

Appendix B: Traffic Analysis

MEMO

TO: Mike Vanderhoof **DATE:** May 16, 2013

CC: Keith Borsheim, Jim Clarke, project file

FROM: Sandy Beazley

SUBJECT: Traffic Analysis: existing traffic counts and HCM 2000 and HCM 2010 **Project No.:** WVXV9900

Introduction

The purpose of this memo is to provide information to support discussions between CDOT Region 3 and FHWA regarding the traffic analysis presented in the EA. Discussed below are two elements relating to this analysis:

- A comparison of the 2008 traffic counts versus the most recent readily available traffic data from CDOT
- A comparison of LOS results from *HCM 2000* and *HCM 2010*

Existing and Future Traffic

The traffic counts presented in the EA are from July 2008, the month with the heaviest traffic. CDOT maintains an automated trip recorder in Glenwood Springs that provides a continuous log of traffic near SH 82 and Blake Street. In addition, CDOT performs daily counts periodically, giving a snapshot of traffic conditions. This occurs at the approach to the Grand Avenue Bridge and on SH 82 at 23rd Street. While these sites are north of the South Bridge location, they do illustrate a trend in traffic volumes decreasing from 2008 to 2012.

As shown in the table below, traffic has decreased on SH 82 in the last few years, likely due to the recession that began in December 2007. Regardless of the reason, this decrease shows that the traffic analysis performed using the 2008 volumes still proves valid for the South Bridge EA and provides a conservative approach. Similarly, traffic projections using the Corridor Optimization Plan growth rates based on 2008 volumes are also conservative, having been based on higher initial volumes than the corridor is currently experiencing. While an update to current year traffic might produce different LOS results, it would not change decisions made in the alternatives evaluation, because the *project purpose and need is focused on access redundancy, and is not based on capacity*. In addition, the change in traffic levels is such that the results of the noise analysis and subsequent mitigation recommendations would not be altered with the use of 2012 traffic data.

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Daily Traffic Data for SH 82: 2008 and 2012

	2008	2012	Percent Change
SH 82 and Blake Street*	26,580	23,300	-12.3%
SH 82 and 23 rd Street**	28,670	25,530	-11.0%
Grand Avenue Bridge***	29,640	26,410	-10.9%

Source: CDOT OTIS

*Monthly summary from an automated trip recorder

**Daily summary with the following dates 6/24/2008 and 7/12/2011

***Daily summary with the following dates, 7/31/2008 and 6/1/2012

Highway Capacity Manual 2000 versus Highway Capacity Manual 2010

Level of Service analysis for the EA was completed using Highway Capacity Manual (HCM) 2000. During the lifetime of the study HCMHCM 2010 was released. Major changes within the HCMHCM 2010 for signalized intersections and how they affect the analysis in the EA include:

- Ability to handle fully-actuated controllers. This is not a concern for the intersections in the EA...
- One PHF for entire intersection, which is already the case for the EAEA analyses...
- Lane group analysis. This would not affect the EAEA analyses as each movement was analyzed in detail...
- Changes to the way phasings are input. Not a concern for the EA intersection because there are no unusual phasings proposed.
- Different methodologies for calculating the effects of platooning. The EA intersections would not be coordinated with others and are relatively isolated.
- Other, more minor changes including additional ped and bike inputs and parameters that might result in minor changes to the overall delays reported, but would not affect decisions made or the Preferred Alternative design
- Free-right turns are not handled as well in the HCM 2010, which affects intersections with heavy right turn volumes. This would be a reason to use the original HCM 2000 analysis for our main intersection, as right turn volumes from South Bridge to SH 82 are heavy, and the design includes a free-right turn lane.

The project team modeled the intersection of the new South Bridge connection and SH 82 for the 2035 PM peak hour. The results are nearly identical, with the exception of the free-right turn movement from South Bridge to southbound SH 82. This movement is shown as having an average vehicle delay of 49.7 seconds in the HCM 2010 results, compared to almost no delay in the HCM 2000 results. The free-right movement should have little to no delay, as right turning traffic would be able to proceed through the intersection and into the acceleration lane without

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stopping. The attached reports from Synchro show the HCM 2000 results that are in the EA, and the new HCM 2010 results.

It is the opinion of the study team that these results, if anything, indicate a preference for the results of the HCM 2000 analysis because of the ability of that software to more accurately predict free right turn movements. However, even a switch to HCM 2010 would not result in changes to the decisions made or impacts reported in the EA, as the intersection is still projected to operate effectively.

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