what a typical year has looked like. The red denotes projects that were more than 90 days late. So in summary, only 18% of projects were on time and more than 70% of projects were more than 90 days late.

Slide 7: Historically our Ad distribution goal has been to have an even number of projects advertised in each quarter. Again, though when we look at this chart that goes back to 2015, you can see the ramping up of advertisements in the 4<sup>th</sup> quarter of each federal fiscal year as we strive (or should I say strain) to deliver projects before the federal deadline so that we don't lose funding.

Slide 8: If you put these two together, the result is that we were setting unrealistic advertising dates (shown in purple), then constantly moving those dates until finally we are forced to pull out all the stops by the 4<sup>th</sup> quarter and advertise them before the end of the fiscal year (the blue present the actual advertised projects.)

Slide 9: The good news is that we believe we have solved at least half of the problem. By instituting the 30 day on time advertising goal, we have improved on time performance to 77% in FFY 19. Now this doesn't happen just because we set a target. We had to change our process and our culture, and top it off with some Grit to accomplish it. I'm not going to get into too much detail, but this was a combination of taking a realistic look at our program more than a year ago and adjusting some projects between years, taking a much harder line on scope creep, examining and following schedules more closely, and most importantly, empowering and engaging our project managers to a much higher degree in the past. They had much more input up front, but also much more accountability with performance. Obviously, your performance on design development plays a key role in this success and whether you realize it or not, much of the success or failure this past year came down to how reliable your schedules were, both in terms of your understanding the schedule, your adherence to it, and your ability to anticipate and manage risks. So while much of the focus this past year has been on our project managers, we know that to continue the success we've seen this past year and build on it, we need you to understand the importance of what we are trying to accomplish and embrace this journey with us. So we are setting the bar in FFY 2020 a bit higher and are aiming for 85% on time.

Now regarding Ad Distribution, you can see from this chart, that we still had a very uneven program that was still heavily weighted in the 4<sup>th</sup> quarter. While the % of 4<sup>th</sup> quarter Ads came down from 76% to about 60%, it is not where we want to be. However, efforts to fix this also started more than a year ago with some significant changes to dealing with project readiness with our MPOs, looking at project risk, moving state projects out of the 4<sup>th</sup> quarter, and paying more attention to where projects are tentatively scheduled in future years.

Slide 10: The results of those efforts has taken a couple of ad years to play out, but we are finally seeing the improvement we were hoping for in FY 2020.

Slide 11: Beyond on-time and on-budget in any given year, we are striving to ensure that the projects we deliver are actually the projects we planned on delivering. Cities and towns, especially, rely on adherence to the STIP. We acknowledge that we cannot provide them with predictable construction

time tables if we cannot accurately predict what year, what month, etc. that the project will be advertised in. These current targets apply to the current fiscal year, but what we ultimately want to achieve is reliability over 2 to 3 years of the STIP and CIP.

Slide 12: There are two aspects to cost estimating that can be problematic. The first is how the actual low bid compares to the office estimate. Our goal, traditionally, has been to have at least 50% of our projects come within 10% of the low bid. This target comes right from FHWA recommended guidance. Our first committee work with ACEC about 3 to 4 years ago yielded some important improvements to our cost estimating procedures, and while we have seen some improvement, we are still flirting just slightly below the 50% target as can be seen in the chart on the left if you look at the Black line which represents our rolling average. The second problem area is the fluctuation of cost during design development.

Slide 13: This last indicator focuses on how quickly we can get construction started once design is complete. Our goal, for quite some time now, has been 120 days from advertisement to NTP. While some of the steps involved our internal to MassDOT or involve our contracting community, your ability to deliver a complete PS&E package, timely response to comments during our contracts and specs review, and timely response to bidders questions, preparation of addendums, minimizing addendums, and bid price review all play into this on time performance.

Slide 14: As I said before, going beyond the original work of our MassDOT/ACEC working groups, MassDOT embarked on some major process changes in-house in 2019.

Slide 15: Using Risk to manage projects began in earnest as early as 2017. Risk assessments are now widely used on Bridge projects and will be expanded to roadway projects in the near future. The use of a Risk Register to quickly assess the reliability of Advertisement dates was actively used in 2019 and accurately predicted outcomes.

Slide 16: This is an example of how projects risks can be identified early, avoided, or mitigated. Bullet point # 3 [Note to the speaker: may want to stress that Consultant must plan ahead and ensure permits obtained well in advance of Ad Date, and include that they should Start permit application process as soon as preliminary design and impacts have been determined].

Bullet point # 5: Consultant should do a QA/QC to make sure thorough submission of application and encourage that the Consultant communicate with Environmental staff to address any concerns/questions before submission.

Slide 20: Bullet point # 3: It was later discovered that the surveyor was out of business when the consultant and Layout Section were trying to resolve differences and discrepancies.

