

2016 KMPO Base Calibration Travel Demand Model Update

Final Documentation

With Assistance from: PTV Group

Revised November 2018

Approved by KMPO Board December 13, 2018



250 Northwest Blvd
Suite 250
Coeur d'Alene, ID 83814
(208) 930-4164

Table of Contents

Introduction	4
1.0 2016 Model Geography	6
2.0 2016 KMPO Model Data Sources	7
3.0 2016 KMPO Model Background	8
4.0 KMPO Model Procedures	9
4.1 KMPO Calculate Procedures (Step by Step).....	9
4.2 KMPO Calculate Procedures Parameter Files	9
4.3 KMPO Final Model Version Output File.....	10
4.4 KMPO Calculate Procedures Model Run Comments	10
5.0 2016 KMPO Land Use Update	11
5.1 2016 Dwelling Unit Estimation	11
5.2 2016 Land Use Summary	11
6.0 2016 AM & PM Peak Hour Trip Generation Rates	155
7.0 2016 KMPO Auto Network Enhancements	188
7.1 2016 External Trip Update	1818
7.2 2016 Link Traffic Count Update	188
7.3 Model's External Traffic Analysis Zone (TAZ) Update	188
8.0 Traffic Counts	222
9.0 AM/PM Peak Hour Trip Generation	233
9.1 AM Peak Hour Trip Generation Validation	233
9.2 PM Peak Hour Trip Generation Validation	233
10.0 AM/PM Peak Hour Trip Distribution	255
10.1 Gravity Model Calibration/Validation Results	255
11.0 AM/PM Peak Hour Traffic Assignments	288
11.1 Traffic Assignment Method Update	288
12.0 AM/PM Peak Hour Traffic Screenline Validation	31
12.1 Allowable Deviation Standards.....	32
13.0 Model Limitations and Improvements	366

List of Tables

Table 1	2016 KMPO Land Use Data Summary	14
Table 2	Updated AM Peak Hour Trip Rates in 2016 KMPO AM Model.....	16
Table 3	Updated PM Peak Hour Trip Rates in 2016 KMPO PM Model.....	17
Table 4	2016 AM/PM Peak Hour Counts at External TAZs.....	19
Table 5	2016 AM Peak Hour External-External Through Traffic Volumes	20
Table 6	2016 PM Peak Hour External-External Through Traffic Volumes	21
Table 7	2016 AM Peak Hour Trip Generation Validation Results	23
Table 8	2016 PM Peak Hour Trip Generation Validation Results	24
Table 9	Trip Distribution Utility Paramters AM PK HR	25
Table 10	Trip Distribution Utility Paramters PM PK HR	25
Table 11	2016 AM Peak Hour Average Trip Time (Minutes) Model vs. Google	26
Table 12	2016 PM Peak Hour Average Trip Time (Minutes) Model vs. Google	26
Table 13	2016 KMPO Model AM/PM Peak Hour Screenline Summary Results	31

List of Figures

Figure 1	KMPO Calculate Procedures (Step by Step)	9
Figure 2	KMPO Calculate Procedures Model Run Comments.....	10
Figure 3	KMPO Land Use Classifications.....	12
Figure 3	Model Flow Bundle to Calculate Travel Time (TT).....	27
Figure 4	Change to model assignment method within procedure sequence	28
Figure 5	2016 KMPO VISUM Model AM Peak Hour Assignment Results	29
Figure 6	2016 KMPO VISUM Model PM Peak Hour Assignment Results.....	30
Figure 7	2016 KMPO VISUM Model AM Peak Hour Traffic Forecast Screenline Results ..	33
Figure 8	2016 KMPO VISUM Model PM Peak Hour Traffic Forecast Screenline Results ..	34
Figure 9	2016 KMPO Model AM Peak Hour Screenline Error Range	35
Figure 10	2016 KMPO Model PM Peak Hour Screenline Error Range	35

Appendices – Attached

Appendix 1A:	KMPO Project dir file.pdf	A-2
	KMPO Project directory file that directs the model to the proper file location	
Appendix 1B:	KMPO-Final Calculate Procedures File AM_PM.par	A-4
	A combined parameter file for the AM & PM peak hour KMPO Models	
Appendix 1C:	2016 KMPO Model AM Peak Hour Screenline Validation Spreadsheets.....	A-6
Appendix 1D:	2016 KMPO Model PM Peak Hour Screenline Validation Spreadsheets.....	A-19
Appendix 1E:	Final Model Results "Assignment Analysis" Comparison.....	A-31

Introduction

In 2018, the Kootenai Metropolitan Planning Organization (KMPO) completed the update of their 2010 Travel Demand Forecasting VISUM Model. This 2016 update has improved the previous 2010 base model.

The KMPO Model provides the existing 2016 AM and PM peak hour traffic volumes and is used as a base model to project future traffic forecasts for the AM and PM peak hour traffic in the Kootenai County-wide area.

KMPO staff performed the 2016 model update calibration/validation with guidance and assistance from PTV Group. The 2010 KMPO base model was updated to become the 2016 KMPO base model. The majority of the 2016 modeling components were left as they were in the last update. This documentation outlines what has been changed since the last 2010 model update.

Travel demand forecasting models update the existing base year model every year or every other year or every five years depending on the land use growth and transportation improvements in the modeling area. This is because the traffic volume on streets and roadways change due to the changes in the land use and the transportation system.

The 2016 KMPO model update is expected to revalidate the 2010 existing base year model to reflect the most current conditions. Basic technical information about the 2010 KMPO VISUM model is provided in the “Kootenai County (KMPO) – 2010 KMPO Base Calibration Travel Demand Model Update Documentation.” This report is focused on the 2016 KMPO travel demand model update, including methodology and enhancements.

In this KMPO 2016 model update, KMPO technical staff made the following changes, which are addressed in the thirteen sections of this report as shown below:

1. 2016 Model Geography
2. 2016 KMPO Model Data Sources
3. 2016 KMPO Model Background
4. KMPO Model Procedures
5. 2016 KMPO Land Use Update
6. 2016 AM & PM Peak Hour Trip Generation Rates
7. 2016 KMPO Auto Network Enhancements
8. Traffic Counts
9. AM/PM Peak Hour Trip Generation
10. AM/PM Peak Hour Trip Distribution
11. AM/PM Peak Hour Traffic Assignments
12. AM/PM Peak Hour Traffic Screenline Validation
13. Model Limitations and Improvements

More detailed technical specifications and model update descriptions are provided to assist the KMPO model users in their understanding of the model applications, data input and output, and validation results. Attached appendices illustrate even more

technical information related to the VISUM model parameter files and the 2016 AM/PM peak hour detailed screenline validation spreadsheets.

1.0 2016 Model Geography

- Kootenai County Area
- 2016 County Population estimate: 160,901
- Model Vehicle Miles Traveled (VMT) estimate: 355,543 miles in the PM peak hour
- Model Vehicle Hours of Travel (VHT) estimate: 10,460 hours in the PM peak hour
- Total 2016 Occupied Dwelling Units Estimate: 62,805

2.0 2016 KMPO Model Data Sources

Data from many agencies are compiled and analyzed for input into the travel demand model. The model is used for transportation travel demand forecasting. Ensuring that the most accurate, reliable and available data is used as well as having a well calibrated and validated model, is vitally important for accurate travel demand forecasting. KMPO uses the following data sources for input into the model:

- A regional household survey is used to estimate current travel behavior. KMPO's most recent survey was performed in 2005 and can be found on our website (www.kmpo.net), listed under Maps/Data/Publications/Spokane and Kootenai County Regional Travel Survey 2005. Household surveys are typically done every 10 years
- US Census Bureau Decennial data (every 10 years) for Transportation Analysis Zones (TAZ's) information based currently on the block level. The 2016 updated used 2016 American Community Survey 5-Year Estimates for reasonableness checks. The forecast years are calculated based on historical growth rates adopted in 2012.
- Idaho Department of Labor for current employment data
- Kootenai County for current housing statistics and Geographical Information Systems (GIS) data
- Building Permits from local jurisdictions
- Additional information that is not readily available is obtained from local sources such as: school & college enrollment, number of rooms in hotels/motels, casino parking spaces, recreation number of camping spaces, etc.)
- Comprehensive Plans from Kootenai County and Local Jurisdictions
- Traffic Counts
- Real Estate Reports and other verified published professional reports for reasonableness checks

3.0 2016 KMPO Model Background

The Kootenai Metropolitan Planning Organization (KMPO) was formed in 2003. The first KMPO traditional four-step travel demand model for the AM Peak Hour and the PM Peak Hour was developed by KMPO staff and PTV Group in 2003.

The typical gravity demand model is called a four-step model and is based upon: Trip Generation, Trip Distribution, Mode Choice and Route Assignment. Mode choice is made up of private cars, public transit such as buses, and/or non-motorized travel. The KMPO model is currently a three-step model, having only one mode choice which is private vehicles. This mode choice feature is planned to be expanded upon in the future adding other mode choices.

The model was updated in 2005 by PTV Group with completion of the 2005 Household travel survey to incorporate statistically valid data for Kootenai County travel behavior.

In 2007, the model was updated by HDR Inc. In 2010, the model was updated by KMPO staff with assistance from Eco Resource Management Systems Inc. and PTV Group to incorporate Census related data as it became available.

KMPO staff updated the model using data collected in 2016, with additional assistance from PTV Group.

4.0 KMPO Model Procedures

4.1 KMPO Calculate Procedures (Step by Step)

As shown in Figure 1, the KMPO “Calculate Procedure” (a step by step procedure) is used for output files for the AM and PM peak hour traffic forecasts in the Kootenai County area. Using the Calculate Procedures allows partial model runs (such as only the AM Peak hour), as well as visual checks to see and understand how each step is performing.

Count: 125	Execution	Active	Procedure	Reference object(s)	Variant/file	Comment	Success
2		<input checked="" type="checkbox"/>	Initialize all filter settings				<input checked="" type="checkbox"/>
3		<input checked="" type="checkbox"/>	Read filter		TSystemCar.fil		<input checked="" type="checkbox"/>
4		<input checked="" type="checkbox"/>	Edit attribute	Links - CapPrT		Set Link Capacity, Lanes * Cap/Lane	<input checked="" type="checkbox"/>
5		<input checked="" type="checkbox"/>	Edit attribute	Connectors - T0_TSys(C)		Test to set Connector Time	<input checked="" type="checkbox"/>
6		<input checked="" type="checkbox"/>	Read filter		TWLT-3Lane.fil	3 Lane Road	<input checked="" type="checkbox"/>
7		<input checked="" type="checkbox"/>	Edit attribute	Links - CapPrT		Add 300 directional capacity	<input checked="" type="checkbox"/>
8		<input checked="" type="checkbox"/>	Read filter		TWLT-5Lane.fil	5 Lane Road	<input checked="" type="checkbox"/>
9		<input checked="" type="checkbox"/>	Edit attribute	Links - CapPrT		Add 150 directional capacity	<input checked="" type="checkbox"/>
10		<input checked="" type="checkbox"/>	Read filter		Fwy_GT_2_Lanes.fil	3+ Lane Fwy	<input checked="" type="checkbox"/>
11		<input checked="" type="checkbox"/>	Edit attribute	Links - CapPrT		Add Cap for 3 Lane + Fwy	<input checked="" type="checkbox"/>
12		<input checked="" type="checkbox"/>	Edit attribute	Nodes - K4		Set All K4 = 1.0	<input checked="" type="checkbox"/>
13		<input checked="" type="checkbox"/>	Read filter		ActiveLinkNodes.fil	Start Node Computations	<input checked="" type="checkbox"/>
14		<input checked="" type="checkbox"/>	Edit attribute	Nodes - CapPrT		Add all outbound link capacities	<input checked="" type="checkbox"/>
15		<input checked="" type="checkbox"/>	Read filter		ActiveLinkNodes-3plusLegs.fil	3 Plus Leg Nodes	<input checked="" type="checkbox"/>
16		<input checked="" type="checkbox"/>	Edit attribute	Nodes - K4			<input checked="" type="checkbox"/>
17		<input checked="" type="checkbox"/>	Read filter		ActiveLinkNodes-2Leg.fil		<input checked="" type="checkbox"/>
18		<input checked="" type="checkbox"/>	Edit attribute	Nodes - K4			<input checked="" type="checkbox"/>
19		<input checked="" type="checkbox"/>	Read filter		ActiveLinkNodes-3Leg.fil		<input checked="" type="checkbox"/>
20		<input checked="" type="checkbox"/>	Edit attribute	Nodes - K4			<input checked="" type="checkbox"/>
21		<input checked="" type="checkbox"/>	Read filter		ActiveLinkNodes-4Leg.fil		<input checked="" type="checkbox"/>
22		<input checked="" type="checkbox"/>	Edit attribute	Nodes - K4			<input checked="" type="checkbox"/>
23		<input checked="" type="checkbox"/>	Read filter		ActiveLinkNodes-5Leg.fil		<input checked="" type="checkbox"/>
24		<input checked="" type="checkbox"/>	Edit attribute	Nodes - K4			<input checked="" type="checkbox"/>
25		<input checked="" type="checkbox"/>	Read filter		NodeCapacityFinalComputations.fil		<input checked="" type="checkbox"/>
26		<input checked="" type="checkbox"/>	Edit attribute	Nodes - CapPrT			<input checked="" type="checkbox"/>
27		<input checked="" type="checkbox"/>	Read filter		Turns-LT-TH-RT-Only.fil	Turns-LT-TH-RT-Only.fil	<input checked="" type="checkbox"/>
28		<input checked="" type="checkbox"/>	Edit attribute	Turns - CapPrT		Reset Turn Capacities	<input checked="" type="checkbox"/>
29		<input checked="" type="checkbox"/>	Edit attribute	Turns - t0PrT		Reset Turn T0=0	<input checked="" type="checkbox"/>
30		<input checked="" type="checkbox"/>	Read filter		SingleLeftTurnsSignalsTwoWayStops.fil	Single Left Turns	<input checked="" type="checkbox"/>
31		<input checked="" type="checkbox"/>	Edit attribute	Turns - t0PrT		T0=6Secs	<input checked="" type="checkbox"/>
32		<input checked="" type="checkbox"/>	Edit attribute	Turns - CapPrT		TurnCap=300	<input checked="" type="checkbox"/>
33		<input checked="" type="checkbox"/>	Read filter		DualLeftTurnsSignalsTwoWayStops.fil	Dual Left Turns	<input checked="" type="checkbox"/>
34		<input checked="" type="checkbox"/>	Edit attribute	Turns - CapPrT		TurnCap=275*NumLanes	<input checked="" type="checkbox"/>
35		<input checked="" type="checkbox"/>	Read filter		Uncontrolled_Intersections.fil	Set Uncontrolled Controls	<input checked="" type="checkbox"/>
36		<input checked="" type="checkbox"/>	Edit attribute	Nodes - ControlType		1-Uncontrolled	<input checked="" type="checkbox"/>
37		<input checked="" type="checkbox"/>	Read filter		Stop_2_Way_Intersections.fil	Set 2 Way Stop	<input checked="" type="checkbox"/>
38		<input checked="" type="checkbox"/>	Edit attribute	Nodes - ControlType		2-Partial Stop	<input checked="" type="checkbox"/>
39		<input checked="" type="checkbox"/>	Read filter		Yield_2_Way_Intersections.fil	Set Yield	<input checked="" type="checkbox"/>
40		<input checked="" type="checkbox"/>	Edit attribute	Nodes - ControlType		6-Yield	<input checked="" type="checkbox"/>
41		<input checked="" type="checkbox"/>	Read filter		Stop_All_Way_Intersections.fil	Set All Way Stop	<input checked="" type="checkbox"/>
42		<input checked="" type="checkbox"/>	Edit attribute	Nodes - ControlType		4-All Way Stop	<input checked="" type="checkbox"/>

Figure 1: KMPO Calculate Procedures (Step by Step)

4.2 KMPO Calculate Procedures Parameter Files

Project directory – KMPO Project dir file.pfd (shown in Appendix 1A) is a VISUM project directory file, which specifies where the model runs.

Base Version – KMPO_2016_BASE_FINAL 11-9-18.ver is a 2016 Base KMPO VISUM Model version file in the project directory. The base model was validated and saved in VISUM Version 17.01-08. This includes the updated 2016 land uses and 2016 existing roadway network.

4.3 KMPO Final Model Version Output File

Final Version – “KMPO_2016_BASE_FINAL_11-9-18” is a final 2016 Base KMPO VISUM Model version file saved in the project directory after the completed AM/PM Peak Hour Model runs.

4.4 KMPO Calculate Procedures Model Run Comments

After the completed final model run, the Calculate Procedures comment area displays comments shows whether the model executed properly with success along with; start time, end time, duration, and any comments showing changes found or errors encountered. The final base model ran correctly with no errors or comments as shown in Figure 2 below:

Count:	Comment	Success	StartTime	EndTime	Duration	Messages	ResultMessage
1	Capacity calculation - Calculate Procedure	<input checked="" type="checkbox"/>	11/9/2018 9:46:14 AM	11/9/2018 9:46:14 AM	0min	✓	
2		<input checked="" type="checkbox"/>	11/9/2018 9:46:14 AM	11/9/2018 9:46:14 AM	0min	✓	
3		<input checked="" type="checkbox"/>	11/9/2018 9:46:14 AM	11/9/2018 9:46:15 AM	1s	✓	
4	Set Link Capacity, Lanes * Cap/Lane	<input checked="" type="checkbox"/>	11/9/2018 9:46:15 AM	11/9/2018 9:46:16 AM	1s	✓	Links: 5283 objects were changed.
5	Test to set Connector Time	<input checked="" type="checkbox"/>	11/9/2018 9:46:16 AM	11/9/2018 9:46:17 AM	0min	✓	Connectors: 2064 objects were changed.
6	3 Lane Road	<input checked="" type="checkbox"/>	11/9/2018 9:46:17 AM	11/9/2018 9:46:17 AM	0min	✓	
7	Add 300 directional capacity	<input checked="" type="checkbox"/>	11/9/2018 9:46:17 AM	11/9/2018 9:46:18 AM	0min	✓	Links: 282 objects were changed.
8	5 Lane Road	<input checked="" type="checkbox"/>	11/9/2018 9:46:18 AM	11/9/2018 9:46:18 AM	0min	✓	
9	Add 150 directional capacity	<input checked="" type="checkbox"/>	11/9/2018 9:46:18 AM	11/9/2018 9:46:19 AM	0min	✓	Links: 420 objects were changed.
10	3+ Lane Fwy	<input checked="" type="checkbox"/>	11/9/2018 9:46:19 AM	11/9/2018 9:46:19 AM	0min	✓	
11	Add Cap for 3 Lane + Fwy	<input checked="" type="checkbox"/>	11/9/2018 9:46:19 AM	11/9/2018 9:46:19 AM	0min	✓	Links: 64 objects were changed.
12	Set All K4 = 1.0	<input checked="" type="checkbox"/>	11/9/2018 9:46:20 AM	11/9/2018 9:46:21 AM	1s	✓	Nodes: 2471 objects were changed.
13	Start Node Computations	<input checked="" type="checkbox"/>	11/9/2018 9:46:21 AM	11/9/2018 9:46:21 AM	0min	✓	
14	Add all outbound link capacities	<input checked="" type="checkbox"/>	11/9/2018 9:46:21 AM	11/9/2018 9:46:22 AM	1s	✓	Nodes: 2391 objects were changed.
15	3 Plus Leg Nodes	<input checked="" type="checkbox"/>	11/9/2018 9:46:22 AM	11/9/2018 9:46:23 AM	0min	✓	
16		<input checked="" type="checkbox"/>	11/9/2018 9:46:23 AM	11/9/2018 9:46:23 AM	0min	✓	Nodes: 670 objects were changed.
17		<input checked="" type="checkbox"/>	11/9/2018 9:46:24 AM	11/9/2018 9:46:24 AM	0min	✓	
18		<input checked="" type="checkbox"/>	11/9/2018 9:46:24 AM	11/9/2018 9:46:24 AM	0min	✓	Nodes: 33 objects were changed.
19		<input checked="" type="checkbox"/>	11/9/2018 9:46:24 AM	11/9/2018 9:46:25 AM	0min	✓	
20		<input checked="" type="checkbox"/>	11/9/2018 9:46:25 AM	11/9/2018 9:46:25 AM	0min	✓	Nodes: 405 objects were changed.
21		<input checked="" type="checkbox"/>	11/9/2018 9:46:25 AM	11/9/2018 9:46:26 AM	0min	✓	
22		<input checked="" type="checkbox"/>	11/9/2018 9:46:26 AM	11/9/2018 9:46:26 AM	0min	✓	Nodes: 243 objects were changed.
23		<input checked="" type="checkbox"/>	11/9/2018 9:46:26 AM	11/9/2018 9:46:27 AM	0min	✓	
24		<input checked="" type="checkbox"/>	11/9/2018 9:46:27 AM	11/9/2018 9:46:27 AM	0min	✓	Nodes: 3 objects were changed.
25		<input checked="" type="checkbox"/>	11/9/2018 9:46:27 AM	11/9/2018 9:46:28 AM	0min	✓	
26		<input checked="" type="checkbox"/>	11/9/2018 9:46:28 AM	11/9/2018 9:46:28 AM	0min	✓	Nodes: 689 objects were changed.
27	Turns-LT-TH-RT-Only.fil	<input checked="" type="checkbox"/>	11/9/2018 9:46:28 AM	11/9/2018 9:46:29 AM	0min	✓	
28	Reset Turn Capacities	<input checked="" type="checkbox"/>	11/9/2018 9:46:29 AM	11/9/2018 9:46:29 AM	0min	✓	Turns: 8089 objects were changed.
29	Reset Turn T0=0	<input checked="" type="checkbox"/>	11/9/2018 9:46:30 AM	11/9/2018 9:46:30 AM	0min	✓	Turns: 8089 objects were changed.
30	Single Left Turns	<input checked="" type="checkbox"/>	11/9/2018 9:46:30 AM	11/9/2018 9:46:30 AM	0min	✓	
31	T0=6Secs	<input checked="" type="checkbox"/>	11/9/2018 9:46:31 AM	11/9/2018 9:46:31 AM	0min	✓	Turns: 1624 objects were changed.
32	TurnCap=300	<input checked="" type="checkbox"/>	11/9/2018 9:46:31 AM	11/9/2018 9:46:31 AM	0min	✓	Turns: 1624 objects were changed.
33	Dual Left Turns	<input checked="" type="checkbox"/>	11/9/2018 9:46:32 AM	11/9/2018 9:46:33 AM	1s	✓	
34	TurnCap=275*NumLanes	<input checked="" type="checkbox"/>	11/9/2018 9:46:33 AM	11/9/2018 9:46:33 AM	0min	✓	Turns: 29 objects were changed.
35	Set Uncontrolled Controls	<input checked="" type="checkbox"/>	11/9/2018 9:46:33 AM	11/9/2018 9:46:34 AM	0min	✓	
36	1-Uncontrolled	<input checked="" type="checkbox"/>	11/9/2018 9:46:34 AM	11/9/2018 9:46:34 AM	0min	✓	Nodes: 1702 objects were changed.
37	Set 2 Way Stop	<input checked="" type="checkbox"/>	11/9/2018 9:46:34 AM	11/9/2018 9:46:34 AM	0min	✓	
38	2-Partial Stop	<input checked="" type="checkbox"/>	11/9/2018 9:46:35 AM	11/9/2018 9:46:35 AM	0min	✓	Nodes: 451 objects were changed.
39	Set Yield	<input checked="" type="checkbox"/>	11/9/2018 9:46:35 AM	11/9/2018 9:46:35 AM	0min	✓	
40	6-Yield	<input checked="" type="checkbox"/>	11/9/2018 9:46:35 AM	11/9/2018 9:46:36 AM	0min	✓	Nodes: 64 objects were changed.
41	Set All Way Stop	<input checked="" type="checkbox"/>	11/9/2018 9:46:36 AM	11/9/2018 9:46:36 AM	0min	✓	
42	4-All Way Stop	<input checked="" type="checkbox"/>	11/9/2018 9:46:36 AM	11/9/2018 9:46:36 AM	0min	✓	Nodes: 23 objects were changed.
43	Set Signak	<input checked="" type="checkbox"/>	11/9/2018 9:46:36 AM	11/9/2018 9:46:37 AM	0min	✓	

Figure 2: KMPO Calculate Procedures Model Run Comments

5.0 2016 KMPO Land Use Update

KMPO utilizes 23 land use categories to classify land use within the model based on NAICS codes. This allows KMPO to more easily match up to the Idaho DOL labor statistics for comparisons. No changes were made to the land use classifications during this update.

Land use data are important inputs to travel demand forecasting models because land uses generate travel activities and demands. To make accurate travel demand forecasts, modelers should strive to verify the accuracies of land use data in the traffic analysis zones (TAZ). KMPO staff took several rounds of land use reviews and verifications with local jurisdictions to ensure no errors exist in the land use data by TAZ.

5.1 2016 Dwelling Unit Estimation

The estimation of current and forecast dwelling units was challenging due to the lack of precise data between decennial census years. Total dwelling units were taken from Kootenai County's GIS structure shapefile. Since these are geocoded to the location of actual structures throughout the County, this data seemed more reliable than the US Census American Community Survey (ACS) 5-Year Estimates, even though the numbers were slightly higher.

While KMPO staff utilized 2010 jurisdictional growth rates and the number of persons per household used during the 2010 update, it was not appropriate to use the 2010 vacancy rates due to current economic conditions in the County. To determine the number of vacant dwelling units in the County, two methods were utilized. Based off of local real estate reports, a 1.5% blanket vacancy rate was used to reflect current conditions, particularly for multi-family units. Additionally, it was made apparent that some TAZs had much higher vacancy rates due to seasonal residency. KMPO staff compared historic vacancy rates for TAZs from 2000 and 2010 and determined that 23 TAZs had high seasonal residency (vacancy rates of ~30% and greater). For these TAZs, the 2010 vacancy rates were used to better calculate vacancy in these areas. This resulted in an average vacancy rate of 6.7% County-wide.

