Appendix B
2018 KMPO Model Documentation

2018 KMPO Travel Demand Model Update

Final Documentation

Approved by the KMPO Board on
January 9, 2020

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Table of Contents

List of Figures

List of Tables

Appendices

1.0 Introduction

This report was developed to document the inputs, calibration and validation of the Kootenai Metropolitan Planning Organization (KMPO) travel demand model (TDM). The 2018 model is an update to KMPO's 2016 model.

> *"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 model was developed in PTV's VISUM software. This report is focused on the 2018 update to KMPO travel demand model, including methodology and enhancements.

The 2018 KMPO model update is expected to revalidate the 2016 existing base year model to reflect the conditions of the 2018 transportation network and land use. The majority of the modeling components were left as they were in the 2016 model. This documentation outlines the changes that have been made. KMPO staff performed the 2018 model update calibration/validation with guidance and assistance from PTV Group.

In this KMPO 2018 model update, KMPO technical staff made the following changes, which are addressed in the following sections of this report:

- Revision of volume-delay function parameters
- Network updates
- Land use update
- ODME adjustment

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 2018 AM/PM peak hour detailed screenline validation spreadsheets.

1.1 Background

KMPO was formed in 2003. The first KMPO four-step travel demand model for the AM and PM Peak Hours was developed by KMPO staff and PTV Group in 2003.

The typical four-step gravity demand model and is based upon: Trip Generation, Trip Distribution, Mode Choice and Route Assignment. Mode choice is made up of private cars, public transit, and/or non-motorized travel. The KMPO model is currently a three-step model; private vehicles are the only mode at this time. This mode choice feature is planned to be expanded upon in the future adding additional modes.

The 2003 model was first updated in 2005 by PTV Group, upon the completion of KMPO's 2005 Household travel survey, in order to incorporate statistically valid data for Kootenai County travel behavior.

Subsequent updates have been made to the model since. HDR, Inc. was retained to update the model in 2007. The model was again updated in-house in 2012 by KMPO staff with assistance from Eco Resource Management Systems Inc. and PTV Group to incorporate the 2010 Census data as it became available. The 2016 update to the model was completed in 2018.

The 2018 model was also completed in-house with calibration assistance from PTV Group.

The 2018 KMPO Model is a Peak Hour model and provides the existing 2018 AM and PM peak hour traffic volumes. It is used as a base model to project future traffic forecasts for the AM and PM peak hour traffic in Kootenai County.

1.2 Model Geography

- Kootenai County, Idaho
- 2018 County Population estimate: 166,667
- Model Vehicle Miles Traveled (VMT) estimate: 374,443 miles in the PM peak hour
- Model Vehicle Hours of Travel (VHT) estimate: 10,423 hours in the PM peak hour
- Total 2018 Occupied Dwelling Units Estimate: 64,858

1.3 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:

- *2005 Household Travel Survey:* 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).
- *US Census Bureau Decennial Census:* (every 10 years) Transportation Analysis Zones (TAZs) are based on Census blocks. The forecast model years are calculated based on historical growth rates adopted by the KMPO Board in 2012. American Community Survey (ACS) 5-year estimates were not available for 2018 at the time of the update for reasonableness checks.
- *Idaho Department of Labor*: Source of 2018 employment data for TAZ land uses.
- *Kootenai County*: Source of 2018 dwelling unit data, Geographical Information Systems (GIS) data, and planning documents.
- *Local Cities/Highway Districts:* Traffic count data is obtained from each of the local agencies. Building Permits data and comprehensive planning documents are also obtained from local jurisdictions.
- *Idaho Transportation Department:* Source of traffic count data.
- *Local Sources:* Land use information that is not readily available is obtained through additional local sources, such as: school & college enrollment, number of rooms in hotels/motels, casino parking spaces, recreation number of camping spaces, etc.)
- *Professional Reports:* Real Estate Reports and other verified published professional reports for reasonableness checks

2.0 Model Network

Between 2016 and 2018, several roadway improvement projects were made in the KMPO area. The 2018 Base model incorporates these improvements to reflect what is on the ground in 2018. Additionally, adjustments were made to some model parameters and components that are used in the model calculations completed during the step-by-step model run process.

2.1 Roadway Links

Roadways are represented in the model as links. Links are defined in the network by the following attributes:

- Link Type
- Capacity
- Design Speed
- One- or Two-way Direction
- Number of Lanes
- Length

These attributes are used in the model to distribute and assign trips throughout the network. Figure 1 shows how attributes are defined for a link in VISUM.

The Model utilizes a number of link types for urban and rural roadways to allow for a multitude of analyses. The KMPO model network is primarily made up of functionally classified roadways. Some local roads have been added to properly load traffic into the network or better define intersection operation. Each link type is defined by capacity (vehicles per hour per lane, or vphpl) and free-flow speed. These attributes differ by functional classification. Table 1 lists the like types available for the KMPO Model roadway network. At this time, some link types are not used in the current model analysis but are retained for future model needs and forecasts.

Figure 1: Link Attributes

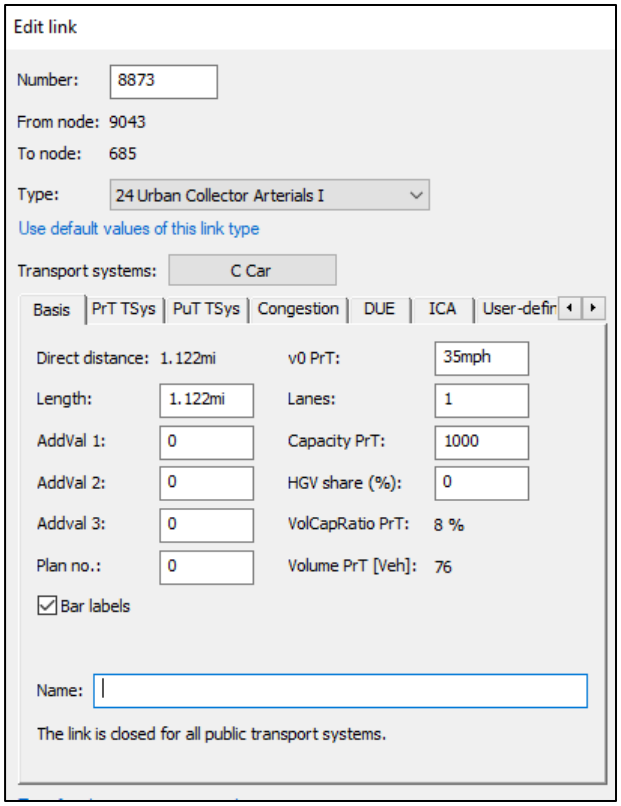


Table 1: Link Types

No.	Description	Capacity (vphpl)	Speed Limit
11	Urban Interstate	1900	60
31	Proposed Urban Interstate	2000	60
1	Rural Freeway	1800	70
25	Urban Principal Arterial	1600	45
70	Urban Principal Arterial II	1500	35
16	Urban Principal Arterial III	1000	30
34	Proposed Urban Principal Arterial	1400	45
4	Rural Principal Arterial	1200	50
3	Rural Principal Arterial Type II	1400	50
22	Proposed Rural Principal Arterial	1300	60
23	Urban Minor Arterial	1200	30
45	Urban Minor Arterial II	700	25
14	Urban Minor Arterial III	900	30
36	Proposed Urban Minor Arterial	1200	40
47	Rural Minor Arterial I	1000	35
69	Rural Minor Arterial II	750	35
24	Urban Collector Arterial I	1000	30
49	Urban Collector Arterial II	600	30
37	Proposed Urban Collector	600	35
10	Rural Major Collector	800	45
27	Proposed Rural Major Collector	1200	45
43	Rural Minor Collector	600	40
28	Proposed Rural Minor Collector	600	35
19	Local Street	500	25
9	Rural Local Street	500	25
50	Ramps	1500	45
51	Rural Ramps	1000	45
57	Urban Arterial Ramp	1600	45

Links are able to be coded as both one or two-way entry. Some arterials, such as the freeway and its ramps, are modeled as a pair of one-way links rather than one two-way link so that capacity and directional splits are modeled appropriately. However, a link can be coded as one-way by permitting only the car transportation system (TSys-Car) to move in only one direction.

Number of lanes is used in computing the capacity of links, as well as for intersection geometry and model analysis. Typically, only through lanes are used for this attribute. However, KMPO has added the user-defined attribute in VISUM “TWLTL” (Two-Way Left Turn Lane), which can add additional capacity to links that have center lanes for left turns. This attribute adds an additional capacity of 300 vphpl for three-lane links and 150 vphpl for five-lane links. These are added during Steps 7 and 9 of the model run.

Link length is the distance between the starting and ending nodes of the link. Link length is automatically calculated based on the network geometry.

Link attributes were checked during the 2018 update process and revisions made where appropriate. New facilities and other projects that altered roadway conditions were also added to ensure the model was consistent with existing conditions.

2.1.1 Link Volume Delay Coefficients

It was found during analysis using the 2016 model that travel speeds on the freeway were much too low compared the volume-capacity ratio of the links. This was due to a 2007 revision of the volume-delay function (VDF) parameters that decreased the designated capacity of links by 25% during the model process. The purpose was to decrease the capacity of high-level arterials and increase delay, distributing more trips to lower classified roadways. However, this was creating an artificial problem that was significantly increasing delay on the freeway and highways and unnecessarily rerouting trips. A revision was made to the 2016 VDF parameters to increase the capacity to 100% (c = 1; see Figure 2). This resulted in the more reasonable distribution of trips and decreased travel times. This change was incorporated in the 2018 model update, as well.

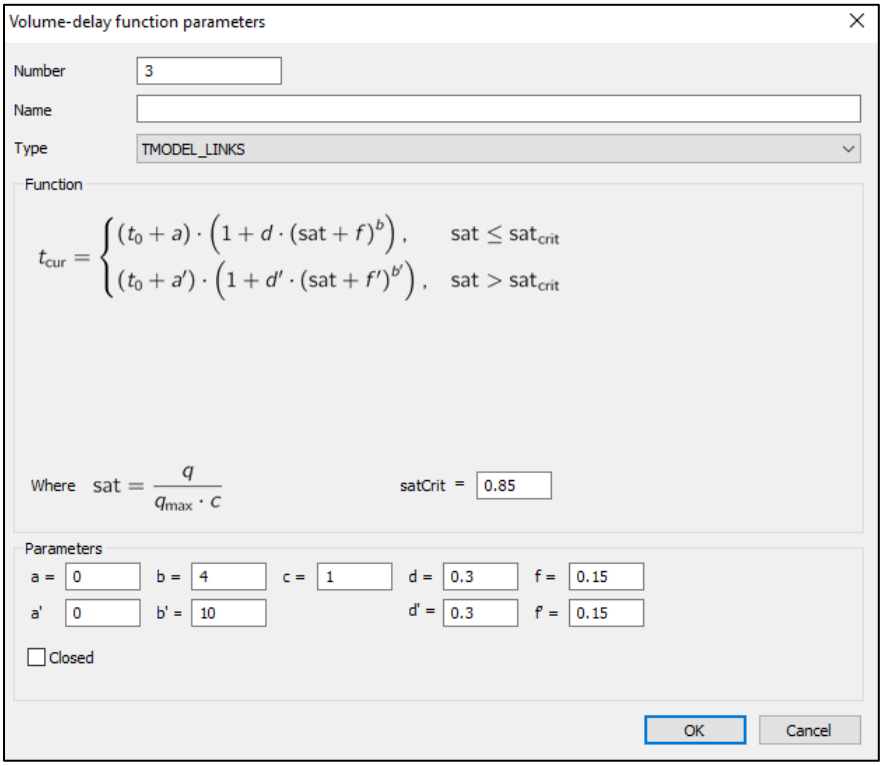


Figure 2: Volume-Delay Function Parameters

2.1.2 Link Traffic Count Update

The 2018 AM and PM peak hour traffic counts were coded by KMPO staff in the KMPO model for the purpose of model validation. The KMPO model has 318 desired count locations along its 28 screenlines. For 2018, data was available for 125 locations for the AM Peak Hour and 134 locations for the PM Peak Hour. Of those, counts from 52 of the locations were from 2016 or 2017 and grown to 2018 estimates using a growth rate of

1.73%. This growth rate was derived from an analysis of Automated Traffic Recorders (ATRs) in the region over the 20-year period between 1998 and 2018. During the model validation, regression analyses are directly performed by using the model volumes to compare with the peak hour traffic counts.

2.2 Intersection Nodes

Intersections are coded in the model as nodes. The KMPO model has multiple node types to represent different intersection controls and their distinct attributes. Attribute data used for nodes include node type, capacity and delay factors. A node must be coded in the model with both a node type and a VISUM control type, which assists in the calculation of performance indicators, such as level of service (LOS). Table 3 lists the model's node types, and Table 4 lists the node control types.

Table 2: Node Types

No.	Description
1	Shape Nodes
2	Centroid Connector Intersection
5	Ramp Diverge (K1=1500)
6	Ramp Merge (K1=1)
7	At-grade RR Crossing (UPRR 5-7 trains/day)
8	At-grade RR Crossing (BNSF up to 70 trains/day)
9	At-grade RR Crossing (Spur line several trains/week)
10	All-way Stop
11	Partial Stop
12	Yield
13	Uncontrolled
20	Signalized
21	Roundabout
22	Pedestrian Only signal or mid-block crosswalk with high volumes
99	Future Intersections

Table 3: Node Control Type

Control Type	Description
0	Unknown
1	Uncontrolled
2	Two-Way Stop
3	Yield
4	Signalized
5	Roundabout

Node capacity factors are used to compute the overall capacity of the node, which is in turn used in computing the intersection delays. The equation used in the KMPO model for node capacity, in vehicles per hour, is:

$$C = K_1 + K_4 * (\text{Ent. Cap.})$$

where:
C = Capacity
K_1 = Capacity Constant added or subtracted in computation
K_4 = Capacity Factor multiplied by sum of entering link capacities
Ent. Cap. = Sum of entering capacities from all links entering the node

Node capacities for this model use the K_1 and K_4 constants. K_4 is used to simulate the effect that a green time-to-cycle length (G/C) ratio has at an intersection. For modeling purposes, it was assumed that when like classes meet the G/C ratio is fairly even, and as the roadway meets lesser class roadways, the green time, or G/C ratio, increased on the major facility. This effect is reflected in the increasing values of the K_4 constant as the difference in entering link classes is more disparate. The capacities work with the node delay coefficients to compute the delay at each intersection depending upon the total amount of entering traffic.

During the update process, network nodes were checked during the 2018 update process and revisions made where appropriate. New or changes to intersection controls were also added to ensure the model was consistent with existing conditions. Additionally, node geometry was analyzed at all controlled intersections to ensure appropriate capacity and lane types were coded. Node geometry is a primary input for determining capacity and delay for signalized, all-way stop and two-way stop control types.

2.3 Transportation Analysis Zones (TAZs)

The model consists of 216 internal TAZs and 16 external TAZs. Internal zones are those within the boundaries of the model area, while external zones are located at roadways entering and leaving the model area. Internal TAZ boundaries are based off of the 2010 Census Blocks.

The points where all trips start and end in the model is the zone centroid, often located at the center of the TAZ or where the most highly concentrated development is located. Model trips generated in internal zones are based off of the land use data within each TAZ. However, external trips are based off of actual traffic counts collected at external stations. More information is included in Section 3.

2.3.1 Centroid Connectors

Centroid connectors are the network objects that connect the zone centroids to the road network and vice versa, which is necessary for the assignment process. Connectors typically connect to the network at access points, such as driveways or local roads. VISUM utilizes Multi-Point Assignment (MPA), which allows a TAZ centroid to be connected to the road network via a number of connectors at multiple access points. The KMPO model uses the MPA and distributes trips to and from the TAZs by shares. This allows the modeler to specify the weights of each connector, or what percent of the total trips in and out of the TAZ utilize that access point. This is helpful during the calibration process, as it allows for the weights to be adjusted, particularly if model volumes are not matching observed traffic counts.

2.4 Model Procedures

The KMPO model Procedure Sequence is the step-by-step process that runs through the model's components and calculations and creates output files for the AM and PM peak hour traffic forecasts in the Kootenai County area. The Procedure Sequence is shown in full in Appendix A. The Procedure Sequence 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.

