

# Highway Division Capital Delivery Program

## Using Agile Methods to Improve Capital Delivery Processes

MASSDOT INNOVATION CONFERENCE

October 14, 2020

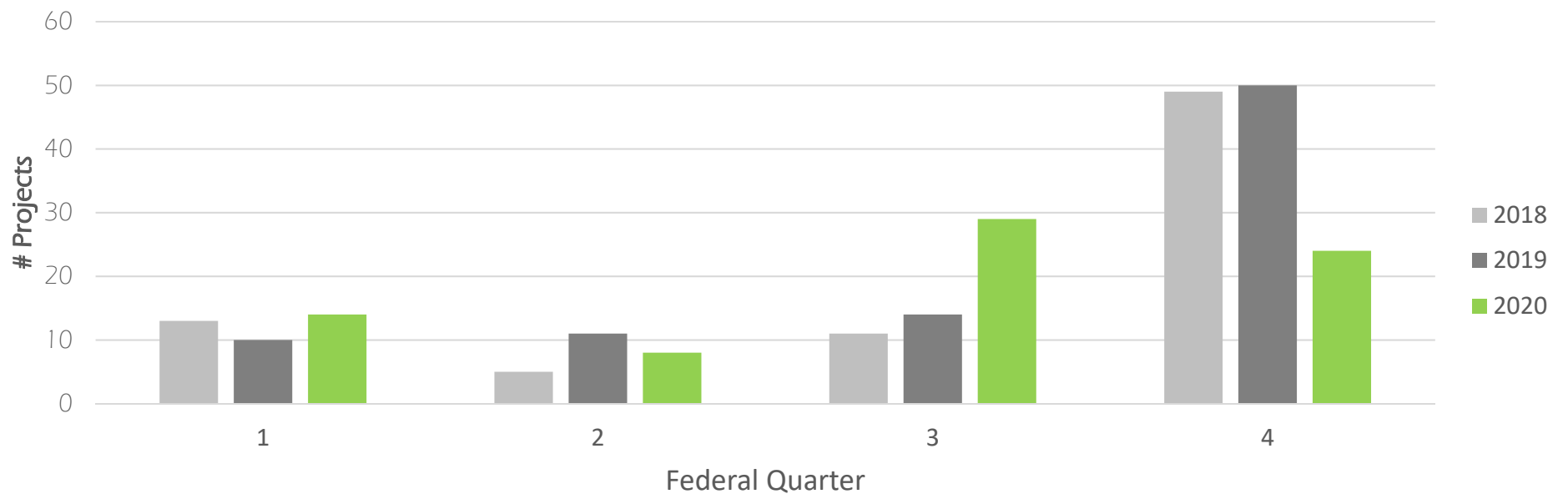


# Process Improvement Results so far in Highway

1. Progress on cutting the time from Project Advertisement to Construction NTP from 222 days in 2018 to around 120 days in some months of 2020.
2. Developed more balanced Advertising Program in FFY2020.
3. Standardizing some maintenance contracts



