

MEGA PROJECT DATA COLLECTION PLAN

This attachment to Oklahoma DOT's *Priority Improvements on the I-35 Corridor* FY2022 Multimodal Project Discretionary Grant (MPDG) application describes ODOT's plan for collection and analysis of data to identify the actual impacts of the Project five years after construction relative to the MPDG application's quantitative forecasts and narrative predictions for various outcome criteria specified in Federal guidance. Note the benefits described in the application are forecast over 20 years, so the methods described below adapt these projections to the shorter time span required of the MEGA project reporting. This tends to somewhat reduce the apparent scale of impacts achieved.

OUTCOME CRITERION – SAFETY

Project outcomes measure: Rate of annual average collisions in Project segments after construction compared to pre-construction collision rates.

Predicted Project Impact: According to the MPDG application and Benefit Cost Analysis (BCA), the widened I-35 mainline and reconstructed interchanges at SH-153 and SH-9W are projected to achieve a crash reduction rate of 15 percent within the project segments.

Measure Methodology Summary

1. Calculate the collision rate for the 2016-2020 collision data presented in the MPDG application. While the application presented actual numbers of collisions, the rate will be used to evaluate performance over time since actual collisions are anticipated to increase over time with increased traffic volumes. The collision rate will allow a valid comparison between time periods.
2. Collect data on actual total annual collisions with the Project segments for each of the five years following the Project's substantial completion (2026-2030).
3. Calculate collision rate for the 2026-2030 five-year period. A five-year average rate will help even out any outlier years that break from an overall trend.
4. Compare the Project's 2026-2030 collision rate to the 2016-2020 rate. The post-construction collision rate is anticipated to be at least 15% lower than the pre-construction collision rate. If so, the Project can be considered to have met this performance measure.

Notes on Data Sources

- ODOT already collects the collision data required for step 1 above.
- 'No build' versus 'build' Project-level collision estimates used to predict safety outcomes were developed as part of the BCA and are available in Table 10 of the BCA Report attached as an appendix to the MPDG application.

OUTCOME CRITERION – STATE OF GOOD REPAIR

Project outcomes measure: Condition ratings of pavement and bridges in the North Segment, and bridge condition ratings in the South Segment five years after substantial completion (compared to conditions prior to construction.)

Predicted Project Impact: According to the MPDG application, existing pavement condition in the I-35 study segments is good in the South Segment and fair in the North Segment. The existing bridge on SH-153 over I-35 in the South Segment is currently at risk of becoming structurally deficient. These ratings would be improved to good condition immediately upon substantial completion of the Project. Pavement and bridges in good condition are substantially more economical to maintain than infrastructure in fair or poor condition, while being safer for users and saving wear and tear costs for vehicles using the roadway.

Measure Methodology Summary

1. Document the following conditions prior to construction:
 - a. Pavement condition on I-35 from mile marker 100 to 108.
 - b. Bridge condition on NBI 15547, SH-153 over I-35
2. Collect data on the same conditions for the time-period closest to the Project's five-year timepoint after substantial completion.
3. Determine if the conditions have improved. Specifically, determine if the pavement between mile marker 100 and 108 is considered in good condition, and if the bridge on SH-153 over I-35 is no longer at risk for becoming structurally deficient. If this is the case, the Project can be considered to have met this performance measure.

Notes on Data Sources

- ODOT follows Federal standards for translating pavement distress data into 'good,' 'fair' or 'poor' condition rating classifications.

OUTCOME CRITERION – ECONOMIC IMPACTS, FREIGHT, JOB CREATION

Project outcomes measure: Mainline speed on the Project segments of I-35 and vehicle delay hours at the I-35/SH-153 and I-35/SH-9W interchanges.

Predicted Project Impact: According to the MPDG application and BCA, regional economic benefits flow from travel time savings which improve the cost-effectiveness of goods and people movement. The MPDG application and BCA predict that by 2044, the Project will save 49 million person hours of delay for passenger vehicles and freight trucks over the Project's lifespan¹. In 2030, the BCA predicts that the Project will save 1.3 million person hours of delay. Almost 90% of this delay reduction is anticipated to be realized at the Project interchanges at SH-153 and SH-9W.