5.2 2016 Land Use Summary

KMPO uses 23 land use classifications to categorize land use within the KMPO model and apply appropriate trip generation rates. These land use classifications are based on NAICS codes to better match the Idaho Department of Labor's employment data. The 2016 model update utilized the same classifications from the 2010 model. For the 2016 update, additional NAICS codes were added for LU 22 and LU23 and further clarification was added to differentiate Land Use categories 1 and 9. Descriptions of the land use classifications are included in Figure 3.

After KMPO staff updated the 2016 land use by TAZ, a control total check was made to ensure that the primary residential dwelling units matched the current and projected population totals. Future population totals were compounded annually from 2016 data using the growth rates adopted by the KMPO Board March 8, 2012. Table 1 is a summary of the 2016 land uses and totals obtained from the Kootenai County building permits, the Idaho Department of Labor and other sources manually obtained by KMPO staff through email correspondence, phone calls or the internet.

Figure 3: KMPO Land Use Classifications

2016 KMPO Land Use Update – DRAFT 05-04-2017

LU1 – (SFDU) Single Family Residential includes those lands occupied by a single family home, duplex, or a manufactured home on a single lot. During calibration, this category was divided and single family uses in “outer zones” (outside of cities ACI’s) moved to Land Use category LU9 – Outer SFDU. LU1 is measured in single family dwelling units.

LU2 – (MFDU) Multi-Family Residential uses contain three or more residential units on a parcel of land. This category also includes mobile home parks, apartment buildings, and condominiums. LU2 is measured in multi-family dwelling units.

LU3 – (RET) Retail includes a broad range of establishments which sell goods directly to the general public, such as general commercial, home furnishings, food stores, direct selling establishments or other products. NAICS codes 441110 - 448320 & 451110 - 454390. LU3 is measured in employees.

LU4 – (FIRES) Finance, Insurance, Real Estate Rental & Leasing includes Commercial banking, financing, investment brokers, savings institutions, credit unions, investment advice, insurance carriers, real estate, rental and leasing, passenger car rental, recreational rentals, commercial air rail and water transportation, video tape and disc rental and other related companies. NAICS codes 521110 - 525990 & 531110 - 533110. LU4 is measured in employees.

LU5 – (INDUST) Industrial includes Mining, Manufacturing and Wholesale sectors which comprises establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products. This also includes the wholesale trade sector which comprises establishments engaged in wholesaling merchandise, generally without transformation, and rendering services incidental to the sale of merchandise. The categories are mining operations, processing plants, packaging, mills, foundries, machining, wholesale goods merchants and wholesale trade agents and brokers. NAICS codes include 211111 - 213115, 311111 - 316998, 321113 - 327999, 331110 - 339999 & 423110 - 425120. LU5 is measured in number of employees.

LU6 – (SCH) Schools which include elementary and secondary schools. LU6 is measured in number of students, (manually derived).

LU7 – (ACCOM) Accommodations includes all hotel and motel establishments. NAICS codes 721110 - 721214. Hotels, Motels, bed/breakfast inns and room/board houses. Measured by number of rooms (manually derived).

LU8 – (AER) Arts, Entertainment and Recreation includes theater companies and dinner theatres, musical groups and artists, sports teams and clubs, racetracks, museums, zoos, amusement and theme parks, casinos, marinas, golf courses, recreation centers, bowling centers, RV Parks and campgrounds and other amusement and recreation industries. NAICS codes 711110 - 713990. Measured by number of spaces (manually derived).

LU9 – (OSFDU) Outer Single Family Residential includes those lands occupied by a single family home, duplex, or a manufactured home on a single lot outside the cities ACI areas. Units from classification LU1 were moved to this category for zones 1-17, 182-185, 187, 188, 192-213, and 215. LU9 is measured in outer single family dwelling units (rural).

LU10 – (PSS) Post-Secondary School included Colleges, Universities, Computer, Trade, and Other Professional Schools. LU10 is measured by number of students (manually derived).

LU11 – (AGRI) Agriculture includes NAICS code 111110 - 115310 and is measured in number of acres.

LU12 – (WFRT) Waterfront Units includes dwelling units on the water such as houseboats. LU12 is measured in dwelling units. Not included in Land Use at this time (future).

LU13 – (POL) Publicly owned land includes that land that is owned by the public, such as forest and BLM land. LU13 is measured in acres. KMPO used Kootenai County GIS parcel data to establish acreages within each TAZ area.

LU14 – (TRNWH) Transportation & Warehousing includes the Postal Service, Couriers and express delivery services, local messengers and delivery, general, farm & refrigerated warehousing and storage. This category includes the Transportation and Warehousing sector which comprises industries providing transportation passengers and cargo, warehousing and storage for goods, scenic and sightseeing transportation, and support activities related to modes of transportation. NAICS codes 481111 - 488999 & 491110 - 493190. LU14 is measured in employees.

LU15 – (MED) Medical is described in as the Health Care and Social Assistance sector which comprises establishments providing health care and social assistance for individuals. NAICS codes 621111 - 624410 (Note: Kootenai Medical

Figure 3: KMPO Land Use Classifications (Continued)

2016 KMPO Land Use Update – DRAFT 05-04-2017

Center -KMC Employees are not reported under this section by DOL, but instead are under LU 16 Government). In the travel demand model, KMC employees will remain in LU 15 (MED) to maintain the same trip generation rates. LU15 is measured in number of employees.

LU16 – (GOVT) Government includes establishments of federal, state, and local government agencies that administer, oversee, and manage public programs and have executive, legislative, or judicial authority over other institutions within a given area (KMC medical employees are reported under this LU, by Idaho DOL). Measured in number of employees. NAICS codes 921110 – 928120.

LU17 – (ASWMR) Administrative and Support and Waste Management and Remediation Services includes office administrative services, temporary help services, telemarketing, collection agencies, visitors' bureaus, locksmiths, landscaping services, solid waste collection, landfills, incinerators, septic tank services and related industries. Measured in number of employees. NAICS codes 561110 – 562998.

LU18 – (PSTMC) Professional, Scientific & Technical Services & Management of Companies & Enterprises includes Offices of Notaries, Payroll services, testing laboratories, technical design services, outdoor advertising, etc. Measured in number of employees. NAICS codes 541110 – 541990 & 551111 – 551114.

LU19 – (EDUSRV) Education Services include support staff in elementary and secondary schools, junior colleges, business and secretarial schools, miscellaneous training schools and education support services. Measured in number of employees. NAICS codes 611110 – 611710.

LU20 – OTHER Services (Except Public Administration) includes automotive repair, appliance repair and maintenance, diet centers, funeral homes, laundry services, photo finishing laboratories, religious organizations, civic and social organizations, business associations, political organizations, parking lots and garages and other miscellaneous services. NAICS codes 811111 – 814110. Measured in employees.

LU21 – (INFO) Information includes newspaper companies, software publishers, recording studios, radio stations, telecommunications and libraries. Measured in number of employees. NAICS codes 511110 – 519190.

LU22 – (UTLCONST) Utilities & Construction includes power generation, transmission and distribution by: hydroelectric, fossil, solar, wind, geothermal, biomass, electric, gas and other. Also, includes water supply, steam and air-conditioning supply and sewage treatment facilities, construction of new homes, highway, street and bridge construction, contractors for: structural steel framing, roofing, siding, painting, flooring, site preparation and all other specialty trade contractors. NAICS codes 221111 – 221330 & 236115 - 238992. Measured in number of employees.

LU23 – (FS) Food Services includes caterers, mobile food services, full service restaurants, drive-through, bars, cafeterias and buffets. NAICS codes 722110 – 722410 & 722511 - 722515, measured by number of employees.

Table 1: 2016 KMPO Land Use Data Summary

<u>Land Use Type</u>	<u>Total Units in KMPO Area</u>	<u>Units of Measurement</u>
LU1: SFDU (Single Family Dwelling Units)	48,825	Dwelling Units
LU2: MFDU (Multi-Family Dwelling Units)	7,904	Dwelling Units
LU3: Retail	8,461	Employees
LU4: Commercial (FIRES)	2,851	Employees
LU5: Industrial	6,292	Employees
LU6: Schools	24,156	Students
LU7: Accommodations	2,932	Rooms
LU8: Arts, Entertainment & Recreation	19,592	Spaces
LU9: Reserved for Outer Zone SFDU	10,372	Dwelling Units
LU10: Post-Secondary Schools	21,219	Students
LU11: Agriculture	329,888	Acres
LU12: Waterfront Units	Not Used	Dwelling Units
LU13: Publicly-owned Lands	279,072	Acres
LU14: Transportation & Warehousing	785	Employees
LU15: Medical	9,966	Employees
LU16: Government	2,542	Employees
LU 17: Administration & Support	3,524	Employees
LU 18: Professional, Science & Technology	2,267	Employees
LU19: Educational Services	3,921	Employees
LU 20: Other Services	1,307	Employees
LU 21: Information	611	Employees
LU 22: Utilities & Construction	4,742	Employees
LU 23: Food Services	5,697	Employees

Note: FIRES stands for Finance, Insurance, Real Estate and Services

6.0 2016 AM & PM Peak Hour Trip Generation Rates

Table 2 shows the AM peak hour trip generation rates, based on ITE trip generation rates, which are applied in the “calculate procedures” parameter file under the 2016 KMPO AM Peak Hour Model Run.

Table 3 shows the PM peak hour trip generation rates, based on ITE trip generation rates, which are applied in the “calculate procedures” parameter file under the 2016 KMPO PM Peak Hour Model Run.

No changes were made to the trip generation rates in the 2016 model update.

Table 2: AM Peak Hour Trip Rates in 2016 KMPO AM Model

LU	ATT	HW-O	HW-D	WH-O	WH-D	HR-O	HR-D	RH-O	RH-D	HO-O	HO-D	OH-O	OH-D	HS-O	HS-D	SH-O	SH-D	NHB-O	NHB-D	Total-O	Total-D	TOT O+D
1	SFDU	0.2195	0	0	0.02376	0.0353	0	0	0.01368	0.1425	0	0	0.1062	0.1607	0	0	0.036	0.012	0.0004	0.57	0.18	0.75
2	MFDU	0.1435	0	0	0.01154	0.0231	0	0	0.00664	0.0894	0	0	0.05157	0.1118	0	0	0.0175	0.0048	0.0002	0.3726	0.0874	0.46
3	RETAIL	0	0.11742	0.026574	0	0	0.11742	0.0487	0	0	0	0	0	0	0	0	0	0.3676	0.3523	0.4429	0.5871	1.03
4	FIRES	0	0.14014	0.004784	0	0.006	0.02402	0	0	0	0.12	0.0598	0	0	0	0	0	0.049	0.1161	0.1196	0.4004	0.52
5	INDUST	0	0.153	0.006	0	0	0	0	0	0	0.102	0.024	0	0	0	0	0	0.03	0.085	0.06	0.34	0.4
6	SCH	0	0.02285	0.002688	0	0	0	0	0	0	0	0	0	0	0.26275	0.0672	0	0.0645	0	0.1344	0.2856	0.42
7	ACCOM	0.0144	0.0162	0.0144	0	0	0	0	0	0	0.049	0.0432	0	0	0	0	0	0.216	0.0972	0.288	0.162	0.45
8	AER	0	0.05513	0.00105	0	0	0	0	0	0	0.063	0.0341	0	0	0	0	0	0.0173	0.0394	0.0525	0.1575	0.21
9	OSFDU	0.1389	0	0	0.01045	0.0224	0	0	0.00602	0.0902	0	0	0.04673	0.1017	0	0	0.0158	0.0076	0.0002	0.3608	0.0792	0.44
10	PSS	0	0.00984	0.000432	0	0	0	0	0	0	0	0	0	0	0.08856	0.0108	0	0.0104	0	0.0216	0.0984	0.12
11	AGRI	0	0.00158	0.000075	0	0	0	0	0	0	9E-04	0.0006	0	0	0	0	0	0.0008	0.0011	0.0015	0.0035	0.005
12	Not Used	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	POL	0	0.0002	2.15E-05	0	0	0	0	0	0	2E-04	0.0003	0	0	0	0	0	0.0001	0.0002	0.0004	0.0006	0.001
14	TRNWH	0	0.1862	0.0228	0	0	0	0	0	0	0.16	0.0912	0	0	0	0	0	0.114	0.1862	0.228	0.532	0.76
15	MED	0	0.1575	0.045	0	0	0	0	0	0	0.135	0.27	0	0	0	0	0	0.135	0.1575	0.45	0.45	0.9
16	GOVT	0	0.18788	0.00366	0	0	0	0	0	0	0.161	0.0476	0	0	0	0	0	0.022	0.1879	0.0732	0.5368	0.61
17	ASWMR	0	0.14469	0.004664	0	0.0058	0.02067	0	0	0	0.124	0.0583	0	0	0	0	0	0.0478	0.124	0.1166	0.4134	0.53
18	PSTMC	0	0.14469	0.004664	0	0.0058	0.02067	0	0	0	0.124	0.0583	0	0	0	0	0	0.0478	0.124	0.1166	0.4134	0.53
19	EDUSRV	0	0.14469	0.004664	0	0.0058	0.02067	0	0	0	0.124	0.0583	0	0	0	0	0	0.0478	0.124	0.1166	0.4134	0.53
20	OTHER	0	0.14469	0.004664	0	0.0058	0.02067	0	0	0	0.124	0.0583	0	0	0	0	0	0.0478	0.124	0.1166	0.4134	0.53
21	INFO	0	0.14469	0.004664	0	0.0058	0.02067	0	0	0	0.124	0.0583	0	0	0	0	0	0.0478	0.124	0.1166	0.4134	0.53
22	UTLCONST	0	0.1862	0.0228	0	0	0	0	0	0	0.16	0.0912	0	0	0	0	0	0.114	0.1862	0.228	0.532	0.76
23	FS	0	0.11742	0.026574	0	0	0.11742	0.0531	0	0	0	0	0	0	0	0	0	0.3632	0.3523	0.4429	0.5871	1.03
	XI-O-AM	0.19	0	0.08	0	0.05	0	0.03	0	0.22	0	0.1	0	0.18	0	0.06	0	0.09	0	1	0	1

Note: Numbers rounded in table

Table 3: PM Peak Hour Trip Rates in 2016 KMPO PM Model

LU	ATT	HW-O	HW-D	WH-O	WH-D	HR-O	HR-D	RH-O	RH-D	HO-O	HO-D	OH-O	OH-D	HS-O	HS-D	SH-O	SH-D	NHB-O	NHB-D	Total-O	Total-D	TOT O+D	
1	SFDU	0.01446	0	0	0.1714	0.054	0	0	0.0932	0.2939	0	0	0.3805	0.0019	0	0	0.0219	0.0214	0.01851	0.38565	0.6856	1.07125	
2	MFDU	0.00757	0	0	0.09801	0.0283	0	0	0.0533	0.1539	0	0	0.2176	0.001	0	0	0.0129	0.01121	0.01019	0.20196	0.39204	0.594	
3	RETAIL	0	0.02208	0.1196	0	0	0.15456	0.2392	0	0	0.1546	0.0718	0	0	0	0	0	0.76544	0.7728	1.196	1.104	2.3	
4	FIRES	0	0.00721	0.13992	0	0	0.01802	0.06996	0	0	0.2523	0.4198	0	0	0	0	0	0.06996	0.08289	0.6996	0.3604	1.06	
5	INDUST	0	0.00666	0.0407	0	0	0	0	0	0	0.0833	0.1018	0	0	0	0	0	0.06105	0.07659	0.2035	0.1665	0.37	
6	SCH	0	0.0012	0.0189	0	0	0	0	0	0	0.015	0.009	0	0	0.0018	0.0315	0	0.0306	0.042	0.09	0.06	0.15	
7	ACCOM	0	0.00508	0.04324	0	0	0	0	0	0	0.1523	0.1405	0	0	0	0	0	0.03243	0.09644	0.2162	0.2538	0.47	
8	AER	0	0.00142	0.01539	0	0	0	0	0	0	0.0497	0.05	0	0	0	0	0	0.01154	0.01989	0.07696	0.07104	0.148	
9	OSFDU	0.00591	0	0	0.07313	0.0221	0	0	0.0398	0.12	0	0	0.1623	0.0008	0	0	0.0094	0.00874	0.0079	0.1575	0.2925	0.45	
10	PSS	0	0.00154	0.00907	0	0	0	0	0	0	0.0192	0.0043	0	0	0.0023	0.0151	0	0.01469	0.05376	0.0432	0.0768	0.12	
11	AGRI	0	1.5E-05	0.0007	0	0	0	0	0	0	0.0006	0.0014	0	0	0	0	0	0.0014	0.00089	0.0035	0.0015	0.005	
12	WFRT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	POL	0	4.3E-06	0.00011	0	0	0	0	0	0	0.0003	0.0004	0	0	0	0	0	0	5.7E-05	0.00012	0.00057	0.00043	0.001
14	TRNWH	0	0.00456	0.1292	0	0	0	0	0	0	0.057	0.323	0	0	0	0	0	0.1938	0.05244	0.646	0.114	0.76	
15	MED	0	0.02017	0.14514	0	0	0	0	0	0	0.353	0.4354	0	0	0	0	0	0.14514	0.13112	0.7257	0.5043	1.23	
16	GOVT	0	0.00324	0.09322	0	0	0	0	0	0	0.2267	0.2797	0	0	0	0	0	0.09322	0.09393	0.4661	0.3239	0.79	
17	ASWMR	0	0.0036	0.13992	0	0	0.01802	0.06996	0	0	0.2523	0.4198	0	0	0	0	0	0.06996	0.0865	0.6996	0.3604	1.06	
18	PSTMC	0	0.0036	0.13992	0	0	0.01802	0.06996	0	0	0.2523	0.4198	0	0	0	0	0	0.06996	0.0865	0.6996	0.3604	1.06	
19	EDUSRV	0	0.0036	0.13992	0	0	0.01802	0.06996	0	0	0.2523	0.4198	0	0	0	0	0	0.06996	0.0865	0.6996	0.3604	1.06	
20	OTHER	0	0.0036	0.13992	0	0	0.01802	0.06996	0	0	0.2523	0.4198	0	0	0	0	0	0.06996	0.0865	0.6996	0.3604	1.06	
21	INFO	0	0.0036	0.13992	0	0	0.01802	0.06996	0	0	0.2523	0.4198	0	0	0	0	0	0.06996	0.0865	0.6996	0.3604	1.06	
22	UTLCONS	0	0.0057	0.1292	0	0	0	0	0	0	0.0798	0.323	0	0	0	0	0	0.1938	0.0285	0.646	0.114	0.76	
23	FS	0	0.01104	0.1196	0	0	0.1656	0.2392	0	0	0.1656	0.0718	0	0	0	0	0	0.76544	0.76176	1.196	1.104	2.3	
	XI-O-PM	0.03	0	0.14	0	0.06	0	0.1	0	0.24	0	0.3	0	0	0	0.01	0	0.12	0	1	0	1	
	IX-D-PM	0	0.03	0	0.13	0	0.1	0	0.06	0	0.3	0	0.24	0	0	0	0.01	0	0.13	0	1	1	

Note: Numbers rounded in table

7.0 2016 KMPO Auto Network Enhancements

Between 2010 and 2016, several roadway improvement projects were made in the KMPO area. The 2016 roadway network should include these improvements to reflect what is on the ground in 2016. Updates were made to the project list by the jurisdictions and the changes were reflected in the base model network for any projects already existing in the year 2016.

7.1 2016 External Trip Update

In the 2016 KMPO model, the trips coming from and to external areas are not based on the land use data for trip generation but instead are based on the existing 2016 directional traffic counts at the external stations. Fifteen external stations (TAZ 576 – TAZ 592) were used in the 2016 KMPO model to conceptually represent external TAZs. An additional external station (TAZ 592) was added where Elder Road enters Washington state.

Table 6 lists all of AM and PM peak hour directional traffic count data at each of the external TAZs. Note X-I stands for “from External to Internal” and vice versa.

Table 7 and Table 8 respectively list the 2016 AM and PM peak hour external-external through trips, which were also extracted from the external traffic counts.

7.2 2016 Link Traffic Count Update

The 2016 AM and PM peak hour traffic counts were coded by KMPO staff in the KMPO model for the purpose of model validation. Regression analyses can be directly performed by using the model volumes to compare with the peak hour traffic counts.

7.3 Model’s External Traffic Analysis Zone (TAZ) Update

The external stations exist at the model borders and are used to simulate traffic entering and exiting the travel demand model. Actual traffic counts were used at each external TAZ station and then adjusted to correct the internal model matrices to match the counts. A travel demand model uses matrices to calculate the trip generation and distribution from a trip origin to a trip destination. Table 4 shows the adjusted counts at the external to internal (X-I) and internal and external (I-X) count locations for both the AM PK Hr and PM PK Hr time frames. Tables 5 and 6 respectively show the internal matrices that correspond to the external to external TAZ’s (travel beginning at one external TAZ and exiting at the other external TAZ location).

Table 4: 2016 AM/PM Peak Hour Counts at External TAZs

TAZ #	Location	XI-O-AM	IX-D-AM	XI-O-PM	IX-D-PM
576	State Hwy. 41 - N. County Line	84	169	240	355
577	US 95 - N. County Line	216	206	349	426
578	Bayview Road - N. County Line	22	12	25	19
580	E. Canyon Road - E. County Line	16	18	27	26
581	I-90 - E. County Line	228	232	483	348
582	Future	0	0	0	0
583	State Hwy. 3 - S. County Line	41	72	86	43
584	Heyburn Rd. - S. County Line	12	7	10	15
585	US 95 - S. County Line	296	279	450	465
586	W. Worley West Rd. - W. County Line	1	2	1	2
587	State Hwy. 58 (E. Hoxie Rd.) - W. County Line	42	57	110	160
588	W. Riverview Drive - W. County Line	61	87	51	56
589	I-90 - W. County Line	1760	2532	3100	2410
590	Seltice Way - W. County Line	378	388	478	458
591	State Hwy. 53 (Trent Ave.) - W. County Line	206	390	649	332
592	Elder Rd. – E. County Line	22	49	39	58
TOTALS		3385	4500	6098	5173

Table 5: 2016 AM Peak Hour External-External Through Traffic Volumes

TAZ No.	Name	576	577	578	580	581	582	583	584	585	586	587	588	589	590	591	592
576	State Hwy 41 - North County Line	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.00	0.15	148.18	0.00
577	US 95 - North County Line	0.00	0.00	0.00	10.12	69.88	0.00	0.11	0.00	4.10	0.00	0.96	0.00	0.00	0.00	0.00	0.00
578	Bayview Rd. - North County Line	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
580	East Canyon Rd. - East County Line	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89	0.00	0.00	0.00
581	I-90 East County Line	0.00	0.38	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	79.25	0.00	0.00	0.00
582	FUTURE (Not Used)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
583	State Hwy 3 - South County Line	0.00	0.08	0.00	0.44	2.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.51	0.00	0.00	0.00
584	Heyburn Rd. - South County Line	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
585	US 95 - South County Line	0.00	66.94	0.00	0.00	4.99	0.00	0.00	0.00	0.00	0.00	21.59	0.54	1.93	0.00	0.00	0.00
586	Worley West Road - West County Line	0.00	1.19	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
587	State Hwy 58 (East Hoxie Rd.) West County Line	0.00	26.54	0.00	0.00	0.00	0.00	0.00	0.00	36.49	0.00	0.00	0.23	0.00	0.00	0.00	0.00
588	West Riverview Drive - West County Line	0.00	3.34	0.00	0.03	0.16	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
589	I-90 West County Line	0.00	0.00	0.00	0.33	29.52	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.01	0.00	0.00	0.00
590	Seltice Way - West County Line	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
591	State Hwy 53 (Trent Ave.) West County Line	33.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
592	Elder Rd. - East County Line	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 6: 2016 PM Peak Hour External-External Through Traffic Volumes

TAZ No.	Name	576	577	578	580	581	582	583	584	585	586	587	588	589	590	591	592
576	State Hwy 41 - North County Line	0.00	0.00	0.00	0.08	0.10	0.00	0.07	0.04	0.08	0.03	0.09	0.18	0.11	0.18	0.77	0.00
577	US 95 - North County Line	0.00	0.00	0.00	0.99	1.42	0.00	0.17	0.54	0.48	0.37	0.33	0.14	0.54	0.01	0.03	0.00
578	Bayview Rd. - North County Line	0.00	0.00	0.00	0.20	0.03	0.00	0.17	0.11	0.19	0.07	0.22	0.14	0.00	0.00	0.01	0.00
580	East Canyon Rd. - East County Line	0.09	0.46	0.12	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.18	1.96	0.36	0.27	0.00
581	I-90 East County Line	0.11	0.70	0.01	0.00	0.00	0.00	0.16	0.02	0.24	0.00	0.14	0.06	74.70	0.34	0.29	0.00
582	FUTURE (Not Used)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
583	State Hwy 3 - South County Line	0.05	0.07	0.06	0.28	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.01	8.46	0.04	0.03	0.00
584	Heyburn Rd. - South County Line	0.11	0.51	0.13	0.00	0.30	0.00	0.00	0.00	0.00	0.57	0.47	0.01	0.35	0.03	0.02	0.00
585	US 95 - South County Line	0.38	1.03	0.44	0.00	0.83	0.00	0.00	0.00	0.00	0.00	0.32	0.00	7.97	0.04	0.04	0.00
586	Worley West Road - West County Line	0.07	0.31	0.08	0.00	0.00	0.00	0.00	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
587	State Hwy 58 (East Hoxie Rd.) West County Line	0.41	0.37	0.47	0.00	0.00	0.00	0.00	0.84	0.15	0.00	0.00	0.01	0.24	0.01	0.02	0.00
588	West Riverview Drive - West County Line	0.16	0.00	0.00	0.12	0.06	0.00	0.01	0.13	0.05	0.00	0.00	0.00	0.00	0.00	0.01	0.00
589	I-90 West County Line	0.47	0.68	0.01	0.87	74.64	0.00	10.01	1.13	24.85	0.11	0.00	0.00	0.00	0.00	0.00	0.00
590	Seltice Way - West County Line	1.15	0.02	0.01	0.18	0.23	0.00	0.03	0.15	0.13	0.00	0.09	0.00	0.00	0.00	0.00	0.00
591	State Hwy 53 (Trent Ave.) West County Line	1.28	0.03	0.01	0.09	0.15	0.00	0.02	0.00	0.05	0.00	0.03	0.01	0.00	0.00	0.00	0.00
592	Elder Rd. – East County Line	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

8.0 Traffic Counts

Existing traffic counts from 2016, as well as counts from 2013, 2014, and 2015 grown to the update year, were used for the 2016 KMPO base model validation. Some traffic counts from 2017 were also used for locations missing data. The existing traffic count data had previously been collected during normal travel patterns.

