

SHRP 2: Project L38D Pilot Testing of SHRP 2 Reliability Data and Analytical Products Washington Pilot Site

Overview

The Washington site used the reliability guide from Project L02, analysis tools for forecasting reliability and estimating impacts from Project L07, Project L08, and Project C11 as well as the guide on reliability performance measures from the Project L05 product. The Washington site focused on the I-5 and I-405 corridors from Lynnwood to Tukwila (approximately 30 miles long for each corridor running through the Puget Sound metropolitan region), and the SR-522 urban arterial near Seattle. The pilot testing demonstrated that the SHRP 2 Reliability data and analytical products clearly addressed the practical challenges that transportation agencies face when monitoring and analyzing travel time reliability. However, most tools require significant improvements at the application level.

Project L38D was intended to evaluate a suite of projects to determine their readiness for implementation. Those projects had a logical structure consisting of data collection, analysis, and project prioritization.

Washington State Department of Transportation (WSDOT), in association with the Smart Transportation Applications and Research Laboratory (STAR Lab) at the University of Washington (UW), is one of the four research teams for conducting the pilot testing of Project L38. This research project mainly tested and evaluated SHRP 2 Reliability Data and Analytical Products, specifically those produced by the SHRP 2 L02, L05, L07, L08, and C11 projects. This research project has two major objectives:

- To provide feedback to SHRP 2 on the applicability and usefulness of the reliability products tested; and
- To assist agencies in moving reliability into their business practices through testing of the products developed by the five SHRP 2 Reliability projects.

To test the SHRP 2 Reliability Data and Analytical Products, the research team, also referred as the SHRP 2 L38D research team, employed a research procedure that consists of three major steps: a) data compilation, integration, and quality control; b) experiment design for testing different products by SHRP 2; and c) test results evaluation and suggestions for possible improvements.

Data Sets

- **ALPR Dataset:** This data was used for the testing of the L08 reliability product, STREETVAL. Automated license plate reader data (ALPR) provides very accurate travel time data and was used to validate the reliability outputs of STREETVAL.
- **ALPR Ground Truth Data:** This data was used for the testing of the L08 reliability product, STREETVAL. Automated license plate reader data (ALPR) provides very accurate travel time data and was used to validate the reliability outputs of STREETVAL.

- **L02 Loop Data – I-405 North MP 0 to 10:** This dataset was collected for the SHRP2 Project L02. This data contains the calculated speeds, incident, and weather data used to generate travel times and reliability plots for the L02 final report. Data sets are included for the four Seattle-area freeway routes studied: I-5 North, I-5 South, I-405 North, and I-405 South.
- **L02 Loop Data – I-405 North MP 10 to 20:** This dataset was collected for the SHRP2 Project L02. This data contains the calculated speeds, incident, and weather data used to generate travel times and reliability plots for the L02 final report. Data sets are included for the four Seattle-area freeway routes studied: I-5 North, I-5 South, I-405 North, and I-405 South.
- **L02 Loop Data – I-405 North MP 20 to 28:** This dataset was collected for the SHRP2 Project L02. This data contains the calculated speeds, incident, and weather data used to generate travel times and reliability plots for the L02 final report. Data sets are included for the four Seattle-area freeway routes studied: I-5 North, I-5 South, I-405 North, and I-405 South.
- **L02 Loop Data – I-405 North MP 28 to 29.51:** This dataset was collected for the SHRP2 Project L02. This data contains the calculated speeds, incident, and weather data used to generate travel times and reliability plots for the L02 final report. Data sets are included for the four Seattle-area freeway routes studied: I-5 North, I-5 South, I-405 North, and I-405 South.
- **L02 Loop Data – I-405 South MP 0 to 8:** This dataset was collected for the SHRP2 Project L02. This data contains the calculated speeds, incident, and weather data used to generate travel times and reliability plots for the L02 final report. Data sets are included for the four Seattle-area freeway routes studied: I-5 North, I-5 South, I-405 North, and I-405 South.
- **L02 Loop Data – I-405 South MP 16 to 24:** This dataset was collected for the SHRP2 Project L02. This data contains the calculated speeds, incident, and weather data used to generate travel times and reliability plots for the L02 final report. Data sets are included for the four Seattle-area freeway routes studied: I-5 North, I-5 South, I-405 North, and I-405 South.
- **L02 Loop Data – I-405 South MP 24 to 29.51:** This dataset was collected for the SHRP2 Project L02. This data contains the calculated speeds, incident, and weather data used to generate travel times and reliability plots for the L02 final report. Data sets are included for the four Seattle-area freeway routes studied: I-5 North, I-5 South, I-405 North, and I-405 South.
- **L02 Loop Data – I-405 South MP 8 to 16:** This dataset was collected for the SHRP2 Project L02. This data contains the calculated speeds, incident, and weather data used to generate travel times and reliability plots for the L02 final report. Data sets are included for the four Seattle-area freeway routes studied: I-5 North, I-5 South, I-405 North, and I-405 South.
- **L02 Loop Data – I-5 North MP 154.65 to 161:** This dataset was collected for the SHRP2 Project L02. This data contains the calculated speeds, incident, and weather data used to generate travel times and reliability plots for the L02 final report. Data sets are included for the four Seattle-area freeway routes studied: I-5 North, I-5 South, I-405 North, and I-405 South.

