

4.12 Operations Evaluation (formerly TSM&O)

Beginning January 1, 2016, all projects with a Design Scoping Review on or after February 1, 2016, require a Transportation Systems Management and Operations (TSM&O) Evaluation. On January 21, 2021, the TSM&O Evaluation was renamed to the Operations Evaluation and deployed as an OnBase Web Tool. The Operations Evaluation is an evaluation that consists of three parts, a Safety Analysis, and Operations Analysis, and an ITS Analysis. The purpose of the Operations Evaluation is to analyze the project area. This analysis enables the making of project-specific recommendations related to safety and mobility to the project team.

To initiate the Operations Evaluation, the Project Manager will take the following steps.

- Create the TSM&O Evaluation milestone in SAP when a project is initiated. See SAP Workflow 1 in the guidance document on the CDOT website (https://www.codot.gov/business/designsupport/bulletins_manuals/adg). See Design Bulletin 2014-3 Milestone Dates in SAP Project Builder (CJ20N) (https://www.codot.gov/business/designsupport/bulletins_manuals/design-bulletins/db-2014-3) February 10, 2014, for more information on entering milestones in SAP CJ20N.
- Login into OnBase at the Operations Evaluation tool link: <https://oitco.hylandcloud.com>.
- Enter your login name that is a combination of your Windows login and @dot.state.co.us
 - EXAMPLE: Mike Beetles = beetlesm@dot.state.co.us
- Enter your Windows network password (i.e., the same password you use to log into your CDOT computer)
- Click on the three horizontal blue lines at the upper left-hand corner of the window and then select “Open StatusView.”
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- Scroll down until you see the “Forms” box and double click on the “CDOTOPS Evaluation Request.”
- When the new window opens, type in the subaccount of the project you are requesting and click “CLICK HERE TO POPULATE DATA.”
- After the data populates, enter all the project data and scroll to the bottom to click “SUBMIT.” Please note that the “Major Component” is the most critical part of the request and will determine the level of ITS, Traffic Operations, and Safety Analyses.

You only have to submit the form once. If you update the data in PMWeb or SAP, the system will automatically pull the data into the evaluation system during the night.

For more information on how to fill out and use the Operations Evaluation Web Tool:

<https://sites.google.com/state.co.us/learninglane/training-programs/onbase-training/onbase-operational-evaluations>

- Fill out Form 1048 section 4.12, “Transportation Systems Management and Operations Evaluation.”

The Operations Evaluation will be reviewed and coordinated by a Region Traffic Representative Liaison (RTRL) (PE II Traffic Engineer). The RTRL will then assign the evaluations to the appropriate Region, ITS, and headquarters personnel.

The Operations Evaluation has two levels for each analysis for Traffic Operations and Safety. Level 1 Analyses generally take 2-4 weeks and are typically conducted by the region traffic teams.

Level 2 Operations and Level 2 Safety Analyses can be done by consultants or headquarters staff.

The ITS Group conducts the ITS Level 1 Analyses to determine if ITS infrastructure is within the project limits and if there will be a need for new or replacement technology. The analysis will also review if there will be any impacts to the existing ITS infrastructure. If there are project technology needs or impacts to technology resulting in new or replacements, please refer to **4.13 Systems Engineering Technology** for how to proceed.

4.12.01 Background

The TSM&O Reorganization Report of May 2013 recommended that all CDOT projects conduct an operational analysis to ensure improved systematic and integrated delivery of statewide operations. Per federal regulations, the FHWA-CDOT Stewardship Agreement, and CDOT policy, CDOT is required to conduct safety analyses and ITS systems engineering analyses as applicable on CDOT Projects. The Operations Evaluation combines all these analyses – safety, operational, and ITS – into one coordinated process to ensure that every CDOT project considers improvements for the safety and efficiency of the traveling public.

Another purpose of the Operations Evaluation is to enhance regional partnerships that support collaborative investment and implement TSM&O strategies that benefit the Region and its stakeholders. This requires collaboration by Maintenance, Access, Regions, Operations, Safety, ITS, FHWA, and other stakeholders to identify and consider operational strategies for implementation early in the project lifecycle. This will help provide the ability to implement new or additional operational strategies at the opportune time during the project lifecycle. Additionally, the Operations Evaluation creates enhanced opportunities to provide safety improvements, accountability to stakeholders, increased ability to document and reference lessons learned, and streamline business processes while increasing system reliability.