Traffic counts are checked for errors and consistency to ensure they are accurate. Traffic counts taken exclude: weekends, holidays, vacation days, and construction. When available, three out of the five days of data are then averaged for each of the following model periods: AM period (6 AM – 9AM), AM peak hour, PM period (3 PM – 6 PM), and PM Peak hour. There were some locations where only one or two days of data was available. In these cases, care was taken to validate the data, such as comparing it to adjacent locations, to ensure these counts reflected average conditions. Any suspect counts (example: tube malfunctioned or limited data) during that time period are excluded and, if available, another day or year's will be used to calculate the average. The AM Peak Hour, PM Peak Hour, AM Period and PM Period actual traffic counts are used to validate the modeled traffic volumes and are discussed later in the "Screenline Validation" section of this documentation.

A traffic count analysis was also performed using the Idaho Transportation Department's (ITD) Automatic Traffic Recorder (ATR) data analysis, over the last 20-year period from 1996 to 2016. During the five-year period from 2011 to 2016, the analysis showed an average growth rate of 3.17% per year and the more recent analysis between the years 2014 to 2016 showed an average growth rate of 5.13% per year. While the ATR count data reflects the mainline regional traffic growth, it may not accurately reflect local roadway network growth. The 20-year growth rate of 1.65% per year was used to grow the existing traffic counts to 2016. The external-external matrices were also grown from 2010 using this growth rate.

9.0 AM/PM Peak Hour Trip Generation

The KMPO VISUM model trip generation is categorized by four primary trip purposes. After the AM and PM peak hour trip generation model is run, the total KMPO region-wide trip productions and attractions are summarized to compare with the expanded travel survey samples reported in the “Spokane and Kootenai County Regional Travel Survey Final Report.”

9.1 AM Peak Hour Trip Generation Validation

Table 7 lists the 2016 AM peak hour trip generation model percentages results compared with the actual AM peak hour (7 AM – 8 AM) trips as reported by NuStats.

The AM peak hour model results show reasonable comparison with the survey results as the percentage of modeled vehicle trips that exclude the external inbound, outbound, and through trips. The 2005 Kootenai County/Spokane Travel survey percentages were used to calculate the trip generation rates in the model.

Table 7: 2016 AM Peak Hour Trip Generation Validation Results

TRIP PURPOSE	AM-PK HR % of Trips Modeled 2016 Base Model	AM PK HR of 2005 Trips Reported by NuStats
Home Based Work	23.8%	25.2%
Home Based Retail	5.3%	5.3%
Home Based Other	29.9%	28.2%
Non-Home Based	20.8%	20.7%
School – not included in other trip purposes	20.2%	20.6%
Total	100%	100%

9.2 PM Peak Hour Trip Generation Validation

Table 8 lists the 2016 PM peak hour trip generation model percentages results compared with the actual PM peak hour (5 PM – 6 PM) trips as reported by NuStats.

The PM peak hour model results show reasonable comparison with the survey results as the modeled vehicle trips that exclude the external inbound, outbound and through trips. The 2005 Kootenai County/Spokane Travel survey percentages were used to calculate the trip generation in the model. The trip generation rates were then checked against the 2005 Kootenai County/Spokane County travel survey results.

Table 8: 2016 PM Peak Hour Trip Generation Validation Results

TRIP PURPOSE	PM-PK HR % of Trips Modeled 2016 Base Model	PM PK HR of 2005 Trips Reported by NuStats
Home Based Work	13.5%	13.4%
Home Based Retail	11.1%	10.6%
Home Based Other	48.2%	48.1%
Non-Home Based	25.5%	26.2%
Schools - not included in other trip purposes	1.7%	1.7%
Total	100%	100%

10.0 AM/PM Peak Hour Trip Distribution

The KMPO VISUM model utilizes five primary trip purposes for trip distribution. These trip purposes are based on Gravity Model functions. The a, b, and c parameters in the Gravity Model functions are calibrated in the 2016 KMPO model to fit the trip length distribution patterns in terms of frequencies and average travel times reported in the “Spokane and Kootenai County Regional Travel Survey Final Report.” No changes were made to the trip distribution parameters during the 2016 model update.

Table 9: Trip Distribution Utility Parameters AM PK HR

Trip Purpose	Trip Distribution Parameter		
	a	b	c
HB-Work	-0.1	1.7	5
HB-Retail	0	2.7	0
HB-Other	0	2.7	0
Non-Home Based	0	2.8	0
HB-School	0	2.7	0

Table 10: Trip Distribution Utility Parameters PM PK HR

Trip Purpose	Trip Distribution Parameter		
	a	b	c
HB-Work	-0.1	1.4	5
HB-Retail	0	2.4	0
HB-Other	0	2.4	0
Non-Home Based	0	2.5	0
HB-School	0	2.4	0

10.1 Gravity Model Calibration/Validation Results

A random sampling of travel times from one traffic analysis zone (TAZ) to another was extracted from the model using flow bundles. The same path was input into Google Maps to estimate actual travel times during the AM PK hour and PM PK hours. It is important to note that the travel times via Google maps are subject to change at any point due to actual roadway and traffic conditions. This may cause variations in route choice and travel time that differ from the model outputs.

As shown in Table 11 and 12, the average model travel time roughly matches the average observed Google travel time for overall KMPO region-wide, despite some average travel time variations.

Table 11: 2016 AM Peak Hour Average Travel Time (Minutes) – 2016 Base Model Vs. Google Estimated Travel Times (In Current Traffic when available)

O Zone	D Zone	From Place	To Place	Length	t0	tCur	Google TT	Difference
401	20	Cabela's	Rathdrum	12.04mi	15min	16min	23min	7min
401	10	Cabela's	Silverwood Vic.	21.82mi	25min	28min	35min	7min
424	10	KMPO	Silverwood Vic.	20.16mi	24min	29min	33min	4min
589	161	State Line	Kootenai Health	13.26mi	13min	16min	17min	1min
589	581	State Line	Kootenai East Border	44.07mi	37min	40min	42min	2min
589	204	State Line	Worley	41.84mi	36min	46min	44min	2min
204	11	Worley	Athol	49.30mi	51min	60min	56min	4min
400	424	Hauser Lake	Downtown CDA	16.97mi	19min	23min	24min	1min

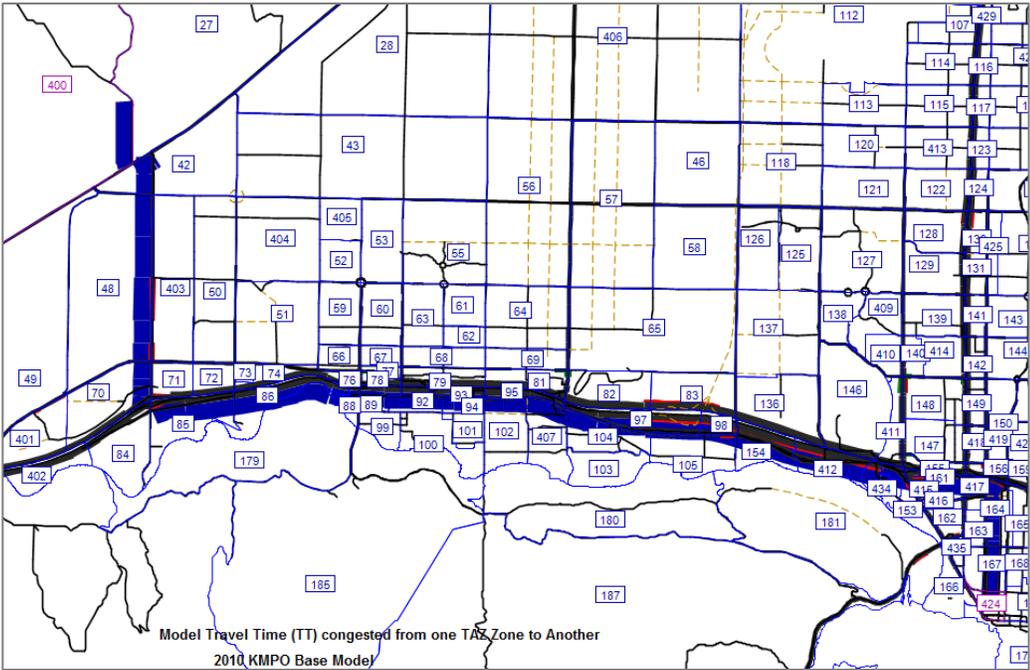
Legend: TT= Travel Time, O Zone = OriginZone, D Zone = Destination Zone, t0= Free flow TT, tCur (Congested TT).

Table 12: 2016 PM Peak Hour Average Travel Time (Minutes) – 2016 Base Model Vs. Google Estimated Travel Times (In Current Traffic when available)

O Zone	D Zone	From Place	To Place	Length	t0	tCur	Google TT	Difference
401	20	Cabela's	Rathdrum	12.11mi	15min	17min	23min	6min
401	10	Cabela's	Silverwood Vic.	21.89mi	25min	29min	36min	7min
424	10	KMPO	Silverwood Vic.	20.03mi	24min	35min	34min	1min
589	161	State Line	Kootenai Health	13.24mi	12min	20min	17min	3min
589	581	State Line	Kootenai East Border	44.07mi	37min	43min	41min	2min
589	204	State Line	Worley	41.84mi	36min	49min	43min	6min
204	11	Worley	Athol	49.38mi	51min	66min	60min	6min
400	424	Hauser Lake	Downtown CDA	16.80mi	19min	26min	24min	2min

Legend: TT= Travel Time, O Zone = OriginZone, D Zone = Destination Zone, T0= Free flow TT, TCur (Congested TT).

Figure 4: Model Flow Bundle to Calculate Travel Time



The model flow bundle path to calculate the congested average travel time (t_{Cur}) from one TAZ zone to another.

11.0 AM/PM Peak Hour Traffic Assignments

The 2016 AM peak hour KMPO Model traffic assignments are displayed in Figure 6 and the 2016 PM peak hour KMPO Model traffic assignments are displayed in Figure 7.

The traffic assignment figures provide a snapshot of directional traffic volumes for the AM and PM peak hour in the urbanized KMPO area.

Since the directional traffic forecasts need to be evaluated for statistical accuracy and confidence, screenline validation analysis is performed for both AM and PM peak hour conditions. Appendix 1C and Appendix 1D show the 2016 KMPO Model AM/PM peak hour screenline spreadsheets, respectively.

11.1 Traffic Assignment Method Update

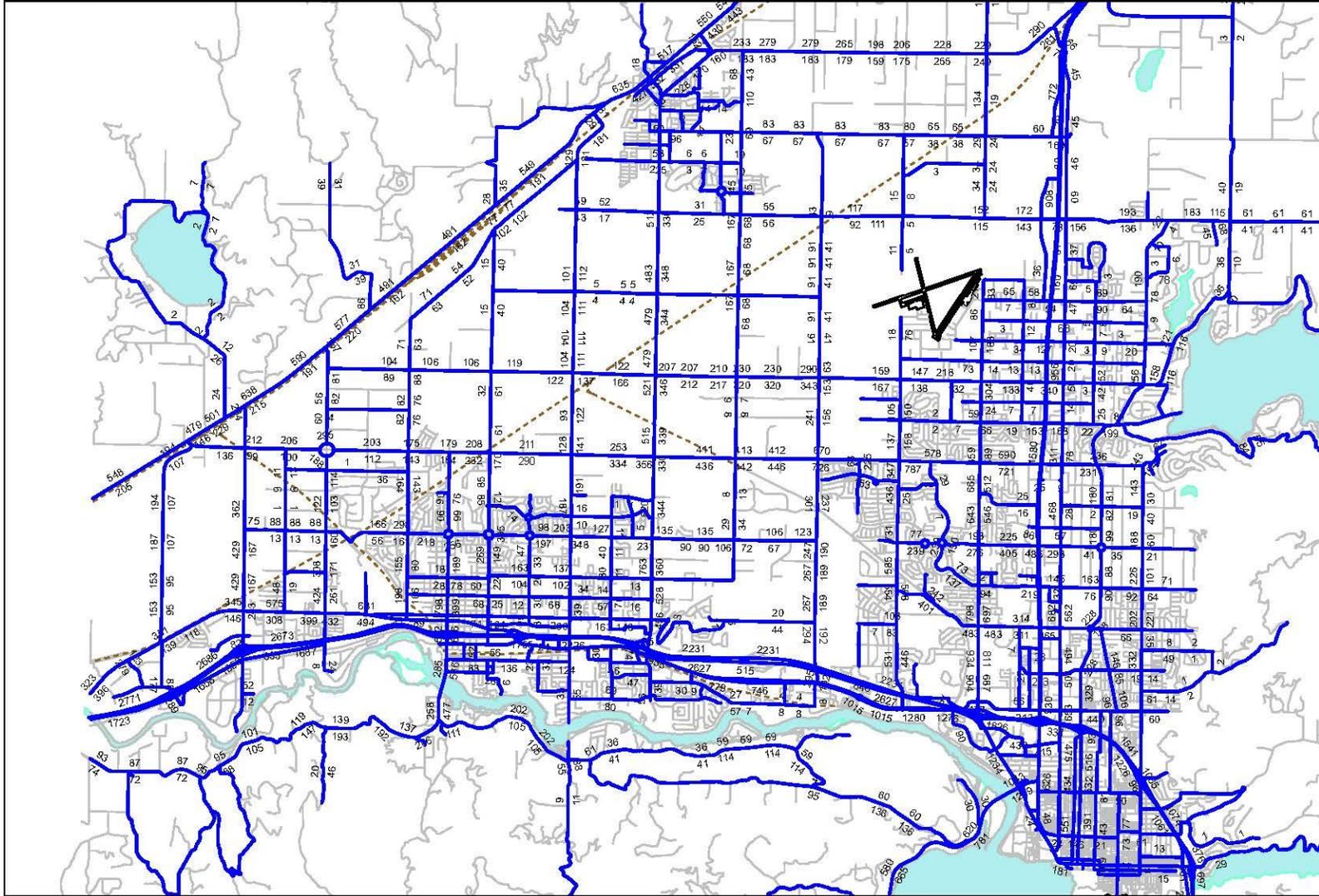
The traffic assignment method was changed in the 2016 Base Model from Equilibrium assignment to Bi-conjugate Frank Wolfe assignment (Figure 5). This was done for two reasons. First, this assignment method produces more consistent route flows (i.e. proportionality for select link analysis). Second, it is better/more equitable at scaling of Origin-Destination flows when using Origin-Destination Matrix Estimation (ODME) to develop correction factors.

<input checked="" type="checkbox"/>	Combination of matrices and vectors	Matrix(14) := Matrix(208) + M	
<input checked="" type="checkbox"/>	Combination of matrices and vectors	Matrix(16) := Matrix(207) + M	
<input checked="" type="checkbox"/>	Combination of matrices and vectors	Matrix(18) := Matrix(206) + M	
<input checked="" type="checkbox"/>	Combination of matrices and vectors	Matrix(20) := Matrix(224) + M	
<input checked="" type="checkbox"/>	Combination of matrices and vectors	Matrix(3) := Matrix(14) + Mat	
<input checked="" type="checkbox"/>	PrT assignment	PM-Tot PM_Total	Equilibrium assignment Bi-conjugate Frank-Wolfe
<input checked="" type="checkbox"/>	Calculate PrT skim matrix	PM_HBW PM_HBW	
<input checked="" type="checkbox"/>	Combination of matrices and vectors	Matrix(220) := 0.5*Matrix(220)	
<input checked="" type="checkbox"/>	Go to the procedure	Procedure 109	
<input checked="" type="checkbox"/>	Edit attribute	Links - PM_PK_Hr_Model_Vol	
<input checked="" type="checkbox"/>	Combination of matrices and vectors	Matrix(FNO1 = 3):=Matrix(FNO	

Figure 5: Change to model assignment within procedure sequence

In order to smooth out the model assignment outputs to better match actual traffic flows, PTV Group carried out an Origin-Destination Matrix Estimation (ODME) for both AM and PM time periods. Based on this estimation, an adjustment factor matrix was computed and the adjusted flows were re-assigned to the network. This was done to bring the model flows in closer agreement with counted flows. The adjustment calculations used were based off of the ratio method in the NCHRP Report 255 guidelines. This adjustment is also proportionally applied to the forecast condition to produce flows that account for current model bias/error. Additional link attributes were created to store unadjusted model flows, as well as adjusted model flows, in order to allow model users to summarize and juxtapose both flows and exercise judgement in interpretation of model results.

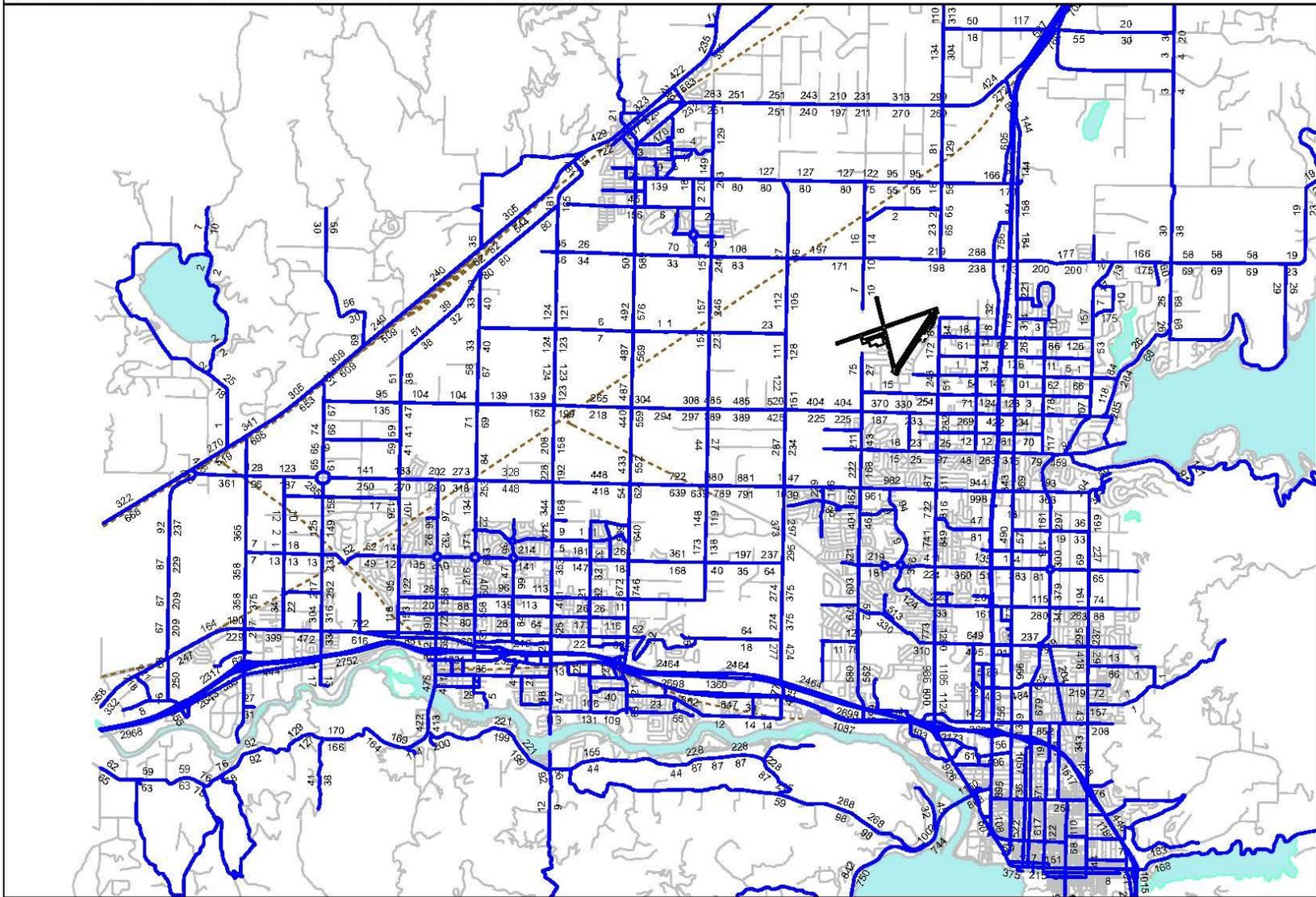
2016 KMPO VISUM TRAVEL DEMAND MODEL - AM PK HOUR VOLUMES



17.01	2016 AM PK HR Traffic Volumes	1:93292
Created on: 13.11.2018	KMPO_2016_BASE_FINAL_AM 11-9-18.ver	KMPO

Figure 6: 2016 KMPO VISUM Model AM Peak Hour Traffic Assignment Results

2016 KMPO VISUM TRAVEL DEMAND BASE MODEL - PM PK HOUR VOLUMES



17.01	2016 PM PK HR Base Traffic Volumes	KMPO 2016 Build Model
Created on: 13.11.2018	KMPO_2016_BASE_FINAL 11-9-18.ver	KMPO

Figure 7: 2016 KMPO VISUM Model PM Peak Hour Traffic Assignment Results

12.0 AM/PM Peak Hour Traffic Screenline Validation

As shown in the following Figure 8 and Figure 9, twenty-eight screenlines are drawn to display ratios of the 2016 KMPO model AM and PM peak hour traffic modeled volumes over their corresponding traffic counts. Table 13, below, shows a summary of the screenline results.

Table 13: 2016 KMPO Model AM/PM Peak Hour Screenline Summary Results

Screenline Location and No.	AM Peak Hour Model/Count Ratio	PM Peak Hour Model/Count Ratio
Spokane River Crossing Screenline #1	No data	No data
Seltice Screenline #2	1.13	1.17
Harrison Avenue Screenline # 3	1.00	1.10
Appleway Ave/Best Screenline #4	1.03	0.88
Seltice/Mullan Rd/Kathleen Screenline #5	1.11	1.01
Poleline Road Screenline #6	1.06	1.04
Prairie Road Screenline #7	1.03	1.05
Hayden Avenue Screenline #8	0.97	0.91
Lancaster Road Screenline #9	0.82	0.85
SH 53 – US 95 Screenline #10	1.10	1.11
Twin Lakes to National Forest Screenline #11	1.37	1.15
US 95 to SH 3 South Screenline #12	0.84	0.87
SH 95 to LaTour Creek Rd Screenline #13	1.25	1.59
Spirit Lake Pend'O Reille Screenline #14	1.01	0.98
Pleasant View Road Screenline #15	No data	1.27
McGuire Road Screenline #16	No data	1.31
Chase Road Screenline #17	No data	1.18
Spokane Street Screenline #18	No data	1.14
Idaho Street Screenline #19	1.04	1.08
Greensferry Road Screenline #20	0.76	1.21
SH 41 Screenline #21	1.05	0.95
Huetter Road Screenline #22	1.46	1.48
Ramsey Road Screenline #23	1.01	1.08
US 95 Screenline #24	1.05	1.00

West Side KMPO Screenline #25	1.08	0.88
East Side KMPO Screenline #26	1.05	0.98
Government Way Screenline #27	1.17	1.12
I-90 Ramps Screenline #28	1.14	0.91
Overall Average Screenline	1.07	1.09

12.1 Allowable Deviation Standards

The closer the model/count ratios by screenlines approach 1.00, the better matches the screenline traffic volumes are compared with the traffic counts. The Federal Highway Administration (FHWA) developed a maximum allowable screenline validation error range and formula as shown below:

% Allowable Deviation per TMIP FHA

For volumes less than 100,000:

$$\text{Tol (\%)} = 1/100 * [(-0.00005*(V)^3 + 0.013*(V)^2 - 1.1822*(V) + 65.465)]$$

For over 100,000:

$$\text{Tol (\%)} = 2.1783*(V)^{-0.4784}$$

Where V is volume in thousands

By using the formula, the screenlines can be evaluated to see if they meet the percent allowable deviation ranges. Figure 10 and Figure 11 display the screenline validations against FHWA Maximum Allowable Error Range (Source: Figure 7-2 Maximum Desirable Deviation in Total Screenline Volumes in the *Model Validation and Reasonableness Checking Manual* published by FHWA Travel Model Improvement Program).

By the FHWA standards, the 2016 KMPO Model is validated for both AM peak hour and PM peak hour and can be used to build future year travel demand models in KMPO areas.