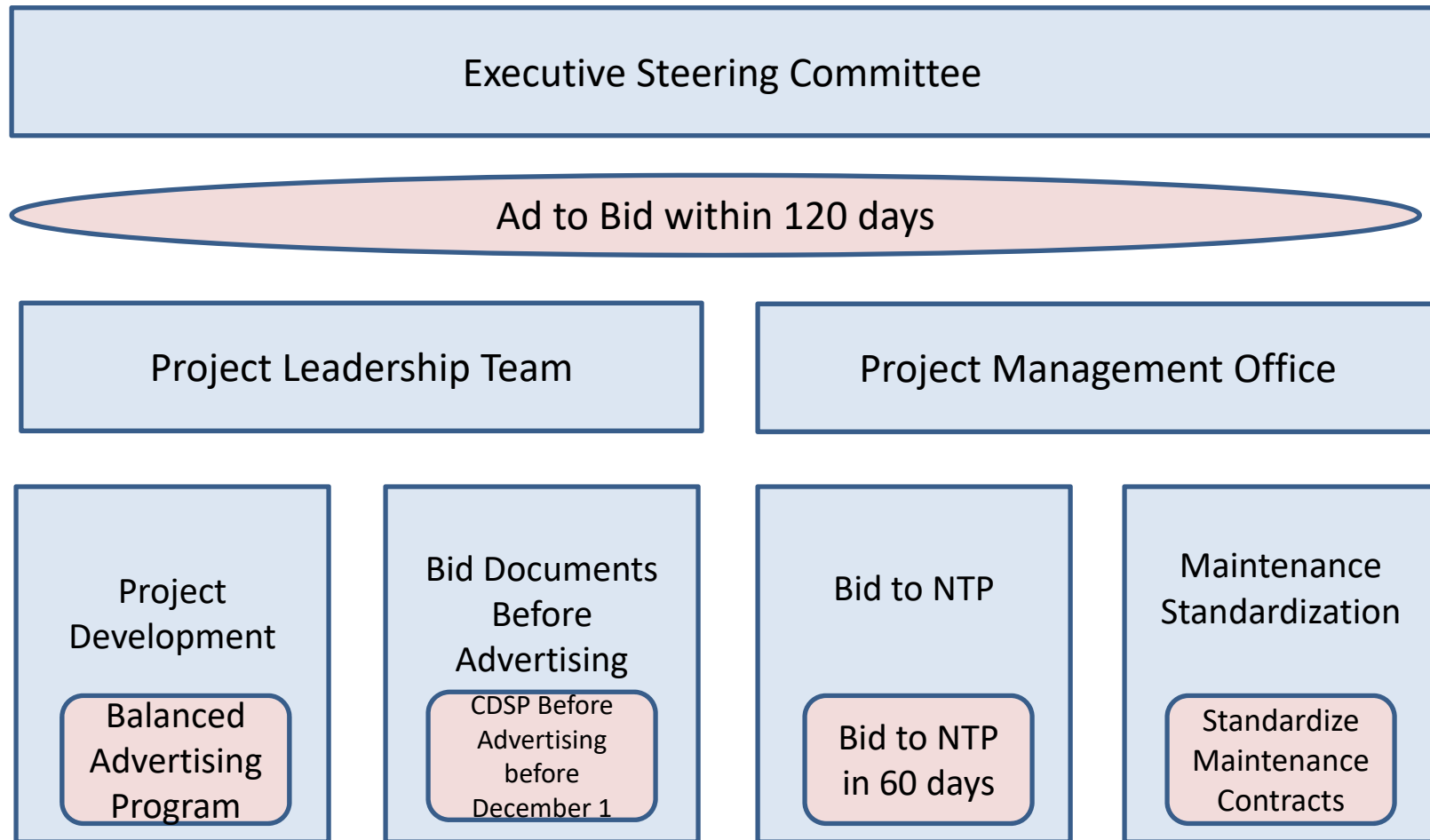
# Quarterly Distribution of Federal Aid Advertisements 2018-2020



# What is Agile?

- Originally developed in the software industry; many other sectors are now adapting agile to fit operations
- An iterative approach to managing projects
  - focus is on working on manageable sized items
- Frontline workers are empowered to develop and implement solutions
- Transparent and collaborative working with the project sponsor
- Getting feedback as fast as possible

# Modified Agile Structure



# Highway Division Agile Approach

1. SMART Goals (Specific, Measurable, Achievable, Relevant and Time-Bound)
2. Cross-Departmental Workstreams
3. Work Is Divided into Manageable, Visible Pieces (2 weeks of work)
4. Frequent, Quick Check-Ins

# Workstreams

- MassDOT employees whose daily job responsibilities involve the processes being improved
- Highway Division and MassDOT Shared Services
- Mutual Accountability and Frequent Feedback at daily or weekly scrum meetings

# Manageable, Visible Work

The screenshot displays a Microsoft Planner board for the 'Maintenance Standardization Board'. The board is organized into five columns: Goals, Backlog (Future Cycle), To Do (Current Cycle), In Progress, and Done. The 'Goals' column contains three strategic objectives. The 'Backlog' column lists tasks scheduled for future cycles. The 'To Do' column is currently empty. The 'In Progress' column shows tasks being actively worked on. The 'Done' column lists completed tasks.