2.4.1 Parameter Files

The VISUM model Project Directory is a file, which specifies where the model runs. The 2018 KMPO Project Directory file is 2018 Directory.pfd (shown in Appendix B).

The 2018 KMPO base model is titled KMPO_2018_Base_ 12-9-19.ver. The base model was validated and saved in VISUM Version 2020-1-2 as a version file. This model includes the updated 2018 land uses and 2018 existing roadway network.

2.4.2 Model Run Comments

After the completed final model run, the Procedure Sequence 'Message' area 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.

3.0 Trip Generation

Trip generation is the first step in the modeling process where a number of mathematical formulas determine how many trips are being produced or attracted by the model's TAZs. The number of trips is based off of the amount and type of land use in each TAZ. Each land use has unique trip generation rates that determine how many trips are produced and attracted in a TAZ based on the purpose of the trips.

The KMPO Model utilizes five different trip purposes, which allows for the gravity model to account for the different travel characteristics of each purpose. Those trip purposes are:

- Home-Based Work (HBW)
- Home-Based Retail (HBR)
- Home-Based Other (HBO)
- Home-Based School (HBS)
- Non-Home-Based (NHB)

3.1 Land Use

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. Descriptions of the land use classifications are included in Table 4.

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 to ensure minimal error exists in the land use data by TAZ.

Table 4: KMPO Land Use Classifications

LU1 – (SFDU) **Single Family Residential**	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**	Elementary and secondary schools. LU6 is measured in number of students, (manually derived).
LU7 – (ACCOM) **Accommodations**	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**	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**	Colleges, Universities, Computer, Trade, and Other Professional Schools. LU10 is measured by number of students (manually derived).
LU11 – (AGRI) **Agriculture**	NAICS code 111110 – 115310 and is measured in number of acres.
LU12 – (WFRT) **Waterfront Units**	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**	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**	Described 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 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	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.
Note: Land Use Classifications were adopted by the KMPO Board 12-13-18.	

3.1.1 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 2018 GIS structure shapefile. Data points are geocoded to the actual location of structures throughout the County and are categorized by different structure types, enabling KMPO to classify structures in the appropriate land use category.

Determining the occupancy of existing dwelling units was more difficult. While KMPO staff utilized 2010 jurisdictional growth rates and the number of persons per household to estimate population, it was not appropriate to use the 2010 vacancy rates due to current economic conditions in the County. While Kootenai County has a large number of second or vacation homes/properties, many are being used for a considerable portion of the year. The availability of primary residence units has also decreased due to the increased growth in the area in recent years.

Due to the lack of available data for 2018, the same process was used to estimate dwelling unit vacancies as the 2016 model. 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, to take into

account TAZs with 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.

3.1.2 2018 Land Use Summary

The 2018 model update utilized the same classifications as the 2016 model.

After KMPO staff updated the 2018 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. Table 5 is a summary of the 2018 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.

Table 5: 2018 KMPO Land Use Data Summary

Land Use Type	Total 2018 Units	Units of Measurement
LU1: SFDU (Single Family Dwelling Units)	45446	Dwelling Units
LU2: MFDU (Multi-Family Dwelling Units)	8,887	Dwelling Units
LU3: Retail	8,731	Employees
LU4: Commercial (FIRES)	3,348	Employees
LU5: Industrial	6,198	Employees
LU6: Schools	25,309	Students
LU7: Accommodations	2,851	Rooms
LU8: Arts, Entertainment & Recreation	21,050	Spaces
LU9: Reserved for Outer Zone SFDU	10,526	Dwelling Units
LU10: Post-Secondary Schools	20,825	Students
LU11: Agriculture	326,414	Acres
LU12: Waterfront Units	*Not Used*	Dwelling Units
LU13: Publicly-owned Lands	279,638	Acres
LU14: Transportation & Warehousing	1,046	Employees
LU15: Medical	10,762	Employees
LU16: Government	2,881	Employees
LU 17: Administration & Support	4,086	Employees
LU 18: Professional, Science & Technology	2,379	Employees
LU19: Educational Services	4,238	Employees
LU 20: Other Services	1,632	Employees
LU 21: Information	714	Employees
LU 22: Utilities & Construction	5,416	Employees
LU 23: Food Services	5,958	Employees

3.2 External TAZ Update

Fifteen external stations (TAZ 576 – TAZ 592) were used in the 2018 KMPO model to conceptually represent external TAZs. The external stations exist at the model borders and are used to simulate traffic entering and exiting the travel demand 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 directional traffic counts at the external stations. Actual traffic counts were used at each external TAZ station and then adjusted to correct the internal model matrices to match the counts. There was limited 2018 count data available for external stations, so

data from the 2016 model was used and grown to 2018 using a growth rate of 1.73%. This growth rate was based off of average rates of growth from multiple Automatic Traffic Recorders (ATRs) in the region for the 20-year period from 1998 to 2018.

Table 6 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.

Table 6: 2018 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	87	175	248	367
577	US 95 - N. County Line	224	213	361	441
578	Bayview Road - N. County Line	23	12	26	20
580	E. Canyon Road - E. County Line	17	19	28	27
581	I-90 - E. County Line	236	240	500	360
582	*Future*	*0*	*0*	*0*	*0*
583	State Hwy. 3 - S. County Line	42	75	89	45
584	Heyburn Rd. - S. County Line	12	7	10	16
585	US 95 - S. County Line	306	289	466	481
586	W. Worley West Rd. - W. County Line	1	2	1	2
587	State Hwy. 58 (E. Hoxie Rd.) - W. County Line	43	59	114	166
588	W. Riverview Drive - W. County Line	63	90	53	58
589	I-90 - W. County Line	1821	2620	3208	2494
590	Seltice Way - W. County Line	391	402	495	474
591	State Hwy. 53 (Trent Ave.) - W. County Line	213	404	672	344
592	Elder Rd. – E. County Line	23	51	40	60
TOTALS		3503	4657	6311	5354

A travel demand model uses matrices to calculate the trip generation and distribution from a trip origin to a trip destination. Tables 7 and 8 show the internal AM and PM trip matrices that correspond to the external to external TAZs (travel beginning at one external TAZ and exiting at the other external TAZ location).

Table 7: 2018 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	0.93	0.00	0.15	153.35	0.00
577	**US 95 - North County Line**	0.00	0.00	0.00	10.47	72.32	0.00	0.11	0.00	4.25	0.00	1.00	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	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	0.00	0.00	0.00
581	**I-90 East County Line**	0.00	0.39	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	82.02	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	0.09	0.00	0.45	2.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.71	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	0.01	0.02	0.00	0.00	0.00	0.00	0.00
585	**US 95 - South County Line**	0.00	69.28	0.00	0.00	5.16	0.00	0.00	0.00	0.00	0.00	22.34	0.56	2.00	0.00	0.00	0.00
586	**Worley West Road - West County Line**	0.00	1.24	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	27.46	0.00	0.00	0.00	0.00	0.00	0.00	37.77	0.00	0.00	0.24	0.00	0.00	0.00	0.00
588	**West Riverview Drive - West County Line**	0.00	3.45	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	0.34	30.55	0.00	0.00	0.00	0.24	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**	34.46	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 8: 2018 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	0.11	0.00	0.07	0.05	0.08	0.03	0.09	0.19	0.11	0.19	0.80	0.00
577	**US 95 - North County Line**	0.00	0.00	0.00	1.02	1.47	0.00	0.17	0.56	0.49	0.38	0.34	0.15	0.55	0.01	0.04	0.00
578	**Bayview Rd. - North County Line**	0.00	0.00	0.00	0.20	0.03	0.00	0.17	0.11	0.20	0.08	0.23	0.15	0.00	0.00	0.01	0.00
580	**East Canyon Rd. - East County Line**	0.09	0.47	0.12	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.18	2.03	0.37	0.28	0.00
581	**I-90 East County Line**	0.11	0.72	0.01	0.00	0.00	0.00	0.16	0.02	0.24	0.00	0.14	0.06	77.30	0.35	0.30	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	0.29	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.01	8.76	0.04	0.03	0.00
584	**Heyburn Rd. - South County Line**	0.12	0.52	0.13	0.00	0.31	0.00	0.00	0.00	0.00	0.59	0.49	0.01	0.36	0.03	0.02	0.00
585	**US 95 - South County Line**	0.39	1.07	0.46	0.00	0.85	0.00	0.00	0.00	0.00	0.00	0.33	0.01	8.24	0.04	0.04	0.00
586	**Worley West Road - West County Line**	0.07	0.32	0.08	0.00	0.00	0.00	0.00	0.53	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**	0.42	0.38	0.49	0.00	0.00	0.00	0.00	0.87	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	0.13	0.07	0.00	0.01	0.14	0.05	0.00	0.00	0.00	0.00	0.00	0.01	0.00
589	**I-90 West County Line**	0.48	0.70	0.01	0.90	77.25	0.00	10.36	1.17	25.72	0.11	0.00	0.00	0.00	0.00	0.00	0.00
590	**Seltice Way - West County Line**	1.19	0.02	0.01	0.18	0.24	0.00	0.03	0.16	0.14	0.00	0.10	0.00	0.00	0.00	0.00	0.00
591	**State Hwy 53 (Trent Ave.) West County Line**	1.32	0.03	0.01	0.09	0.16	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

3.3 AM & PM Peak Hour Trip Generation Rates

The KMPO model's trip generation rates are based off of rates developed by the Institute of Transportation Engineers (ITE). Trip generation rates differ for each of the model's land uses. During the development of the model's rates, variations of the trip rates were tested during the calibration process, and those that were used were the best fit for the model. Control totals from the "2005 Spokane and Kootenai County Regional Travel Survey Final Report." were used to validate the model results. No changes were made to the KMPO model trip generation rates during the 2018 update.

Table 9 shows the AM peak hour trip generation rates, which are applied "Procedure Sequence" during the 2018 KMPO AM Peak Hour Model Run via the parameter file in Step 83.

Table 10 shows the PM peak hour trip generation rates, which are applied "Procedure Sequence" during the 2018 KMPO PM Peak Hour Model Run via the parameter file in Step 108.

Table 9: AM Peak Hour Trip Rates in 2018 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 10: PM Peak Hour Trip Rates in 2018 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	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	0.16556	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

3.4 Trip Generation Validation

As stated previously, the KMPO VISUM model trip generation is categorized by five primary trip purposes. After the 2018 AM and PM peak hour trip generation model is run, the total number of KMPO region-wide trips are summarized to compare with the expanded travel survey samples reported in the "2005 Spokane and Kootenai County Regional Travel Survey Final Report."

Tables 11 and 12 display the 2018 AM and PM Peak Hour trip generation model percentages results compared with the actual AM and PM Peak Hour trips as reported by NuStats in the 2005 Survey. Both the 2018 AM and PM Peak Hour model results show reasonable comparison with the 2005 Survey results as the percentage of modeled vehicle trips that exclude the external inbound, outbound, and through trips.

Table 11: 2018 AM Peak Hour Trip Generation Validation Results

TRIP PURPOSE	% AM PK HR of Modeled Trips	% AM PK HR of 2005 Trips Reported by NuStats	Difference	Total 2018 AM PK HR Trips
Home Based Work	24.1%	25.2%	-1.1%	14,335
Home Based Retail	5.3%	5.3%	0.0%	3,165
Home Based Other	30.2%	28.2%	2.0%	17,968
Non-Home Based	20.1%	20.7%	-0.6%	11,947
Home Based School	20.2%	20.6%	-0.4%	12,035
Total	100%	100%		59,450

Table 12: 2018 PM Peak Hour Trip Generation Validation Results

TRIP PURPOSE	% PM PK HR of Modeled Trips	% PM PK HR of 2005 Trips Reported by NuStats	Difference	Total 2018 PM PK HR Trips
Home Based Work	13.4%	13.4%	0.2%	10,472
Home Based Retail	11.2%	10.6%	0.6%	8,607
Home Based Other	48.9%	48.1%	0.8%	37,525
Non-Home Based	24.6%	26.2%	-1.6%	18,895
Home Based School	1.7%	1.7%	0.0%	1,314
Total	100%	100%		76,813

4.0 Trip Distribution

Trip Distribution is the second step of the Gravity Model process. This step in the process allocates trips between various TAZs, creating a set of trip tables that detail the number of trips between each TAZ for each trip purpose.

The Gravity Model, in transportation modeling, was derived from earlier work with economic interaction through a study of social physics. The basic idea behind the Gravity Model is that more interactions (between different zones) take place when the cost of interacting is less. As with the physics of gravitation between masses, it has been found that many human interactions can be related to the distance or cost between interactors using a negative exponential function. In essence, this means the higher cost or distance for travelers will result in less "gravitational pull" between TAZs.

4.1 Trip Distribution Parameters

The KMPO model utilizes the five primary trip purposes, discussed previously, 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 2018 KMPO model to fit the trip length distribution patterns in terms of frequencies and average travel times reported in the "2005 Spokane and Kootenai County Regional Travel Survey Final Report."

Tables 13 and 14 display the trip distribution parameters used in the 2018 model. No changes were made to the trip distribution parameters during the 2018 update.

Table 13: 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 14: 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

Figure 3, below, displays an example of the trip distribution direction parameter options that are used in the KMPO model trip distribution process. The trip distribution parameters differ by trip type, as described above, but the distribution options for function type, direction, trip balancing and feedback iterations are the same for all trip purposes.

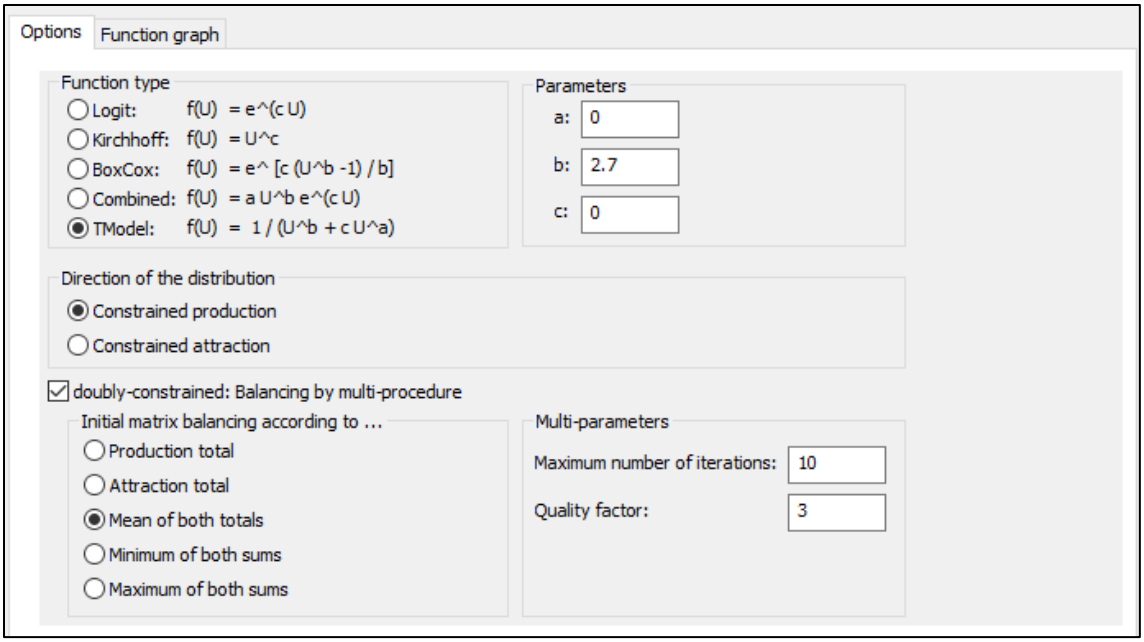


Figure 3: KMPO Model Trip Distribution Parameter Options

4.2 Origin-Destination Matrix Estimation (ODME)

During the 2016 Model update, it was determined that additional assistance was needed 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.

The ODME was carried forward with the 2018 model update. PTV Group did make some additional adjustments to the AM model run to better fit the model results with the 2018 data.