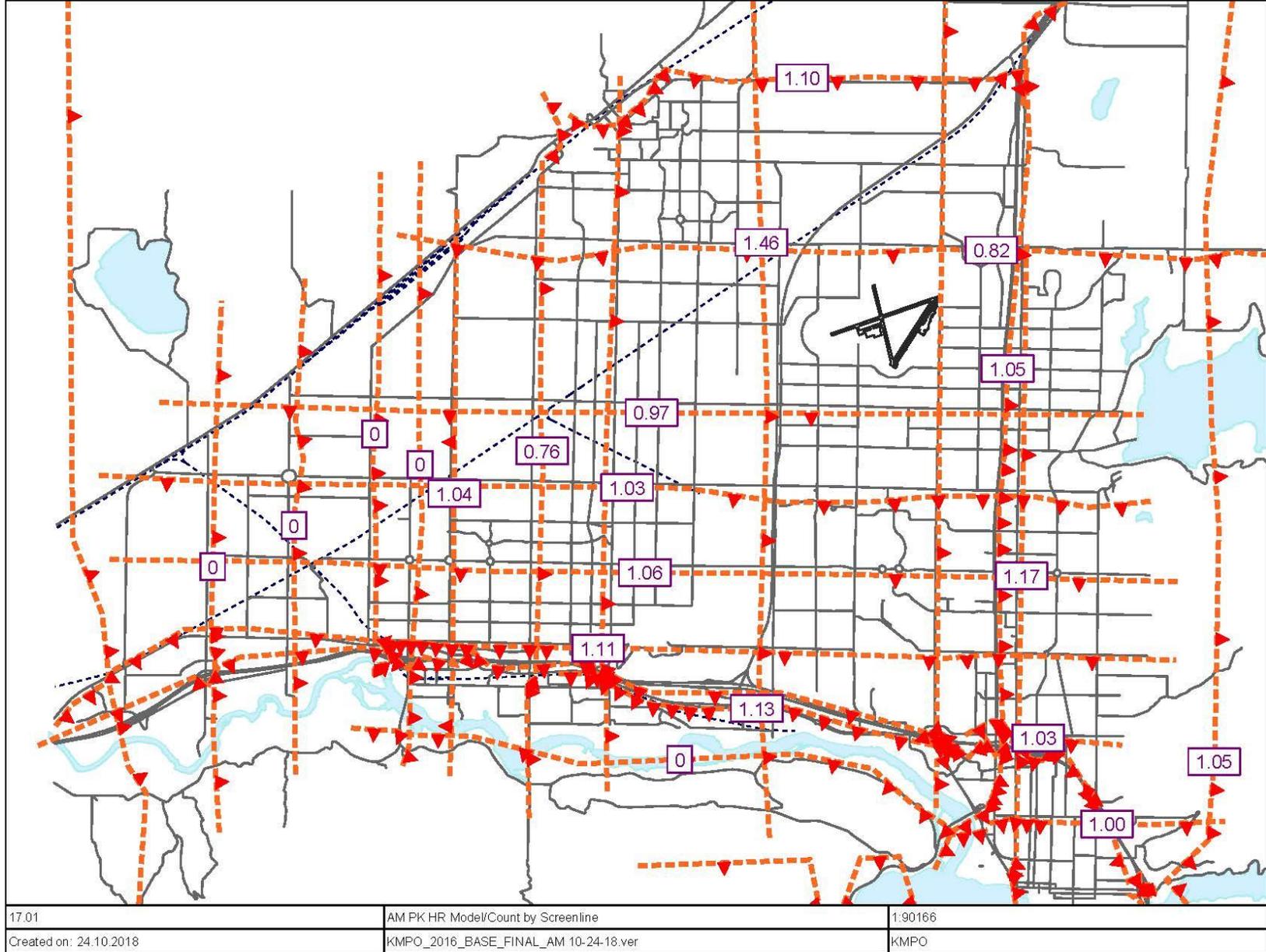
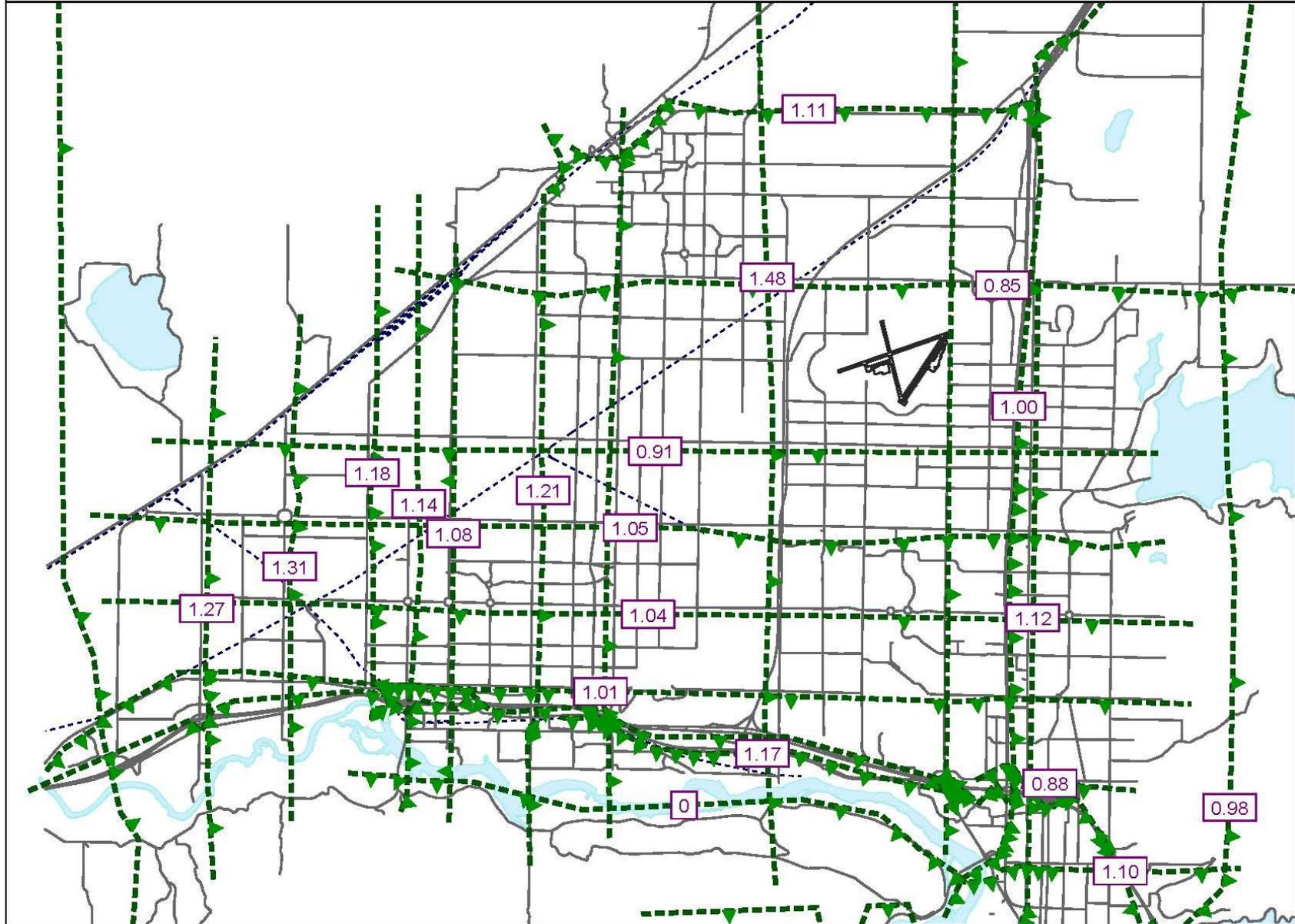


Figure 8: 2010 KMPO VISUM Model AM Peak Hour Traffic Forecast Screenline Results



17.01	PM PK HR Model/Count by Screenline	1:90166
Created on: 24.10.2018	KMPO_2016_BASE_FINAL 10-23-18.ver	KMPO

Figure 9: 2016 KMPO VISUM Model PM Peak Hour Traffic Forecast Screenline Results

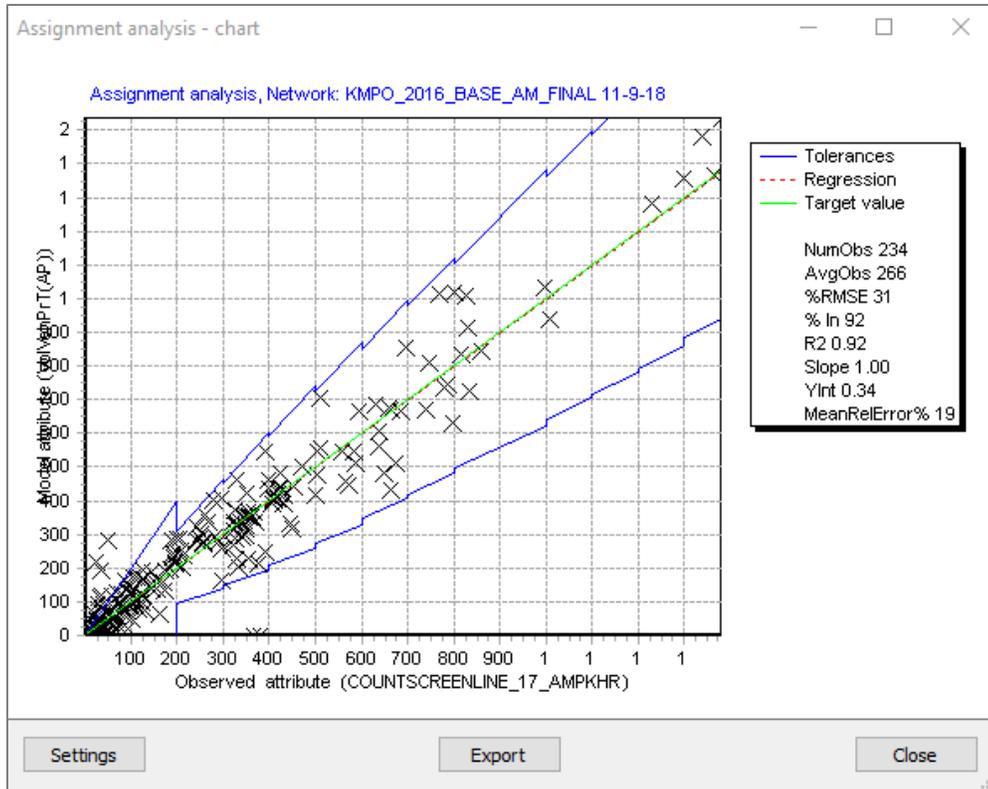


Figure 10: 2016 KMPO Model AM Peak Hour Screenline Error Range

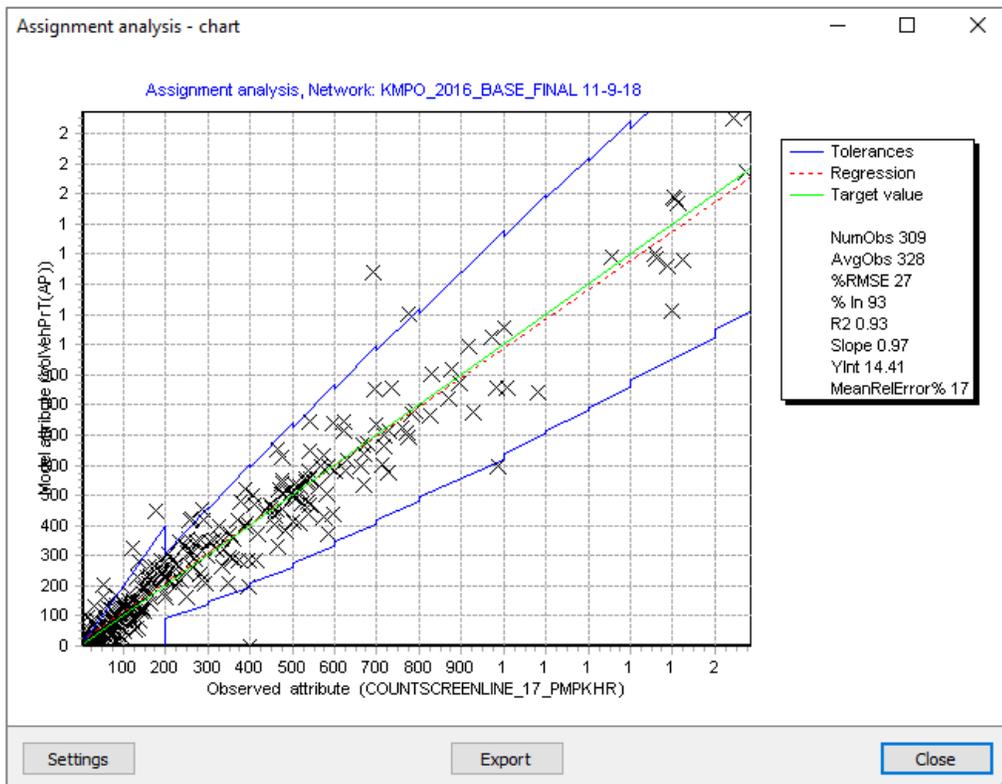


Figure 11: 2016 KMPO Model PM Peak Hour Screenline Error Range

13.0 Model Limitations and Improvements

Similarly to the 2010 model, the 2016 KMPO model has some limitations that lead to potential improvements in the future.

- The KMPO model is a vehicle-based travel demand forecasting model and does not have multimodal forecasting capability, as the model only follows the three steps of the traditional four-step modeling procedures: trip generation, trip distribution, and trip assignment without the mode choice modeling step.
- The model trip generation rates are simply based on the ITE Trip Generation Manual but not based on the regional travel survey data, although the total trips generated by purpose are calibrated against the 2005 Kootenai/Spokane expanded travel survey results.
- The model produces better traffic forecasts in the urbanized area with higher traffic volume than in the rural area with lower traffic volumes possibly because of the larger zones and less street network in rural areas, or because the rural areas have lower trip generation rates than the ITE urban and suburban trip generation rates used in the KMPO model. Further statistical analysis of the rural and urban area travel behaviors will help evaluate this hypothesis.
- The trip distribution patterns roughly match with the 2005 regional travel survey; the statistical results were extracted from the travel survey for the AM and PM conditions, by NuStats as requested by KMPO staff during this 2010 model update; therefore, the statistical analysis results are based on the “2005 Spokane and Kootenai County Regional Travel Survey”.
- Intersection level of service calculation can be implemented by using the VISUM module TRAFFIX based on the Highway Capacity Manual but was not done at this update and should be implemented for operational analysis in the future.
- Some local zonal details or network details may not be sufficient to reflect the traffic forecast conditions in the local sub-area transportation study and planning, or project specific sites and should be enhanced further to meet the local travel demand modeling needs in the future.

Appendices

Appendix 1A: KMPO Project dir file.pfd – KMPO Project directory file that directs the model to the proper file directory location

Number: 60	Type	Path	Extension(s)
1	Project directories	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	pfd
2	Version	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	ver
3	Global layout	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	lay
4	Network	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	net
5	OD demand data	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	dmd
6	Scenario management project	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	vpdb;vpdbx
7	Matrix	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	mtx;mx;fma;*
8	Access database	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	mdb
9	Access 2007 database	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	accdb
10	Model transfer file	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	tra
11	ESRI shapefile	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	shp
12	Attributes	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	att
13	Active network objects	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	ane
14	Filter	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	fil
15	Procedure parameters	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	par;xml
16	AddIn	%APPDATA%\Visum\125\AddIns\	vai
17	Script	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	vbs;js;pys;py;rb;pl;tcl
18	Other input data	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	*
19	Other output data	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	*
20	Graphic parameters	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	gpa;gpax
21	Background	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	emf;wmf;bmp;dwg;dxg;ecw;jp2;jp
22	Texts	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	txt
23	Image	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	bmp;jpg;wmf;emf;gif;tiff;png
24	SVG file	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	svg
25	DXF file	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	dxf
26	Screenshot	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	jpg;wmf;emf;bmp;gif;tiff;png
27	Exported turn volumes	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	jpg;png;gif;wmf;emf;bmp;tiff;svg
28	Legend parameters	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	lgd
29	Timetable graphic parameters	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	gpt;gpbe;pgp;gptt
30	Signal time-space diagram graphic parameters	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	gptsd
31	Matrix editor graphic parameters	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	gpm
32	Schematic line diagram graphic parameters	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	gpsld
33	Transfers display of regular services - graphic parameters	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	gpa
34	Timetable layout	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	tly;tbe;tlt;tlt;tls
35	List layout	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	lla
36	Quickview layout	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	qla
37	Matrix editor layout	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	mly
38	Survey data	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	*
39	PuT connections	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	con
40	PrT routes	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	rim
41	EMME project	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	emme
42	PuT interfaces project	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	putp;put;haf
43	Network merge parameters	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	nmp
44	Parameters for 'Read network additively'	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	anrp
45	Parameters for 'Read demand additively'	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	adrp
46	Subnetwork generator parameters	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	xml
47	Parameters for matrix operations	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	xml;cod
48	ICA file	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	*
49	External control	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	nse;rb;sig
50	RASW file	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	rwf
51	ANM network	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	anm
52	ANM export parameters	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	anmp
53	ANM routes	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	anmRoutes
54	Log file	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	*
55	Combination	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	*
56	Projection	%APPDATA%\Visum\125\Projections\	prj
57	Script menu file	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	xml
58	User-defined VD function DLLs	%APPDATA%\Visum\125\UserVDF-DLLs\	dll
59	Intervals	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	att;cod
60	User preferences	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2016 New Procedures\	xml

Appendix 1B: Final Calculate Procedures File AM_PM_11-9-18.par - An AM/PM combined parameter file for the AM/PM peak hour KMPO Model (Procedures 1 – 42)

Count: 125	Execution	Active	Procedure	Reference object(s)	Variant/file	Comment
1		<input checked="" type="checkbox"/>	Group Capacity calculation - Ca	2 - 47		Capacity calculation - Calculate Procedure
2		<input checked="" type="checkbox"/>	Initialize all filter settings			
3		<input checked="" type="checkbox"/>	Read filter		TSysCar.fil	
4		<input checked="" type="checkbox"/>	Edit attribute	Links - CapPrT		Set Link Capacity, Lanes * Cap/Lane
5		<input checked="" type="checkbox"/>	Edit attribute	Connectors - T0_TSys(C)		Test to set Connector Time
6		<input checked="" type="checkbox"/>	Read filter		TWLTL-3Lane.fil	3 Lane Road
7		<input checked="" type="checkbox"/>	Edit attribute	Links - CapPrT		Add 300 directional capacity
8		<input checked="" type="checkbox"/>	Read filter		TWLTL-5Lane.fil	5 Lane Road
9		<input checked="" type="checkbox"/>	Edit attribute	Links - CapPrT		Add 150 directional capacity
10		<input checked="" type="checkbox"/>	Read filter		Fwy_GT_2_Lanes.fil	3+ Lane Fwy
11		<input checked="" type="checkbox"/>	Edit attribute	Links - CapPrT		Add Cap for 3 Lane + Fwy
12		<input checked="" type="checkbox"/>	Edit attribute	Nodes - K4		Set All K4 = 1.0
13		<input checked="" type="checkbox"/>	Read filter		ActiveLinksNodes.fil	Start Node Computations
14		<input checked="" type="checkbox"/>	Edit attribute	Nodes - CapPrT		Add all outbound link capacities
15		<input checked="" type="checkbox"/>	Read filter		ActiveLinksNodes-3plusLegs.fil	3 Plus Leg Nodes
16		<input checked="" type="checkbox"/>	Edit attribute	Nodes - K4		
17		<input checked="" type="checkbox"/>	Read filter		ActiveLinksNodes-2Leg.fil	
18		<input checked="" type="checkbox"/>	Edit attribute	Nodes - K4		
19		<input checked="" type="checkbox"/>	Read filter		ActiveLinksNodes-3Leg.fil	
20		<input checked="" type="checkbox"/>	Edit attribute	Nodes - K4		
21		<input checked="" type="checkbox"/>	Read filter		ActiveLinksNodes-4Leg.fil	
22		<input checked="" type="checkbox"/>	Edit attribute	Nodes - K4		
23		<input checked="" type="checkbox"/>	Read filter		ActiveLinksNodes-5Leg.fil	
24		<input checked="" type="checkbox"/>	Edit attribute	Nodes - K4		
25		<input checked="" type="checkbox"/>	Read filter		NodeCapacityFinalComputations.fil	
26		<input checked="" type="checkbox"/>	Edit attribute	Nodes - CapPrT		
27		<input checked="" type="checkbox"/>	Read filter		Turns-LT-TH-RT-Only.fil	Turns-LT-TH-RT-Only.fil
28		<input checked="" type="checkbox"/>	Edit attribute	Turns - CapPrT		Reset Turn Capacities
29		<input checked="" type="checkbox"/>	Edit attribute	Turns - t0PrT		Reset Turn T0=0
30		<input checked="" type="checkbox"/>	Read filter		SingleLeftTurnsSignalsTwoWayStops.fil	Single Left Turns
31		<input checked="" type="checkbox"/>	Edit attribute	Turns - t0PrT		T0=6Secs
32		<input checked="" type="checkbox"/>	Edit attribute	Turns - CapPrT		TurnCap=300
33		<input checked="" type="checkbox"/>	Read filter		DualLeftTurnsSignalsTwoWayStops.fil	Dual Left Turns
34		<input checked="" type="checkbox"/>	Edit attribute	Turns - CapPrT		TurnCap=275*NumLanes
35		<input checked="" type="checkbox"/>	Read filter		Uncontrolled_Intersections.fil	Set Uncontrolled Controls
36		<input checked="" type="checkbox"/>	Edit attribute	Nodes - ControlType		1-Uncontrolled
37		<input checked="" type="checkbox"/>	Read filter		Stop_2_Way_Intersections.fil	Set 2 Way Stop
38		<input checked="" type="checkbox"/>	Edit attribute	Nodes - ControlType		2-Partial Stop
39		<input checked="" type="checkbox"/>	Read filter		Yield_2_Way_Intersections.fil	Set Yield
40		<input checked="" type="checkbox"/>	Edit attribute	Nodes - ControlType		6-Yield
41		<input checked="" type="checkbox"/>	Read filter		Stop_All_Way_Intersections.fil	Set All Way Stop
42		<input checked="" type="checkbox"/>	Edit attribute	Nodes - ControlType		4-All Way Stop

Appendix 1B (Continued): Final Calculate Procedures File AM_PM_11-9-18.par (Procedures 43-82)

Count: 125	Execution	Active	Procedure	Reference object(s)	Variant/file	Comment
43		<input checked="" type="checkbox"/>	Read filter		Signal_Intersections.fil	Set Signals
44		<input checked="" type="checkbox"/>	Edit attribute	Nodes - ControlType		3-Signals
45		<input checked="" type="checkbox"/>	Read filter		Roundabout_Intersections.fil	Set Roundabouts
46		<input checked="" type="checkbox"/>	Edit attribute	Nodes - ControlType		7-Roundabout
47		<input checked="" type="checkbox"/>	Read filter		TSysCar.fil	
48		<input checked="" type="checkbox"/>	Group Set Land Use to 2016	49 - 77		Set Land Use to 2016 for Base Year
49		<input checked="" type="checkbox"/>	Edit attribute	Zones - SFDU_LU1		
50		<input checked="" type="checkbox"/>	Edit attribute	Zones - MFDU_LU2		
51		<input checked="" type="checkbox"/>	Edit attribute	Zones - RET_LU3		
52		<input checked="" type="checkbox"/>	Edit attribute	Zones - FIRES_LU4		
53		<input checked="" type="checkbox"/>	Edit attribute	Zones - INDUST_LU5		
54		<input checked="" type="checkbox"/>	Edit attribute	Zones - SCH_LU6		
55		<input checked="" type="checkbox"/>	Edit attribute	Zones - ACCOM_LU7		
56		<input checked="" type="checkbox"/>	Edit attribute	Zones - AER_LU8		
57		<input checked="" type="checkbox"/>	Edit attribute	Zones - OSFDU_LU9		
58		<input checked="" type="checkbox"/>	Edit attribute	Zones - PSS_LU10		
59		<input checked="" type="checkbox"/>	Edit attribute	Zones - AGR_LU11		
60		<input checked="" type="checkbox"/>	Edit attribute	Zones - WFRT_LU12		
61		<input checked="" type="checkbox"/>	Edit attribute	Zones - POL_LU13		
62		<input checked="" type="checkbox"/>	Edit attribute	Zones - TRNWH_LU14		
63		<input checked="" type="checkbox"/>	Edit attribute	Zones - MED_LU15		
64		<input checked="" type="checkbox"/>	Edit attribute	Zones - GOVT_LU16		
65		<input checked="" type="checkbox"/>	Edit attribute	Zones - ASWMMR_LU17		
66		<input checked="" type="checkbox"/>	Edit attribute	Zones - PSTMC_LU18		
67		<input checked="" type="checkbox"/>	Edit attribute	Zones - EDUSRV_LU19		
68		<input checked="" type="checkbox"/>	Edit attribute	Zones - OTHER_LU20		
69		<input checked="" type="checkbox"/>	Edit attribute	Zones - INFO_LU21		
70		<input checked="" type="checkbox"/>	Edit attribute	Zones - UTLCONST_LU22		
71		<input checked="" type="checkbox"/>	Edit attribute	Zones - FS_LU23		
72		<input checked="" type="checkbox"/>	Edit attribute	Zones - XI-O-AM		
73		<input checked="" type="checkbox"/>	Edit attribute	Zones - IX-D-AM		
74		<input checked="" type="checkbox"/>	Edit attribute	Zones - XI-O-PM		
75		<input checked="" type="checkbox"/>	Edit attribute	Zones - IX-D-PM		
76		<input checked="" type="checkbox"/>	Edit attribute	Zones - Total_DU		
77		<input checked="" type="checkbox"/>	Edit attribute	Zones - Total_Emp		
78		<input checked="" type="checkbox"/>	Group AM Model Run	79 - 101		AM Model Run
79		<input checked="" type="checkbox"/>	Init assignment		All	Latest Update 5-8-12 Bonnie PTV Visit
80		<input checked="" type="checkbox"/>	Initialize all filter settings			Clear filters
81		<input checked="" type="checkbox"/>	Edit attribute	Links - AddVal2		ADDDVALUE2=0 (sets value to zero)
82		<input checked="" type="checkbox"/>	Edit attribute	Links - AWDT - Model		SETS AWDT To Zero

Appendix 1B (Continued): Final Calculate Procedures File AM_PM_11-9-18.par (Procedures 83-125)