- **L02 Loop Data – I-5 North MP 161 to 168:** This dataset was collected for the SHRP2 Project L02. This data contains the calculated speeds, incident, and weather data used to generate travel times and reliability plots for the L02 final report. Data sets are included for the four Seattle-area freeway routes studied: I-5 North, I-5 South, I-405 North, and I-405 South.
- **L02 Loop Data – I-5 North MP 168 to 175:** This dataset was collected for the SHRP2 Project L02. This data contains the calculated speeds, incident, and weather data used to generate travel times and reliability plots for the L02 final report. Data sets are included for the four Seattle-area freeway routes studied: I-5 North, I-5 South, I-405 North, and I-405 South.
- **L02 Loop Data – I-5 North MP 175 to 181.06:** This dataset was collected for the SHRP2 Project L02. This data contains the calculated speeds, incident, and weather data used to generate travel times and reliability plots for the L02 final report. Data sets are included for the four Seattle-area freeway routes studied: I-5 North, I-5 South, I-405 North, and I-405 South.
- **L02 Loop Data – I-5 South MP 154.65 to 161:** This dataset was collected for the SHRP2 Project L02. This data contains the calculated speeds, incident, and weather data used to generate travel times and reliability plots for the L02 final report. Data sets are included for the four Seattle-area freeway routes studied: I-5 North, I-5 South, I-405 North, and I-405 South.
- **L02 Loop Data – I-5 South MP 161 to 168:** This dataset was collected for the SHRP2 Project L02. This data contains the calculated speeds, incident, and weather data used to generate travel times and reliability plots for the L02 final report. Data sets are included for the four Seattle-area freeway routes studied: I-5 North, I-5 South, I-405 North, and I-405 South.
- **L02 Loop Data – I-5 South MP 168 to 175:** This dataset was collected for the SHRP2 Project L02. This data contains the calculated speeds, incident, and weather data used to generate travel times and reliability plots for the L02 final report. Data sets are included for the four Seattle-area freeway routes studied: I-5 North, I-5 South, I-405 North, and I-405 South.
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- **L07 Segment Travel Time Data – I5:** This dataset was collected for the SHRP2 Project L07. The dataset contains segment locations, segment travel time and time stamps. This data was collected and processed from single loop detectors owned and operated by the Washington State Department of Transportation. The average detector spacing for these routes is approximately every half mile, so the data sets collectively contain over 100 stations. The traffic volume data was collected at five minute intervals for the full 24 hour day from January-December 2012. However, only Weekdays were studied due to the regularity and intensity of traffic patterns on these days.

- **L07 Traffic Volume Data – I5:** This dataset was collected for the SHRP2 Project L07. The dataset contains traffic volumes, single loop IDs, time stamps, mileposts, the route number and the travel direction. This data was collected from single loop detectors owned and operated by the Washington State Department of Transportation. The average detector spacing for these routes is approximately every half mile, so the data sets collectively contain over 100 stations. The data was collected at five minute intervals for the full 24 hour day from January-December 2012. However, only Weekdays were studied due to the regularity and intensity of traffic patterns on these days.