4.3 Gravity Model Validation Results

A sampling of travel times from one traffic analysis zone (TAZ) to another was extracted from the model using flow bundles (Figure 4). 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 Tables 15 and 16, 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 15: 2018 AM Peak Hour Average Travel Time (Minutes) – 2018 Base Model Vs. Google Estimated Peak Period Travel Times

O Zone	D Zone	From Place	To Place	Length	t0	tCur	Google TT	Difference
401	19	Cabela's	Rathdrum	11.27mi	14min	16min	16min	0min
401	13	Cabela's	Silverwood Vic.	24.42mi	29min	32min	34min	2min
424	13	KMPO	Silverwood Vic.	19.32mi	23min	30min	29min	1min
589	161	State Line	Kootenai Health	13.23mi	12min	15min	15min	0min
589	581	State Line	Kootenai East Border	44.07mi	37min	38min	37min	1min
589	204	State Line	Worley	42.89mi	38min	45min	42min	3min
204	11	Worley	Athol	48.86mi	48min	56min	56min	0min
400	424	Hauser Lake	Downtown CDA	16.86mi	18min	22min	21min	1min

Legend: TT= Travel Time; O Zone = Origin Zone; D Zone = Destination Zone; t0 = Free flow TT; tCur = Congested TT.

Table 16: 2018 PM Peak Hour Average Travel Time (Minutes) – 2018 Base Model Vs. Google Estimated Peak Period Travel Times

O Zone	D Zone	From Place	To Place	Length	t0	tCur	Google TT	Difference
401	20	Cabela's	Rathdrum	11.34mi	14min	16min	15min	2min
401	10	Cabela's	Silverwood Vic.	24.49mi	29min	33min	34min	1min
424	10	KMPO	Silverwood Vic.	19.32mi	23min	34min	32min	2min
589	161	State Line	Kootenai Health	13.49mi	12min	18min	16min	2min
589	581	State Line	Kootenai East Border	44.07mi	37min	41min	38min	3min
589	204	State Line	Worley	42.58mi	36min	50min	42min	8min
204	11	Worley	Athol	48.61mi	50min	63min	58min	5min
400	424	Hauser Lake	Downtown CDA	17.08mi	19min	25min	23min	2min

Legend: TT= Travel Time; O Zone = Origin Zone; D Zone = Destination Zone; t0 = Free flow TT; tCur = Congested TT.

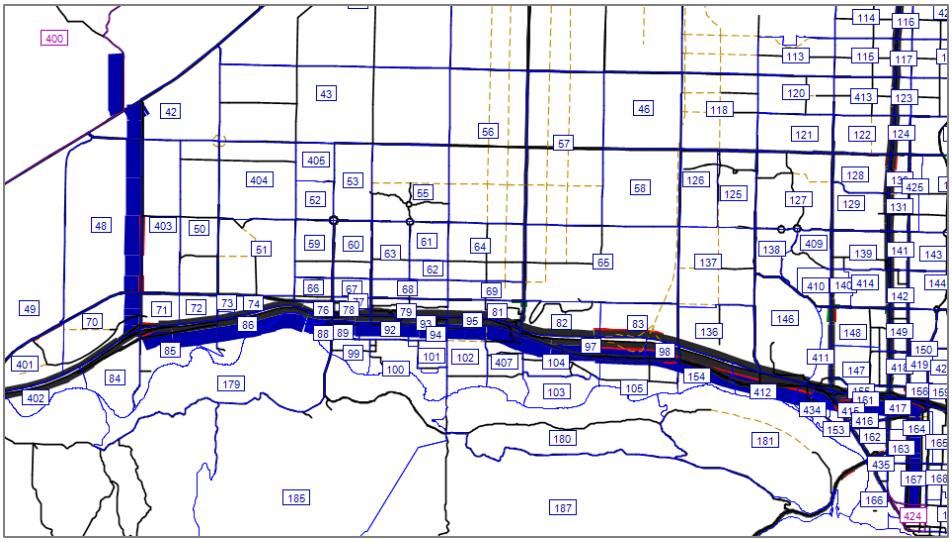


Figure 4: Example Model Flow Bundle to Calculate Travel Time

5.0 Trip Assignment

Trip Assignment is the final step of the KMPO modeling process. It is during this process that the distributed trips from the trip tables are assigned to possible paths between each zone. The assignment step uses an equilibrium assignment method (discussed in section 5.1), which assigns traffic to each path between each zone such that the travel time for every path between OD pairs is statistically equal. This assumes that travelers will know the most efficient route between sets of origins and destinations, meaning they will select the shortest route. In reality, travelers choose routes based on their "perception" of travel time which may be influenced by other factors. The model, however, uses travel time computed based on inputs describes in the previous sections (i.e. speed, capacity, volumes, delay, etc.).

Each model run consists of up to five (5) feedback loops from trip assignment to trip distribution, creating skim matrices of travel time between zones. The skim matrices are fed back after each assignment into the trip distribution and are then averaged between the previous iterations' skim matrix with the current iteration's skim matrix. This method of skim matrix averaging and feedback loops produces more stable results and better reflects the interaction with congestion.

5.1 Assignment Method

The traffic assignment method used for the 2018 KMPO model is VISUM's "Equilibrium Assignment Bi-conjugate Frank Wolfe" (Figure 5). This was revised is the 2016 model from the "Equilibrium Assignment" method. The change was made 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 the Origin-Destination flows when using an Origin-Destination Matrix Estimation (ODME) to develop correction factors, which are being used in the current KMPO model. The KMPO model runs trip assignment in steps 91 and 98 for the AM model and steps 116 and 123 for the PM model. The assignment steps use a maximum of 200 iterations with a maximum gap of 0.0001.

115	Combination of matrices and vectors	...	Matrix(3) := Matrix(14) + Matrix(16) + Matrix(18) +	...	
116	PrT assignment	...	PM-Tot PM_Total	...	Equilibrium assignment Bi-conjugate Frank-Wolfe
117	Calculate PrT skim matrix	...	PM_HBW PM_HBW	...	
118	Combination of matrices and vectors	...	Matrix(220) := 0.5*Matrix(220) + 0.5*Matrix(221)	...	
119	Go to the procedure	...	Procedure 110	...	
120	Edit attribute	...	Links - PM_PK_Hr_Model_Vol		
121	Edit attribute	...	Turns - PM_PK_HR_VOLS		
122	Combination of matrices and vectors	...	Matrix([NO] = 3):=Matrix([NO] = 231)*Matrix([NO	...	
123	PrT assignment	...	PM-Tot PM_Total	...	Equilibrium assignment Bi-conjugate Frank-Wolfe
124	Edit attribute	...	Links - PM_PK_HR_Adjusted_Vol		
125	Territory indicators	...			

Figure 5: 2018 KMPO Model Trip Assignment Method

5.2 Assignment Results

The 2018 AM peak hour KMPO Model traffic assignments are displayed in Figure 6 and the 2018 PM peak hour KMPO Model traffic assignments are displayed in Figure 7. The figures provide a snapshot of directional traffic volumes for the AM and PM peak hours in the urbanized KMPO area.

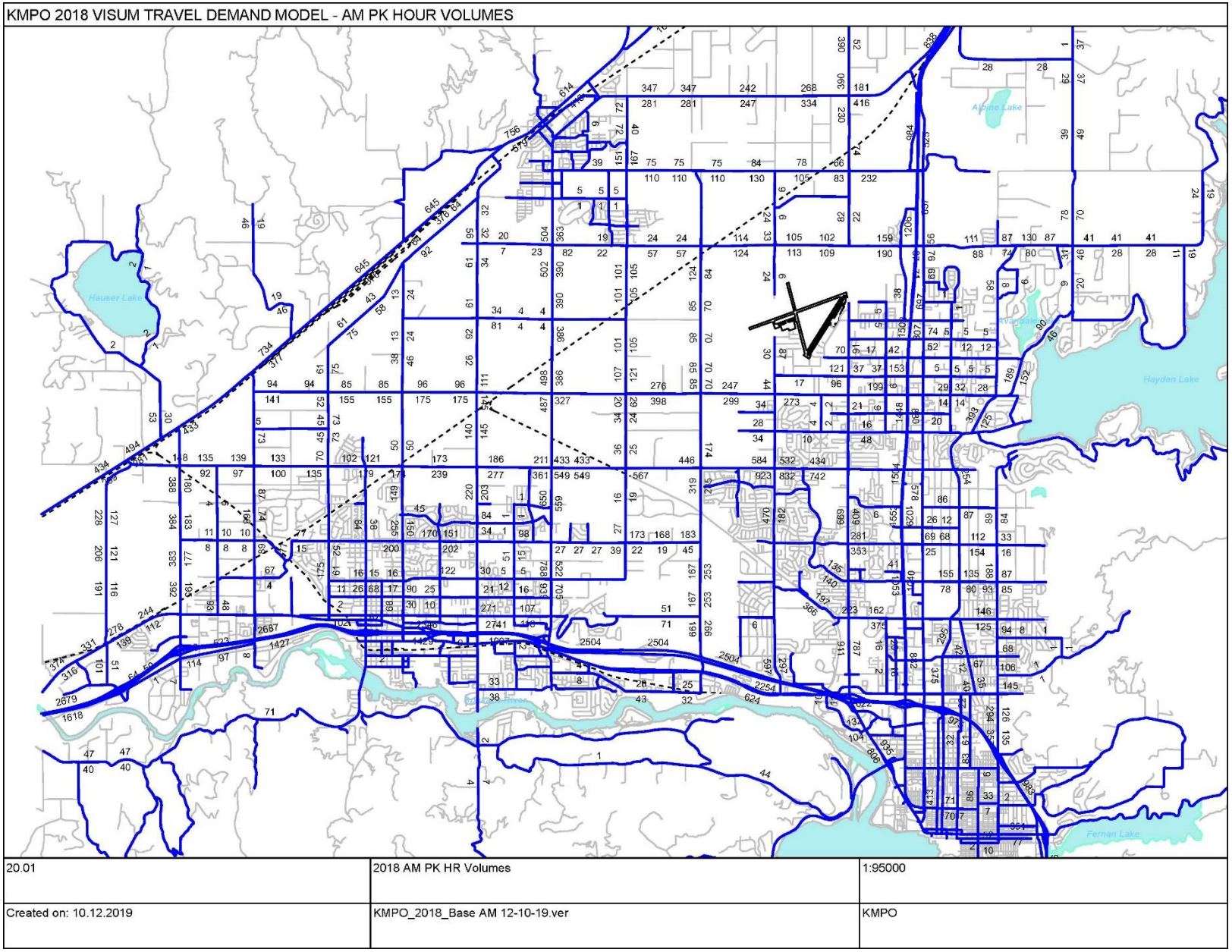


Figure 6: 2018 KMPO VISUM Model AM Peak Hour Traffic Assignment Results

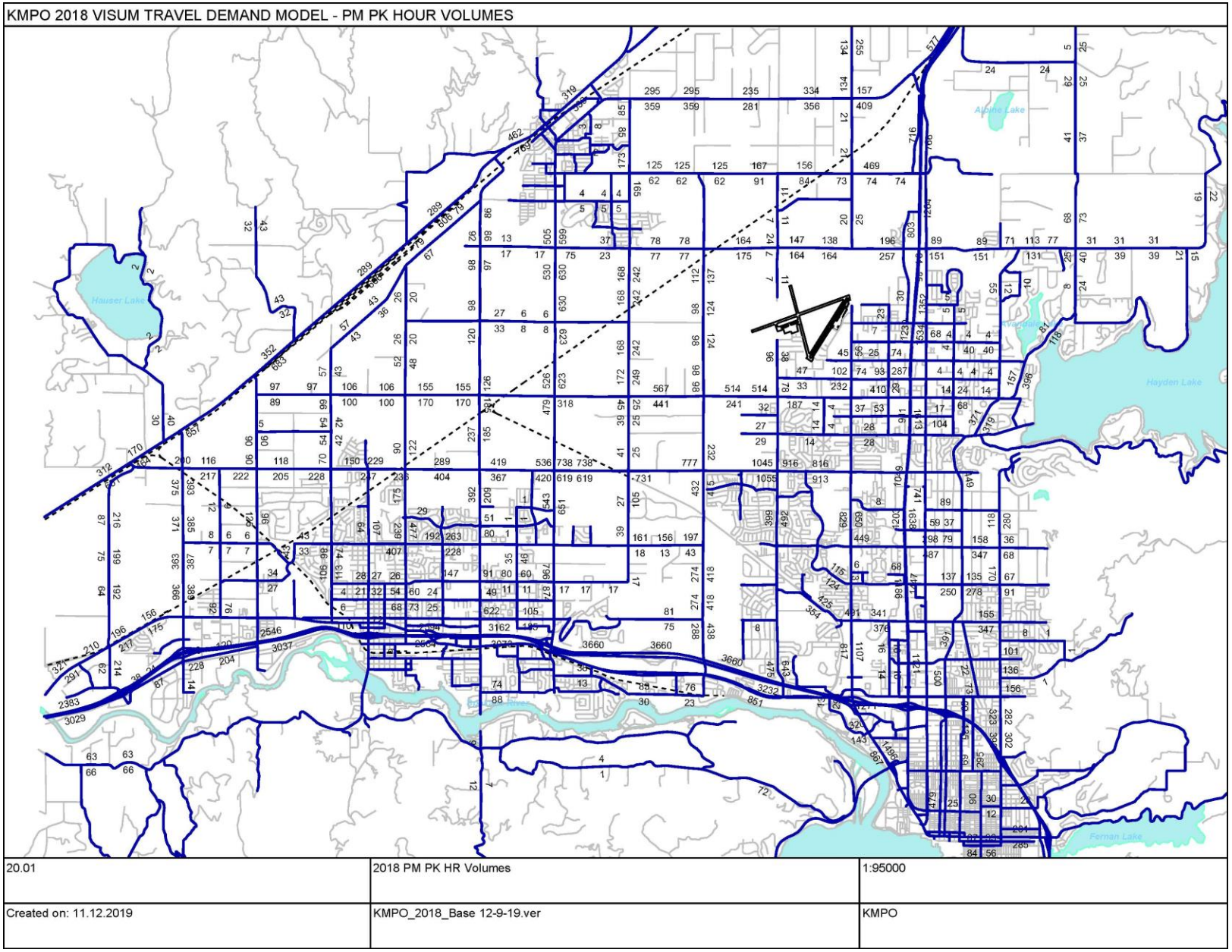


Figure 7: 2018 KMPO VISUM Model PM Peak Hour Traffic Assignment Results

5.3 Assignment Validation

5.3.1 Screenline Analysis

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. As shown in Figures 8 and 9, twenty-eight screenlines are drawn to display ratios of the 2018 KMPO model AM and PM peak hour traffic modeled volumes over their corresponding traffic counts. Table 17 summarizes the screenline analysis results. The full 2018 KMPO Model AM/PM peak hour screenline analyses can be found in Appendices 1C and 1D.

The closer the model/count ratios by screenlines approach 1.00, the better match 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 FHWA

For volumes less than 100,000:
Tol (%) = 1/100 * [(-0.00005*(V)^3 + 0.013*(V)^2-1.1822*(V)+65.465)]

For over 100,000:
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. By the FHWA standards, the 2018 KMPO Model screenlines are validated for both AM peak hour and PM peak hour.