Count: 125	Execution	Active	Procedure	Reference object(s)	Variant/file	Comment
83		<input checked="" type="checkbox"/>	Trip generation	AM_H-O AM_H-O, AM_H-R AM_H-R, P		
84		<input checked="" type="checkbox"/>	Calculate PrT skim matrix	AM_HBW AM_HBW		TT0 - Free flow skim
85		<input checked="" type="checkbox"/>	Trip distribution	AM_H-O AM_H-O, AM_H-R AM_H-R, P		
86		<input checked="" type="checkbox"/>	Combination of matrices and v	Matrix(13) := Matrix(215) + Matrix(2		
87		<input checked="" type="checkbox"/>	Combination of matrices and v	Matrix(15) := Matrix(214) + Matrix(2		
88		<input checked="" type="checkbox"/>	Combination of matrices and v	Matrix(17) := Matrix(213) + Matrix(2		
89		<input checked="" type="checkbox"/>	Combination of matrices and v	Matrix(19) := Matrix(222) + Matrix(2		
90		<input checked="" type="checkbox"/>	Combination of matrices and v	Matrix(1) := Matrix(13) + Matrix(15)		
91		<input checked="" type="checkbox"/>	PrT assignment	AM-Tot AM Total	Equilibrium assignment Bi-conjugate Frank-Wolfe	Assign model flows
92		<input checked="" type="checkbox"/>	Calculate PrT skim matrix	AM_HBW AM_HBW		TTC - update congested skims
93		<input checked="" type="checkbox"/>	Combination of matrices and v	Matrix(2) := 0.5*Matrix(2) + 0.5*Ma		TT0=0.5*TTC+0.5*TT0 Average skims
94		<input checked="" type="checkbox"/>	Go to the procedure	Procedure 85		
95		<input checked="" type="checkbox"/>	Edit attribute	Links - AM_PK_Hr_Model_Vol		AM_PK_HR_Model_Vol=VolVehPrT
96		<input checked="" type="checkbox"/>	Combination of matrices and v	Matrix([NO] = 1):=Matrix([NO] = 22		Apply adjustment factors
97		<input checked="" type="checkbox"/>	PrT assignment	AM-Tot AM Total	Equilibrium assignment Bi-conjugate Frank-Wolfe	Assign adjusted flow matrix
98		<input checked="" type="checkbox"/>	Edit attribute	Links - AM_PK_HR_Adjusted_Vol		Move adjusted assignment flows to UDA
99		<input checked="" type="checkbox"/>	Territory indicators			
100		<input checked="" type="checkbox"/>	Edit attribute	Links - AddVal2		AM Model Deviation
101		<input checked="" type="checkbox"/>	Assignment analysis			AM Analysis
102		<input checked="" type="checkbox"/>	Group PM Model Run	103 - 125		PM Model Run
103		<input checked="" type="checkbox"/>	Init assignment		All	
104		<input checked="" type="checkbox"/>	Initialize all filter settings			Clear filters
105		<input checked="" type="checkbox"/>	Edit attribute	Links - AddVal3		ADDVALUE3=0 (Sets value to zero)
106		<input checked="" type="checkbox"/>	Edit attribute	Links - AWDT - Model		SETS AWDT TO Zero
107		<input checked="" type="checkbox"/>	Trip generation	PM_H-O PM_H-O, PM_H-R PM_H-R, P		Updated 10-10-12 R.S/B.G.
108		<input checked="" type="checkbox"/>	Calculate PrT skim matrix	PM_HBW PM_HBW		TT0
109		<input checked="" type="checkbox"/>	Trip distribution	PM_H-O PM_H-O, PM_H-R PM_H-R, P		
110		<input checked="" type="checkbox"/>	Combination of matrices and v	Matrix(14) := Matrix(208) + Matrix(2		
111		<input checked="" type="checkbox"/>	Combination of matrices and v	Matrix(16) := Matrix(207) + Matrix(2		
112		<input checked="" type="checkbox"/>	Combination of matrices and v	Matrix(18) := Matrix(206) + Matrix(2		
113		<input checked="" type="checkbox"/>	Combination of matrices and v	Matrix(20) := Matrix(224) + Matrix(2		
114		<input checked="" type="checkbox"/>	Combination of matrices and v	Matrix(3) := Matrix(14) + Matrix(16)		
115		<input checked="" type="checkbox"/>	PrT assignment	PM-Tot PM_Total	Equilibrium assignment Bi-conjugate Frank-Wolfe	
116		<input checked="" type="checkbox"/>	Calculate PrT skim matrix	PM_HBW PM_HBW		TTC
117		<input checked="" type="checkbox"/>	Combination of matrices and v	Matrix(220) := 0.5*Matrix(220) + 0.5		TT0=TTC+TT0
118		<input checked="" type="checkbox"/>	Go to the procedure	Procedure 109		
119		<input checked="" type="checkbox"/>	Edit attribute	Links - PM_PK_Hr_Model_Vol		PM_PK_HR_Model_Vol=VolVehPrT
120		<input checked="" type="checkbox"/>	Combination of matrices and v	Matrix([NO] = 3):=Matrix([NO] = 23		Apply adjustment factors
121		<input checked="" type="checkbox"/>	PrT assignment	PM-Tot PM_Total	Equilibrium assignment Bi-conjugate Frank-Wolfe	Assign adjusted flow matrix
122		<input checked="" type="checkbox"/>	Edit attribute	Links - PM_PK_HR_Adjusted_Vol		Move adjusted assignment flows to UDA
123		<input checked="" type="checkbox"/>	Territory indicators			
124		<input checked="" type="checkbox"/>	Edit attribute	Links - AddVal3		PM Model Deviation
125		<input checked="" type="checkbox"/>	Assignment analysis			PM Analysis

Appendix 1C: 2016 KMPO Model AM Peak Hour Screenline Validation Spreadsheets

AM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18. ver

SOUTH - NORTH SCREENLINES - KMPO							
Location	AM Total	AM Peak Count	Traffic Count Location #	Link #	Modeled AM Peak Volume	Modeled - Actual AM Peak Volume	Modeled-Actual / Actual AM Peak Count
Spokane River Crossing Screenline #1							
Southbound							
Spokane St.			4	13273	243	243	#DIV/0!
US 95 @ Spokane River Bridge			264	13914	728	728	#DIV/0!
Northwest Blvd South of US 95			184	13909	1980	1980	#DIV/0!
Totals					2951	2951	#DIV/0!
Northbound							
Spokane St.			4	13273	453	453	#DIV/0!
US 95 @ Spokane River Bridge			264	13914	893	893	#DIV/0!
Northwest Blvd South of US 95			184	13909	468	468	#DIV/0!
Totals	0	0			1346	1346	#DIV/0!
Seltice Screenline #2							
Southbound							
Ross Point Rd							#DIV/0!
Northwest Blvd	2493	1297	67	13890	1359	62	0.047802621
Huetter Rd		188	24	10473	296	108	0.574468085
Altas Rd	1283	503		14486	599	96	0.190854871
Cedar St						0	#DIV/0!
Seeley Rd						0	#DIV/0!
Totals	3776	1988			2254	266	0.133802817
Northbound							
Ross Point Rd							#DIV/0!
Northwest Blvd	1027	630	67	13890	691	61	0.096825397
Huetter Rd		104	24	10473	195	91	0.875
Atlas Rd	943	505		14486	499	-6	-0.011881188
Cedar St						0	#DIV/0!
Seeley Rd						0	#DIV/0!
Totals	1970	1239			1385	146	0.117836965
Harrison Ave. Screenline #3							
Southbound							
3rd St	799	390	74	977	544	154	0.394871795
7th St	190	89	248	13875	137	48	0.539325843
11th St	91	40	249	986	68	28	0.7
15th St						0	#DIV/0!
Government Way		673		10465	517	-156	-0.23179792
Totals	1080	1192			1266	74	0.062080537
Northbound							
7th St	234	114	248	13875	81	-33	-0.289473684
11th St	178	79	249	986	38	-41	-0.518987342
15th St						0	#DIV/0!
4th St						0	#DIV/0!
Government Way		399		10470	435	36	0.090225564
Totals	412	592			554	-38	-0.064189189
Appleway Ave/Best Screenline #4							
Southbound							
Government Way							#DIV/0!
4th St		696	247	12957	841	145	0.208333333
SR 95 (N by Haycraft)	2616	996		9428	1041	45	0.045180723
15th St		451	71	329	330	-121	-0.268292683
Totals	2616	2143			2212	69	0.032197853
Northbound							
Government Way							#DIV/0!
4th St		781	247	12957	719	-62	-0.079385403
SR 95 (North by Haycraft)	1992	832		10816	929	97	0.116586538
15th St		349	71	825	310	-39	-0.111747851
Totals	1992	1613			1648	35	0.021698698

AM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18. ver

Location	AM Total	AM Peak Count	Traffic Count Location #	Link #	Modeled AM Peak Volume	Modeled - Actual AM Peak Volume	Modeled-Actual / Actual AM Peak Count
Seltice/Mullan Rd/Kathleen Screenline #5							
Southbound							
Spokane St.							#DIV/0!
Idaho St.							#DIV/0!
Greensferry Rd							#DIV/0!
SR 41		1008	21	13916	939	-69	-0.068452381
Huetter Rd	567	244	244	691	295	51	0.209016393
Altas Rd	1328	582		11661	551	-31	-0.053264605
Ramsey Rd						0	#DIV/0!
4th St						0	#DIV/0!
15th St						0	#DIV/0!
US 95		1231	28	9557	1293	62	0.050365556
Baugh Rd						0	#DIV/0!
Pleasant View Rd						0	#DIV/0!
Government Way						0	#DIV/0!
Beck Rd	216	88	334	11765	172	84	0.954545455
Totals	1895	3153			3250	97	0.030764351
Northbound							
Spokane St.							#DIV/0!
Idaho St							#DIV/0!
Government Way							#DIV/0!
Greensferry Rd							#DIV/0!
SR 41		567	21	13916	456	-111	-0.195767196
Huetter Rd	278	111	244	691	195	84	0.756756757
Atlas Rd	877	356			359	3	0.008426966
Ramsey Rd						0	#DIV/0!
4th St						0	#DIV/0!
15th St						0	#DIV/0!
US 95		825	388	12128	1040	215	0.260606061
Baugh Rd						0	#DIV/0!
Pleasant View Rd						0	#DIV/0!
Beck Rd	89	36	334	11765	200	164	4.555555556
Totals	1155	1895			2250	355	0.187335092

Location	AM Total	AM Peak Count	Traffic Count Location #	Link #	Modeled AM Peak Volume	Modeled - Actual AM Peak Volume	Modeled-Actual / Actual AM Peak Count
Poleline Rd Screenline #6							
Southbound							
Pleasant View Rd	741	277	44	496	430	153	0.55234657
Chase Rd.						0	#DIV/0!
Spokane St						0	#DIV/0!
Idaho St						0	#DIV/0!
Greensferry Rd.						0	#DIV/0!
SR41		859	33	526	859	0	0.000000000
Ramsey Rd						0	#DIV/0!
Government Way		740	239	542	677	-63	-0.085135135
15th St						0	#DIV/0!
Huetter Rd	501	213	30	559	248	35	0.164319249
US 95		1340	389	1671	1486	146	0.108955224
4th St						0	#DIV/0!
Atlas Rd						0	#DIV/0!
Totals	1242	3429			3700	271	0.079031788
Northbound							
Pleasant View Rd	386	137	44	496	166	29	0.211678832
Chase Rd						0	#DIV/0!
Spokane St						0	#DIV/0!
Idaho St						0	#DIV/0!
Greensferry Rd						0	#DIV/0!
SR41		571	33	526	440	-131	-0.229422067
Ramsey Rd						0	#DIV/0!
Government Way		796	239	542	652	-144	-0.180904523
15th St						0	#DIV/0!
Huetter Rd	288	115	30	559	193	78	0.67826087
US 95		767	238	12156	1012	245	0.319426336
4th St						0	#DIV/0!
Atlas Rd						0	#DIV/0!
Totals	674	2386			2463	77	0.032271584

AM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18. ver

Location	AM Total	AM Peak Count	Traffic Count Location #	Link #	Modeled AM Peak Volume	Modeled - Actual AM Peak Volume	Modeled-Actual / Actual AM Peak Count
Prairie Rd. Screenline #7							
Southbound							
Idaho Rd.							#DIV/0!
Huetter Rd							#DIV/0!
Ramsey Rd		664	232	13847	706	42	0.063253012
US 95		1382	233	13885	1552	170	0.12301013
Government Way						0	#DIV/0!
4th St						0	#DIV/0!
Atlas Rd						0	#DIV/0!
McGuire Rd						0	#DIV/0!
15th St						0	#DIV/0!
Spokane St.						0	#DIV/0!
Chase Rd.						0	#DIV/0!
Greensferry Rd.						0	#DIV/0!
SR 41		637	57	10698	574	-63	-0.098901099
Totals	0	2683			2832	149	0.055534849
Northbound							
Idaho Rd.							#DIV/0!
Government Way							#DIV/0!
4th St							#DIV/0!
Huetter Rd							#DIV/0!
Ramsey Rd		834	232	13847	738	-96	-0.115107914
Atlas Rd						0	#DIV/0!
McGuire Rd						0	#DIV/0!
15th St						0	#DIV/0!
Spokane St.						0	#DIV/0!
Chase Rd.						0	#DIV/0!
Greensferry Rd.						0	#DIV/0!
SR 41		446	57	10698	330	-116	-0.260089686
US 95		800	320	12162	1004	204	0.255
Totals	0	2080			2072	-8	-0.003846154

Location	AM Total	AM Peak Count	Traffic Count Location #	Link #	Modeled AM Peak Volume	Modeled - Actual AM Peak Volume	Modeled-Actual / Actual AM Peak Count
Hayden Ave. Screenline # 8							
Southbound							
Chase Rd							#DIV/0!
Idaho St							#DIV/0!
SR 41							#DIV/0!
Huetter Rd							#DIV/0!
Hauser Lake Rd north of SH 53							#DIV/0!
Greensferry Rd							#DIV/0!
Meyer	226	86	374	10677	10	-76	-0.88372093
McGuire	297	122	335	13881	61	-61	-0.5
US95	3550	1363		9569	1372	9	0.006603081
Totals	4073	1571			1443	-128	-0.081476766
Northbound							
Chase Rd							#DIV/0!
Idaho St							#DIV/0!
SR 41							#DIV/0!
Huetter Rd							#DIV/0!
Hauser Lake Rd north of 53							#DIV/0!
Greensferry Rd							#DIV/0!
Meyer	105	42	374	10677	12	-30	-0.714285714
McGuire	242	99	335	13881	82	-17	-0.171717172
US95	2005	747		12154	815	68	0.09103079
Totals	2352	888			909	21	0.023648649

Location	AM Total	AM Peak Count	Traffic Count Location #	Link #	Modeled AM Peak Volume	Modeled - Actual AM Peak Volume	Modeled-Actual / Actual AM Peak Count
Lancaster Rd. Screenline # 9							
Southbound							
Greensferry Rd							#DIV/0!
Government Way	242	100	218	13442	51	-49	-0.49
Strahorn Rd	71	30	265	13461	22	-8	-0.266666667
Rimrock Rd/Meadowwood Ln	93	46	219	221	29	-17	-0.369565217
Meyer Rd.						0	#DIV/0!
English Point Rd	109	45	221	1279	15	-30	-0.666666667
Huetter Rd	69	27	214	14519	33	6	0.222222222

AM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18. ver

US 95							0	#DIV/0!
Hayden Lake Rd	25	13	273	10390	18		5	0.384615385
SH 41		589		13578	513		-76	-0.129032258
Totals	584	850			681		-169	-0.198823529
Northbound								
Greensferry Rd								#DIV/0!
Government Way	176	72	218	13442	28		-44	-0.611111111
Strahorn Rd	42	18	265	13461	4		-14	-0.777777778
Rimrock Rd/Meadowwod Ln	57	26	219	221	26		0	0.000000000
Meyer Rd.							0	#DIV/0!
English Point Rd	58	21	221	1279	26		5	0.238095238
Huetter Rd	52	28	214	14519	9		-19	-0.678571429
US 95							0	#DIV/0!
Hayden Lake Rd	54	22	273	10390	20		-2	-0.090909091
SH 41		346		13578	329		-17	-0.049132948
Totals	385	533			442		-91	-0.170731707

Location	AM Total	AM Peak Count	Traffic Count Location #	Link #	Modeled AM Peak Volume	Modeled - Actual AM Peak Volume	Modeled-Actual / Actual AM Peak Count
SH 53 - US 95 Screenline # 10							
Eastbound							
BNSF RR Bridge in Rathdrum							#DIV/0!
Ramsey Rd	391	144	210	104	189		45
US 95 n/o SH53	1862	684	209	14521	666		-18
Govt Way e/o US95	69	30	321	14409	78		48
Pleasant View	588	211		1249	264		53
Totals	2322	1069			1197		128
Westbound							
BNSF RR Bridge in Rathdrum							#DIV/0!
Ramsey Rd	168	80	210	104	127		47
US 95 n/o SH53	943	367	209	13654	365		-2
Govt Way e/o US95	68	32	321	14409	45		13
Pleasant View	295	105		1249	98		-7
Totals	1179	584			635		51

Location	AM Total	AM Peak Count	Traffic Count Location #	Link #	Modeled AM Peak Volume	Modeled - Actual AM Peak Volume	Modeled-Actual / Actual AM Peak Count
Twin Lakes to Nat. Forest. Screenline # 11							
Southbound							
Ramsey Rd south of Brunner	147	58	285	44	120		62
Diagonal Rd south of Brunner	196	79	286	9610	83		4
SH 41 south of Seasons Rd							0
East Twin Lake Rd near SH 41	258	101	281	10385	123		22
US 95 south of Brunner Rd	1725	639	287	14009	612		-27
Totals	2326	877			938		61
Northbound							
Ramsey Rd south of Brunner	52	25	285	44	218		193
SH 41 south of Seasons Rd							0
East Twin Lake Rd near SH 41	71	32	281	10385	112		80
Diagonal Rd south of Brunner Rd	89	39	286	9610	75		36
US 95 south of Brunner Rd	892	355	287	14009	350		-5
Totals	1104	451			755		304

Location	AM Total	AM Peak Count	Traffic Count Location #	Link #	Modeled AM Peak Volume	Modeled - Actual AM Peak Volume	Modeled-Actual / Actual AM Peak Count
US 95 to SH 3 South Screenline # 12							
Southbound							
SH 97 north of Harrison							#DIV/0!
Cave Bay Rd @ Rock Creek	71	33	292	10908	1		-32
SH3 S/O SH97	118	50	268	1220	58		8
US 95 S/O Worley	620	248	302	1217	298		50
US 95 N/O Worley		322		13785	290		-32
O'Gara Rd west of SH 97	8	4	298	9291	0		-4
Totals	817	657			647		-10
Northbound							
SH 97 north of Harrison							#DIV/0!
Cave Bay Rd @ Rock Creek	59	28	292	10908	0		-28
SH3 S/O SH97	135	56	268	1220	52		-4
US 95 S/O Worley	461	184	302	1217	200		16
O'Gara Rd west of SH 97	7	4	298	9291	0		-4
US 95 N/O Worley		375		13785	200		-175

AM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18. ver

Totals	662	647			452	-195	-0.301391036
Location	AM Total	AM Peak Count	Traffic Count Location #	Link #	Modeled AM Peak Volume	Modeled - Actual AM Peak Volume	Modeled-Actual / Actual AM Peak Count
SH 93 to LaTour Creek Rd Screenline # 13							
Southbound							
UpRiver Dr west of US 95							#DIV/0!
SH 3 S/O I 90							#DIV/0!
SH 97 N/O Burma							#DIV/0!
Cougar Gulch Rd west of US 95	112	53	289	9644	37	-16	-0.301886792
LaTour Creek Rd south of I 90	19	11	270	13140	13	2	0.181818182
Burma Rd	19	12	297	13120	51	39	
Totals	131	76			101	25	0.328947368
Northbound							
Sh 3 S/O I 90							#DIV/0!
SH 97 N/O Burma							#DIV/0!
Cougar Gulch Rd west of US 95	41	22	289	9644	22	0	0.000000000
LaTour Creek Rd south of I 90	48	18	270	13140	12	-6	-0.333333333
Burma Rd	43	25	297	13120	42	17	0.680000000
Totals	89	65			76	11	0.169230769
Spirit Lake Pend'O Reille Screenline #14							
Southbound							
SH 41 south of Spirit Lake							#DIV/0!
Perimeter Rd north of SH 54	71	28	277	13462	46	18	0.642857143
US 95 north of Athol	1078	409	278	10563	404	-5	-0.012224939
SH 41 north of Spirit Lake	741	257	279	10884	272	15	0.058365759
Totals	1890	666			722	56	0.084084084
Northbound							
SH 41 south of Spirit Lake							#DIV/0!
Perimeter Rd north of SH 54	19	9	277	13462	12	3	0.333333333
US 95 north of Athol	839	326	278	10563	288	-38	-0.116564417
SH 41 north of Spirit Lake	432	169	279	10884	161	-8	-0.047337278
Totals	1290	495			461	-34	-0.068686869
EAST - WEST SCREENLINES - KMPO							
Pleasant View Rd. Screenline # 15							
Eastbound							
SH 53							#DIV/0!
Seltice Way							#DIV/0!
Prairie Rd.							#DIV/0!
Riverbend Ave							#DIV/0!
SH 53 (W/O Prairie Ave)							#DIV/0!
Poleline Ave.							#DIV/0!
Totals	0	0			0	0	#DIV/0!
Westbound							
SH 53							#DIV/0!
Seltice Way							#DIV/0!
Prairie Rd.							#DIV/0!
Riverbend Ave							#DIV/0!
SH 53 W/O Prairie Ave							#DIV/0!
Poleline Ave.							#DIV/0!
Totals	0	0			0	0	#DIV/0!
McGuire Rd. Screenline # 16							
Eastbound							
SH 53							#DIV/0!
Seltice Way							#DIV/0!
Poleline Ave.							#DIV/0!
Prairie Rd.							#DIV/0!
Totals	0	0			0	0	#DIV/0!

AM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18. ver

Westbound							
SH 53							#DIV/0!
Seltice Way							#DIV/0!
Poleline Ave.							#DIV/0!
Prairie Rd.							#DIV/0!
Totals	0	0			0	0	#DIV/0!

Location	AM Total	AM Peak Count	Traffic Count Location #	Link #	Modeled AM Peak Volume	Modeled - Actual AM Peak Volume	Modeled-Actual / Actual AM Peak Count
----------	----------	---------------	--------------------------	--------	------------------------	---------------------------------	---------------------------------------

Chase Rd. Screenline # 17

Eastbound							
Hayden Rd.							#DIV/0!
Prairie Rd.							#DIV/0!
Poleline Ave.							#DIV/0!
Seltice Way							#DIV/0!
Totals	0	0			0	0	#DIV/0!

Westbound							
Hayden Rd.							#DIV/0!
Prairie Rd.							#DIV/0!
Poleline Rd.							#DIV/0!
Seltice Way							#DIV/0!
Totals	0	0			0	0	#DIV/0!

Location	AM Total	AM Peak Count	Traffic Count Location #	Link #	Modeled AM Peak Volume	Modeled - Actual AM Peak Volume	Modeled-Actual / Actual AM Peak Count
----------	----------	---------------	--------------------------	--------	------------------------	---------------------------------	---------------------------------------

Spokane St. Screenline # 18

Eastbound							
Prairie Rd.							#DIV/0!
Poleline Ave.							#DIV/0!
4th St.							#DIV/0!
Seltice Way							#DIV/0!
3rd St							#DIV/0!
Totals	0	0			0	0	#DIV/0!

Westbound							
Prairie Rd.							#DIV/0!
Poleline Ave.							#DIV/0!
4th St.							#DIV/0!
Seltice Way							#DIV/0!
3rd St							#DIV/0!
Totals	0	0			0	0	#DIV/0!

