Real-Time Collaborative Milestone Review – Pilot Process

Purpose and Need

As part of MDOT's goal for utilizing the concept of a "single source of truth" for documents and processes throughout design and construction, utilizing digital means to capture comments during project milestone reviews has been a priority. MDOT joined the AASHTO Innovation Initiative Project PS&E C-Rev in the fall of 2017 to further advance a real-time collaborative milestone review process. In March of 2015, the Digital Pen process was officially started as part of the DA-2015-03 Process Improvement for internal milestone reviews as a transition tool to help users accustomed to pen and paper reviews switch to digital commenting. This process was intended to ensure that comments were being harvested digitally by users. As a result, many users have begun switching from utilizing the Digital Pen to utilizing full digital commenting in Adobe.

As users have become more familiar with utilizing full digital commenting for milestone reviews, it has allowed MDOT to investigate the process and determine if improvements can be made to allow for time savings for the Project Manager, Reviewers, and design team during the review process. Advantages of adding a real-time component to the milestone reviews include time savings by allowing multiple users to comment in a document at the same time, improving engagement between the design team and QA units, reducing the amount of time the Project Manager takes to clean up review comments, and allowing improved accuracy in addressing comments by consolidating responses in the files.
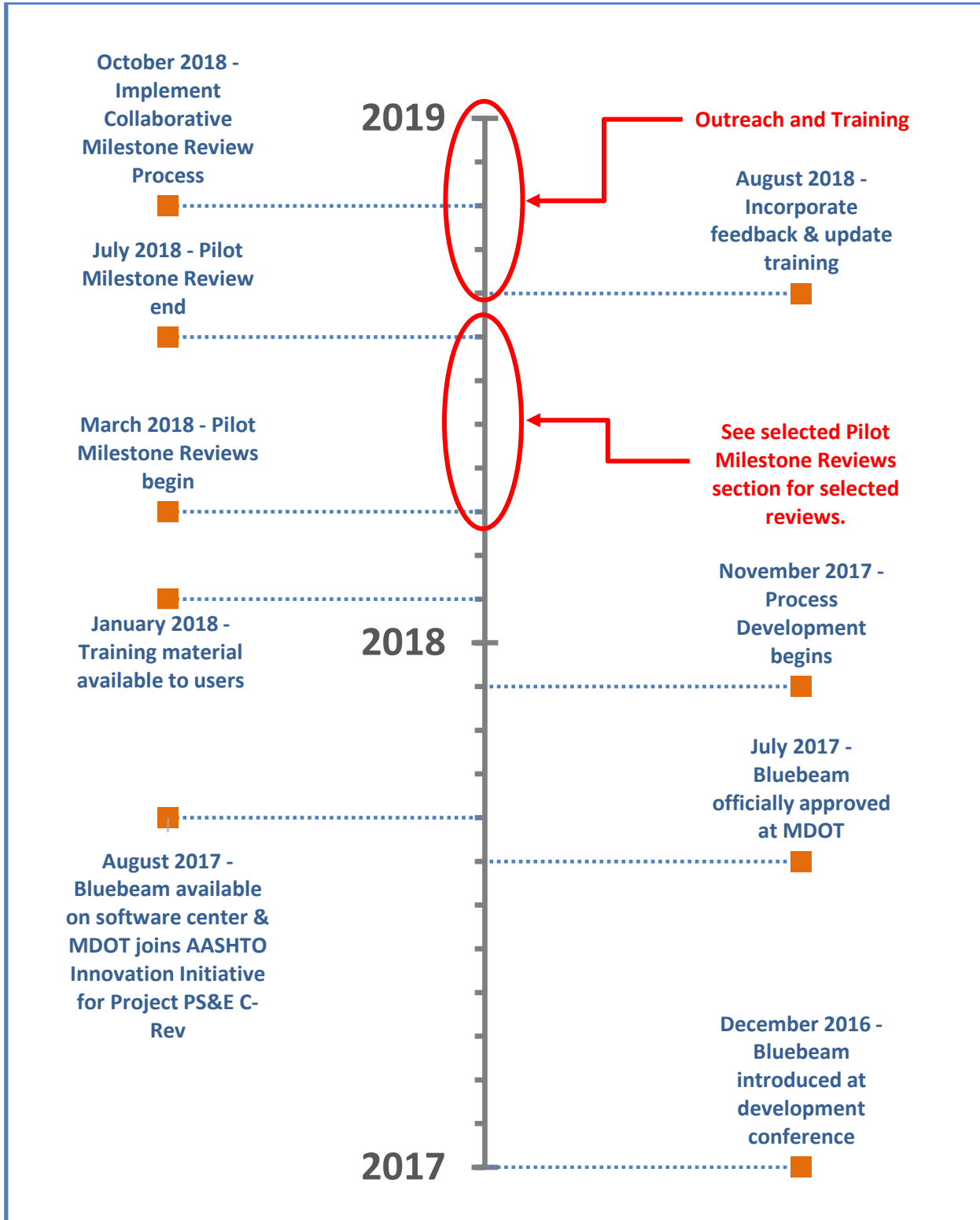
To add the real-time component to the milestone review process, new software was investigated. Based on this investigation, Bluebeam PDF software was selected to be piloted as a complimentary tool to the ProjectWise Milestone Review Process. With Bluebeam, milestone review documents can be temporarily loaded into a Studio Session with integration to ProjectWise which allows multiple users to access the files concurrently, comment and view any other user's comments in real-time during the review session. While the software has a different user interface than Adobe, the commenting process is similar, and both training and support resources are available to successfully utilize the software.