Table 17: 2018 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	0.86	1.62
Seltice Screenline #2	1.19	0.96
Harrison Avenue Screenline # 3	0.81	1.25
Appleway Ave/Best Screenline #4	1.03	0.95
Seltice/Mullan Rd/Kathleen Screenline #5	1.00	1.00
Poleline Road Screenline #6	1.06	1.06
Prairie Road Screenline #7	1.08	1.03
Hayden Avenue Screenline #8	1.08	0.96
Lancaster Road Screenline #9	1.03	0.68
SH 53 – US 95 Screenline #10	0.71	1.04
Twin Lakes to National Forest Screenline #11	1.17	1.05
US 95 to SH 3 South Screenline #12	1.42	0.97
SH 95 to LaTour Creek Rd Screenline #13	0.96	1.53
Spirit Lake Pend'O Reille Screenline #14	1.11	1.04
Pleasant View Road Screenline #15	0.96	1.08
McGuire Road Screenline #16	1.09	0.88
Chase Road Screenline #17	No Data	No Data
Spokane Street Screenline #18	No Data	0.99
Idaho Street Screenline #19	No Data	0.98
Greensferry Road Screenline #20	1.10	1.12
SH 41 Screenline #21	0.75	1.10
Huetter Road Screenline #22	1.07	1.21
Ramsey Road Screenline #23	1.11	1.05
US 95 Screenline #24	0.90	1.01
West Side KMPO Screenline #25	1.00	1.03
East Side KMPO Screenline #26	0.98	0.86
Government Way Screenline #27	0.99	1.20
I-90 Ramps Screenline #28	0.81	1.09
Overall Average Screenline	**1.01**	**1.06**

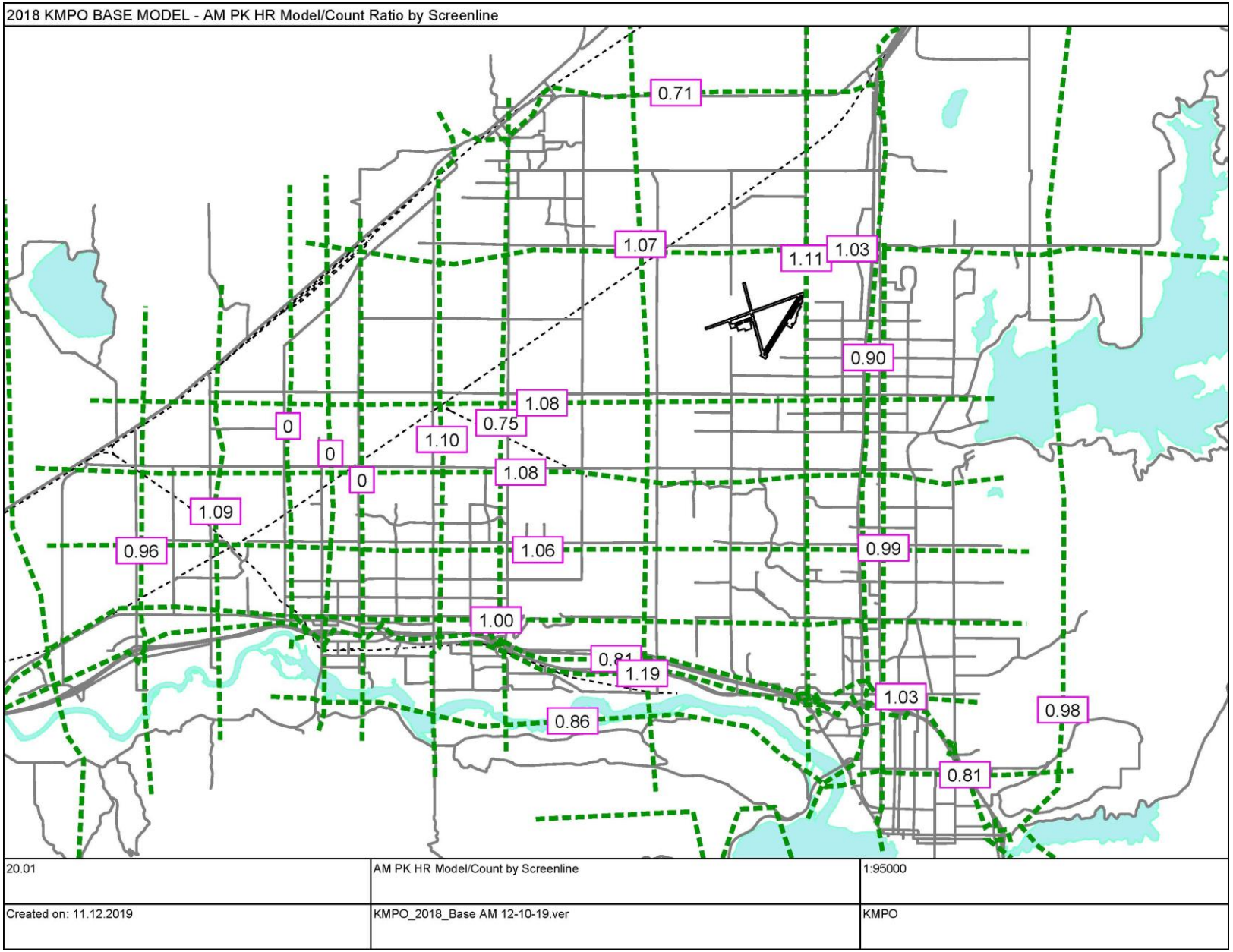


Figure 8: 2018 KMPO VISUM Model AM Peak Hour Traffic Forecast Screenline Results

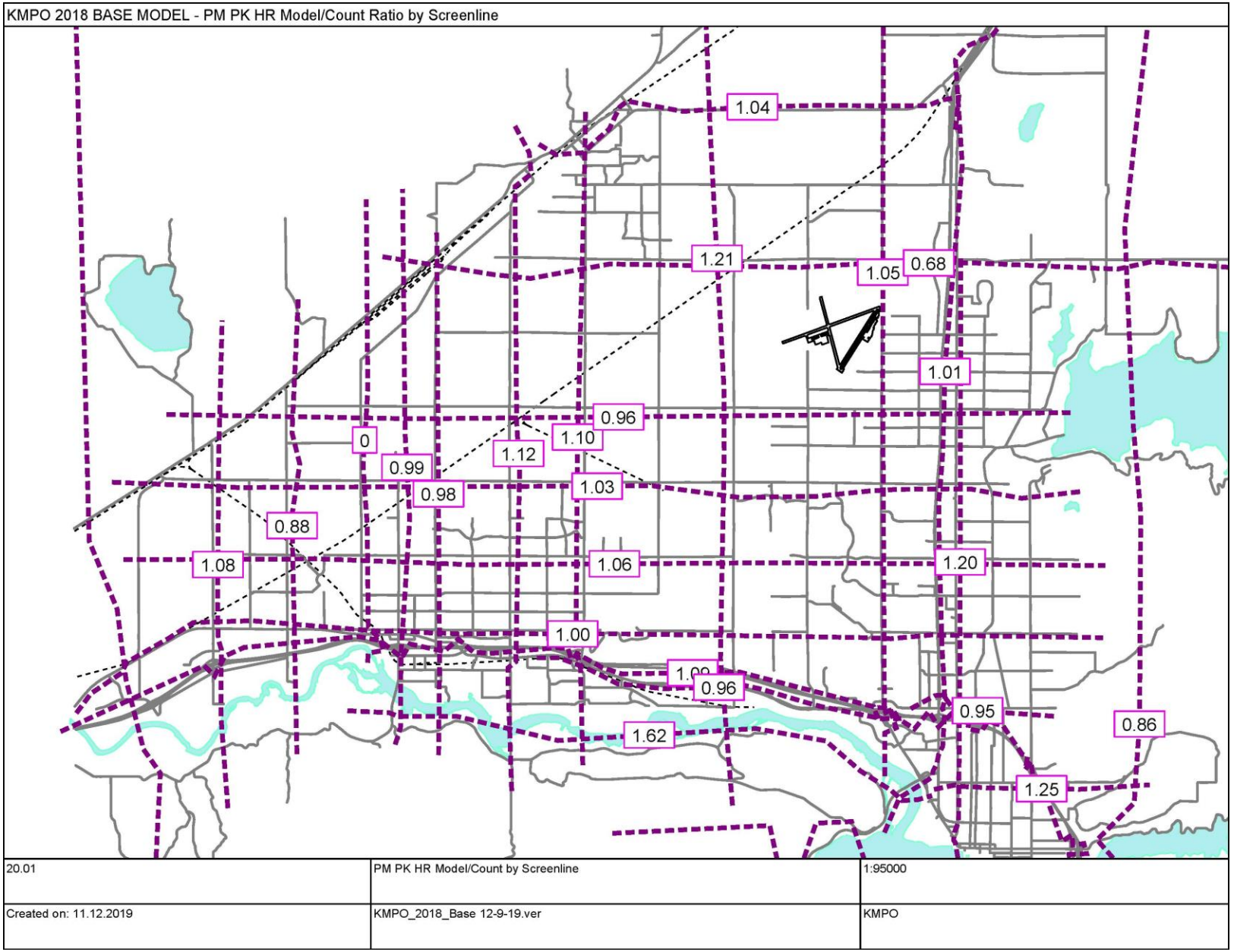


Figure 9: 2018 KMPO VISUM Model PM Peak Hour Traffic Forecast Screenline Results

5.3.2 Statistical Analysis

The 2018 Base model volumes and 2018 observed traffic counts were compared in VISUM using a scatterplot and several statistical analyses to further validate the trip assignment, which are displayed in Figures 10 and 11. This analysis is incorporated in the Procedure Sequence for both the AM (Step 102) and PM (Step 127) models. This analysis looks at several statistics to evaluate the amount of error in the model and the model's ability to replicate observed conditions. The two most common statistics used are Percent Root Mean Squared Error (%RMSE) and the Coefficient of Determination (R^2).

%RMSE is a summary statistic representing the average assignment error in percent. This value shows better calibration when it is lower. For the size of the KMPO model area, a %RMSE of 35% or below is recommended. The % RMSE for the 2018 AM and PM hour runs are 30 and 33, respectively, which falls below the target of 35%

R^2, is another statistic used to determine the accuracy of the model results. R^2, or the "goodness of fit" statistic, shows how the regression line represents the assignment data. A value of 0.88 or higher is very desirable. The R^2 for the 2018 AM Model run is 0.91, exceeding the target. The R^2 for the 2018 PM run is 0.87; this is reasonably close to the target, and after discussions with PTV Group, this is still an acceptable level of validity.

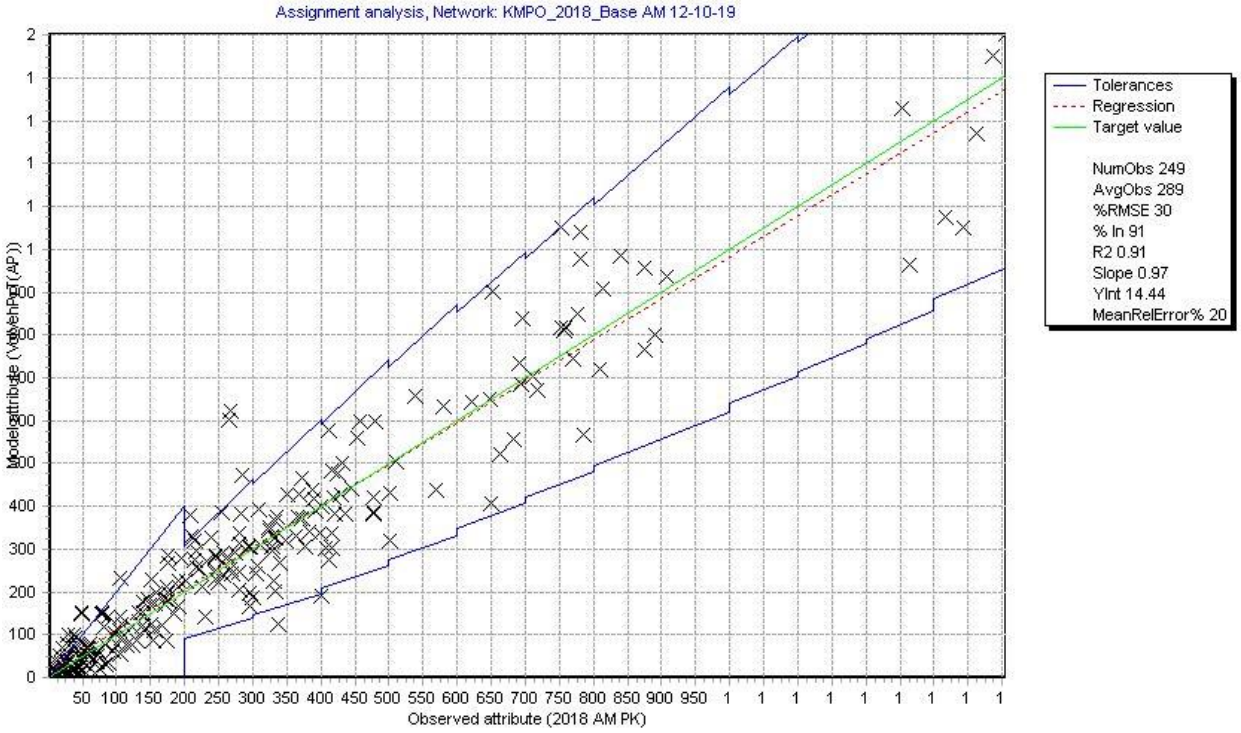


Figure 10: AM Peak Hour Assignment Analysis Results

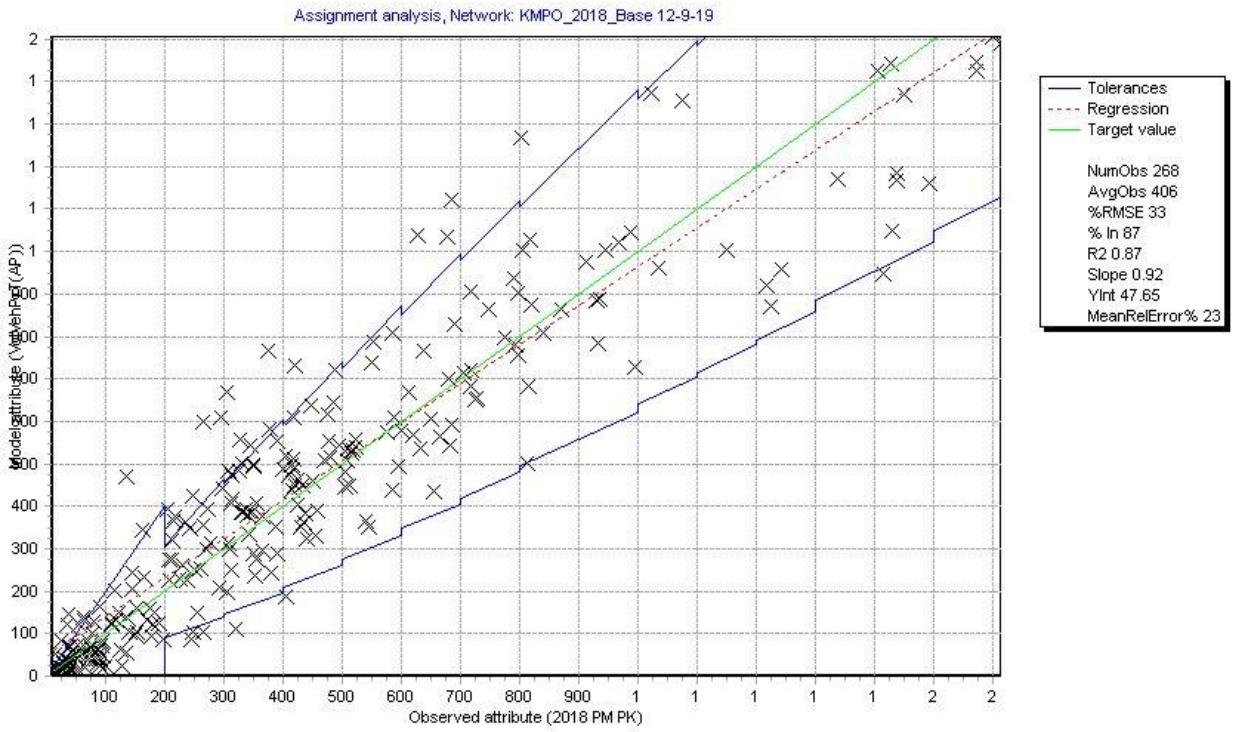


Figure 11: PM Peak Hour Assignment Analysis Results

After the review of these analyses, it is determined that the 2018 KMPO Model is validated for both AM peak hour and PM peak hour and can be used to model current conditions and build future year travel demand models in the KMPO area.

6.0 Model Limitations and Improvements

As with previous KMPO models, the 2018 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.