Location	AM Total	AM Peak Count	Traffic Count Location #	Link #	Modeled AM Peak Volume	Modeled - Actual AM Peak Volume	Modeled-Actual / Actual AM Peak Count
----------	----------	---------------	--------------------------	--------	------------------------	---------------------------------	---------------------------------------

Idaho St. Screenline # 19

Eastbound							
Prairie Rd.	711	283	52	413	292	9	0.03180212
Poleline							#DIV/0!
Seltice Way							#DIV/0!
4th St.							#DIV/0!
Totals	711	283			292	9	0.031802120

Westbound							
Prairie Rd.	498	201	52	413	210	9	#REF!
Poleline							#DIV/0!
Seltice Way							#DIV/0!
4th St.							#DIV/0!
Totals	498	201			210	9	0.044776119

Location	AM Total	AM Peak Count	Traffic Count Location #	Link #	Modeled AM Peak Volume	Modeled - Actual AM Peak Volume	Modeled-Actual / Actual AM Peak Count
----------	----------	---------------	--------------------------	--------	------------------------	---------------------------------	---------------------------------------

Greensferry Rd. Screenline # 20

Eastbound							
Prairie Rd.							0
Poleline Ave.							#DIV/0!
16th							#DIV/0!
12th							#DIV/0!
Mullan Ave							#DIV/0!
Seltice Way							#DIV/0!
Wyoming Ave							#DIV/0!
Hayden Rd.	403	172	64	6243	159	-13	-0.075581395

AM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18. ver

SH 53	467	178	104	9487	192	14	0.078651685
3rd St.							#DIV/0!
Totals	1866	752			351	-401	-0.533244681
Westbound							
Prairie Rd.							#DIV/0!
Poleline Ave.							#DIV/0!
16th							#DIV/0!
12th							#DIV/0!
Mullan Ave							#DIV/0!
Seltice Way							#DIV/0!
Wyoming Ave							#DIV/0!
Hayden Rd.	328	128	64	6243	117	-11	-0.085937500
SH 53	1170	511	104	9487	553	42	0.082191781
3rd St.							#DIV/0!
Totals	1498	639			670	31	0.048513302

Location	AM Total	AM Peak Count	Traffic Count Location #	Link #	Modeled AM Peak Volume	Modeled - Actual AM Peak Volume	Modeled-Actual / Actual AM Peak Count
SH 41 Screenline # 21							
Eastbound							
McCarney St N/O SR41							#DIV/0!
Poleline Rd.		393	32	13801	232	-161	-0.409669211
Mullan Ave		343	20	672	361	18	0.052478134
Seltice Way						0	#DIV/0!
Lancaster	74	45	114	9346	0	-45	-1.000000000
Wyoming						0	#DIV/0!
Nagel Ln	135	56	366	13702	3	-53	-0.946428571
Prairie Rd.		423	363	10122	437	14	0.033096927
Hayden Rd.						0	#DIV/0!
Boekel Rd	108	38	89	11679	96	58	1.526315789
Totals	317	905			1129	224	0.247513812
Westbound							
McCarney St N/O SR41							#DIV/0!
Poleline Rd.		296	32	13801	153	-143	-0.483108108
Mullan Ave		347	20	672	324	-23	-0.066282421
Seltice Way						0	#DIV/0!
Lancaster	82	42	114	9346	0	-42	-1.000000000
Wyoming						0	#DIV/0!
Nagel Ln	160	59	366	13702	5	-54	-0.915254237
Prairie Rd.		352	363	10122	414	62	0.176136364
Hayden Rd.						0	#DIV/0!
Boekel Rd	37	20	89	11679	65	45	2.250000000
Totals	279	1116			961	-155	-0.138888889

Location	AM Total	AM Peak Count	Traffic Count Location #	Link #	Modeled AM Peak Volume	Modeled - Actual AM Peak Volume	Modeled-Actual / Actual AM Peak Count
Huetter Rd Screenline # 22							
Eastbound							
Wyoming Ave							#DIV/0!
Hayden Rd.	700	268	60	323	343	75	0.279850746
Prairie Rd.							#DIV/0!
Seltice Way	1243	512	23	13954	769	257	0.501953125
Mullan Ave							#DIV/0!
Maplewood							#DIV/0!
Boekel Ave	122	50	1	9233	67	17	0.340000000
Totals	2065	830			1179	349	0.420481928
Westbound							
Wyoming Ave							#DIV/0!
Hayden Rd.	504	200	60	323	289	89	0.445
Prairie Rd.							#DIV/0!
Mullan Ave							#DIV/0!
Seltice Way	900	329	22	12732	542	213	0.647416413
Maplewood							#DIV/0!
Boekel Ave	179	79	1	9233	81	2	0.025316456
Totals	1583	608			912	304	0.500000000

Location	AM Total	AM Peak Count	Traffic Count Location #	Link #	Modeled AM Peak Volume	Modeled - Actual AM Peak Volume	Modeled-Actual / Actual AM Peak Count
Ramsey Rd Screenline # 23							
Eastbound							
Ohio Match Rd	11	5	124	65	22	17	3.4

AM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18. ver

Garwood Rd	223	86	125	76	31	-55	-0.639534884
Hwy 53						0	#DIV/0!
Lancaster Ave						0	#DIV/0!
Wyoming Ave						0	#DIV/0!
Miles Ave						0	#DIV/0!
Hayden Ave						0	#DIV/0!
Honeysuckle Ave						0	#DIV/0!
Prairie Ave		815	133	13926	854	39	0.047852761
Appleway						0	#DIV/0!
Kathleen Ave						0	#DIV/0!
Dalton Ave		355	136	10636	234	-121	-0.340845070
Hanley Ave						0	#DIV/0!
Ironwood Dr	1311	660	140	10300	702	42	0.063636364
Boekel Rd	271	97	127	11559	142	45	0.463917526
Wilbur Ave Pinegrove						0	#DIV/0!
Totals	1816	2018			1985	-33	-0.016352825
Westbound							
Ohio Match Rd	36	18	124	65	11	-7	-0.388888889
Garwood Rd	74	32	125	76	21	-11	-0.34375
Hwy 53						0	#DIV/0!
Lancaster Ave						0	#DIV/0!
Wyoming Ave						0	#DIV/0!
Miles Ave						0	#DIV/0!
Hayden Ave						0	#DIV/0!
Honeysuckle Ave						0	#DIV/0!
Prairie Ave		594	133	13926	654	60	0.101010101
Appleway						0	#DIV/0!
Kathleen Ave						0	#DIV/0!
Dalton Ave		163	136	10636	64	-99	-0.607361963
Hanley Ave						0	#DIV/0!
Boekel Rd	177	86	127	11559	58	-28	-0.325581395
Wilbur Ave Pinegrove						0	#DIV/0!
Ironwood Dr	452	259	140	10300	388	129	0.498069498
Totals	739	1152			1196	44	0.038194444

Location	AM Total	AM Peak Count	Traffic Count Location #	Link #	Modeled AM Peak Volume	Modeled - Actual AM Peak Volume	Modeled-Actual / Actual AM Peak Count
US 95 Screenline # 24							
Eastbound							
Ohio Match Rd	37	17	164	14401	10	-7	-0.411764706
Garwood Rd	51	22		80	25	3	0.136363636
Lancaster Ave		145	167	13640	143	-2	-0.013793103
Hayden Ave	778	369	170	12169	340	-29	-0.078590786
Honeysuckle Ave		254	171	13841	312	58	0.228346457
Prairie Ave		424	172	12159	480	56	0.132075472
Dalton Ave	785	362	175	12129	363	1	0.002762431
Kathleen Ave		423	176	12917	439	16	0.037825059
Neider Ave		242	177	11795	320	78	0.322314050
Appleway Ave		430	178	874	390	-40	-0.093023256
Ironwood Blvd						0	#DIV/0!
Walnut St						0	#DIV/0!
Hanley Ave		398	174	12132	458	60	0.150753769
US 95 S by Spokane River						-68	-1.000000000
Old US 95 n/o SH53	174	68	208	10666	75	7	#REF!
Miles Ave		89	169	10833	72	-17	-0.191011236
Wyoming Ave		108	146	8875	109	1	0.009259259
Totals	1825	3351			3536	185	0.055207401
Westbound							
Ohio Match Rd	91	38	164	14401	32	-6	-0.157894737
Garwood Rd	149	62		80	59	-3	-0.048387097
Lancaster Ave		190	167	13640	238	48	0.252631579
Hayden Ave	989	406	170	12169	399	-7	-0.017241379
Honeysuckle Ave		257	171	13841	280	23	0.089494163
Prairie Ave		470	172	12159	500	30	0.063829787
Dalton Ave	429	195	175	12129	224	29	0.148717949
Kathleen Ave		422	176	12917	402	-20	-0.047393365
Neider Ave		195	177	11795	231	36	0.184615385
Appleway Ave		410	178	874	419	9	0.021951220
Ironwood Blvd						0	#DIV/0!
Walnut St						0	#DIV/0!
Hanley Ave		322	174	12132	338	16	0.049689441
US 95						0	#DIV/0!
Old US 95 n/o SH53	341	131	208	10666	130	-1	-0.007633588

AM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18. ver

Location	AM Total	AM Peak Count	Traffic Count Location #	Link #	Modeled AM Peak Volume	Modeled - Actual AM Peak Volume	Modeled-Actual / Actual AM Peak Count
Miles Ave		74	169	10833	98	24	0.324324324
Wyoming Ave		156	146	8875	141	-15	-0.096153846
Totals	1999	3328			3491	163	0.048978365
West Side KMPO Screenline # 25							
Eastbound							
Seltice Way W/O Beck Rd	396	155	90	8826	168	13	0.083870968
Rockford Bay Rd east of US 95	107	44	290	9001	10	-34	-2.833333333
Elder Rd @ Washington Line	45	18	266	14420	15	-3	-0.166666667
SH 58 @ Washington Line	219	92	267	9283	104	12	0.130434783
Conkling Rd east of US 95	23	12	294	13365	27	15	1.250000000
SH 53 @ Washington State Line	578	211	93	13244	205	-6	-0.028436019
Riverview east of Washington line	74	32	345	13261	74	42	1.312500000
Totals	1368	564			603	39	0.069148936
Westbound							
Seltice Way W/O Beck Rd	645	206	90	8826	291	85	0.412621359
Rockford Bay Rd east of I90	119	55	290	9001	14	-41	-1.518518519
Elder Rd @ Washington Line	113	47	266	14420	33	-14	-0.297872340
SH 58 @ Washington Line	206	83	267	9283	75	-8	-0.096385542
Conkling Rd east of US 95	66	27	294	13365	37	10	0.370370370
SH 53 @ Washington State Line	1432	559	93	13244	548	-11	-0.019677996
Riverview east of Washington line	71	29	345	13261	93	64	2.206896552
Totals	2581	1006			1091	85	0.084493042
East Side KMPO Screenline # 26							
Eastbound							
Bunco Rd @ Nunn Rd							#DIV/0!
Ohio Match Rd East of Rimrock Rd	23	9	274	13950	5	-4	-0.444444444
Mullan Trail Rd north of I 90	12	7	300	1075	41	34	4.857142857
Sunnyside Rd south of Mullan Trail	4	3	301	11432	13	10	3.333333333
I 90 @ Shoshone Co. Line	905	355	319	1160	360	5	0.014084507
Fernan Lake Rd @ CdA City Limit	11	8	271	10798	0	-8	-1.000000000
SH 54 West of Farragut Park Entrance						0	#DIV/0!
Lancaster Rd east of Rimrock	120	53	272	11515	52	-1	-0.018867925
Careywood west of Perimeter	31	12		11699	24	12	1.000000000
Canyon Rd west of Shoshone County	54	32		10902	1	-31	-0.968750000
Totals	1075	479			496	17	0.035490605
Westbound							
Bunco Rd @ Nunn Rd							#DIV/0!
Ohio Match Rd East of Rimrock Rd	27	13	274	13950	17	4	0.307692308
Mullan Trail Rd north of I 90	84	55	300	1075	95	40	0.727272727
Sunnyside Rd south of Mullan Trail	14	11	301	11432	18	7	0.636363636
I 90 @ Shoshone Co. Line	841	326	269	1157	328	2	0.006134969
Fernan Lake Rd @ CdA City Limit	8	6	271	10798	0	-6	-1.000000000
SH 54 West of Farragut Park Entrance						0	#DIV/0!
Lancaster Rd east of Rimrock	160	69	272	11515	79	10	0.144927536
Careywood west of Perimeter	41	22		11699	9	-13	-0.590909091
Canyon Rd west of Shoshone County	39	17		10902	3	-14	-0.823529412
Totals	1134	519			549	30	0.057803468
Government Way Screenline # 27							
Eastbound							
Lancaster Ave		145	145	13459	156	11	0.075862069
Miles Ave							#DIV/0!
Hayden Ave							#DIV/0!
Honeysuckle Ave							#DIV/0!
Prairie Ave							#DIV/0!
Wilbur Ave	46	21	151	477	2	-19	-0.904761905
Hanley Ave		332	152	13792	235	-97	-0.292168675
Dalton Ave							#DIV/0!
Appleway/Best Ave							#DIV/0!
Neider Ave							#DIV/0!
N/O Sherman Ave							#DIV/0!
Wyoming Ave							#DIV/0!
Government Way							#DIV/0!

AM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18. ver

Harrison Ave							#DIV/0!
Foster Ave	75	37	162	13015	118	81	#DIV/0!
Margaret Ave							0.00000000
Totals	121	535			511	-24	-0.044859813
Westbound							
Lancaster Ave		190	145	13459	233	43	0.226315789
Miles Ave							#DIV/0!
Hayden Ave							#DIV/0!
Honeysuckle Ave							#DIV/0!
Prairie Ave							#DIV/0!
Wilbur Ave	62	29	151	477	6	-23	-0.793103448
Hanley Ave		291	152	13792	260	-31	-0.106529210
Dalton Ave							#DIV/0!
Neider Ave							#DIV/0!
Appleyway/Best Ave							#DIV/0!
N/O Sherman Ave							#DIV/0!
Wyoming Ave							#DIV/0!
Government Way							#DIV/0!
Harrison Ave							0.00000000
Foster Ave	100	49	162	13015	280	231	#DIV/0!
Margaret Ave							0.00000000
Totals	162	559			779	220	0.393559928

Location	AM Total	AM Peak Count	Traffic Count Location #	Link #	Modeled AM Peak Volume	Modeled - Actual AM Peak Volume	Modeled-Actual / Actual AM Peak Count
I 90 Ramps Screenline # 28							
Eastbound							
I 90 Ramp @ Spokane St EB Off		348	103	713	341	-7	-0.020114943
I 90 Ramp @ Spokane St EB On		501	102	717	409	-92	-0.183632735
I 90 Ramp @ Seltice Way EB On							#DIV/0!
SR 90 @ Pleasant View Rd		329	86	786	334	5	0.015197568
SR 90 @ Pleasant View Rd EB Off		339	87	785	303	-36	-0.106194690
I 90 Ramp @ NW Blvd/Ramsey EB Off							#DIV/0!
I 90 Ramp @ NW Blvd/Ramsey EB On							#DIV/0!
I 90 Ramp @ US 95 EB Off							#DIV/0!
I 90 Ramp @ US 95 EB On Ramp		337	181	915	332	-5	-0.014836795
I 90 Ramp @ 3rd/4th St EB On							#DIV/0!
I 90 Ramp @ SH 41 EB Off							#DIV/0!
I 90 Ramp @ 23rd St EB On							#DIV/0!
I 90 Ramp @ SH 41 EB On							#DIV/0!
I 90 Ramp @ 3rd/4th St EB Off							#DIV/0!
I 90 Ramp @ 15th St EB On		77	309	10428	95	18	0.233766234
I 90 Ramp @ 15th St EB Off		296	310	10430	262	-34	-0.114864865
I 90 Ramp @ 23rd St (One Way) EB Off		297	322	10758	403	106	0.356902357
I 90 Ramp @ Beck Rd EB Off		125		13990	176	51	0.408000000
I 90 Ramp @ Beck Rd EB On		108		13987	108	0	0.000000000
Totals	0	1908			2763	855	0.448113208
Westbound							
I 90 Ramp @ Spokane St WB On		786	100	684	752	-34	-0.043256997
I 90 Ramp @ Spokane St WB Off		330	101	720	232	-98	-0.296969697
I 90 Ramp @ Seltice Way WB Off		337					0.000000000
I 90 Ramp @ SH 41 WB On							#DIV/0!
SR 90 @ Pleasant View Rd WB On		453	85	737	423	-30	-0.066225166
SR 90 @ Pleasant View Rd WB Off		416	84	740	408	-8	-0.019230769
I 90 Ramp @ NW Blvd/Ramsey WB On							#DIV/0!
I 90 Ramp @ NW Blvd/Ramsey WB Off							#DIV/0!
I 90 Ramp @ US 95 WB On		662	180	900	435	-227	-0.342900302
I 90 Ramp @ US 95 WB Off		430	179	904	420	-10	-0.023255814
I 90 Ramp @ 3rd/4th St WB On							#DIV/0!
I 90 Ramp @ 3rd/4th St WB Off							#DIV/0!
I 90 Ramp @ 23rd St WB On		326	304	1059	379	53	0.162576687
I 90 Ramp @ 23rd St WB Off		100	305	1061	124	24	0.240000000
I 90 Ramp @ 15th St WB Off to Hazel		63	308	8814	8	-55	-0.873015873
I 90 Ramp @ SH 41 WB Off							#DIV/0!
I 90 Ramp @ 15th St WB On		649	307	10432	476	-173	-0.266563945
I 90 Ramp @ Beck Rd WB Off		122		13988	114	-8	-0.065573770
I 90 Ramp @ Beck Rd WB On		128		13989	201	73	0.570312500
Totals	0	4802			3972	-830	-0.172844648

AM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18. ver

SB/NB Screenlines Screenlines	Total AM Peak Actual Directional Count	Total AM Peak Modeled Directional Volume	Modeled - Actual AM Peak Count	((Modeled - Actual) / Actual AM Peak Count)*100	Total AM Peak Actual Bi-Directional Count	Total AM Peak Modeled Bi-Directional Volume	Total AM Peak Volume - Actual Bi-Directional Count	((Modeled - Actual) / Actual Bi-Directional AM Peak Count)*100	% Allowable Deviation per TMIP FHA	Within Allowable Deviation?
Spokane River Crossing Screenline # 1										
Spokane River Crossing Screenline										
Southbound	0	2951	2951	#DIV/0!	0	4297	4297	#DIV/0!	61	#DIV/0!
Northbound	0	1346	1346	#DIV/0!						
Seltice Screenline # 2										
Seltice Screenline										
Southbound	1988	2254	266	13	3227	3639	412	13	61	Y
Northbound	1239	1385	146	12						
Harrison Ave Screenline # 3										
Harrison Ave Screenline										
Southbound	1192	1266	74	6	1784	1820	36	2	63	Y
Northbound	592	554	-38	-6						
Appleway Ave/Best Screenline # 4										
Appleway Ave/Best Screenline										
Southbound	2143	2212	69	3	3756	3860	104	3	61	Y
Northbound	1613	1648	35	2						
Seltice Way/Mullan Rd/Kathleen Screenline # 5										
Seltice Way/Mullan Rd/Kathleen										
Southbound	3153	3250	97	3	5048	5500	452	9	59	Y
Northbound	1895	2250	355	19						
Poleline Rd Screenline # 6										
Poleline Rd Screenline										
Southbound	3429	3700	271	8	5815	6163	348	6	59	Y
Northbound	2386	2463	77	3						
Prairie Rd. Screenline # 7										
Prairie Rd. Screenline										
Southbound	2683	2832	149	6	4763	4904	141	3	60	Y
Northbound	2080	2072	-8	0						
Hayden Ave Screenline # 8										
Hayden Ave Screenline										
Southbound	1571	1443	-128	-8	2459	2352	-107	-4	63	Y
Northbound	888	909	21	2						
Lancaster Rd. Screenline # 9										
Lancaster Rd. Screenline										
Southbound	850	681	-169	-20	1383	1123	-260	-19	64	Y
Northbound	533	442	-91	-17						
SH 53 - US 95 Screenline # 10										
SH 53 - US 95 Screenline										
Southbound	1069	1197	128	12	1653	1832	179	11	63	Y
Northbound	584	635	51	9						
Twin Lakes Nat. Forest Screenline # 11										
Twin Lakes Nat. Forest Screenline										
Southbound	877	938	61	7	1328	1693	365	27	64	Y
Northbound	451	755	304	67						
US 95 to SH 3 Screenline # 12										
US 95 to SH 3 Screenline										
Southbound	657	647	-10	-2	1304	1099	-205	-16	64	Y
Northbound	647	452	-195	-30						
SH 93 to LaTour Creek Screenline # 13										
SH 93 to LaTour Creek Rd Screenline										
Southbound	76	101	25	33	141	177	36	26	65	Y
Northbound	65	76	11	17						
Spirit Lake/Pend O'Reille Screenline # 14										
Spirit Lake/Pend O'Reille Screenline # 12										
Southbound	666	722	56	8	1161	1183	22	2	64	Y
Northbound	495	461	-34	-7						
EB/WB Screenlines Screenlines										
Total PM Peak Actual Directional Count										
Total PM Peak Modeled Directional Volume										
Modeled - Actual PM Peak Count										
((Modeled - Actual) / Actual PM Peak Count)*100										
Total AM Peak Actual Bi-Directional Count										
Total AM Peak Modeled Bi-Directional Volume										
Total AM Peak Volume - Actual Bi-Directional Count										
((Modeled - Actual) / Actual Bi-Directional AM Peak Count)*100										
% Allowable Deviation per TMIP FHA										
Within Allowable Deviation?										
Pleasant View Rd. Screenline # 15										
Pleasant View Rd. Screenline										
Eastbound	0	0	0	#DIV/0!	0	0	0	#DIV/0!	65	#DIV/0!
Westbound	0	0	0	#DIV/0!						
McGuire Rd. Screenline # 16										
Guire Rd. Screenline										
Eastbound	0	0	0	#DIV/0!	0	0	0	#DIV/0!	65	#DIV/0!
Westbound	0	0	0	#DIV/0!						
Chase Rd. Screenline # 17										
Chase Rd. Screenline										
Eastbound	0	0	0	#DIV/0!	0	0	0	#DIV/0!	65	#DIV/0!
Westbound	0	0	0	#DIV/0!						
Spokane St. Screenline # 18										
Spokane St. Screenline										
Eastbound	0	0	0	#DIV/0!	0	0	0	#DIV/0!	65	#DIV/0!
Westbound	0	0	0	#DIV/0!						
Idaho St Screenline # 19										
Idaho St. Screenline										
Eastbound	283	292	9	3	484	502	18	4	65	Y
Westbound	201	210	9	4						
Greensferry Screenline # 20										
Greensferry Rd. Screenline										
Eastbound	752	351	-401	-53	1391	1021	-370	-27	64	Y
Westbound	639	670	31	5						
SH 41 Screenline # 21										
SH 41 Screenline										
Eastbound	905	1129	224	25	2021	2090	69	3.41415141	63	Y
Westbound	1116	961	-155	-14						
Huetter Rd Screenline # 22										
Huetter Rd. Screenline										
Eastbound	830	1179	349	42	1438	2091	653	45.41029207	63	Y
Westbound	608	912	304	50						

AM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18. ver

Ramsey Rd Screenline # 23										
Ramsey Rd Screenline										
Eastbound	2018	1985	-33	-2	3170	3181	11	0.347003155	62	Y
Westbound	1152	1196	44	4						
US 95 Screenline # 24										
US 95 Screenline										
Eastbound	3351	3536	185	6	6679	7027	348	5.210360832	58	Y
Westbound	3328	3491	163	5						
West Side KMPO Screenline # 25										
West Side KMPO Screenline										
Eastbound	564	603	39	7	1570	1694	124	7.898089172	63	Y
Westbound	1006	1091	85	8						
East Side KMPO Screenline # 26										
East Side KMPO Screenline										
Eastbound	479	496	17	4	998	1045	47	4.709418838	64	Y
Westbound	519	549	30	6						
Government Way Screenline # 27										
Government Way Screenline										
Eastbound	535	511	-24	-4	1094	1290	196	17.91590494	64	Y
Westbound	559	779	220	39						
I 90 Ramps Screenline # 28										
I 90 Ramps Screenline										
Eastbound	1908	2763	855	45	6710	6735	25	0.372578241	58	Y
Westbound	4802	3972	-830	-17						
Total Screenlines										
	Total AM Peak Actual Directional Count	Total AM Peak Modeled Directional Volume	Modeled - Actual AM Peak Count	((Modeled - Actual) / Actual AM Peak Count)*100	Total AM Peak Actual Bi- Directional Count	Total AM Peak Modeled Bi- Directional Volume	Total AM Peak Volume - Actual Bi- Directional AM Peak Count)*100	((Modeled - Actual) / Actual Bi- Directional AM Peak Count)*100	% Allowable Deviation per TMIP FHA	Within Allowable Deviation?
All North-South Screenlines										
All North-South Screenlines										
Southbound	20354	24194	3840	19	33822	39642	5820	17.20773461	36	Y
Northbound	13468	15448	1980	15						
All East-West Screenline										
All East-West Screenline										
Eastbound	11625	12845	1220	10	25555	26676	1121	4	42	Y
Westbound	13930	13831	-99	-1						
Total Screenlines										
Total Screenlines										
					59377	66318	6941	12	30	Y

Appendix 1D: 2016 KMPO Model PM Peak Hour Screenline Validation Spreadsheets

PM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18.ver

SOUTH - NORTH SCREENLINES - KMPO							
Location	PM Total	PM Peak Count	Traffic Count Location #	Link #	Modeled PM Peak Volume	Modeled - Actual PM Peak Count	Modeled-Actual / Actual PM Peak Count
Spokane River Crossing Screenline #1							
Southbound							
Spokane St.			4	13273	406		#DIV/0!
US 95 @ Spokane River Bridge			264	13914	1150		#DIV/0!
Northwest Blvd South of US 95			184	13909	1243		#DIV/0!
Totals	0	0			1556	1556	#DIV/0!
Northbound							
Spokane St.			4	13273	403		#DIV/0!
US 95 @ Spokane River Bridge			264	13914	865		#DIV/0!
Northwest Blvd South of US 95			184	13909	980		#DIV/0!
Totals	0	0			1268	1268	#DIV/0!
Seltice Screenline #2							
Southbound							
Ross Point Rd	374	197	251	812	182	-15	-0.076142132
Northwest Blvd	2885	1001	67	13890	1058	57	0.056943057
Huetter Rd		163	24	10473	277	114	0.699386503
Atlas Rd	1160	408		14486	619	211	0.517156863
Cedar St	446	247	252	13218	328	81	0.327935223
Seeley Rd						0	#DIV/0!
Totals	4865	2016			2464	448	0.222222222
Northbound							
Ross Point Rd	273	142	251	812	122	-20	-0.14084507
Northwest Blvd	3807	1358	67	13890	1340	-18	-0.013254786
Huetter Rd		256	24	10473	426	170	0.6640625
Atlas Rd	1535	543		14486	659	116	0.213627993
Cedar St	243	124	252	13218	160	36	0.290322581
Seeley Rd						0	#DIV/0!
Totals	5858	2423			2707	284	0.11721007
Harrison Ave. Screenline #3							
Southbound							
3rd St	1370	476	74	977	534	58	0.121848739
7th St	488	178	248	13875	209	31	0.174157303
11th St	248	92	249	986	78	-14	-0.152173913
15th St						0	#DIV/0!
Government Way		772	73	10465	710	-62	-0.080310881
Totals	2106	1518			1531	13	0.0085639
Northbound							
7th St	448	163	248	13875	150	-13	-0.079754601
11th St	258	90	249	986	120	30	0.333333333
15th St						0	#DIV/0!
4th St						0	#DIV/0!
Government Way		598	73	10470	742	144	0.240802676
Totals	706	851			1012	161	0.189189189
Appleway Ave/Best Screenline #4							
Southbound							
Government Way							#DIV/0!
4th St		971	247	12957	1000	29	
SR 95 (North by Haycraft)	4002	1399	390	9428	1100	-299	-0.213724089
15th St		484	71	825	383	-101	
Totals	4002	2854			2483	-371	-0.129992992
Northbound							
Government Way							#DIV/0!
4th St		1255	247	12957	1290	35	
SR 95 (North by Haycraft)	3984	1387	390	10816	1257	-130	-0.093727469
15th St		586	71	825	355	-231	
Totals	3984	3228			2902	-326	-0.100991326
Seltice/Mullan Rd/Kathleen Screenline #5							
Southbound							
Spokane St.	853	469		1758	477	8	0.017057569
Idaho St.	331	186	12	688	168	-18	-0.096774194
Greensferry Rd						0	#DIV/0!
SR 41	2823	1010	21	13916	872	-138	-0.136633663
Huetter Rd	425	164	244	691	277	113	0.68902439

