I-84, Ustick Rd. & Middleton Rd. Overpass Bridges
Design Analysis Executive Summary

Prepared for the
Idaho Transportation Department (ITD),
GARVEE Office

For the
I-84, Ustick Rd. & Middleton Rd. Overpass Bridges
ITD Project No. A022(154)
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908 N. Howard Street, Suite 300
Spokane, WA 99201
Executive Summary

The I-84 Ustick Road (MP 31.15) & Middleton Road (MP 32.43) Overpasses project will replace the existing I-84 overpasses on Ustick and Middleton as well as the Ustick Road bridge over Notus Canal. An analysis of the traffic operations along Ustick Rd between The Boulevard and Middleton Rd and along Middleton Rd between Ustick Rd and The Boulevard was conducted. The analysis was intended to accomplish three goals:

1. Determine Traffic Volume Projections
2. Evaluate the Project for Traffic Operations
3. Provide Guidance for Design

The Ustick Road overpass is located in Caldwell, Idaho and within the jurisdiction of the Canyon Highway District No.4. The Middleton Road overpass is located near the City of Nampa, Idaho, and within the jurisdiction of the Nampa Highway District #1. The project roads provide connections to Caldwell, Nampa, local residential areas, and the Caldwell Airport. The project area is shown in the figure below.

Volumes from the COMPASS Travel Demand Model were provided for the Existing and 2040 conditions. The current COMPASS model projects traffic out to 2040 based on projected land use. The design year of the project is 2042 and the analysis year is 2045 to align with the environmental evaluation for I-84, Caldwell to Karcher (KN 20351). As a result, the volumes projected by the COMPASS model were extrapolated 2 and 5 years further to meet these conditions.
horizon years. Roadway and intersection turning movement counts were conducted on February 7, 2019 to determine current vehicular patterns throughout the study area. In addition, ITD Automatic Traffic Recorder (ATR) data was used to determine the existing volumes on I-84 throughout the project area. The turning movement volume counts were conducted at the four adjacent intersections to estimate the volume distributions across the turns for future projections. Based on the existing and projected volumes, analyses were conducted for the Existing and the 2045 Analysis Years.

**Ustick and Middleton Roadway Operations**

The segments of Ustick Road and Middleton Road over the overpasses were evaluated with two methods. First, using the HCS 2010 software for the PM peak hour, which represents the highest volume hour of the day. Second, using Florida DOT (FDOT) Quality of Service tables for the daily roadway volume. Utilizing either method, both the Ustick and Middleton bridges are expected to operate at LOS D (an acceptable capacity threshold) with one lane in each direction in 2045.

**Intersection Operations**

As analyzed, three of the four intersections are expected to operate at an acceptable level of service under the existing configuration through the 2045 analysis year. The intersection of Middleton and Cherry is expected to degrade to LOS F (an unacceptable capacity threshold) based on the Cherry Lane (minor) approach during both AM and PM peak hours.

There were five options considered to mitigate the level of service at the Middleton/Cherry Lane intersection. Although the PM peak hour volumes are expected to meet the peak hour volume warrant for a traffic signal, the five options considered were developed to determine mitigation. These options ranged from all-way stop controlled with additional turn lanes to signals and roundabouts. After analysis, it was determined that a traffic signal would best meet the needs for this intersection and was added to the project. No additional mitigations were identified at the project intersections.