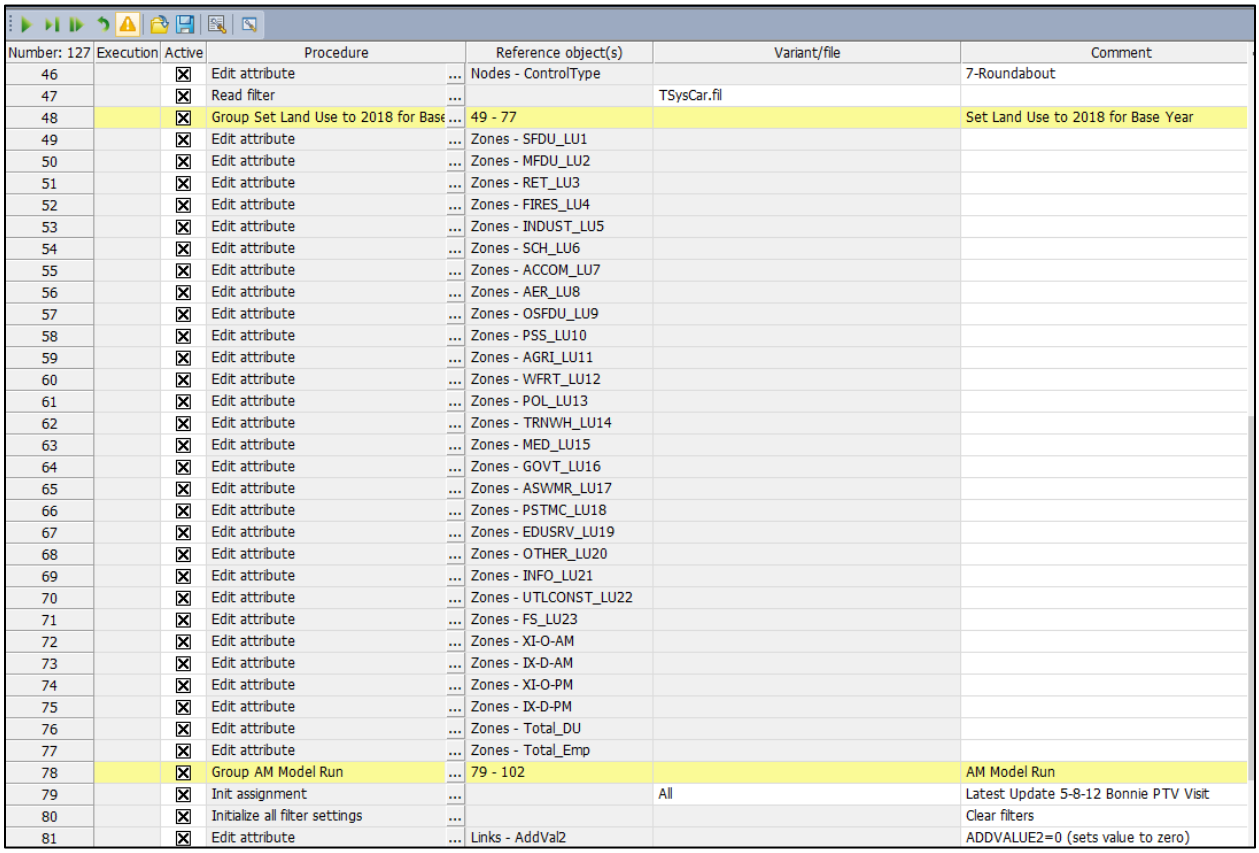
Appendices

Appendix A: 2018 KMPO Final Procedure Sequence File AM_PM.par (Procedures 1 – 45)

Procedure sequence

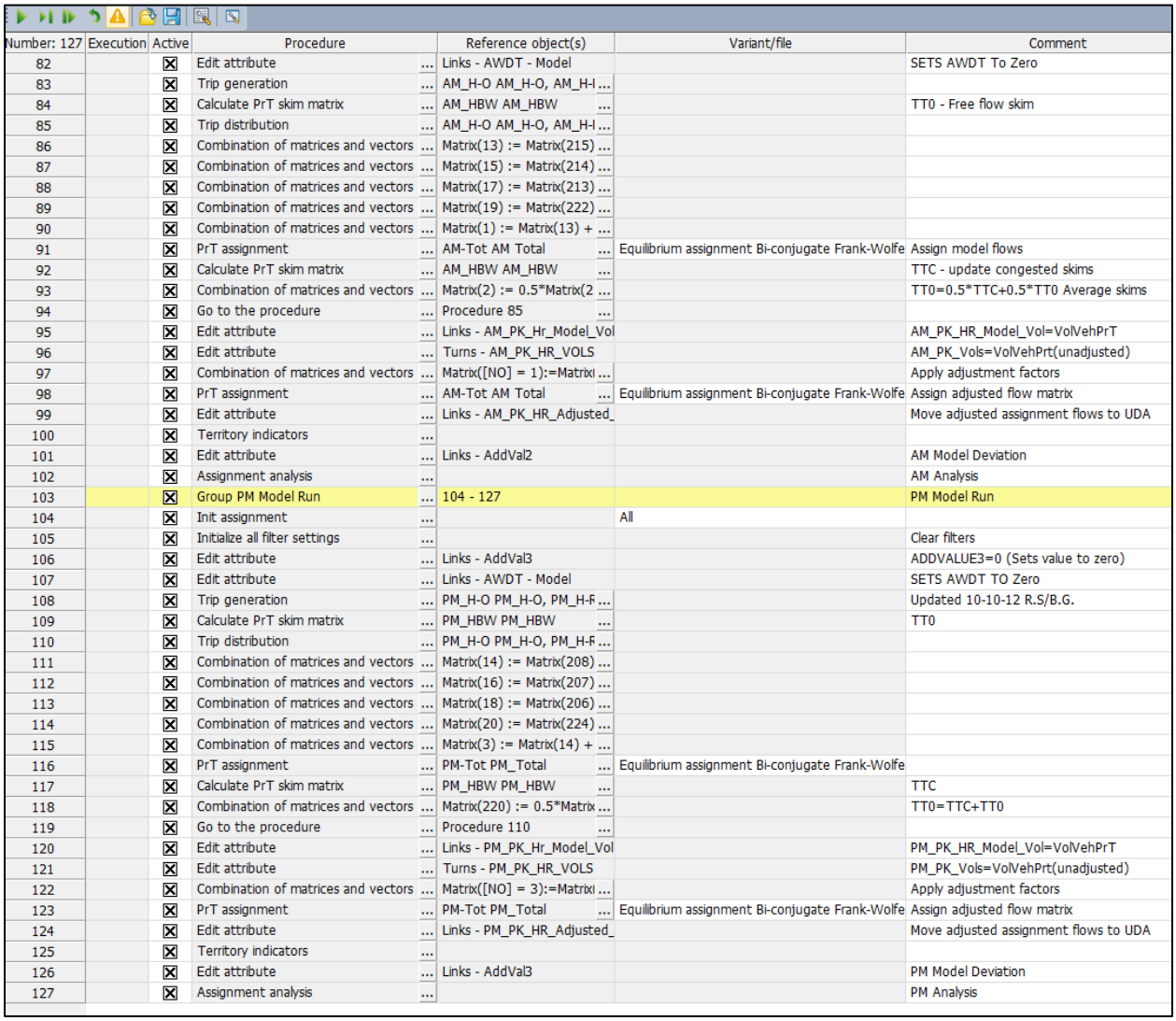
Number: 127	Execution	Active	Procedure	Reference object(s)	Variant/file	Comment
1		☒	Group Capacity calculation - Calculate ...	2 - 47		Capacity calculation - Calculate Procedures U
2	▷	☒	Initialize all filter settings ...			
3		☒	Read filter ...		TSysCar.fil	
4		☒	Edit attribute ...	Links - CapPrT		Set Link Capacity, Lanes * Cap/Lane
5		☒	Edit attribute ...	Connectors - T0_TSys(C)		Test to set Connector Time
6		☒	Read filter ...		TWLTL-3Lane.fil	3 Lane Road
7		☒	Edit attribute ...	Links - CapPrT		Add 300 directional capacity
8		☒	Read filter ...		TWLTL-5Lane.fil	5 Lane Road
9		☒	Edit attribute ...	Links - CapPrT		Add 150 directional capacity
10		☒	Read filter ...		Fwy_GT_2_Lanes.fil	3+ Lane Fwy
11		☒	Edit attribute ...	Links - CapPrT		Add Cap for 3 Lane + Fwy
12		☒	Edit attribute ...	Nodes - K4		Set All K4 = 1.0
13		☒	Read filter ...		ActiveLinksNodes.fil	Start Node Computations
14		☒	Edit attribute ...	Nodes - CapPrT		Add all outbound link capacities
15		☒	Read filter ...		ActiveLinksNodes-3plusLegs.fil	3 Plus Leg Nodes
16		☒	Edit attribute ...	Nodes - K4		
17		☒	Read filter ...		ActiveLinksNodes-2Leg.fil	
18		☒	Edit attribute ...	Nodes - K4		
19		☒	Read filter ...		ActiveLinksNodes-3Leg.fil	
20		☒	Edit attribute ...	Nodes - K4		
21		☒	Read filter ...		ActiveLinksNodes-4Leg.fil	
22		☒	Edit attribute ...	Nodes - K4		
23		☒	Read filter ...		ActiveLinksNodes-5Leg.fil	
24		☒	Edit attribute ...	Nodes - K4		
25		☒	Read filter ...		NodeCapacityFinalComputations.fil	
26		☒	Edit attribute ...	Nodes - CapPrT		
27		☒	Read filter ...		Turns-LT-TH-RT-Only.fil	Turns-LT-TH-RT-Only.fil
28		☒	Edit attribute ...	Turns - CapPrT		Reset Turn Capacities
29		☒	Edit attribute ...	Turns - t0PrT		Reset Turn T0=0
30		☒	Read filter ...		SingleLeftTurnsSignalsTwoWayStops.fil	Single Left Turns
31		☒	Edit attribute ...	Turns - t0PrT		T0=6Secs
32		☒	Edit attribute ...	Turns - CapPrT		TurnCap=300
33		☒	Read filter ...		DualLeftTurnsSignalsTwoWayStops.fil	Dual Left Turns
34		☒	Edit attribute ...	Turns - CapPrT		TurnCap=275*NumLanes
35		☒	Read filter ...		Uncontrolled_Intersections.fil	Set Uncontrolled Controls
36		☒	Edit attribute ...	Nodes - ControlType		1-Uncontrolled
37		☒	Read filter ...		Stop_2_Way_Intersections.fil	Set 2 Way Stop
38		☒	Edit attribute ...	Nodes - ControlType		2-Partial Stop
39		☒	Read filter ...		Yield_2_Way_Intersections.fil	Set Yield
40		☒	Edit attribute ...	Nodes - ControlType		6-Yield
41		☒	Read filter ...		Stop_All_Way_Intersections.fil	Set All Way Stop
42		☒	Edit attribute ...	Nodes - ControlType		4-All Way Stop
43		☒	Read filter ...		Signal_Intersections.fil	Set Signals
44		☒	Edit attribute ...	Nodes - ControlType		3-Signals
45		☒	Read filter ...		Roundabout_Intersections.fil	Set Roundabouts

(Procedures 46 – 81)



Number: 127	Execution	Active	Procedure	Reference object(s)	Variant/file	Comment
46		☒	Edit attribute ...	Nodes - ControlType		7-Roundabout
47		☒	Read filter ...		TSysCar.fil	
48		☒	Group Set Land Use to 2018 for Base ...	49 - 77		Set Land Use to 2018 for Base Year
49		☒	Edit attribute ...	Zones - SFDU_LU1		
50		☒	Edit attribute ...	Zones - MFDU_LU2		
51		☒	Edit attribute ...	Zones - RET_LU3		
52		☒	Edit attribute ...	Zones - FIRES_LU4		
53		☒	Edit attribute ...	Zones - INDUST_LU5		
54		☒	Edit attribute ...	Zones - SCH_LU6		
55		☒	Edit attribute ...	Zones - ACCOM_LU7		
56		☒	Edit attribute ...	Zones - AER_LU8		
57		☒	Edit attribute ...	Zones - OSFDU_LU9		
58		☒	Edit attribute ...	Zones - PSS_LU10		
59		☒	Edit attribute ...	Zones - AGRI_LU11		
60		☒	Edit attribute ...	Zones - WFRT_LU12		
61		☒	Edit attribute ...	Zones - POL_LU13		
62		☒	Edit attribute ...	Zones - TRNWH_LU14		
63		☒	Edit attribute ...	Zones - MED_LU15		
64		☒	Edit attribute ...	Zones - GOVT_LU16		
65		☒	Edit attribute ...	Zones - ASWMR_LU17		
66		☒	Edit attribute ...	Zones - PSTMC_LU18		
67		☒	Edit attribute ...	Zones - EDUSRV_LU19		
68		☒	Edit attribute ...	Zones - OTHER_LU20		
69		☒	Edit attribute ...	Zones - INFO_LU21		
70		☒	Edit attribute ...	Zones - UTLCONST_LU22		
71		☒	Edit attribute ...	Zones - FS_LU23		
72		☒	Edit attribute ...	Zones - XI-O-AM		
73		☒	Edit attribute ...	Zones - IX-D-AM		
74		☒	Edit attribute ...	Zones - XI-O-PM		
75		☒	Edit attribute ...	Zones - IX-D-PM		
76		☒	Edit attribute ...	Zones - Total_DU		
77		☒	Edit attribute ...	Zones - Total_Emp		
78		☒	Group AM Model Run ...	79 - 102		AM Model Run
79		☒	Init assignment ...		All	Latest Update 5-8-12 Bonnie PTV Visit
80		☒	Initialize all filter settings ...			Clear filters
81		☒	Edit attribute ...	Links - AddVal2		ADDVALUE2=0 (sets value to zero)

(Procedures 82 – 127)



Number: 127	Execution	Active	Procedure	Reference object(s)	Variant/file	Comment
82		☒	Edit attribute	Links - AWDT - Model		SETS AWDT To Zero
83		☒	Trip generation	AM_H-O AM_H-O, AM_H-I		
84		☒	Calculate PrT skim matrix	AM_HBW AM_HBW		TT0 - Free flow skim
85		☒	Trip distribution	AM_H-O AM_H-O, AM_H-I		
86		☒	Combination of matrices and vectors	Matrix(13) := Matrix(215)		
87		☒	Combination of matrices and vectors	Matrix(15) := Matrix(214)		
88		☒	Combination of matrices and vectors	Matrix(17) := Matrix(213)		
89		☒	Combination of matrices and vectors	Matrix(19) := Matrix(222)		
90		☒	Combination of matrices and vectors	Matrix(1) := Matrix(13) +		
91		☒	PrT assignment	AM-Tot AM Total	Equilibrium assignment Bi-conjugate Frank-Wolfe	Assign model flows
92		☒	Calculate PrT skim matrix	AM_HBW AM_HBW		TTC - update congested skims
93		☒	Combination of matrices and vectors	Matrix(2) := 0.5*Matrix(2		TT0=0.5*TTC+0.5*TT0 Average skims
94		☒	Go to the procedure	Procedure 85		
95		☒	Edit attribute	Links - AM_PK_Hr_Model_Vol		AM_PK_HR_Model_Vol=VolVehPrT
96		☒	Edit attribute	Turns - AM_PK_HR_VOLS		AM_PK_Vols=VolVehPrt(unadjusted)
97		☒	Combination of matrices and vectors	Matrix([NO] = 1):=Matrix		Apply adjustment factors
98		☒	PrT assignment	AM-Tot AM Total	Equilibrium assignment Bi-conjugate Frank-Wolfe	Assign adjusted flow matrix
99		☒	Edit attribute	Links - AM_PK_HR_Adjusted_		Move adjusted assignment flows to UDA
100		☒	Territory indicators			
101		☒	Edit attribute	Links - AddVal2		AM Model Deviation
102		☒	Assignment analysis			AM Analysis
103		☒	Group PM Model Run	104 - 127		PM Model Run
104		☒	Init assignment		All	
105		☒	Initialize all filter settings			Clear filters
106		☒	Edit attribute	Links - AddVal3		ADDVALUE3=0 (Sets value to zero)
107		☒	Edit attribute	Links - AWDT - Model		SETS AWDT TO Zero
108		☒	Trip generation	PM_H-O PM_H-O, PM_H-R		Updated 10-10-12 R.S/B.G.
109		☒	Calculate PrT skim matrix	PM_HBW PM_HBW		TT0
110		☒	Trip distribution	PM_H-O PM_H-O, PM_H-R		
111		☒	Combination of matrices and vectors	Matrix(14) := Matrix(208)		
112		☒	Combination of matrices and vectors	Matrix(16) := Matrix(207)		
113		☒	Combination of matrices and vectors	Matrix(18) := Matrix(206)		
114		☒	Combination of matrices and vectors	Matrix(20) := Matrix(224)		
115		☒	Combination of matrices and vectors	Matrix(3) := Matrix(14) +		
116		☒	PrT assignment	PM-Tot PM_Total	Equilibrium assignment Bi-conjugate Frank-Wolfe	
117		☒	Calculate PrT skim matrix	PM_HBW PM_HBW		TTC
118		☒	Combination of matrices and vectors	Matrix(220) := 0.5*Matrix		TT0=TTC+TT0
119		☒	Go to the procedure	Procedure 110		
120		☒	Edit attribute	Links - PM_PK_Hr_Model_Vol		PM_PK_HR_Model_Vol=VolVehPrT
121		☒	Edit attribute	Turns - PM_PK_HR_VOLS		PM_PK_Vols=VolVehPrt(unadjusted)
122		☒	Combination of matrices and vectors	Matrix([NO] = 3):=Matrix		Apply adjustment factors
123		☒	PrT assignment	PM-Tot PM_Total	Equilibrium assignment Bi-conjugate Frank-Wolfe	Assign adjusted flow matrix
124		☒	Edit attribute	Links - PM_PK_HR_Adjusted_		Move adjusted assignment flows to UDA
125		☒	Territory indicators			
126		☒	Edit attribute	Links - AddVal3		PM Model Deviation
127		☒	Assignment analysis			PM Analysis