To improve the current milestone review process and discontinue the Digital Pen process, Bluebeam has been selected as the software to pilot the Real-Time Collaborative Milestone Review Process.
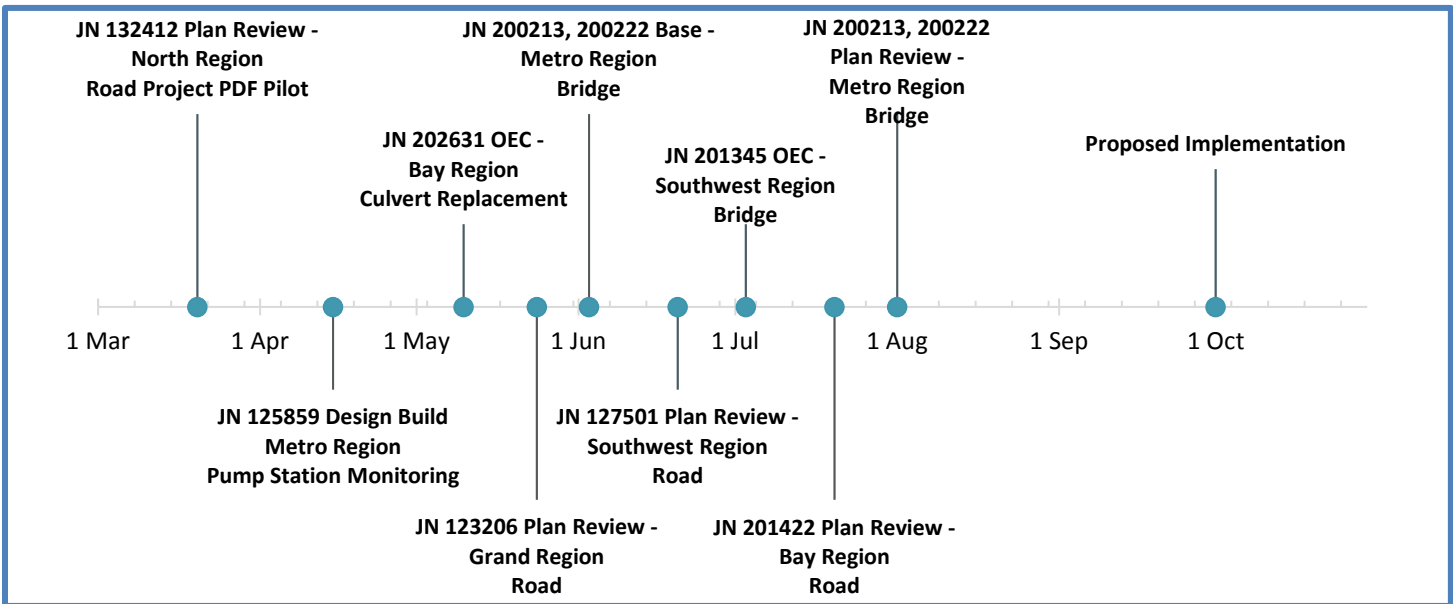
Pilot Process

Pilot Process & Implementation Schedule

2019

October 2018 - Implement Collaborative Milestone Review Process

July 2018 - Pilot Milestone Review end

March 2018 - Pilot Milestone Reviews begin

January 2018 - Training material available to users

August 2017 - Bluebeam available on software center & MDOT joins AASHTO Innovation Initiative for Project PS&E C-Rev

Outreach and Training

August 2018 - Incorporate feedback & update training

See selected Pilot Milestone Reviews section for selected reviews.