PM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18.ver

Atlas Rd	1408	516	26	11661	573	57	0.110465116
Ramsey Rd						0	#DIV/0!
4th St						0	#DIV/0!
15th St						0	#DIV/0!
Pleasant View Rd	549	304	5	8830	360	56	0.184210526
US 95	3993	1424	28	9557	1267	-157	-0.110252809
Baugh Rd	385	220	242	13224	217	-3	-0.013636364
Government Way						0	#DIV/0!
Beck Rd	155	57	334	11765	100	43	0.754385965
Totals	10767	4350			4311	-39	-0.008965517
Northbound							
Spokane St.	1462	715		1758	694	-21	-0.029370629
Idaho St	285	161	12	688	248	87	0.540372671
Greensferry Rd						0	#DIV/0!
SR 41	3054	1083	21	13916	844	-239	-0.220683287
Huetter Rd	743	291	244	691	425	134	0.4604811
Atlas Rd	1619	576	26	11661	644	68	0.118055556
Ramsey Rd						0	#DIV/0!
4th St						0	#DIV/0!
15th St						0	#DIV/0!
Pleasant View Rd	689	387	5	8830	374	-13	-0.033591731
US 95	4079	1403	388	12128	1485	82	0.058446187
Baugh Rd	468	234	242	13224	216	-18	-0.076923077
Government Way						0	#DIV/0!
Beck Rd	369	133	334	11765	231	98	0.736842105
Totals	12399	4983			5161	178	0.035721453

Location	PM Total	PM Peak Count	Traffic Count Location #	Link #	Modeled PM Peak Volume	Modeled - Actual PM Peak Count	Modeled-Actual / Actual PM Peak Count
Poleline Rd/Hanley Ave Screenline #6							
Southbound							
Pleasant View Rd	643	232	44	496	360	128	0.551724138
Chase Rd.	169	94	41	507	75	-19	-0.20212766
Spokane St	459	254	39	13865	262	8	0.031496063
Idaho St	445	225	37	13996	229	4	0.017777778
Greensferry Rd.						0	#DIV/0!
SR41	2073	761	33	526	736	-25	-0.032851511
Ramsey Rd						0	#DIV/0!
Government Way		791	239	542	782	-9	-0.011378003
15th St						0	#DIV/0!
Huetter Rd	440	172	30	559	268	96	0.558139535
US 95	4103	1414	389	1671	1454	40	0.028288543
4th St						0	#DIV/0!
Atlas Rd						0	#DIV/0!
Totals	8332	3943			4166	223	0.056555922
Northbound							
Pleasant View Rd	895	326	44	496	374	48	0.147239264
Chase Rd	224	133	41	507	83	-50	-0.37593985
Spokane St	808	411	39	13865	415	4	0.00973236
Idaho St	800	437	37	13996	407	-30	-0.068649886
Greensferry Rd						0	#DIV/0!
SR41	2682	929	33	526	781	-148	-0.159311087
Ramsey Rd						0	#DIV/0!
Government Way		896	239	542	877	-19	-0.021205357
15th St						0	#DIV/0!
Huetter Rd	674	255	30	559	361	106	0.415686275
US 95	4472	1545	238	12156	1738	193	0.124919094
4th St						0	#DIV/0!
Atlas Rd						0	#DIV/0!
Totals	10555	4932			5036	104	0.02108678

Location	PM Total	PM Peak Count	Traffic Count Location #	Link #	Modeled PM Peak Volume	Modeled - Actual PM Peak Count	Modeled-Actual / Actual PM Peak Count
Prairie Rd. Screenline #7							
Southbound							
Idaho Rd.	274	155	53	13202	171	16	0.103225806
Huetter Rd						0	#DIV/0!
Ramsey Rd		984	232	13847	847	-137	-0.139227642
US 95	3941	1406	233	13885	1474	68	0.048364154
Government Way						0	#DIV/0!
4th St						0	#DIV/0!
Atlas Rd						0	#DIV/0!
McGuire Rd	132	62	47	13592	105	43	0.693548387
15th St						0	#DIV/0!
Spokane St.	167	91	50	10684	105	14	0.153846154
Chase Rd.	278	139	49	10686	142	3	0.021582734
Greensferry Rd.						0	#DIV/0!
SR 41	1932	670	57	10698	541	-129	-0.192537313
Totals	6724	3507			3385	-122	-0.034787568
Northbound							
Idaho Rd.	261	123	53	13202	256	133	1.081300813

PM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18.ver

Huetter Rd							0	#DIV/0!
Ramsey Rd		696	232	13847	857		161	0.231321839
Government Way							0	#DIV/0!
4th St							0	#DIV/0!
Atlas Rd							0	#DIV/0!
McGuire Rd	176	99	47	13592	159		60	0.606060606
15th St							0	#DIV/0!
Spokane St.	123	76	50	10684	76		0	0
Chase Rd.	198	114	49	10686	105		-9	-0.078947368
Greensferry Rd.							0	#DIV/0!
SR 41	2049	712	57	10698	624		-88	-0.123595506
US 95	4491	1588	320	12162	1763		175	0.110201511
Totals	7298	3408			3840		432	0.126760563

Location	PM Total	PM Peak Count	Traffic Count Location #	Link #	Modeled PM Peak Volume	Modeled - Actual PM Peak Count	Modeled-Actual / Actual PM Peak Count
Hayden Ave. Screenline # 8							
Southbound							
Chase Rd	122	65	3	13941	67	2	0.030769231
Idaho St						0	#DIV/0!
SR 41						0	#DIV/0!
Huetter Rd						0	#DIV/0!
Hauser Lake Rd north of SH 53						0	#DIV/0!
Greensferry Rd						0	#DIV/0!
Meyer	225	88	374	10677	49	-39	-0.443181818
McGuire	372	138	335	13881	74	-64	-0.463768116
US 95	3405	1363		9569	1286	-77	-0.05649303
Totals	122	1654			1476	-178	-0.107617896
Northbound							
Chase Rd	98	57	3	13941	48	-9	-0.157894737
Idaho St						0	#DIV/0!
SR 41						0	#DIV/0!
Huetter Rd						0	#DIV/0!
Hauser Lake Rd north of 53						0	#DIV/0!
Greensferry Rd						0	#DIV/0!
Meyer	260	98	374	10677	38	-60	-0.612244898
McGuire	379	146	335	13881	67	-79	-0.54109589
US 95	4555	1573		12154	1575	2	0.001271456
Totals	98	1874			1728	-146	-0.077908218

Location	PM Total	PM Peak Count	Traffic Count Location #	Link #	Modeled PM Peak Volume	Modeled - Actual PM Peak Count	Modeled-Actual / Actual PM Peak Count
Lancaster Rd. Screenline # 9							
Southbound							
Greensferry Rd							#DIV/0!
Meyer Rd.							#DIV/0!
Huetter Rd	52	26	214	14519	27	1	0.038461538
US 95						0	#DIV/0!
Government Way	306	119	218	13442	89	-30	-0.252100840
Rimrock Rd/Meadowwood Ln	88	33	219	221	21	-12	-0.363636364
Strahorn Rd	79	30	265	13461	21	-9	-0.300000000
English Point Rd	102	39	221	1279	7	29	0.743589744
Hayden Lake Rd	63	26	273	10390	22	-4	-0.153846154
SH 41		581		13578	507	-74	-0.127366609
Totals	627	854			694	-160	-0.187353630
Northbound							
Greensferry Rd							#DIV/0!
Meyer Rd.							#DIV/0!
Huetter Rd	187	70	214	14519	36	-34	-0.485714286
US 95						0	#DIV/0!
Government Way	642	226	218	13442	202	-24	-0.106194690
Rimrock Rd/Meadowwod Ln	128	51	219	221	48	-3	-0.058823529
Strahorn Rd	85	34	265	13461	12	-22	-0.647058824
English Point Rd	149	54	221	1279	26	-28	-0.518518519
Hayden Lake Rd	39	18	273	10390	19	1	0.055555556
SH 41		599		13578	589	-10	-0.016694491
Totals	1191	1052			932	-120	-0.114068441

Location	PM Total	PM Peak Count	Traffic Count Location #	Link #	Modeled PM Peak Volume	Modeled - Actual PM Peak Count	Modeled-Actual / Actual PM Peak Count
SH 53 - US 95 Screenline # 10							
Eastbound							
BNSF RR Bridge in Rathdrum							#DIV/0!
Ramsey Rd	288	101	210	104	134	33	0.326732673
US 95 n/o SH53	1508	564	209	14520	529	-35	-0.062056738
Govt Way e/o US95	88	34	321	14409	83	49	1.441176471
Pleasant View	402	143		1249	190	47	0.328671329
Totals	1884	842			936	94	0.111638955
Westbound							
BNSF RR Bridge in Rathdrum							#DIV/0!

PM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18.ver

Ramsey Rd	530	207	210	104	305	98	0.473429952
US 95 n/o SH53	2341	825	209	13654	770	-55	-0.066666667
Govt Way e/o US95	246	89	321	14409	146	57	0.640449438
Pleasant View	710	265		1249	303	38	0.143396226
Totals	3117	1386			1524	138	0.0995671

Location	PM Total	PM Peak Count	Traffic Count Location #	Link #	Modeled PM Peak Volume	Modeled - Actual PM Peak Count	Modeled-Actual / Actual PM Peak Count
Twin Lakes to Nat. Forest. Screenline # 11							
Southbound							
Ramsey Rd south of Brunner	72	30	285	44	133	103	3.433333333
Diagonal Rd south of Brunner	157	62	286	9610	96	34	0.548387097
SH 41 south of Seasons Rd						0	#DIV/0!
East Twin Lake Rd near SH 41	113	53	281	10385	123	70	1.320754717
US 95 south of Brunner Rd	1412	537	287	14009	481	-56	-0.104283054
Totals	1754	682			833	151	0.221407625
Northbound							
Ramsey Rd south of Brunner	157	55	285	44	162	107	1.945454545
Diagonal Rd south of Brunner Rd	270	112	286	9610	155	43	0.383928571
SH 41 south of Seasons Rd						0	#DIV/0!
East Twin Lake Rd near SH 41	261	105	281	10385	122	17	0.161904762
US 95 south of Brunner Rd	2180	776	287	14009	695	-81	-0.104381443
Totals	2868	1048			1134	86	0.082061069

Location	PM Total	PM Peak Count	Traffic Count Location #	Link #	Modeled PM Peak Volume	Modeled - Actual PM Peak Count	Modeled-Actual / Actual PM Peak Count
US 95 to SH 3 South Screenline # 12							
Southbound							
SH 97 north of Harrison							#DIV/0!
Cave Bay Rd @ Rock Creek	109	42	292	10908	3	-39	-0.928571429
SH 3 S/O SH97	172	70	268	1220	64	-6	-0.085714286
US 95 S/O Worley	745	268	302	1217	298	30	0.111940299
O'Gara Rd west of SH 97	15	7	298	9291	0	-7	-1.000000000
US 95 N/O Worley		353		13785	319	-34	-0.096317280
Totals	1041	740			684	-56	-0.075675676
Northbound							
SH 97 north of Harrison							#DIV/0!
Cave Bay Rd @ Rock Creek	121	43	292	10908	2	-41	-0.953488372
SH3 S/O SH97	191	75	268	1220	80	5	0.066666667
US 95 S/O Worley	838	298	302	1217	303	5	0.016778523
O'Gara Rd west of SH 97	14	6	298	9291	0	-6	-1.000000000
US 95 N/O Worley		395		13785	281	-114	-0.288607595
Totals	1164	817			666	-151	-0.184822521

Location	PM Total	PM Peak Count	Traffic Count Location #	Link #	Modeled PM Peak Volume	Modeled - Actual PM Peak Count	Modeled-Actual / Actual PM Peak Count
SH 93 to LaTour Creek Rd Screenline # 13							
Southbound							
SH 3 S/O I 90							#DIV/0!
SH 97 N/O Burma							#DIV/0!
Cougar Gulch Rd west of US 95	87	31	289	9644	36	5	0.161290323
LaTour Creek Rd south of I 90	48	16	270	13140	10	-6	-0.375000000
Burma Rd	37	14	297	13120	52	38	2.714285714
Totals	135	61			98	37	0.606557377
Northbound							
Sh 3 S/O I 90							#DIV/0!
SH 97 N/O Burma							#DIV/0!
Cougar Gulch Rd west of US 95	108	44	289	9644	48	4	0.090909091
LaTour Creek Rd south of I 90	63	26	270	13140	16	-10	-0.384615385
Burma Rd	42	25	297	13120	85	60	2.400000000
Totals	213	95			149	54	0.568421053

Location	PM Total	PM Peak Count	Traffic Count Location #	Link #	Modeled PM Peak Volume	Modeled - Actual PM Peak Count	Modeled-Actual / Actual PM Peak Count
Spirit Lake Pend'O Reille Screenline #14							
Southbound							
Perimeter Rd north of SH 54	76	33	277	13462	26	-7	-0.212121212
SH 41 south of Spirit Lake						0	#DIV/0!
US 95 north of Athol	1272	463	278	10563	456	-7	-0.015118790
SH 41 north of Spirit Lake	681	245	279	10884	243	-2	-0.008163265
Totals	2029	741			725	-16	-0.021592443
Northbound							
Perimeter Rd north of SH 54	84	37	277	13462	30	-7	-0.189189189
SH 41 south of Spirit Lake						0	#DIV/0!
US 95 north of Athol	1404	501	278	10563	496	-5	-0.009980040
SH 41 north of Spirit Lake	1031	360	279	10884	359	-1	-0.002777778
Totals	2519	898			885	-13	-0.014476615

PM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18.ver

EAST - WEST SCREENLINES - KMPO							
Location	PM Total	PM Peak Count	Traffic Count Location #	Link #	Modeled PM Peak Volume	Modeled - Actual PM Peak Count	Modeled-Actual / Actual PM Peak Count
Pleasant View Rd. Screenline # 15							
Eastbound							
SH 53							#DIV/0!
Seltice Way	540	283	6	13164	266	-17	-0.060070671
Prairie Rd.	331	190	45	8834	197	7	0.036842105
Riverbend Ave	251	139	92	9371	291	152	1.093525180
SH 53 (W/O Prairie Ave)						0	#DIV/0!
Poleline Ave.	31	9	43	13164	7	-2	-0.222222222
Totals	1153	621			761	140	0.225442834
Westbound							
SH 53							#DIV/0!
Seltice Way	702	379	6	13164	474	95	0.250659631
Prairie Rd.	198	95	45	8834	128	33	0.347368421
Riverbend Ave	115	72	92	9371	120	48	0.666666667
SH 53 W/O Prairie Ave						0	#DIV/0!
Poleline Ave.	17	10	43	13164	7	-3	-0.300000000
Totals	1032	556			729	173	0.311151079
McGuire Rd. Screenline # 16							
Eastbound							
SH 53							#DIV/0!
Seltice Way	909	534	7	13231	570	36	0.067415730
Poleline Ave.	21	18	42	10168	68	50	2.777777778
Prairie Rd.	350	201	46	13591	279	78	0.388059701
Totals	1280	753			917	164	0.217795485
Westbound							
SH 53							#DIV/0!
Seltice Way	903	475	7	13231	631	156	0.328421053
Poleline Ave.	40	22	42	10168	70	48	2.181818182
Prairie Rd.	226	114	46	13591	158	44	0.385964912
Totals	1169	611			859	248	0.40589198
Chase Rd. Screenline # 17							
Eastbound							
Hayden Rd.	203	113	2	308	138	25	0.221238938
Prairie Rd.	335	193	48	13173	271	78	0.404145078
Poleline Ave.	217	116	40	506	121	5	0.043103448
Seltice Way	1039	585	8	12744	630	45	0.076923077
Totals	1794	1007			1160	153	0.151936445
Westbound							
Hayden Rd.	256	129	2	308	104	-25	-0.193798450
Prairie Rd.	308	150	48	13171	183	33	0.220000000
Poleline Rd.	228	117	40	506	154	37	0.316239316
Seltice Way	1194	621	8	12744	786	165	0.265700483
Totals	1986	1017			1227	210	0.206489676
Spokane St. Screenline # 18							
Eastbound							
Prairie Rd.	374	219	51	410	327	108	0.493150685
Poleline Ave.	557	273		13478	258	-15	-0.054945055
4th Ave.	290	162	13	743	225	63	0.388888889
Seltice Way	1300	728	10	13899	755	27	0.037087912
3rd Ave.	237	122	14	10721	156	34	0.278688525
Totals	2758	1504			1721	217	0.144281915
Westbound							
Prairie Rd.	430	224	51	410	279	55	0.245535714
Poleline Ave.	454	260		13478	239	-21	-0.080769231
4th Ave.	187	91	13	743	91	0	0.000000000
Seltice Way	1385	735	10	13899	884	149	0.202721088
3rd Ave.	253	142	14	10721	154	12	0.084507042
Totals	2709	1452			1647	195	0.134297521
Idaho St. Screenline # 19							
Eastbound							
Prairie Rd.	794	287	52	413	452	165	0.574912892
Poleline	635	335	36	13802	190	-145	-0.432835821
Seltice Way	1292	700	11	689	793	93	0.132857143

PM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18.ver

4th Ave.	164	87	15	747	83	-4	-0.045977011
Totals	2885	1409			1518	109	0.07735983
Westbound							
Prairie Rd.	761	284	52	413	326	42	0.147887324
Poleline	380	199	36	13802	169	-30	-0.150753769
Seltice Way	1611	830	11	689	901	71	0.085542169
4th Ave.	22	13	15	747	29	16	1.230769231
Totals	2774	1326			1425	99	0.074660633

Location	PM Total	PM Peak Count	Traffic Count Location #	Link #	Modeled PM Peak Volume	Modeled - Actual PM Peak Count	Modeled-Actual / Actual PM Peak Count
Greensferry Rd. Screenline # 20							
Eastbound							
Prairie Rd.							#DIV/0!
Poleline Ave.							#DIV/0!
16th							#DIV/0!
12th							#DIV/0!
Mullan Ave							#DIV/0!
Seltice Way							#DIV/0!
Wyoming Ave							#DIV/0!
Hayden Rd.	430	160	64	6243	209	49	0.306250000
SH 53	1410	532	104	9487	544	12	0.022556391
3rd Ave.	142	66	16	10720	106	40	0.606060606
Totals	1982	758			859	101	0.133245383
Westbound							
Prairie Rd.							#DIV/0!
Poleline Ave.							#DIV/0!
16th							#DIV/0!
12th							#DIV/0!
Mullan Ave							#DIV/0!
Seltice Way							#DIV/0!
Wyoming Ave							#DIV/0!
Hayden Rd.	518	201	64	6243	225	24	0.119402985
SH 53	746	266	104	9487	307	41	0.154135338
3rd Ave.	149	81	16	10720	168	87	1.074074074
Totals	1413	548			700	152	0.277372263

Location	PM Total	PM Peak Count	Traffic Count Location #	Link #	Modeled PM Peak Volume	Modeled - Actual PM Peak Count	Modeled-Actual / Actual PM Peak Count
SH 41 Screenline # 21							
Eastbound							
McCarney St N/O SR41							#DIV/0!
Poleline Rd.	961	350	32	13801	186	-164	-0.468571429
Mullan Ave	1939	662	20	672	627	-35	-0.052870091
Seltice Way						0	#DIV/0!
Lancaster	78	40	114	9346	13	-27	-0.675000000
Wyoming						0	#DIV/0!
Nagel Ln	210	90	366	13702	6	-84	-0.933333333
Prairie Rd.		466	363	10122	641	175	0.375536481
Hayden Rd.						0	#DIV/0!
Boekel Rd	157	61	89	11679	74	13	0.213114754
Totals	3345	1669			1547	-122	-0.073097663
Westbound							
McCarney St N/O SR41							#DIV/0!
Poleline Rd.	987	373	32	13801	269	-104	-0.278820375
Mullan Ave	1372	500	20	672	441	-59	-0.118000000
Seltice Way						0	#DIV/0!
Lancaster	102	44	114	9346	33	-11	-0.250000000
Wyoming						0	#DIV/0!
Nagel Ln	208	74	366	13702	7	-67	-0.905405405
Prairie Rd.		541	363	10122	722	181	0.334565619
Hayden Rd.						0	#DIV/0!
Boekel Rd	169	77	89	11679	94	17	0.220779221
Totals	2838	1609			1566	-43	-0.026724674

Location	PM Total	PM Peak Count	Traffic Count Location #	Link #	Modeled PM Peak Volume	Modeled - Actual PM Peak Count	Modeled-Actual / Actual PM Peak Count
Huetter Rd Screenline # 22							
Eastbound							
Wyoming Ave						0	#DIV/0!
Hayden Rd.	723	262	60	323	425	163	0.622137405
Prairie Rd.						0	#DIV/0!
Seltice Way	1797	677	23	13954	884	207	0.305760709
Mullan Ave						0	#DIV/0!
Maplewood	62	29	123	10753	14	-15	-0.517241379
Boekel Ave	195	82	1	9233	79	-3	-0.036585366
Totals	2777	1050			1402	352	0.335238095
Westbound							
Wyoming Ave						0	#DIV/0!
Hayden Rd.	1023	388	60	323	521	133	0.342783505

PM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18.ver

Prairie Rd.							0	#DIV/0!
Mullan Ave							0	#DIV/0!
Seltice Way	1793	693	22	12732	1380	687		0.991341991
Maplewood	114	66	123	10753	38	-28		-0.424242424
Boekel Ave	301	118	1	9233	126	8		0.067796610
Totals	3231	1265			2065	800		0.632411067

Location	PM Total	PM Peak Count	Traffic Count Location #	Link #	Modeled PM Peak Volume	Modeled - Actual PM Peak Count	Modeled-Actual / Actual PM Peak Count
Ramsey Rd Screenline # 23							
Eastbound							
Ohio Match Rd	48	21	124	65	16	-5	-0.238095238
Garwood Rd	119	43	125	76	17	-26	-0.604651163
Hwy 53							#DIV/0!
Lancaster Ave							#DIV/0!
Wyoming Ave							#DIV/0!
Miles Ave							#DIV/0!
Hayden Ave							#DIV/0!
Honeysuckle Ave							#DIV/0!
Prairie Ave		917	133	13926	978	61	0.066521265
Appleway							#DIV/0!
Kathleen Ave							#DIV/0!
Dalton Ave		249	136	10636	171	-78	-0.313253012
Hanley Ave							#DIV/0!
Ironwood Dr	1265	478	140	10300	573	95	0.198744770
Boekel Rd	232	89	127	11559	115	26	0.292134831
Wilbur Ave Pinegrove							#DIV/0!
Totals	1664	1797			1870	73	0.040623261
Westbound							
Ohio Match Rd	25	11	124	65	16	5	0.454545455
Garwood Rd	245	100	125	76	50		0.000000000
Hwy 53							#DIV/0!
Lancaster Ave							#DIV/0!
Wyoming Ave							#DIV/0!
Miles Ave							#DIV/0!
Hayden Ave							#DIV/0!
Honeysuckle Ave							#DIV/0!
Prairie Ave		879	133	13926	903	24	0.027303754
Appleway							#DIV/0!
Kathleen Ave							#DIV/0!
Dalton Ave		294	136	10636	226	-68	-0.231292517
Hanley Ave							#DIV/0!
Ironwood Dr	2173	776	140	10300	1123	347	0.447164948
Boekel Rd	390	148	127	11559	165	17	0.114864865
Wilbur Ave Pinegrove							#DIV/0!
Totals	2833	2208			2483	275	0.124547101

Location	PM Total	PM Peak Count	Traffic Count Location #	Link #	Modeled PM Peak Volume	Modeled - Actual PM Peak Count	Modeled-Actual / Actual PM Peak Count
US 95 Screenline # 24							
Eastbound							
Ohio Match Rd	96	41	164	14401	29	-12	-0.292682927
Garwood Rd	175	66		80	55	-11	-0.166666667
Lancaster Ave		191	167	13640	254	63	0.329842932
Hayden Ave	1579	575	170	12169	429	-146	-0.253913043
Honeysuckle Ave	1239	487	171	13841	518	31	0.063655031
Prairie Ave	2130	784	172	12159	765	-19	-0.024234694
Dalton Ave	848	320	175	12129	327	7	0.021875000
Kathleen Ave	1746	629	176	12917	611	-18	-0.028616852
Neider Ave	1735	625	177	11795	587	-38	-0.060800000
Appleway Ave	2006	726	178	874	581	-145	-0.199724518
Ironwood Blvd						0	#DIV/0!
Walnut St						0	#DIV/0!
Hanley Ave	1438	532	174	12132	539	7	0.013157895
US 95						0	#DIV/0!
Old US 95 n/o SH53	355	134	208	10666	93	-41	-0.372727273
Miles Ave	329	143	169	10833	128	-15	-0.104895105
Wyoming Ave	529	198	146	8875	227	29	0.146464646
Totals	14205	5451			5143	-308	-0.056503394
Westbound							
Ohio Match Rd	67	30	164	14401	18	-12	-0.400000000
Garwood Rd	94	37		80	38	1	0.027027027
Lancaster Ave		205	167	13640	243	38	0.185365854
Hayden Ave	1609	509	170	12169	492	-17	-0.033398821
Honeysuckle Ave	1380	477	171	13841	498	21	0.044025157
Prairie Ave	2073	729	172	12159	716	-13	-0.017832647
Dalton Ave	848	317	175	12129	360	43	0.135646688
Kathleen Ave	1755	623	176	12917	736	113	0.181380417
Neider Ave	1667	568	177	11795	588	20	0.035211268
Appleway Ave	1972	670	178	874	646	-24	-0.035820896
Ironwood Blvd						0	#DIV/0!