Appendix B: 2018 KMPO Project dir file.pdf

Edit project directories

Multiple extensions can be separated by ';'

Number: 60	Type	Path		Extension(s)
1	Project directories	%APPDATA%\PTV Vision\%MAINPROGVERSION%\	...	pfd
2	Version	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	ver
3	Global layout	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	lay
4	Network	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	net
5	OD demand data	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	dmd
6	Scenario management project	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	vpdb;vpdbx
7	Matrix	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	mtx;mx;fma;*
8	Access database	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	mdb
9	Access 2007 database	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	accdb
10	Model transfer file	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	tra
11	ESRI shapefile	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	shp
12	Attributes	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	att
13	Active network objects	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	ane
14	Filter	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\Filters\	...	fil
15	Procedure parameters	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	par;xml
16	AddIn	%APPDATA%\PTV Vision\%MAINPROGVERSION%\AddIns\	...	vai
17	Script	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	vbs;js;pys;py;rb;pl
18	Other input data	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	*
19	Other output data	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	*
20	Graphic parameters	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	gpa;gpax
21	Background	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	emf;wmf;bmp;dw
22	Texts	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	txt
23	Image	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	bmp;jpg;wmf;emf
24	SVG file	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	svg
25	DXF file	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	dxf
26	Screenshot	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	jpg;wmf;emf;bmp
27	Exported turn volumes	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	jpg;png;gif;wmf;e
28	Legend parameters	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	lgd
29	Timetable graphic parameters	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	gpt;gpbe;gpgt;gp
30	Signal time-space diagram graphic parameters	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	gptsd
31	Matrix editor graphic parameters	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	gpm
32	Schematic line diagram graphic parameters	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	gpsld
33	Transfers display of regular services - graphic	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	gpta
34	Timetable layout	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	tly;tlbe;tltt;tlgt;tls
35	List layout	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	lla
36	Quick view layout	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	qla
37	Matrix editor layout	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	mly
38	Survey data	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	*
39	PuT connections	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	con
40	PrT routes	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	rim
41	EMME project	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	emme
42	PuT interfaces project	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	putp;puti;haf;xml
43	Network merge parameters	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	nmp
44	Parameters for 'Read network additively'	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	anrp
45	Parameters for 'Read demand additively'	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	adrp
46	Subnetwork generator parameters	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	xml
47	Parameters for matrix operations	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	xml
48	ICA file	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	*
49	External control	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	nse;rbc;sig
50	RASW file	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	rwf
51	ANM network	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	anm
52	ANM export parameters	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	anmp
53	ANM routes	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	anmRoutes
54	Log file	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	*
55	Combination	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	*
56	Projection	%APPDATA%\PTV Vision\%MAINPROGVERSION%\Projections\	...	prj
57	Script menu file	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	xml
58	User-defined VD function DLLs	%APPDATA%\PTV Vision\%MAINPROGVERSION%\UserVDF-DLLs\	...	dll
59	Intervals	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	att
60	User preferences	C:\Users\Bgow\Desktop\KMPO MODELS\KMPO 2018 New Procedures\	...	xml

Appendix C: 2018 KMPO Model AM Peak Hour Screenline Validation Spreadsheets

AM PK HR Screenline Validation
2018 KMPO Base FINAL 12-9-19. 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.		139	4	13273	121	-18	-0.129496403
US 95 @ Spokane River Bridge						0	#DIV/0!
Northwest Blvd South of US 95						0	#DIV/0!
Totals		139			121	-18	**-0.129496403**
Northbound							
Spokane St.		307	4	13273	260	-47	-0.153094463
US 95 @ Spokane River Bridge						0	#DIV/0!
Northwest Blvd South of US 95						0	#DIV/0!
Totals	0	307			260	**-47**	**-0.153094463**

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 Screenline #2							
Southbound							
Ross Point Rd							#DIV/0!
Northwest Blvd	2580	1342	67	13890	906	-436	-0.324888227
Huetter Rd						0	#DIV/0!
Altas Rd	1156	480	26	14486	598	118	0.245833333
Cedar St						0	#DIV/0!
Seeley Rd						0	#DIV/0!
Totals	3736	1822			1504	-318	-0.17453348
Northbound							
Ross Point Rd							#DIV/0!
Northwest Blvd	1063	652	67	13890	1051	399	0.61196319
Huetter Rd						0	#DIV/0!
Atlas Rd	551	218	26	14486	297	79	0.362385321
Cedar St						0	#DIV/0!
Seeley Rd						0	#DIV/0!
Totals	1614	870			1348	478	0.549425287

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**
Harrison Ave. Screenline #3							
Southbound							
3rd St						0	#DIV/0!
7th St						0	#DIV/0!
11th St						0	#DIV/0!
15th St	908	407	76	990	305	-102	-0.250614251
Government Way	484	208	73	10465	381	173	0.831730769
Totals	1392	615			686	71	0.115447154
Northbound							
7th St						0	#DIV/0!
11th St						0	#DIV/0!
15th St	1119	411	76	990	212	-199	-0.484184915
4th St						0	#DIV/0!
Government Way	372	173	73	10470	86	-87	-0.502890173
Totals	1491	584			298	-286	-0.489726027

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**
Appleway Ave/Best Screenline #4							
Southbound							
Government Way							#DIV/0!
Howard	99	46		11446	47	1	0.02173913
4th St	413	265	247	12957	600	335	1.264150943
SR 95 (N by Haycraft)	3290	1263	390	9428	961	-302	-0.239113222
15th St	1019	415	71	329	338	-77	-0.185542169
Totals	4821	1989			1946	-43	-0.021618904
Northbound							
Government Way							#DIV/0!
Howard	215	106		11446	56		
4th St	415	286	247	12957	471	185	0.646853147
SR 95 (North by Haycraft)	2244	907	390	10816	939	32	0.035281147
15th St	586	249	71	825	223	-26	-0.104417671
Totals	3460	1548			1689	141	0.091085271

AM PK HR Screenline Validation
2018 KMPO Base FINAL 12-9-19. 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.		717	9	13789	670		0
Idaho St.							#DIV/0!
Greensferry Rd							#DIV/0!
SR 41						0	#DIV/0!
Huetter Rd						0	#DIV/0!
Altas Rd	990	424		13754	477	53	0.125
Ramsey Rd	2507	1316	27	13443	1077	-239	-0.181610942
4th St	740	294	245	12931	308	14	0.047619048
15th St	736	328	246	711	297	-31	-0.094512195
US 95		1252	28	9557	1328	76	0.060702875
Baugh Rd						0	#DIV/0!
Pleasant View Rd						0	#DIV/0!
Government Way						0	#DIV/0!
Beck Rd						0	#DIV/0!
Totals	4973	4331			4157	-174	-0.040175479
Northbound							
Spokane St.		383	9	13789	343		0
Idaho St							#DIV/0!
Government Way							#DIV/0!
Greensferry Rd							#DIV/0!
SR 41						0	#DIV/0!
Huetter Rd						0	#DIV/0!
Atlas Rd	669	221		13754	255	34	0.153846154
Ramsey Rd	1561	890	27	13443	801	-89	-0.1
4th St	637	281	245	12931	313	32	0.113879004
15th St	849	390	246	711	420	30	0.076923077
US 95		839	388	12128	988	149	0.177592372
Baugh Rd						0	#DIV/0!
Pleasant View Rd						0	#DIV/0!
Beck Rd						0	#DIV/0!
Totals	3716	3004			3120	116	0.03861518

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	754	282	44	496	384	102	0.361702128
Chase Rd.						0	#DIV/0!
Spokane St						0	#DIV/0!
Idaho St						0	#DIV/0!
Greensferry Rd.						0	#DIV/0!
SR41		874	33	526	958	84	0.096109840
Ramsey Rd						0	#DIV/0!
Government Way		753	239	542	819	66	0.087649402
15th St						0	#DIV/0!
Huetter Rd						0	#DIV/0!
US 95		1363	389	1671	1268	-95	-0.069699193
4th St						0	#DIV/0!
Atlas Rd	1657	693	236	13855	689	-4	-0.005772006
Totals	2411	3965			4118	153	0.038587642
Northbound							
Pleasant View Rd	393	139	44	496	177	38	0.273381295
Chase Rd						0	#DIV/0!
Spokane St						0	#DIV/0!
Idaho St						0	#DIV/0!
Greensferry Rd						0	#DIV/0!
SR41		581	33	526	633	52	0.089500861
Ramsey Rd						0	#DIV/0!
Government Way		810	239	542	719	-91	-0.112345679
15th St						0	#DIV/0!
Huetter Rd						0	#DIV/0!
US 95		780	238	12156	1041	261	0.334615385
4th St						0	#DIV/0!
Atlas Rd	551	218	236	13855	258	40	0.183486239
Totals	944	2528			2828	300	0.118670886

AM PK HR Screenline Validation
2018 KMPO Base FINAL 12-9-19. 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	1923	770	232	13847	746	-24	-0.031168831
US 95		1406	233	13885	1502	96	0.068278805
Government Way	1297	539	234	13796	661	122	0.226345083
4th St	872	426	312	452	383	-43	-0.100938967
Atlas Rd	964	401	316	9330	400	-1	-0.002493766
McGuire Rd						0	#DIV/0!
15th St						0	#DIV/0!
Spokane St.						0	#DIV/0!
Chase Rd.						0	#DIV/0!
Greensferry Rd.	562	246	55	10696	230	-16	-0.06504065
Pleasant View Rd	689	255	333	8829	389	134	0.525490196
SR 41		648	57	10698	650	2	0.00308642
Totals	6307	4691			4961	270	0.057557024
Northbound							
Idaho Rd.							#DIV/0!
Government Way	734	324	234	13796	345		0
4th St	570	268	312	452	254		0
Huetter Rd							#DIV/0!
Ramsey Rd	1294	510	232	13847	504	-6	-0.011764706
Atlas Rd	804	328	316	9330	329	1	0.00304878
McGuire Rd						0	#DIV/0!
15th St						0	#DIV/0!
Spokane St.						0	#DIV/0!
Chase Rd.						0	#DIV/0!
Greensferry Rd.	411	152	55	10696	230	78	0.513157895
SR 41		454	57	10698	559	105	0.231277533
Pleasant View Rd	454	175	333	8829	180	5	0.028571429
US 95		814	233	12162	910	96	0.117936118
Totals	4267	3025			3311	286	0.094545455

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	468	201	61	326	225		0
Hauser Lake Rd north of SH 53							#DIV/0!
Greensferry Rd							#DIV/0!
Meyer	234	89	374	10677	36	-53	-0.595505618
McGuire	302	124	335	13881	119	-5	-0.040322581
Ramsey Rd	742	270	382	333	244	-26	-0.096296296
US95	3611	1387		9569	1453	66	0.047584715
Maple St	198	103		345	114	11	0.106796117
Totals	5555	2174			2191	17	0.007819687
Northbound							
Chase Rd							#DIV/0!
Idaho St							#DIV/0!
SR 41							#DIV/0!
Huetter Rd	334	149	61	326	171		0
Hauser Lake Rd north of 53							#DIV/0!
Greensferry Rd							#DIV/0!
Meyer	109	43	374	10677	25	-18	-0.418604651
McGuire	246	101	335	13881	77	-24	-0.237623762
Ramsey Rd	706	244	382	333	247	3	0.012295082
Maple St	131	62		345	79	17	0.274193548
US95	2040	760		12154	820	60	0.078947368
Totals	3566	1359			1419	60	0.04415011

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						0	#DIV/0!
Government Way	326	130	218	13442	87	-43	-0.330769231
Strahorn Rd	109	51	265	13461	49	-2	-0.039215686
Rimrock Rd/Meadowwood Ln			219	221		0	#DIV/0!
Meyer Rd.						0	#DIV/0!
English Point Rd	113	47	221	1279	10	-37	-0.787234043
Huetter Rd	71	28	214	14519	35	7	0.25
US 95						0	#DIV/0!
Hayden Lake Rd	25	13	273	10390	20	7	0.538461538
SH 41				13578		0	#DIV/0!
Totals	619	269			201	-68	-0.252788104
Northbound							
Greensferry Rd						0	#DIV/0!
Government Way	299	124	218	13442	76	-48	-0.387096774
Strahorn Rd	61	27	265	13461	11	-16	-0.592592593
Rimrock Rd/Meadowwod Ln			219	221		0	#DIV/0!
Meyer Rd.						0	#DIV/0!
English Point Rd	60	22	221	1279	19	-3	-0.136363636
Huetter Rd	54	29	214	14519	19	-10	-0.344827586
US 95						0	#DIV/0!
Hayden Lake Rd	55	22	273	10390	24	2	0.090909091
SH 41				13578		0	#DIV/0!
Totals	474	224			149	-75	-0.334821429

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						0	#DIV/0!
Ramsey Rd	507	393	210	104	388	-5	-0.012722646
US 95 n/o SH53	1894	696	209	14521	842	146	0.209770115
Govt Way e/o US95	84	34	321	14409	69	35	1.029411765
Pleasant View	598	215		1249	320	105	0.488372093
Totals	2485	1338			1619	281	0.210014948
Westbound							
BNSF RR Bridge in Rathdrum						0	#DIV/0!
Ramsey Rd	189	74	210	104	52	-22	-0.297297297
US 95 n/o SH53	959	373	209	13654	467	94	0.252010724
Govt Way e/o US95	101	43	321	14409	30	-13	-0.302325581
Pleasant View	300	107		1249	125	18	0.168224299
Totals	1249	597			674	77	0.128978224

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						0	#DIV/0!
Diagonal Rd south of Brunner	208	79	286	9610	152	73	0.924050633
SH 41 south of Seasons Rd						0	#DIV/0!
East Twin Lake Rd near SH 41	267	105	281	10385	141	36	0.342857143
US 95 south of Brunner Rd	2165	776	287	14009	853	77	0.099226804
Totals	2640	960			1146	186	0.193750000
Northbound							
Ramsey Rd south of Brunner						0	#DIV/0!
SH 41 south of Seasons Rd						0	#DIV/0!
East Twin Lake Rd near SH 41	73	33	281	10385	80	47	1.424242424
Diagonal Rd south of Brunner Rd	120	49	286	9610	151	102	2.081632653
US 95 south of Brunner Rd	1128	411	287	14009	579	168	0.408759124
Totals	1321	493			810	317	0.643002028

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						0	#DIV/0!
Cave Bay Rd @ Rock Creek	53	27	292	10908	20	-7	-0.259259259
SH3 S/O SH97	154	58	268	1220	65	7	0.120689655
US 95 S/O Worley	642	257	302	1217	242	-15	-0.058365759
US 95 N/O Worley						0	#DIV/0!
O'Gara Rd west of SH 97	10	8	298	9291	20	12	1.500000000
I90 w/o Shoshone Co	953	373		7374	371	-2	-0.005361930
Totals	1812	723			718	-5	-0.006915629
Northbound							