¹ Methods for calculating speed and delay are based on NCHRP Report 387 and are described in more detail in the BCA Technical Appendix attached to the application.

Measure Methodology Summary

1. Calculate actual vehicle delay in hours for roadway segments and interchanges within the project limits for the time-period closest to the project's five-year timepoint (presumed to be 2030) after substantial completion using Federally provided NPRMDS data on travel time.
2. Calculate the estimated savings in travel delay achieved through the Project by subtracting the number derived in step 1 from the forecast of travel delay in 2030 under the Project's 'no build' scenario as presented in the Project BCA (2,292,075 person hours).
3. Determine if the Project's actual daily vehicle delay each workday eliminated is the same or greater than the prediction of 1.3 million person hours of travel delay saved each workday that is included in the BCA.

Notes on Data Sources

- ODOT has access to NPRMDS data on all of Oklahoma's NHS routes via FHWA. This data is updated monthly.

OUTCOME CRITERION – CLIMATE CHANGE, RESILIENCY, ENVIRONMENT

Project outcomes measure: Actual annual CO₂ reduction (compared to projected annual CO₂ reduction)

Predicted Project Impact: The MPDG application and BCA predict that the Project will result in a total reduction of over 96,000 metric tons of greenhouse gas (GHG) emissions and close to 190 metric tons of criteria air contaminants (CAC). These reductions are derived primarily due to increases in vehicle speed that come from congestion relief. This performance measure will focus on reduction of CO₂ as it comprises the highest proportion of vehicle emissions. The Project BCA predicts the No Build emissions levels to be 108,270 metric tons of CO₂ in 2030.

Measure Methodology Summary

1. Follow steps 1 and 2 above in 'Economic Impacts' criterion to estimate savings in travel delay achieved through the Project in 2030 using NPRMDS data.
2. Evaluate the vehicle mix for this time period using traffic count data to identify share of vehicles attributable to cars, light trucks, and heavy trucks.
3. Apply emissions factors to travel delay savings/fleet mix information as defined in the BCA to calculate total CO₂ emissions reduced, based on post-Project data.
4. Compare post-Project estimate of CO₂ to MPDG application's prediction of 108,270 metric tons of CO₂ for the "no build" scenario. The BCA anticipates a reduction in CO₂ of 2,568 metric tons in 2030. While any reduction in CO₂ would be considered positive, a reduction of at least this amount would be considered achievement of this performance measure.

Notes on Data Sources

- ODOT currently has access to NPMRDS data on all NHS routes through FHWA. This data is updated on a monthly basis. ODOT traffic counts will be used to identify the vehicle-type mix.

OUTCOME CRITERION – EQUITY

Project outcomes measure: Measures of travel times savings and emissions reduction (previously described).

Predicted Project Impact: The MPDG application makes no quantitative projection of equity, multimodal and quality of life impacts, but assumes the improvements to mobility and access anticipated with the Project would apply to the historically disadvantaged communities and areas of persistent poverty that make up approximately 28.5% of the study area. Therefore, the measures of reduction in travel times and emissions described above would also benefit the disadvantaged communities in the area.

Project outcomes measure: Measures of participation in public outreach activities prior to construction.

Predicted Project Impact: ODOT’s Public Involvement Plan describes procedures to engage low-income, minority, disabled, and limited-English proficient populations. ODOT requests that information on race and gender be provided by all participants at public meetings. While this data is imperfect as it relies on self-reporting by participants, it can provide an indication of the success of the project in achieving broad participation by all members of the community. No quantitative performance measure is proposed.

Measure Methodology Summary

1. For any future public involvement activity, request information from participants on race and gender.
2. Compare participation in public involvement activities by minority participants to the percentage of those groups within the local population.