PM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18.ver

Walnut St							0	#DIV/0!
Hanley Ave	1448	509	174	12132	514		5	0.009823183
US 95							0	#DIV/0!
Old US 95 n/o SH53	311	110	208	10666	125		15	0.111940299
Miles Ave	207	89	169	10833	115		26	0.292134831
Wyoming Ave	404	155	146	8875	184		29	0.187096774
Totals	13835	5028			5273		245	0.048727128

Location	PM Total	PM Peak Count	Traffic Count Location #	Link #	Modeled PM Peak Volume	Modeled - Actual PM Peak Count	Modeled-Actual / Actual PM Peak Count
West Side KMPO Screenline # 25							
Eastbound							
Seltice Way W/O Beck Rd	1054	397	90	8826	202	-195	-0.491183879
Rockford Bay Rd east of US 95	168	62	290	9001	17	-45	-0.725806452
Elder Rd @ Washington Line	85	38	266	14420	30	-8	-0.210526316
SH 58 @ Washington Line	308	115	267	9283	121	6	0.052173913
Conkling Rd east of US 95	73	28	294	13365	57	29	1.035714286
SH 53 @ Washington State Line	1795	667	93	13244	669	2	0.002998501
Riverview east of Washington Line	135	56	345	13261	65	9	0.160714286
Totals	3483	1363			1161	-202	-0.148202494
Westbound							
Seltice Way W/O Beck Rd	722	288	90	8826	223	-65	-0.225694444
Rockford Bay Rd east of I90	109	44	290	9001	13	-31	-0.704545455
Elder Rd @ Washington Line	142	57	266	14420	50	-7	-0.122807018
SH 58 @ Washington Line	370	133	267	9283	136	3	0.022556391
Conkling Rd east of US 95	74	30	294	13365	31	1	0.033333333
SH 53 @ Washington State Line	950	337	93	13244	322	-15	-0.044510386
Riverview east of Washington Line	77	36	345	13261	62	26	0.722222222
Totals	2367	925			837	-88	-0.095135135

Location	PM Total	PM Peak Count	Traffic Count Location #	Link #	Modeled PM Peak Volume	Modeled - Actual PM Peak Count	Modeled-Actual / Actual PM Peak Count
East Side KMPO Screenline # 26							
Eastbound							
Bunco Rd @ Nunn Rd							#DIV/0!
Ohio Match Rd East of Rimrock Rd	33	13	274	13950	15	2	0.153846154
Mullan Trail Rd north of I 90	154	62	300	1075	74	12	0.193548387
Sunnyside Rd south of Mullan Trail	59	26	301	11432	36	10	0.384615385
I 90 @ Shoshone Co. Line	1288	452	319	1160	458	6	0.013274336
Fernan Lake Rd @ CdA City Limit	61	25	271	10798	0	-25	-1.000000000
SH 54 West of Farragut Park Entrance						0	#DIV/0!
Lancaster Rd east of Rimrock	206	80	272	11515	90	10	0.125
Careywood west of Perimeter	48	19		11699	19	0	0.000000000
Canyon Rd west of Shoshone County	64	29		10902	2	-27	-0.931034483
Totals	1801	706			694	-12	-0.016997167
Westbound							
Bunco Rd @ Nunn Rd							#DIV/0!
Ohio Match Rd East of Rimrock Rd	26	13	274	13950	6	-7	-0.538461538
Mullan Trail Rd north of I 90	135	52	300	1075	80	28	0.538461538
Sunnyside Rd south of Mullan Trail	41	17	301	11432	12	-5	-0.294117647
I 90 (@ Shoshone Co. Line)	1379	498	269	1157	510	12	0.024096386
Fernan Lake Rd @ CdA City Limit	75	29	271	10798	0	-29	-1.000000000
SH 54 West of Farragut Park Entrance						0	#DIV/0!
Lancaster Rd east of Rimrock	155	66	272	11515	75	9	0.136363636
Careywood west of Perimeter	51	22		11699	21	-1	-0.045454545
Canyon Rd west of Shoshone County	89	29		10902	6	-23	-0.793103448
Totals	1811	726			710	-16	-0.022038567

Location	PM Total	PM Peak Count	Traffic Count Location #	Link #	Modeled PM Peak Volume	Modeled - Actual PM Peak Count	Modeled-Actual / Actual PM Peak Count
Government Way Screenline # 27							
Eastbound							
Lancaster Ave		191	145	13459	242	51	0.267015707
Miles Ave							#DIV/0!
Hayden Ave							#DIV/0!
Honeysuckle Ave							#DIV/0!
Prairie Ave							#DIV/0!
Wilbur Ave	104	37	151	477	19	-18	-0.486486486
Hanley Ave		393	152	13792	382	-11	-0.027989822
Dalton Ave							#DIV/0!
Neider Ave							#DIV/0!
Appleway/Best Ave							#DIV/0!
Northwest Blvd	1558	537	163	1032	582	45	0.083798883
Wyoming Ave							#DIV/0!
Government Way							#DIV/0!
Harrison Ave							#DIV/0!
Foster Ave	222	81	162	13015	172	91	1.123456790
Kathleen							#DIV/0!
Totals	1884	1239			1397	158	0.127522195
Westbound							

PM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18.ver

Lancaster Ave		205		145	13459	213		8	0.039024390
Miles Ave									#DIV/0!
Hayden Ave									#DIV/0!
Honeysuckle Ave									#DIV/0!
Prairie Ave									#DIV/0!
Wilbur Ave	71	33		151	477	4		-29	-0.878787879
Hanley Ave		360		152	13792	283		-77	-0.213888889
Dalton Ave									#DIV/0!
Neider Ave									#DIV/0!
Appleway/Best Ave									#DIV/0!
Northwest Blvd	1557	543		163	1032	655		112	0.206261510
Wyoming Ave									#DIV/0!
Government Way									#DIV/0!
Harrison Ave									#DIV/0!
Foster Ave	133	53		162	13015	185		132	2.490566038
Kathleen									#DIV/0!
Totals	1761	1194				1340		146	0.122278057

Location	PM Total	PM Peak Count	Traffic Count Location #	Link #	Modeled PM Peak Volume	Modeled - Actual PM Peak Count	Modeled-Actual / Actual PM Peak Count
I 90 Ramps Screenline # 28							
Eastbound							
I 90 Ramp @ Spokane St EB Off		871	103	713	825	-46	-0.052812859
I 90 Ramp @ Spokane St EB On		458	102	717	401	-57	-0.124454148
I 90 Ramp @ Seltice Way EB On		285	318	749	307	22	0.077192982
SR 90 @ Pleasant View Rd EB Off		467	87	785	336	-131	-0.280513919
SR 90 @ Pleasant View Rd		457	86	786	441	-16	-0.035010941
I 90 Ramp @ NW Blvd/Ramsey EB Off						0	#DIV/0!
I 90 Ramp @ NW Blvd/Ramsey EB On						0	#DIV/0!
I 90 Ramp @ US 95 EB Off		718	182	12707	641	-77	-0.107242340
I 90 Ramp @ US 95		478	181	915	455	-23	-0.048117155
I 90 Ramp @ 3rd/4th St EB On						0	#DIV/0!
I 90 Ramp @ SH 41 EB Off						0	#DIV/0!
I 90 Ramp @ 23rd St EB On						0	#DIV/0!
I 90 Ramp @ SH 41 EB On						0	#DIV/0!
I 90 Ramp @ 3rd/4th St EB Off						0	#DIV/0!
I 90 Ramp @ 15th St EB On		110	309	10428	104	-6	-0.054545455
I 90 Ramp @ 15th St EB Off		596	310	10430	438	-158	-0.265100671
I 90 Ramp @ 23rd St (One Way)		417	322	10758	385	-32	-0.076738609
I 90 Ramp @ Beck Rd EB Off		176		13990	443	267	
I 90 Ramp @ Beck Rd EB On		147		13987	120	-27	
Totals	0	5180			4896	-284	-0.054826255
Westbound							
I 90 Ramp @ Spokane St WB On		507	100	684	521	14	0.027613412
I 90 Ramp @ Spokane St Off		523	101	720	477	-46	-0.087954111
I 90 Ramp @ Seltice Way Off Ramp						0	#DIV/0!
I 90 Ramp @ SH 41WB On						0	#DIV/0!
SR 90 @ Pleasant View Rd WB On		446	85	737	461	15	0.033632287
SR 90 @ Pleasant View Rd WB Off		518	84	740	417	-101	-0.194980695
I 90 Ramp @ NW Blvd/Ramsey WB On						0	#DIV/0!
I 90 Ramp @ NW Blvd/Ramsey WB Off						0	#DIV/0!
I 90 Ramp @ US 95 WB On		988	180	900	596	-392	-0.396761134
I 90 Ramp @ US 95 WB Off Ramp		329	179	904	362	33	0.100303951
I 90 Ramp @ 3rd/4th St WB On						0	#DIV/0!
I 90 Ramp @ 3rd/4th St WB Off						0	#DIV/0!
I 90 Ramp @ 23rd St WB On		369	304	1059	430	61	0.165311653
I 90 Ramp @ 23rd St WB Off		100	305	1061	100	0	0.000000000
I 90 Ramp @ 15th St to Hazel		127	308	8814	57	-70	-0.551181102
I 90 Ramp @ SH 41 WB Off						0	#DIV/0!
I 90 Ramp @ 15th St WB On		416	307	10432	289	-127	-0.305288462
I 90 Ramp @ Beck Rd WB Off		159		13988	174	15	
I 90 Ramp @ Beck Rd WB On		199		13989	172	-27	
Totals	0	4681			4056	-625	-0.133518479

PM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18.ver

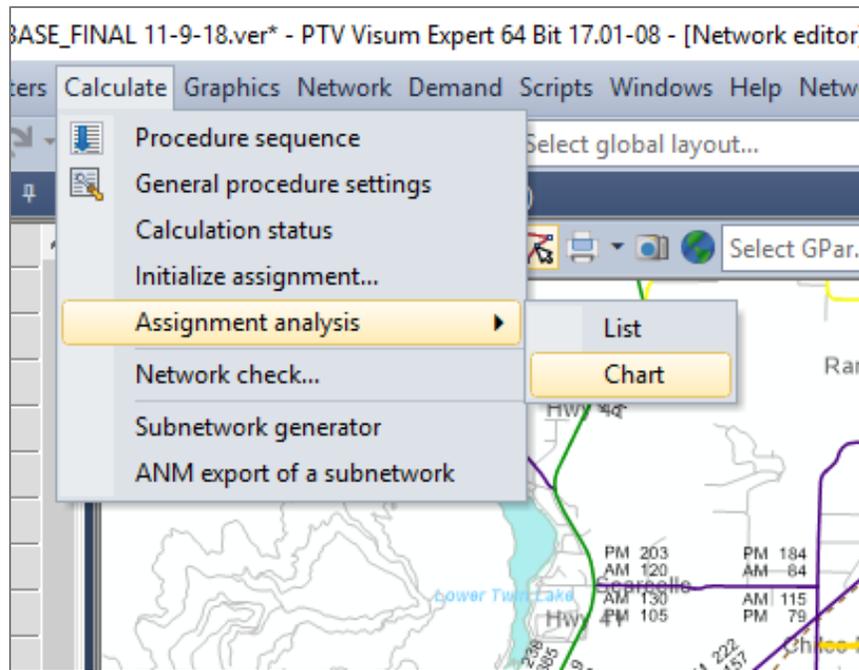
	Total PM Peak Actual Directional Count	Total PM Peak Modeled Directional Volume	Modeled - Actual PM Peak Count	((Modeled - Actual) / Actual PM Peak Count)*100	Total PM Peak Actual Bi-Directional Count	Total PM Peak Modeled Bi-Directional Volume	Total PM Peak Volume - Actual Bi-Directional Count	((Modeled - Actual) / Actual Bi-Directional PM Peak Count)*100	% Allowable Deviation per TMAP FHA	Within Allowable Deviation?
SB/NB Screenlines Screenlines										
Spokane River Crossing Screenline # 1										
Spokane River Crossing Screenline										
Southbound	0	1556	1556	#DIV/0!	0	2824	2824	#DIV/0!	62	#DIV/0!
Northbound	0	1268	1268	#DIV/0!						
Seltice Screenline # 2										
Seltice Screenline										
Southbound	2016	2464	448	22	4439	5171	732	16	60	Y
Northbound	2423	2707	284	12						
Harrison Ave Screenline # 3										
Harrison Ave Screenline										
Southbound	1518	1531	13	1	2369	2543	174	7	63	Y
Northbound	851	1012	161	19						
Appleway Ave/Best Screenline # 4										
Appleway Ave/Best Screenline										
Southbound	2854	2483	-371	-13	6082	5385	-697	-11	59	Y
Northbound	3228	2902	-326	-10						
Seltice Way/Mullan Rd/Kathleen Screenline # 5										
Seltice Way/Mullan Rd/Kathleen										
Southbound	4350	4311	-39	-1	9333	9472	139	1	55	Y
Northbound	4983	5161	178	4						
Poleline Rd Screenline # 6										
Poleline Rd Screenline										
Southbound	3943	4166	223	6	8875	9202	327	4	56	Y
Northbound	4932	5036	104	2						
Prairie Rd. Screenline # 7										
Prairie Rd. Screenline										
Southbound	3507	3385	-122	-3	6915	7225	310	4	58	Y
Northbound	3408	3840	432	13						
Hayden Ave Screenline # 8										
Hayden Ave Screenline										
Southbound	1654	1476	-178	-11	3528	3204	-324	-9	62	Y
Northbound	1874	1728	-146	-8						
Lancaster Rd. Screenline # 9										
Lancaster Rd. Screenline										
Southbound	854	694	-160	-19	1906	1626	-280	-15	64	Y
Northbound	1052	932	-120	-11						
SH 53 - US 95 Screenline # 10										
SH 53 - US 95 Screenline										
Southbound	842	936	94	11	2228	2460	232	10	63	Y
Northbound	1386	1524	138	10						
Twin Lakes Nat. Forest Screenline # 11										
Twin Lakes Nat. Forest Screenline										
Southbound	682	833	151	22	1730	1967	237	14	63	Y
Northbound	1048	1134	86	8						
US 95 to SH 3 Screenline # 12										
US 95 to SH 3 Screenline										
Southbound	740	684	-56	-8	1557	1350	-207	-13	64	Y
Northbound	817	666	-151	-18						
SH 93 to LaTour Creek Screenline # 13										
SH 93 to LaTour Creek Rd Screenline										
Southbound	61	98	37	61	156	247	91	58	65	Y
Northbound	95	149	54	57						
Spirit Lake/Pend O'Reille Screenline # 14										
Spirit Lake/Pend O'Reille Screenline # 12										
Southbound	741	725	-16	-2	1639	1610	-29	-2	64	Y
Northbound	898	885	-13	-1						
EB/WB Screenlines Screenlines										
Pleasant View Rd. Screenline # 15										
Pleasant View Rd. Screenline										
Eastbound	621	761	140	23	1177	1490	313	27	64	Y
Westbound	556	729	173	31						
McGuire Rd. Screenline # 16										
McGuire Rd. Screenline										
Eastbound	753	917	164	22	1364	1776	412	30	63	Y
Westbound	611	859	248	41						
Chase Rd. Screenline # 17										
Chase Rd. Screenline										
Eastbound	1007	1160	153	15	2024	2387	363	18	63	Y
Westbound	1017	1227	210	21						
Spokane St. Screenline # 18										
Spokane St. Screenline										
Eastbound	1504	1721	217	14	2956	3368	412	14	62	Y
Westbound	1452	1647	195	13						
Idaho St Screenline # 19										
Idaho St Screenline										
Eastbound	1409	1518	109	8	2735	2943	208	8	62	Y
Westbound	1326	1425	99	7						
Greensferry Screenline # 20										
Greensferry Screenline										
Eastbound	758	859	101	13	1306	1559	253	19	64	Y
Westbound	548	700	152	28						
SH 41 Screenline # 21										
SH 41 Screenline										
Eastbound	1669	1547	-122	-7	3278	3113	-165	-5	62	Y
Westbound	1609	1566	-43	-3						
Huetter Rd Screenline # 22										
Huetter Rd Screenline										
Eastbound	1050	1402	352	34	2315	3467	1152	50	62	Y
Westbound	1265	2065	800	63						
Ramsey Rd Screenline # 23										
Ramsey Rd Screenline										
Eastbound	1797	1870	73	4	4005	4353	348	9	61	Y
Westbound	2208	2483	275	12						

PM PK HR Screenline Validation
2016 KMPO Base FINAL 11-9-18.ver

US 95 Screenline # 24		US 95 Screenline									
Eastbound	5451	5143	-308	-6	10479	10416	-63	-1	55	Y	
Westbound	5028	5273	245	5							
West Side KMPO Screenline # 25		West Side KMPO Screenline									
Eastbound	1363	1161	-202	-15	2288	1998	-290	-13	63	Y	
Westbound	925	837	-88	-10							
East Side KMPO Screenline # 26		East Side KMPO Screenline									
Eastbound	706	694	-12	-2	1432	1404	-28	-2	64	Y	
Westbound	726	710	-16	-2							
Government Way Screenline # 27		Government Way Screenline									
Eastbound	1239	1397	158	13	2433	2737	304	12	62	Y	
Westbound	1194	1340	146	12							
I 90 Ramps Screenline # 28		I 90 Ramps Screenline									
Eastbound	5180	4896	-284	-5	9861	8952	-909	-9	56	Y	
Westbound	4681	4056	-625	-13							
Total Screenlines		Total PM Peak Actual Directional Count	Total PM Peak Modeled Directional Volume	Modeled - Actual PM Peak Count	((Modeled - Actual) / Actual PM Peak Count)*100	Total PM Peak Actual Bi-Directional Count	Total PM Peak Modeled Bi-Directional Volume	Total PM Peak Volume - Actual Bi-Directional Count	((Modeled - Actual) / Actual Bi-Directional PM Peak Count)*100	% Allowable Deviation per TMIP FHA	Within Allowable Deviation?
All North-South Screenline		North-South Screenlines									
Southbound	23762	25342	1580	7	50757	54286	3529	7	32	Y	
Northbound	26995	28944	1949	7							
All East-West Screenline		All East-West Screenline									
Eastbound	24507	25046	539	2	47653	49963	2310	5	33	Y	
Westbound	23146	24917	1771	8							
Total Screenlines		Total Screenlines									
					98410	104249	5839	6	27	Y	

Appendix 1E: Final Model Results Assignment Analysis Comparison

The 2010 KMPO Base Model PM PK HR “**assignment analysis**” is reported internally within the model and shows the final AM/ PM PK HR model results. The formula the program measures the observed traffic counts against the modeled traffic volumes.



The (GEH) formula used was created by Geoffrey E. Havers, is a statistical mathematical formula that is used internally within the VISUM assignment analysis graph calculations that checks the model calibration. The assignment analysis uses this formula and graphs a plot that tells you how accurately the traffic volumes match the modeled volumes.

This widely accepted approach compares the actual traffic counts taken in the field to the modeled output volumes using the GEH formula:

For hourly flows, the GEH formula is:

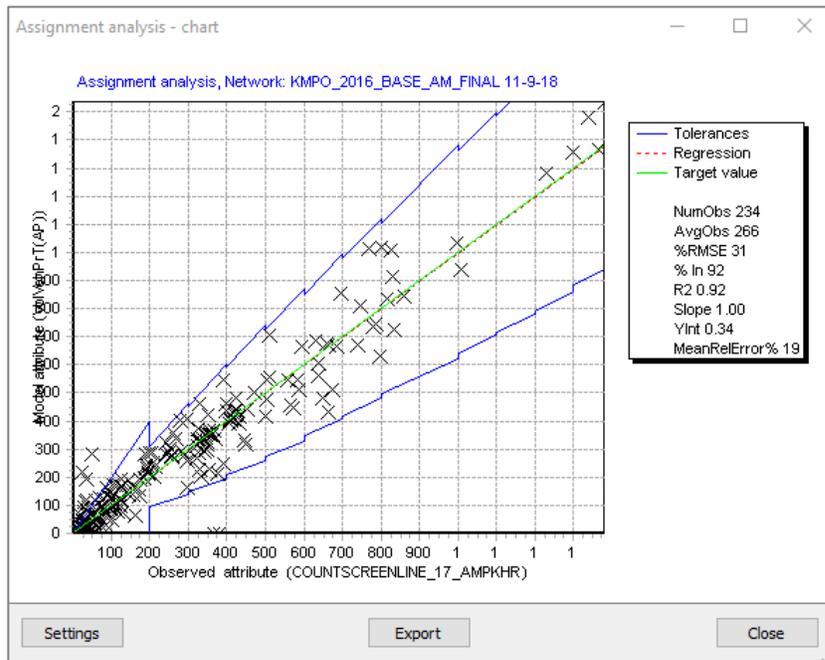
$$GEH = \sqrt{\frac{2(m - c)^2}{m + c}}$$

Notes:

m = output traffic volume from the simulation model (vph)

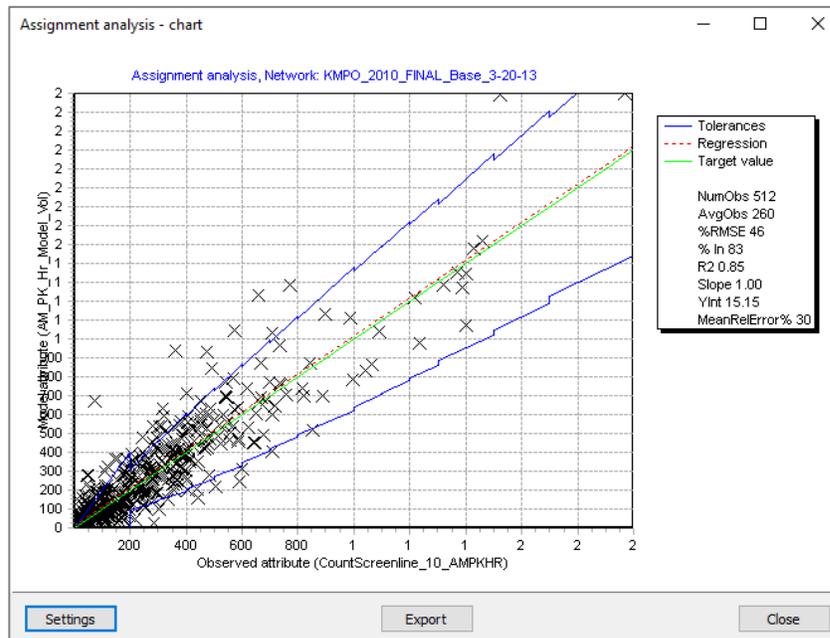
c = input traffic volume (vph)

The graph below displays the final 2016 KMPO Base Model AM PK HR “assignment analysis” of the network reported inside the model for AM PK HR results.



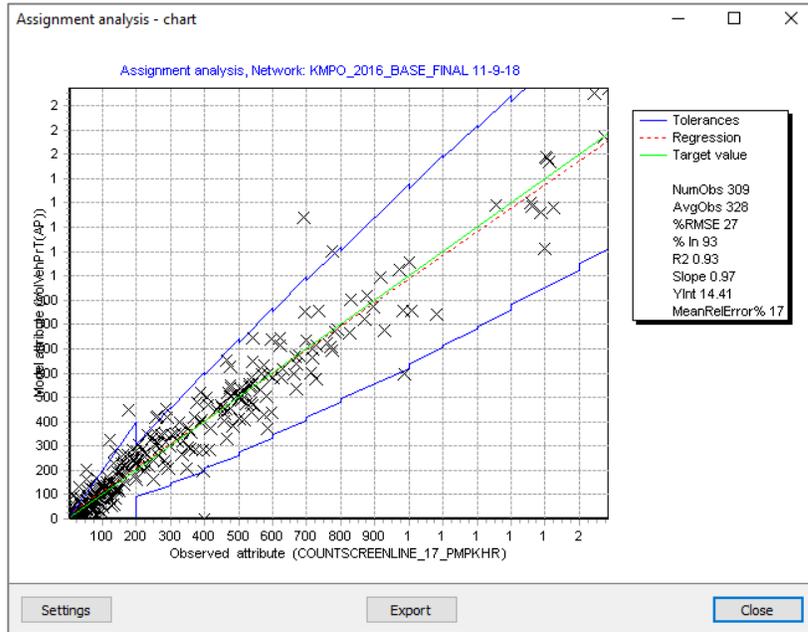
2016 KMPO AM PK HR Final Base Model Assignment Analysis Chart

The graph below is from the final 2010 KMPO Base Model AM PK HR “assignment analysis” reported inside the model for AM PK HR results. This is used for comparison only. Comparison of the two assignment results shows that there is improvement from the previous 2010 base model to the updated 2016 base model.



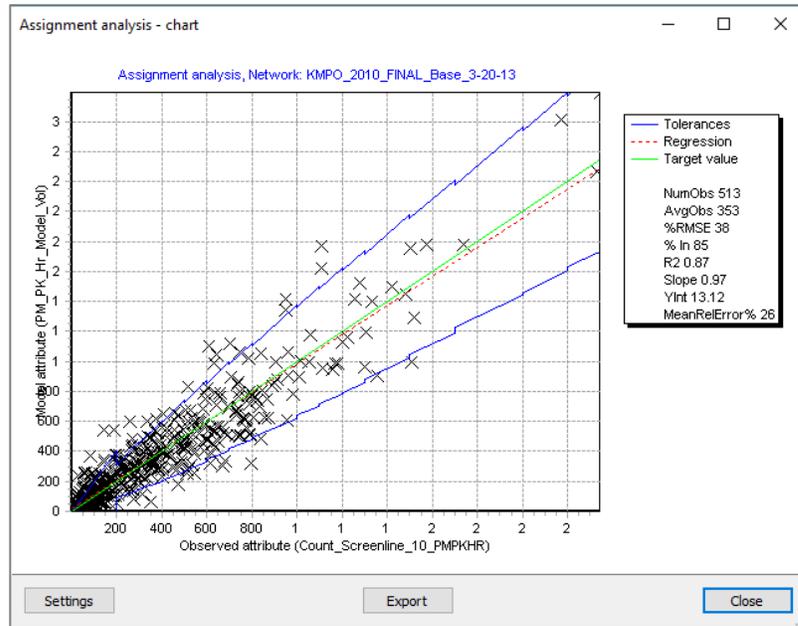
2010 KMPO Previous AM PK HR Final Base Model Assignment Analysis Chart (for comparison only)

The graph below displays the final 2016 KMPO Base Model PM PK HR “assignment analysis” of the network reported inside the model for PM PK HR results.



2016 KMPO PM PK HR Final Base Model Assignment Analysis Chart

The graph below is from the final 2010 KMPO Base Model PM PK HR “assignment analysis” reported inside the model for PM PK HR results. This is used for comparison only. Comparison of the two assignment results shows that there is improvement from the previous 2010 base model to the updated 2016 base model.



2010 Previous PM PK HR Final Base Model Assignment Analysis Chart (for comparison only)