SH 97 north of Harrison						0	#DIV/0!
Cave Bay Rd @ Rock Creek	79	36	292	10908	1	-35	-0.972222222
SH3 S/O SH97	137	58	268	1220	55	-3	-0.051724138
US 95 S/O Worley	477	190	302	1217	168	-22	-0.115789474
O'Gara Rd west of SH 97	5	4	298	9291	14	10	2.500000000
US 95 N/O Worley						0	#DIV/0!
I90 w/o Shoshone Co	965	369		8821	374	5	0.013550136
Totals	1663	657			612	-45	-0.068493151

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 95 to LaTour Creek Rd Screenline # 13							
Southbound							
UpRiver Dr west of US 95						0	#DIV/0!
SH 3 S/O I 90						0	#DIV/0!
SH 97 N/O Burma						0	#DIV/0!
Cougar Gulch Rd west of US 95	71	29	289	9644	25	-4	-0.137931034
LaTour Creek Rd south of I 90	25	9	270	13140	11	2	0.222222222
Burma Rd	20	12	297	13120	37	25	2.083333333
Totals	96	50			73	23	0.460000000
Northbound							
Sh 3 S/O I 90						0	#DIV/0!
SH 97 N/O Burma						0	#DIV/0!
Cougar Gulch Rd west of US 95	136	58	289	9644	52	-6	-0.103448276
LaTour Creek Rd south of I 90	36	18	270	13140	13	-5	-0.277777778
Burma Rd	45	26	297	13120	39	13	0.500000000
Totals	172	102			104	2	0.019607843

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
Spirit Lake Pend'O Reille Screenline #14							
Southbound							
SH 41 south of Spirit Lake							#DIV/0!
Perimeter Rd north of SH 54	72	28	277	13462	46	18	0.642857143
US 95 north of Athol	1097	416	278	10563	485	69	0.165865385
SH 41 north of Spirit Lake	754	261	279	10884	277	16	0.061302682
Totals	1923	705			808	103	0.146099291
Northbound							
SH 41 south of Spirit Lake							#DIV/0!
Perimeter Rd north of SH 54	19	9	277	13462	14	5	0.555555556
US 95 north of Athol	854	332	278	10563	367	35	0.105421687
SH 41 north of Spirit Lake	439	172	279	10884	170	-2	-0.011627907
Totals	1312	513			551	38	0.074074074

EAST - WEST 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
Pleasant View Rd. Screenline # 15							
Eastbound							
SH 53		501	82	13930	433	-68	-0.135728543
Seltice Way							#DIV/0!
Prairie Rd.	272	107	45	8834	94	-13	-0.121495327
Riverbend Ave							#DIV/0!
SH 53 (W/O Prairie Ave)							#DIV/0!
Poleline Ave.							#DIV/0!
Totals	272	608			527	-81	-0.133223684
Westbound							
SH 53		712	82	13930	702	-10	-0.014044944
Seltice Way							#DIV/0!
Prairie Rd.	241	89	45	8834	141	52	0.584269663
Riverbend Ave							#DIV/0!
SH 53 W/O Prairie Ave							#DIV/0!
Poleline Ave.							#DIV/0!
Totals	241	801			843	42	0.052434457

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
McGuire Rd. Screenline # 16							
Eastbound							
SH 53	681	336	83	248	376	40	0.119047619

Seltice Way							#DIV/0!
Poleline Ave.							#DIV/0!
Prairie Rd.							#DIV/0!
Totals	681	336			376	40	0.119047619
Westbound							
SH 53	1670	692	83	248	734	42	0.060693642
Seltice Way							#DIV/0!
Poleline Ave.							#DIV/0!
Prairie Rd.							#DIV/0!
Totals	1670	692			734	42	0.060693642

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 Ave.							#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 Ave.							#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.						0	#DIV/0!
Poleline							#DIV/0!
Seltice Way							#DIV/0!
4th St.							#DIV/0!
Totals	0	0			0	0	#DIV/0!
Westbound							
Prairie Rd.						0	#REF!
Poleline							#DIV/0!
Seltice Way							#DIV/0!
4th 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
Greensferrry Rd. Screenline # 20							
Eastbound							
Prairie Rd.	524	195	54	421	277	82	#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.	417	175	64	6243	198	23	0.131428571
SH 53	846	365	104	9487	376	11	0.030136986
3rd St.							#DIV/0!
Totals	1787	735			851	116	0.157823129
Westbound							
Prairie Rd.	432	172	54	421	186	14	0.081395349
Poleline Ave.							#DIV/0!
16th							#DIV/0!
12th							#DIV/0!
Mullan Ave							#DIV/0!
Seltice Way							#DIV/0!
Wyoming Ave							#DIV/0!
Hayden Rd.	339	132	64	6243	134	2	0.015151515
SH 53	1499	622	104	9487	646	24	0.038585209
3rd St.							#DIV/0!
Totals	2270	926			966	40	0.043196544

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.		400	32	13801	192	-208	-0.52
Mullan Ave						0	#DIV/0!
Seltice Way						0	#DIV/0!
Lancaster	75	46	114	9346	24	-22	-0.478260870
Wyoming						0	#DIV/0!
Nagel Ln	137	57	366	13702	69	12	0.210526316
Prairie Rd.						0	#DIV/0!
Hayden Rd.						0	#DIV/0!
Boekel Rd	110	39	89	11679	100	61	1.564102564
Totals	322	542			385	-157	-0.289667897
Westbound							
McCarney St N/O SR41							#DIV/0!
Poleline Rd.		301	32	13801	188	-113	-0.375415282
Mullan Ave						0	#DIV/0!
Seltice Way						0	#DIV/0!
Lancaster	83	43	114	9346	7	-36	-0.837209302
Wyoming						0	#DIV/0!
Nagel Ln	163	60	366	13702	67	7	0.116666667
Prairie Rd.						0	#DIV/0!
Hayden Rd.						0	#DIV/0!
Boekel Rd	38	20	89	11679	71	51	2.550000000
Totals	284	424			333	-91	-0.214622642

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.	978	350	60	323	428	78	0.222857143
Prairie Rd.							#DIV/0!
Seltice Way						0	#DIV/0!
Mullan Ave							#DIV/0!
Maplewood							#DIV/0!
Boekel Ave	352	141	1	9233	110	-31	-0.219858156
Totals	1330	491			538	47	0.095723014
Westbound							
Wyoming Ave							#DIV/0!
Hayden Rd.	722	280	60	323	338	58	0.207142857
Prairie Rd.							#DIV/0!
Mullan Ave							#DIV/0!
Seltice Way						0	#DIV/0!
Maplewood							#DIV/0!
Boekel Ave	240	114	1	9233	76	-38	-0.333333333
Totals	962	394			414	20	0.050761421

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	20	15	3
Garwood Rd						0	#DIV/0!

Hwy 53						0	#DIV/0!
Lancaster Ave						0	#DIV/0!
Wyoming Ave	374	141	129	251	112	-29	-0.205673759
Miles Ave	45	27	130	14712	30	3	0.111111111
Hayden Ave	900	333	131	332	327	-6	-0.018018018
Honeysuckle Ave	427	231	132	13457	143	-88	-0.380952381
Prairie Ave	1879	757	133	13926	811	54	0.071334214
Appleway						0	#DIV/0!
Kathleen Ave						0	#DIV/0!
Dalton Ave	573	273	136	13849	292	19	0.069597070
Hanley Ave	795	325	135	9492	351	26	0.080000000
Ironwood Dr	1357	683	140	10300	556	-127	-0.185944363
Boekel Rd			127	11559		0	#DIV/0!
Wilbur Ave	149	59	323	12890	79	20	0.338983051
Totals	6510	2834			2721	-113	-0.039872971
Westbound							
Ohio Match Rd	37	19	124	65	15	-4	-0.210526316
Garwood Rd						0	#DIV/0!
Hwy 53						0	#DIV/0!
Lancaster Ave						0	#DIV/0!
Wyoming Ave	372	151	129	251	125	-26	-0.172185430
Miles Ave	157	56	130	14712	53	-3	-0.053571429
Hayden Ave	815	295	131	332	304	9	0.030508475
Honeysuckle Ave	338	166	132	13457	123	-43	-0.259036145
Prairie Ave	1132	457	133	13926	601	144	0.315098468
Appleway						0	#DIV/0!
Kathleen Ave						0	#DIV/0!
Dalton Ave	353	156	136	13849	174	18	0.115384615
Hanley Ave	580	263	135	9492	281	18	0.068441065
Boekel Rd			127	11559		0	#DIV/0!
Wilbur Ave	112	44	323	12890	63	19	0.431818182
Ironwood Dr	468	268	140	10300	620	352	1.313432836
Totals	4364	1875			2359	484	0.258133333

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	38	18	164	14401	34	16	0.888888889
Garwood Rd	221	84		80	33	-51	-0.607142857
Boekel	281	105	127	11558	231	126	1.2
Lancaster Ave						0	#DIV/0!
Hayden Ave		376	170	12169	306	-70	-0.186170213
Honeysuckle Ave						0	#DIV/0!
Prairie Ave		432	172	12159	501	69	0.159722222
Dalton Ave						0	#DIV/0!
Kathleen Ave		421	176	12917	383	-38	-0.090261283
Neider Ave						0	#DIV/0!
Appleway Ave		436	178	874	381	-55	-0.126146789
Ironwood Blvd						0	#DIV/0!
Walnut St						0	#DIV/0!
Hanley Ave		399	174	12132	338	-61	-0.152882206
US 95 S by Spokane River						0	#DIV/0!
Old US 95 n/o SH53						0	#REF!
Miles Ave						0	#DIV/0!
Wyoming Ave						0	#DIV/0!
Totals	540	2271			2207	-64	-0.028181418
Westbound							
Ohio Match Rd	94	39	164	14401	62	23	0.58974359
Garwood Rd	85	42		80	77	35	0.833333333
Boekel	165	82	127	11558	118	36	0.43902439
Lancaster Ave						0	#DIV/0!
Hayden Ave		411	170	12169	274	-137	-0.333333333
Honeysuckle Ave						0	#DIV/0!
Prairie Ave		478	172	12159	386	-92	-0.192468619
Dalton Ave						0	#DIV/0!
Kathleen Ave		418	176	12917	422	4	0.009569378
Neider Ave						0	#DIV/0!
Appleway Ave		415	178	874	302	-113	-0.272289157
Ironwood Blvd						0	#DIV/0!
Walnut St						0	#DIV/0!
Hanley Ave		332	174	12132	202	-130	-0.391566265
US 95						0	#DIV/0!
Old US 95 n/o SH53						0	#DIV/0!
Miles Ave						0	#DIV/0!
Wyoming Ave						0	#DIV/0!

AM PK HR Screenline Validation
2018 KMPO Base FINAL 12-9-19. ver

Totals	344	2217			1843	-374	-0.168696437

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
West Side KMPO Screenline # 25							
Eastbound							
Seltice Way W/O Beck Rd	403	158	90	8826	198	40	0.253164557
Rockford Bay Rd east of US 95	180	70	290	9001	40	-30	-2
Elder Rd @ Washington Line	99	44	266	14420	11	-33	-0.750000000
SH 58 @ Washington Line	223	94	267	9283	78	-16	-0.170212766
Conkling Rd east of US 95	39	15	294	13365	2	-13	-0.866666667
SH 53 @ Washington State Line	588	215	93	13244	274	59	0.274418605
Riverview east of Washington line						0	#DIV/0!
US 95 n/o Rockford Bay	382	191		13504	225	34	0.178010471
Totals	1914	787			828	41	0.052096569
Westbound							
Seltice Way W/O Beck Rd	656	210	90	8826	331	121	0.576190476
Rockford Bay Rd east of I90	167	67	290	9001	43	-24	-0.888888889
Elder Rd @ Washington Line	110	50	266	14420	33	-17	-0.340000000
SH 58 @ Washington Line	210	84	267	9283	62	-22	-0.261904762
Conkling Rd east of US 95	64	27	294	13365	4	-23	-0.851851852
SH 53 @ Washington State Line	1457	569	93	13244	440	-129	-0.226713533
Riverview east of Washington line						0	#DIV/0!
US 95 n/o Rockford Bay	613	246		13509	278	32	0.130081301
Totals	3277	1253			1191	-62	-0.049481245

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
East Side KMPO Screenline # 26							
Eastbound							
Bunco Rd @ Nunn Rd							#DIV/0!
Ohio Match Rd East of Rimrock Rd						0	#DIV/0!
Mullan Trail Rd north of I 90						0	#DIV/0!
Sunnyside Rd south of Mullan Trail	6	5	301	11432	8	3	0.600000000
I 90 @ Shoshone Co. Line	953	373	319	1160	371	-2	-0.005361930
Fernan Lake Rd @ CdA City Limit	7	3	271	10798	0	-3	-1.000000000
SH 54 West of Farragut Park Entrance	243	97			103	6	0.061855670
Lancaster Rd east of Rimrock						0	#DIV/0!
Careywood west of Perimeter	37	14		11699	22	8	0.571428571
Canyon Rd west of Shoshone County	35	25		10902	5	-20	-0.800000000
Totals	1281	517			509	-8	-0.015473888
Westbound							
Bunco Rd @ Nunn Rd							#DIV/0!
Ohio Match Rd East of Rimrock Rd						0	#DIV/0!
Mullan Trail Rd north of I 90						0	#DIV/0!
Sunnyside Rd south of Mullan Trail	47	31	301	11432	27	-4	-0.129032258
I 90 (@ Shoshone Co. Line)	965	369	269	1157	374	5	0.013550136
Fernan Lake Rd @ CdA City Limit	27	11	271	10798	0	-11	-1.000000000
SH 54 West of Farragut Park Entrance	369	131			154	23	0.175572519
Lancaster Rd east of Rimrock						0	#DIV/0!
Careywood west of Perimeter	27	11		11699	9	-2	-0.181818182
Canyon Rd west of Shoshone County	58	34		10902	3	-31	-0.911764706
Totals	1493	587			567	-20	-0.034071550

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
Government Way Screenline # 27							
Eastbound							
Lancaster Ave	545	153	145	13459	87	-66	-0.431372549
Miles Ave	165	74	147	285	62		0
Hayden Ave	399	184	148	341	148		0.000000000
Honeysuckle Ave	291	144	149	13829	187		0.000000000
Prairie Ave	379	192	150	448	215		0.000000000
Wilbur Ave	47	21	151	477	33	12	0.571428571
Hanley Ave		338	152	13792	127	-211	-0.624260355
Dalton Ave	559	312	153	602	310		0.000000000
Appleway/Best Ave							#DIV/0!
Neider Ave	353	176	155	816	286		0.000000000
N/O Sherman Ave							#DIV/0!
Wyoming Ave							#DIV/0!
Government Way							0.000000000
Harrison Ave	366	176	72	10468	270		#DIV/0!
Foster Ave						0	0.000000000

Margaret Ave	702	305	154	11310	243		#DIV/0!
Totals	3806	2075			1968	-107	-0.051566265
Westbound							
Lancaster Ave	403	156	145	13459	112	-44	-0.282051282
Miles Ave	234	40	147	285	95		0
Hayden Ave	605	281	148	341	207		0.000000000
Honeysuckle Ave	558	238	149	13829	327		0.000000000
Prairie Ave	966	388	150	448	440		0.000000000
Wilbur Ave	63	30	151	477	102	72	2.400000000
Hanley Ave		296	152	13792	169	-127	-0.429054054
Dalton Ave	488	233	153	602	271		0.000000000
Neider Ave	608	245	155	816	285		0.000000000
Appleway/Best Ave							#DIV/0!
N/O Sherman Ave							#DIV/0!
Wyoming Ave							#DIV/0!
Government Way							0.000000000
Harrison Ave	579	256	72	10468	293		#DIV/0!
Foster Ave						0	0.000000000
Margaret Ave	894	364	154	11310	331		0.000000000
Totals	5398	2527			2632	105	0.041551247