November 2017 - Process Development begins

July 2017 - Bluebeam officially approved at MDOT

December 2016 - Bluebeam introduced at development conference

2018

2017

Selected Pilot Milestone Reviews

Multiple milestone reviews throughout the state have been selected to pilot the process, while exact meeting dates for the reviews are not known at this time, correspondence with the Project Managers for each have provided anticipated dates as shown in the chart below. Road and Bridge projects have been selected to be part of the pilot process so that adequate coverage for feedback is included. It is anticipated future milestone reviews will be conducted through this pilot process as well, if applicable, however these will not formally be a part of the pilot phase.

Real-Time Collaborative Milestone Review Pilot Process Overview

Detailed video instructions for the process can be found at the following link: Collaborative Milestone Review Instructional Videos. An overview of the process is noted below:

1. **All users will download Bluebeam Revu or Bluebeam Vu from the software center according to their role.**
    a. **Bluebeam Revu is required for Project Managers or users that will initiate the Studio Session.**
    b. **Bluebeam Vu should be used by any users that will only be reviewing the files.**
2. Download and install the MDOT Custom profile that includes customized commenting toolsets into their version of Bluebeam. Toolsets are groups of PDF markup tools commonly used in reviews.
3. Create a Bluebeam Studio Account. All users are required to set up a Studio Account to access the review session.
4. Plan, Proposal and all supporting documents will be developed as per the standard procedure for the selected milestone review.
5. The Project Manager will create a Bluebeam Studio Session that includes all documents to be reviewed.
6. The Project Manager will include the link to the Bluebeam Studio Session in the standard ProjectWise generated email notification and send to appropriate contacts.
7. Reviewers will access the Studio Session and make comments utilizing the MDOT custom toolsets.
8. At the end of the review period, the Project Manager will end the review session and load all comments into ProjectWise.

Communication Plan for Pilot Project Teams

Prior to selection of a project milestone for the pilot process, information was solicited from the project managers to ensure the projects had an adequate scope to provide useful feedback and to confirm that they were comfortable with the process. To aid in the understanding of the process, a webpage on the MDOT Development Guide was created that outlines the process and provides specific video training as noted in the previous section. This webpage is intended to be the main resource page for the pilot process and Bluebeam for all internal and external users. During the implementation process, the information on this page will be moved to the appropriate locations in the Development Guide as noted in the *Resource Updates* section of this document. The page is located at the following link:

Collaborative Milestone Review Process

In addition, conference calls, Skype meetings and in-person meetings will be held upon request for any users that are part of the pilot process. Email communication has been directed to the MDOT Engineering Support Training resource email (MDOT-EngineeringSupportTraining@michigan.gov) to provide adequate coverage for timely answers to any questions.

Pilot Feedback Plan

Receiving feedback and incorporating solutions into the process prior to full implementation is essential to the success of the process. Feedback is to be obtained at each pilot milestone review and will be solicited in multiple ways to ensure comments are incorporated:

1. A member of the Engineering Support Unit will attend the milestone review and time will be added in the meeting for a discussion of the process.
2. The Project Manager will send an email and/or discuss with their team and provide feedback.
3. An anonymous survey will be created for users that were part of the pilot process to provide feedback.

All feedback obtained from the pilot reviews will be investigated and improvements to the process will be incorporated into the necessary portions of the process as appropriate prior to full implementation.

Bluebeam Software Upgrade

The original pilot process development and training videos were developed in Bluebeam 2017. During the pilot process, Bluebeam will be updated to a new 2018 version that has a different user interface than what is currently utilized at MDOT. Beta versions of the software have been tested by MDOT and while the user interface is different, the process will remain the same. Pilot milestone reviews are planned to move forward as planned and as soon as the updated version of Bluebeam is available MDOT will test and upgrade to the new version of the software. Any training videos will be updated prior to implementation of the software update so that users have current information available.

Implementation Plan

Implementation Schedule

Implementation for utilizing the Real-Time Collaborative Milestone Review process is anticipated for *all* project milestone reviews after the start of the fiscal year, October 1st, 2018. As noted in the Pilot Process Schedule section, pilot milestone reviews are set to be complete in July of 2018. Any feedback will be incorporated, and training updated based on the results.

