Memorandum 1.3

I-5 MEDFORD VIADUCT PLANNING & ENVIRONMENTAL STUDY

To: Lisa Cornutt and Anna Henson, Oregon Department of Transportation, Region 3

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Subject: **Task 1.3 Origin-Destination Analysis Memorandum**

The purpose of this memorandum and the other early anchoring activity memorandums in Phase 1A of the project is to inform the Draft Problem Statement and guide further development of the project.

Introduction

The origin-destination (O-D) analysis provides data on existing travel patterns on Interstate-5 (I-5) in the Medford metropolitan area. This information will inform the development of a Problem Statement which will impact the types of alternatives and design options that may improve operations on and near the I-5 Viaduct in Medford.

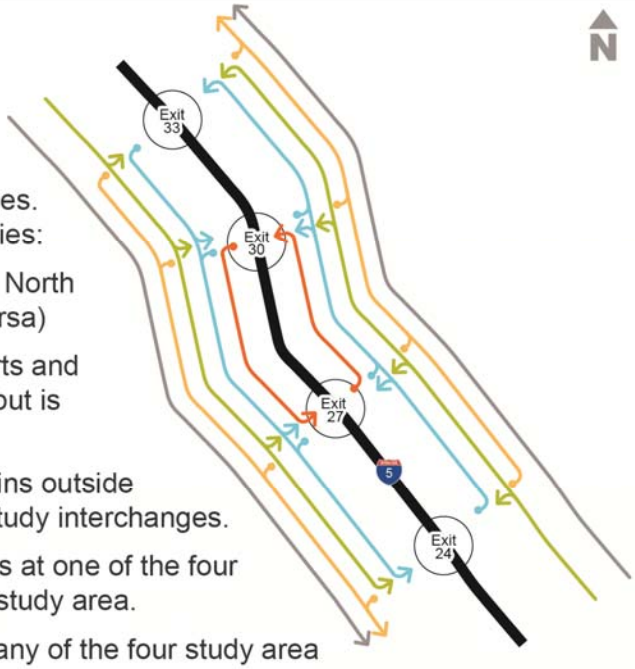
Temporary Bluetooth™ media access control (MAC) readers (specifically BlueMAC™) were used to collect O-D data in the 9.5-mile long study area between the Central Point and Phoenix interchanges. These devices were used to classify trip types as shown in **Figure 1** in the study area containing the Central Point (MP 33), North Medford (MP 30), South Medford (MP 27), and Phoenix (MP 24) interchanges.

Trip Type Definitions

FIGURE 1
Trip Types Within Study Area

Interstate trips were examined as they interacted with Bluetooth™ readers located at and between the four study area interchanges. Trips were classified into the following categories:

- **Local Trip:** A trip that starts and ends at the North and South Medford interchanges (or vice versa)
- **Rogue Valley Regional Trip:** A trip that starts and ends at one of the four study interchanges, but is not a Local Trip.
- **Entering Rogue Valley Trip:** A trip that begins outside the study area and ends at one of the four study interchanges.
- **Exiting Rogue Valley Trip:** A trip that begins at one of the four study interchanges and ends outside of the study area.
- **Through Trip:** An I-5 trip that does not use any of the four study area interchanges.



Key Findings for All Traffic on the Viaduct

Figure 3 and **Figure 4** shows the results of the trip type classification for trips on the I-5 Viaduct by direction, time of year, and time of day.

The origin-destination results show that:

- 8 to 20 percent of **all traffic on the Viaduct** is classified as “Local Trips”.
- Less than 50 percent of **all traffic on the Viaduct** is classified as “Through Trips”.
- There are more “Local Trips” on the Viaduct during the AM Peak period than during the PM Peak or daily periods.

