Executive Summary

This case study presents a safety analysis by the Federal Highway Administration, Western Federal Lands Highway Division (WFLHD) Highway Safety Team. The WFLHD used the Interactive Highway Safety Design Model (IHSDM) software as part of the design process for the rehabilitation of Yale-Kilgore Road. The Yale-Kilgore Road corridor is a county owned and operated two-lane undivided road located in Clark and Fremont counties in Idaho. The project corridor is an important recreational and commercial artery for the community. As a rural highway in and around a national forest, it has many unique challenges that may not exist in more urban and suburban environments. The Yale-Kilgore Road Safety and Traffic Assessment is a practical example of how the suite of IHSDM modules can support typical project development in an atypical context. Although the corridor is currently a mix of paved and unpaved surfaces, with speed and out-of-town traffic representing major concerns in both the present and the future, IHSDM assisted practitioners with the analysis tradeoffs necessary to make informed design and safety countermeasure decisions. The ability to analyze the corridor from a broad perspective (i.e., not crash prediction alone) allowed WFLHD to assess targeted improvements along the corridor, especially along segments of the corridor where the relative crash risk is highest.

The IHSDM software provides a platform for safety analysts and engineers to assess the cumulative impact of various safety design and policy decisions. However, many of the inputs in the IHSDM modules are subject to engineering judgment, and the software may not be applicable for all circumstances (e.g., unpaved roads). For instance, the practitioner must assess the roadside hazard rating based on input criteria and professional judgment. Furthermore, the software can flag design deficiencies or assist with the tradeoffs associated with various elements, such as sight distances, clear zones, side slopes, and cross slopes, but the optimal solutions may not be feasible at every candidate location. In these circumstances, the practitioner can assess and outline potential improvements where possible. The WFLHD project team noted the order of preferential countermeasures (e.g., install/upgrade guardrail; flatten side slopes; and install curve delineators and warning signage) based on the availability of clear zone. In more extreme circumstances, tree removal to improve sight distance or widen clear zone could destabilize a slope (particularly on the inside of horizontal curves on Group 13). In these circumstances, the project team recommended vegetation trimming alone.

Conclusions and Lessons Learned

The Yale-Kilgore Road project corridor is an important recreational and commercial artery for the community. As a rural highway in and around a national forest, it has many unique challenges that may not exist in more urban and suburban environments. The *Yale-Kilgore Road Safety and Traffic Assessment* is a practical example of how the suite of IHSDM modules can support typical project development in an atypical context (WFLHD, 2020). Although the corridor is currently a mix of paved and unpaved surfaces, with speed and out-of-town traffic representing major concerns in both the present and the future, IHSDM assisted practitioners with the tradeoffs necessary to make informed design and safety countermeasure decisions. The ability to analyze the corridor from a broad perspective (i.e., not crash prediction alone) allowed WFLHD to assess targeted improvements along the corridor, especially along segments of the corridor where the relative crash risk is highest.