Benefits

By adding the real-time and "single source of truth" components to improve our collaborative milestone review process, the follow benefits are anticipated:

- Multiple users can access and comment on files concurrently during the review.
- Improved engagement between design team and QA units during and after the review.
- Enhanced project quality due to more inclusive reviews.
- Process and labor efficiencies, as well as improved accuracy at each stage of development to produce cost savings.
- Improved stakeholder engagement by allowing for transparency in comment responses by the design team.
- Improved accuracy of addressing project milestone comments through consolidating responses with comments.

Potential Barriers

The following are potential barriers and solutions that may be encountered during implementation:

- Users having difficult time transitioning from Digital Pen to PDF commenting tools
  - The Design Services Section has and will continue to meet one on one with users to help them learn how to use the new tools.
  - Leveraging the MDOT Engineering Support Training resource email (MDOT-EngineeringSupportTraining@michigan.gov) as noted above to provide support.
- The reluctance to relinquish the Digital Pen process and learn a new practice.
  - Maintain engagement with the user community through frequent webinars and support.
- Limited number of enterprise licenses for Bluebeam Revu. Users could potentially utilize the licensed version of the software when the free version, Bluebeam Vu, should be utilized, limiting number of users.
  - Creation of clear training documentation to ensure that users know the process and when the full license is required.
  - Leveraging webinars and outreach to confirm training recommendations.
  - Bluebeam admin allows the Design Services Section to manage licenses, if needed.

Training and Outreach

Training and outreach for the process will go hand-in-hand as we move towards implementation of the process. Multiple avenues for outreach will be undertaken to ensure that training and process information is adequately provided to affected users and is critical due to the number of areas that will be affected by the process including Project Managers, designers, internal QA, technical resource areas, consultants, local partners, utilities, FHWA, among others. The outreach avenues are noted in the following:

1. Online training material will be updated by August 2018
   a. Training will consist of video walkthroughs of the key tasks for the specific MDOT process.
   b. All other outreach avenues will direct users to the online training material.

2. Hold webinars in August 2018 and September 2018 prior to the anticipated implementation date of October 1, 2018
   a. Invitations to be sent through Design Gov Delivery as well as to internal QA, system managers and others that could be impacted by the process.

3. Follow-up meetings at the Regions to answer questions and ensure understanding of the process
   a. Meeting on-site in the Regions provide another avenue to ensure users are aware of the process as coverage for the webinars may not reach all affected users.

4. Hold meeting with FHWA to provide training for the process
   a. One-on-one training meeting with FHWA to ensure they have access during milestone reviews.

5. Meet with ACEC to provide information on the process
   a. Process will affect consultants that work in a reviewing capacity during milestone reviews.

6. In-Person training upon request
   a. Additional training to be held on an as-needed basis for areas that need additional training.

Detailed training videos walking through the MDOT specific processes will be hosted on the MDOT Development Guide in the appropriate location as noted in the *Resource Updates* section. This page will also include links to relevant resource information regarding the process.

Communication & Support

Communication and support for the process will be provided through GovDelivery and the MDOT-EngineeringSupportTraining@michigan.gov resource. Multiple support staff that are familiar with the process will be actively monitoring the resource for questions related to Bluebeam and the Collaborative Review to ensure timely responses to any issues or questions.

Resource Updates

All manuals and resources with information regarding the current process will be updated prior to the implementation of the Collaborative Review Process to ensure that conflicting information is not available. The information on the Collaborative Milestone Review page will be moved to the appropriate locations within the Development Guide and will be redirected to the appropriate location if they utilize that source after is has been updated. The main source of the existing process is located on the MDOT Development Guide in the Design Submittal Requirements, Chapter 1 - ProjectWise Pre-Bid Processes. Engineering Support will work with the Document and Process Automation team to update all references to the Digital Pen process.

Digital Pen Retirement

The Digital Pen process is planned to be discontinued after the Collaborative Milestone Review process has been implemented in October 2018. When the process has been discontinued, all Digital Pens will be collected from users.

In addition, the Digital Pen server is not compatible with the DTMB server upgrade currently in process. The Digital Pen server in its current state is proposed to be maintained until January 2019 at which time it will be shut down. Users will not have the ability to utilize the Digital Pen after the server has been shut down.