After three years of use, the Operations Evaluation Support Group determined a significant opportunity for automation that would lead to improved tracking, coordination, communication, and documentation. Between 2019 and 2021, The Operations Evaluation Support Group led an initiative to evolve the Operations Evaluation into an OnBase Web Tool. This initiative was completed on January 20, 2021. Now, all new projects or projects on the shelf for more than two years must be entered into the Operations Evaluation Web Tool for analysis or exemption.

4.12.02 Operations Definition

Operations at CDOT refers to several innovations and strategies used to improve the volume and flow of traffic to maximize the efficiency and benefit/cost of our roadways. These strategies include the use of traffic control devices, use of shoulders, narrow lanes, variable speed, traffic incident management, quick clearance, adaptive and efficient signal timing, traffic control, demand management (metering), appropriate and pertinent speeds, alternative and innovative intersections, and coordinated work and response efforts. CDOT is committed to improving system operations and safety and is implementing this formal process, the Operations Evaluation, building these strategies into CDOT's roadway projects.

4.12.03 Roles and Responsibilities

4.12.03.01 Project Manager

To the Project Manager, this process will look somewhat similar to the current process for the Safety Assessment Report, whereby the Project Manager requests an evaluation, receives recommendations, reports, and documents in the OnBase Web Tool when the Evaluation is complete. The Project Manager considers the recommendations that can be integrated into the scope of the project. The Project Manager will be responsible for assuring that an associated milestone is created in SAP CJ20N (Z0001 Operations Evaluation), coordinating with the RTRL for the status of the Operations Evaluation process, and discussing recommendations for implementation with their Resident Engineer.

The Project Manager is also responsible for returning to the OnBase Web Tool to report on what recommendations were integrated into the design of the project and which recommendations were constructed during the Finals process.

4.12.03.02 Region Traffic Representative Liaison

The Region Traffic Representative Liaison (RTRL) referred to in the process is the traffic engineer (PE II) assigned to the project being evaluated. The RTRL is the single point of coordination for the Operations Evaluation for the project. The RTRL reviews the project request, project documentation, and coordinates with the Project Manager in this role. The RTRL then assigns RTRs to complete the Level 1 Safety and Operations Analyses. When the RTRs complete their analyses, the RTRLs review the Level 1 analyses to determine if Level 2 analyses are warranted. The RTRLs will assign region or headquarters staff to conduct the analysis. The RTRLs can also assign a region RTR for Level 2 and hire a consultant to do the analysis coordinating with the Operations Evaluation Support Groups.

4.12.03.03 Region Traffic Representative

The Region Traffic Representative (RTR) referred to in the process is the traffic engineer assigned to the project being evaluated. In this role, the RTR completes the Level 1 Safety and/or Operations Analyses. There could be two or more RTRs assigned to a project evaluation.

The RTR also provides support to the Project Manager and coordinates and consolidates the key recommendations of the Evaluation from the Operations Evaluation support groups, Safety, Operations, and ITS. The RTR will be the lead for documenting recommendations from the Safety, Operations, and ITS and conducting the SEA analysis detailed in **4.13 Systems Engineering Technology**.

4.12.03.03 Operations Evaluation Support Groups

The Operations Evaluation support group consists of HQ Traffic, Safety, Operations, and ITS (Infrastructure). Each specialty is responsible for providing detailed analysis and recommendations for each of its respective disciplines. The Operations Evaluation Support Group will coordinate directly with the RTRL's and RTR's. The Operations Evaluation Support Groups will also be responsible for reviewing and following up with the regions on the overall effectiveness of the process.

4.12.04 Additional References:

1. *Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD)*
2. *Design Bulletin DB 2014-3 Milestone Dates in SAP Project Builder (CJ20N)*
3. *Design Bulletin DB 2016-1 TSM&O Evaluation*
4. *DB 2021-2 Operations Evaluation (Formerly TSM&O)*
5. *DB 2021-3 Systems Engineering Analysis Process*