FIGURE 2
Northbound I-5 Trips on the Viaduct

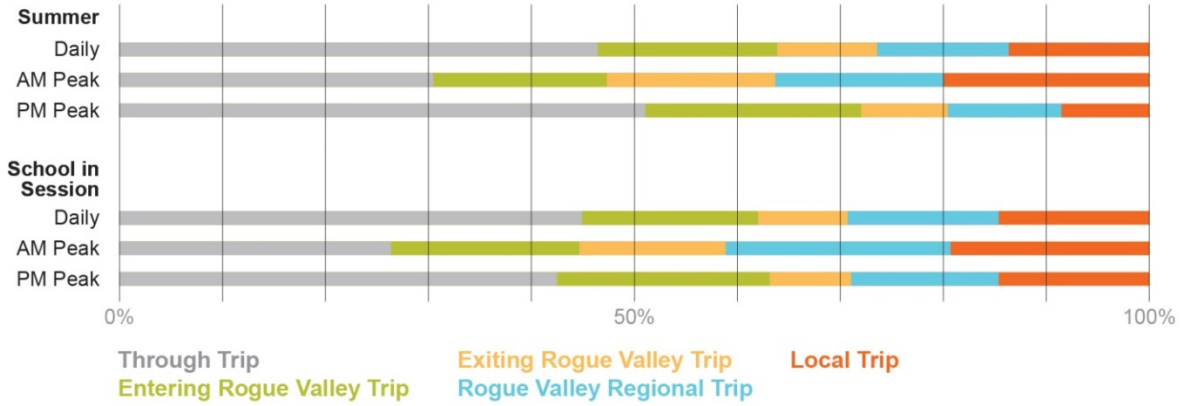


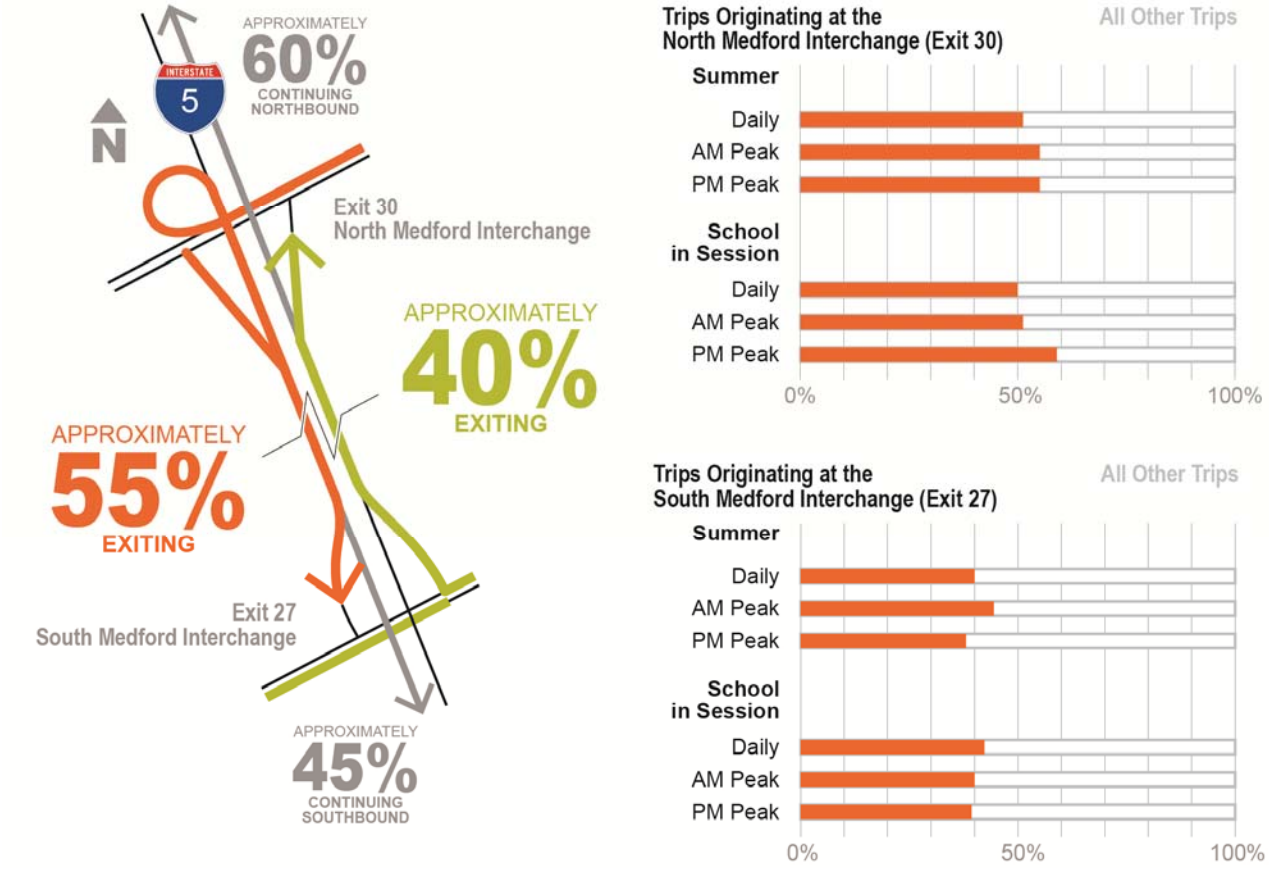
FIGURE 3
Southbound I-5 Trips on the Viaduct

Key Findings for Trips to/from the North and South Medford Interchanges

- During the weekday PM peak hour, approximately 500 trips originate at the North Medford interchange and travel southbound on the Viaduct.
- During the weekday PM peak hour, approximately 675 trips originate at the South Medford interchange and travel northbound on the Viaduct.

FIGURE 4

Local Trips vs. All Trips Originating at North and South Medford Interchanges



Bluetooth Data

Origin-destination data was collected on May 26th to June 4th, 2015, while school was in session, and on June 16th to June 25th, 2015, during summer break. Data from Tuesdays, Wednesdays, and Thursdays was used to isolate higher volume periods and typical mid-week travel patterns. Travel patterns were analyzed for three analysis windows: 1) 24-hour daily, 2) 3-hour morning (6:00 - 9:00 AM), and 3) 3-hour evening (4:00 - 7:00 PM).

Analysis Assumptions

The online BlueMAC™ analysis suite was used to match first point of detection and last point of detection for each vehicle using I-5 with a trip length filter of 15 minutes. This step is critical to identify *local* trips because longer trip length filters could catalog trips as beginning and ending at the same Bluetooth™ reader. Data "cleaning" was used to remove a small amount of partial or erroneous data from the overall set. The final data sets for the analysis periods contained an average of approximately 5,500 (AM), 8,000 (PM), and 32,000 (Daily) unique O-D pairs.

Potential Opportunities

A substantive proportion of all trips using the Viaduct are "Local Trips" or "Rogue Valley Regional Trips". Strategies that have the potential to reduce the amount of "Local Trips" and "Rogue Valley Regional Trips" using I-5 have been previously identified in the I-5 Rogue Valley Corridor Plan. A reduction in the number of "Local Trips" or "Rogue Valley Regional Trips" would help to maintain I-5 capacity for "Through Trips", reduce the V/C ratio in the merge and diverge influence area, and could have benefits to both safety and operations.