Column	Task Description	Assignee	Due Date
Goals	Standardize the Traffic Maintenance Contracts for Districts to minimize review times, improve bid process and deliver contracts faster to meet the 120 day Ad to NTP schedule.	NB	
Goals	Monitor and ensure the districts utilize the standardized O&M contracts to eliminate the need for construction contract review therefore reducing the overall cycle time.	etc	
Goals	Complete the standardization of Bridge maintenance contract types (complete 4 of 7 identified types in Release 5) to minimize review time, improve bid process and reduce the day...		
Backlog (Future Cycle)	Finalize Standard Traffic Signals Maintenance Contract Template and Post to SharePoint	JD	Oct 26
Backlog (Future Cycle)	Finalize internal tracking spreadsheet SOP compliance for 2020 fall/winter adv. (note traffic and Bridge will not be active)	etc	Oct 30
Backlog (Future Cycle)	Revisit tracking spreadsheet when Traffic and Bridge complete their standardized contracts and start implementing this based on O&M experience in fall/winter 2020	etc	Nov 12
Backlog (Future Cycle)	Template 3.4 Review 2 - Bridge Washing and Cleaning		
To Do (Current Cycle)	+ Add task		
In Progress	Finalize Standard Pavement Markings Maintenance Contract Template and Post to SharePoint	JD	Today
In Progress	Meet with Districts to review Standard Traffic Maintenance Contract - Traffic Signals	JD	Wednesday
In Progress	Template 4.1 Draft Submittal 1 - Bridge Shielding Installation	AJ	Wednesday
In Progress	+ Add task		
Done	Complete enhance O&M site for ease of instructions, training email for support area of the site	cb	
Done	Complete Draft with Districts to review Maintenance Contract Markings	JD	Oct 8
Done	Review 3rd (and of Standardized Ma and prepare for pre ESC	lo	Oct 6





# Data Driven Conversations

Post Process Improvements 11/1/2019 to ...											
Year	2019					2020					
Task Category	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Construction Bid Eval	1.67	1.02	1.15	1.34	0.92	1.24	2.25	0.55	0.21	0.22	0.30
Proj Mngr/Designer Bid Eval	9.30	9.66	6.68	5.91	3.82	7.84	8.56	12.01	9.15	7.03	10.02
Award Recommendation	6.25	4.03	4.71	5.17	12.18	13.08	8.46	7.18	8.95	8.99	7.42
ODCR Approv/Award Memo Prepared	5.07	4.28	18.72	14.66	6.15	10.92	19.22	17.03	11.47	14.99	14.15
Final Constr. Award Review/Signoff	0.55	1.50	1.02	1.10	0.56	2.18	3.45	3.52	2.57	1.64	2.10
FHWA Concurrence	0.19	1.05	0.72	0.52	0.06	1.02	2.87	2.21	2.73	1.18	2.19
Financial & Mngmt Award Approvals	12.20	7.82	7.30	5.16	3.50	5.28	2.28	4.79	4.35	2.36	4.37
Award Processes/Contractor Notified	2.39	2.35	1.33	1.89	1.09	2.57	1.39	1.81	1.19	1.61	3.39
Contractor Insurance/Signatures	21.94	16.38	23.26	23.53	20.65	45.73	21.31	22.41	19.46	12.55	14.08
NTP Issued	10.39	8.54	3.69	6.49	7.39	2.01	5.60	3.39	2.75	1.21	0.56
<b>al</b>	<b>69.95</b>	<b>56.63</b>	<b>68.58</b>	<b>65.77</b>	<b>56.32</b>	<b>91.87</b>	<b>75.39</b>	<b>74.90</b>	<b>62.83</b>	<b>51.78</b>	<b>58.58</b>



# Frequent Feedback

- Scrum of Scrums – Weekly with the Chief Engineer and Highway Administrator
- ESC – Monthly (Chief Engineer, Administrator, Secretary)
- Key questions:
  - Is the workstream on track to complete the work you had set out to complete in this cycle?
  - Do you have any impediments?

# Panelist Questions

1. Was it easy/challenging to adopt new Agile practices and thinking and has it been helpful in your everyday work?
2. What do you know now that you wish you knew about Agile before?  
/ Lessons learned
3. How did the Agile framework/structure enable you to establish changes that you wanted to implement in the construction department?
4. As a member of the ESC , what has been your experience with adopting agile and in which ways do you think it can be improved to better suit the organization?
5. Has Agile enabled better collaboration across departments within MASSDOT, and can you give an example of such a case?