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	319	-29	-0.083333333
I 90 Ramp @ Spokane St EB On		501	102	717	320	-181	-0.361277445
I 90 Ramp @ Seltice Way EB On						0	#DIV/0!
SR 90 @ Pleasant View Rd		329	86	786	308	-21	-0.063829787
SR 90 @ Pleasant View Rd EB Off		339	87	785	269	-70	-0.206489676
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						0	#DIV/0!
I 90 Ramp @ US 95 EB On Ramp		337	181	915	128	-209	-0.620178042
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		77	309	10428	150	73	0.948051948
I 90 Ramp @ 15th St EB Off		296	310	10430	200	-96	-0.324324324
I 90 Ramp @ 23rd St (One Way) EB Off						0	#DIV/0!
I 90 Ramp @ Beck Rd EB Off						0	#DIV/0!
I 90 Ramp @ Beck Rd EB On						0	#DIV/0!
Totals	0	2227.00			1694	-533	-0.239335429
Westbound							
I 90 Ramp @ Spokane St WB On		786	100	684	567	-219	-0.278625954
I 90 Ramp @ Spokane St WB Off		330	101	720	228	-102	-0.309090909
I 90 Ramp @ Seltice Way WB Off						0	#DIV/0!
I 90 Ramp @ SH 41 WB On						0	#DIV/0!
SR 90 @ Pleasant View Rd WB On		368	85	737	429	61	0.165760870
SR 90 @ Pleasant View Rd WB Off		308	84	740	393	85	0.275974026
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		662	180	900	524	-138	-0.208459215
I 90 Ramp @ US 95 WB Off		430	179	904	428	-2	-0.004651163
I 90 Ramp @ 3rd/4th St WB On		444	157	14596	444	0	0.000000000
I 90 Ramp @ 3rd/4th St WB Off		226	158	923	213	-13	-0.057522124
I 90 Ramp @ 23rd St WB On						0	#DIV/0!
I 90 Ramp @ 23rd St WB Off						0	#DIV/0!
I 90 Ramp @ 15th St WB Off to Hazel		63	308	8814	20	-43	-0.682539683
I 90 Ramp @ SH 41 WB Off						0	#DIV/0!
I 90 Ramp @ 15th St WB On		649	307	10432	407	-242	-0.372881356
I 90 Ramp @ Beck Rd WB Off						0	#DIV/0!
I 90 Ramp @ Beck Rd WB On						0	#DIV/0!
Totals	0	4266			3653	-613	-0.143694327

AM PK HR Screenline Validation
2018 KMPO Base FINAL 12-9-19. 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	139	121	-18	-13	446	381	-65	-14.57399103	65	Y
Northbound	307	260	-47	-15						
Seltice Screenline # 2	Seltice Screenline									
Southbound	1822	1504	-318	-17	2692	2852	160	6	62	Y
Northbound	870	1348	478	55						
Harrison Ave Screenline # 3	Harrison Ave Screenline									
Southbound	615	686	71	12	1199	984	-215	-18	64	Y
Northbound	584	298	-286	-49						
Appleway Ave/Best Screenline # 4	Appleway Ave/Best Screenline									
Southbound	1989	1946	-43	-2	3537	3635	98	3	61	Y
Northbound	1548	1689	141	9						
Seltice Way/Mullan Rd/Kathleen Screenline # 5	Seltice Way/Mullan Rd/Kathleen									
Southbound	4331	4157	-174	-4	7335	7277	-58	-1	58	Y
Northbound	3004	3120	116	4						
Poleline Rd Screenline # 6	Poleline Rd Screenline									
Southbound	3965	4118	153	4	6493	6946	453	7	58	Y
Northbound	2528	2828	300	12						
Prairie Rd. Screenline # 7	Prairie Rd. Screenline									
Southbound	4691	4961	270	6	7716	8272	556	7	57	Y
Northbound	3025	3311	286	9						
Hayden Ave Screenline # 8	Hayden Ave Screenline									
Southbound	2174	2191	17	1	3533	3610	77	2	61	Y
Northbound	1359	1419	60	4						
Lancaster Rd. Screenline # 9	Lancaster Rd. Screenline									
Southbound	269	201	-68	-25	493	350	-143	-29	65	Y
Northbound	224	149	-75	-33						
SH 53 - US 95 Screenline # 10	SH 53 - US 95 Screenline									
Southbound	1338	1619	281	21	1935	2293	358	19	63	Y
Northbound	597	674	77	13						
Twin Lakes Nat. Forest Screenline # 11	Twin Lakes Nat. Forest Screenline									
Southbound	960	1146	186	19	1453	1956	503	35	63	Y
Northbound	493	810	317	64						
US 95 to SH 3 Screenline # 12	US 95 to SH 3 Screenline									
Southbound	723	718	-5	-1	1380	1330	-50	-4	64	Y
Northbound	657	612	-45	-7						
SH 93 to LaTour Creek Screenline # 13	SH 93 to LaTour Creek Rd Screenline									
Southbound	50	73	23	46	152	177	25	16	65	Y
Northbound	102	104	2	2						
Spirit Lake/Pend O'Reille Screenline # 14	Spirit Lake/Pend O'Reille Screenline # 12									
Southbound	705	808	103	15	1218	1359	141	12	64	Y
Northbound	513	551	38	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	608	527	-81	-13	1409	1370	-39	-2.767920511	64	Y
Westbound	801	843	42	5						
McGuire Rd. Screenline # 16	McGuire Rd. Screenline									
Eastbound	336	376	40	12	1028	1110	82	8	64	Y
Westbound	692	734	42	6						
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	0	0	0	#DIV/0!	0	0	0	#DIV/0!	65	#DIV/0!
Westbound	0	0	0	#DIV/0!						
Greensferry Screenline # 20	Greensferry Rd. Screenline									
Eastbound	735	851	116	16	1661	1817	156	9	63	Y
Westbound	926	966	40	4						
SH 41 Screenline # 21	SH 41 Screenline									
Eastbound	542	385	-157	-29	966	718	-248	-25.67287785	65	Y
Westbound	424	333	-91	-21						
Huetter Rd Screenline # 22	Huetter Rd. Screenline									
Eastbound	491	538	47	10	885	952	67	7.570621469	64	Y
Westbound	394	414	20	5						

AM PK HR Screenline Validation
2018 KMPO Base FINAL 12-9-19. ver

Ramsey Rd Screenline # 23	Ramsey Rd Screenline									
Eastbound	2834	2721	-113	-4	4709	5080	371	7.878530474	60	Y
Westbound	1875	2359	484	26						
US 95 Screenline # 24	US 95 Screenline									
Eastbound	2271	2207	-64	-3	4488	4050	-438	-9.759358289	61	Y
Westbound	2217	1843	-374	-17						
West Side KMPO Screenline # 25	West Side KMPO Screenline									
Eastbound	787	828	41	5	2040	2019	-21	-1.029411765	63	Y
Westbound	1253	1191	-62	-5						
East Side KMPO Screenline # 26	East Side KMPO Screenline									
Eastbound	517	509	-8	-2	1104	1076	-28	-2.536231884	64	Y
Westbound	587	567	-20	-3						
Government Way Screenline # 27	Government Way Screenline									
Eastbound	2075	1968	-107	-5	4602	4600	-2	-0.043459365	60	Y
Westbound	2527	2632	105	4						
I 90 Ramps Screenline # 28	I 90 Ramps Screenline									
Eastbound	2227	1694	-533	-24	6493	5347	-1146	-17.64977668	60	Y
Westbound	4266	3653	-613	-14						
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 Count	((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	23771	24249	478	2	39582	41422	1840	4.648577636	35	Y
Northbound	15811	17173	1362	9						
All East-West Screenline	All East-West Screenline									
Eastbound	13423	12604	-819	-6	29385	28139	-1246	-4	41	Y
Westbound	15962	15535	-427	-3						
Total Screenlines	Total Screenlines									
					68967	69561	594	1	29	Y

Appendix D: 2018 KMPO Model PM Peak Hour Screenline Validation Spreadsheets

PM PK HR Screenline Validation
2018 KMPO Base FINAL 12-9-19.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.		312	4	13273	411	99	0.317307692
US 95 @ Spokane River Bridge		0			0	0	#DIV/0!
Northwest Blvd South of US 95		0			0	0	#DIV/0!
Totals	0	312			411	99	0.317307692
Northbound							
Spokane St.		205	4	13273	394		0
US 95 @ Spokane River Bridge		0			0		#DIV/0!
Northwest Blvd South of US 95		0			0		#DIV/0!
Totals	0	205			394	189	0.92195122

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**
Seltice Screenline #2							
Southbound							
Ross Point Rd/SH 41		1149	117	10420	1004	-145	-0.126196693
Northwest Blvd	2986	1036	67	14586	965	-71	-0.068532819
Huetter Rd						0	#DIV/0!
Altas Rd	1089	409	26	14486	475	66	0.161369193
Cedar St						0	#DIV/0!
Seeley Rd						0	#DIV/0!
Totals		2594			2444	-150	-0.057825752
Northbound							
Ross Point Rd/SH 41		1242	251	10420	962	-280	-0.225442834
Northwest Blvd	3940	1405	67	14586	1427	22	0.015658363
Huetter Rd						0	#DIV/0!
Atlas Rd	1383	484	26	14486	643	159	0.328512397
Cedar St						0	#DIV/0!
Seeley Rd						0	#DIV/0!
Totals	5323	3131			3032	-99	-0.031619291

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**
Harrison Ave. Screenline #3							
Southbound							
3rd St						0	#DIV/0!
7th St						0	#DIV/0!
11th St						0	#DIV/0!
15th St	1726	655	76	990	439	-216	-0.329770992
Government Way	756	264	73	8963	601	337	1.276515152
Totals	2482	919			1040	121	0.131664853
Northbound							
7th St						0	#DIV/0!
11th St						0	#DIV/0!
15th St	1077	375	76	990	767	392	1.045333333
4th St						0	#DIV/0!
Government Way	727	266	73	13762	105	-161	-0.605263158
Totals	1804	641			872	231	0.360374415

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**
Appleway Ave/Best Screenline #4							
Southbound							
Government Way							#DIV/0!
Howard	218	87		11446	63	-24	-0.275862069
4th St	1882	685	247	12957	1120	435	0.635036496
SR 95 (North by Haycraft)	4114	1414	390	9428	948	-466	-0.329561528
15th St	1258	437	71	889	385	-52	-0.118993135
Totals	7472	2623			2516	-107	-0.040792985
Northbound							
Government Way						0	#DIV/0!
Howard	355	136		11446	57	-79	-0.580882353
4th St	2659	1022	247	12957	1377	355	0.347358121
SR 95 (North by Haycraft)	4339	1492	390	10816	1161	-331	-0.221849866
15th St	1244	439	71	889	322	-117	-0.266514806
Totals	8597	3089			2917	-172	-0.05568145

PM PK HR Screenline Validation
2018 KMPO Base FINAL 12-9-19.ver

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
Seltice/Mullan Rd/Kathleen Screenline #5							
Southbound							
Spokane St.		513	9	13789	449	-64	-0.124756335
Idaho St.						0	#DIV/0!
Greensferry Rd						0	#DIV/0!
SR 41		968	21	13916	1020	52	0.053719008
Huetter Rd						0	#DIV/0!
Atlas Rd	1244	479		13754	515	36	0.075156576
Ramsey Rd	3418	1228	27	13448	872	-356	-0.28990228
4th St	989	347	245	12931	387	40	0.115273775
15th St	934	350	246	711	495	145	0.414285714
Pleasant View Rd						0	#DIV/0!
US 95	4062	1449	28	9557	1369	-80	-0.05521049
Baugh Rd						0	#DIV/0!
Government Way						0	#DIV/0!
Beck Rd						0	#DIV/0!
Totals	10647	5334			5107	-227	-0.04255718
Northbound							
Spokane St.		816	9	13789	682	-134	-0.164215686
Idaho St						0	#DIV/0!
Greensferry Rd						0	#DIV/0!
SR 41		1074	21	13916	1359	285	0.265363128
Huetter Rd						0	#DIV/0!
Atlas Rd	980	349		13754	500	151	0.432664756
Ramsey Rd	3766	1337	27	13448	1171	-166	-0.124158564
4th St	1251	448	245	12931	638	190	0.424107143
15th St	1306	454	246	711	332	-122	-0.268722467
Pleasant View Rd						0	#DIV/0!
US 95	4150	1427	388	12128	1443	16	0.011212334
Baugh Rd						0	#DIV/0!
Government Way						0	#DIV/0!
Beck Rd						0	#DIV/0!
Totals	11453	5905			6125	220	0.037256562

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	654	236	44	496	363	127	0.538135593
Chase Rd.						0	#DIV/0!
Spokane St						0	#DIV/0!
Idaho St						0	#DIV/0!
Greensferry Rd.						0	#DIV/0!
SR41	2109	774	33	526	795	21	0.027131783
Ramsey Rd						0	#DIV/0!
Government Way		805	239	14581	1005	200	0.248447205
15th St						0	#DIV/0!
Huetter Rd						0	#DIV/0!
US 95	4174	1438	389	1671	1166	-272	-0.189151599
4th St						0	#DIV/0!
Atlas Rd	1375	488	236	13855	724	236	0.483606557
Totals	8312	3741			4053	312	0.08340016
Northbound							
Pleasant View Rd	910	332	44	496	387	55	0.165662651
Chase Rd						0	#DIV/0!
Spokane St						0	#DIV/0!
Idaho St						0	#DIV/0!
Greensferry Rd						0	#DIV/0!
SR41	2728	945	33	526	1005	60	0.063492063
Ramsey Rd						0	#DIV/0!
Government Way		912	239	14581	974	62	0.067982456
15th St						0	#DIV/0!
Huetter Rd						0	#DIV/0!
US 95	4549	1572	238	12156	1448	-124	-0.078880407
4th St						0	#DIV/0!
Atlas Rd	1825	638	236	13855	768	130	0.203761755
Totals	10012	4399			4582	183	0.041600364

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.						0	#DIV/0!
Huetter Rd						0	#DIV/0!
Ramsey Rd	1988	677	232	13847	1034	357	0.52732644
US 95	4009	1430	233	13885	1049	-381	-0.266433566
Government Way	1594	584	234	13796	807	223	0.381849315
4th St	969	341	312	452	380	39	0.114369501
Atlas Rd	1248	426	316	9330	464	38	0.089201878
McGuire Rd						0	#DIV/0!
15th St						0	#DIV/0!
Spokane St.						0	#DIV/0!
Chase Rd.						0	#DIV/0!
Pleasant View	594	218	333	8829	375		
Greensferry Rd.	660	247	55	10696	426	179	0.724696356
SR 41	1965	682	57	10698	542	-140	-0.205278592
Totals	13027	4605			5077	472	0.102497286
Northbound							
Idaho Rd.						0	#DIV/0!
Huetter Rd						0	#DIV/0!
Ramsey Rd	2630	932	232	13847	784	-148	-0.158798283
Government Way	2316	797	234	13796	758	-39	-0.048933501
4th St	1201	432	312	452	448	16	0.037037037
Atlas Rd	1298	450	316	9330	458	8	0.017777778
McGuire Rd						0	#DIV/0!
15th St						0	#DIV/0!
Spokane St.						0	#DIV/0!
Chase Rd.						0	#DIV/0!
Pleasant View	957	338	333	8829	393	55	0.162721893
Greensferry Rd.	576	207	55	10696	226	19	0.09178744
SR 41	2084	724	57	10698	653	-71	-0.098066298
US 95	4569	1615	320	12162	1491	-124	-0.076780186
Totals	15631	5495			5211	-284	-0.051683348

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						0	#DIV/0!
Idaho St						0	#DIV/0!
SR 41						0	#DIV/0!
Huetter Rd	435	162	61	326	346	184	1.135802469
Hauser Lake Rd north of SH 53						0	#DIV/0!
Ramsey Rd	640	297	382	333	440		
Maple	253	89		345	164		
Greensferry Rd						0	#DIV/0!
Meyer	233	91	374	10677	41	-50	-0.549450549
McGuire	378	140	335	13881	103	-37	-0.264285714
US 95	3464	1217		9569	922	-295	-0.242399343
Totals	5403	1996			2016	20	0.01002004
Northbound							
Chase Rd						0	#DIV/0!
Idaho St						0	#DIV/0!
SR 41						0	#DIV/0!
Huetter Rd	675	238	61	326	228	-10	-0.042016807
Hauser Lake Rd north of 53						0	#DIV/0!
Ramsey Rd	806	352	382	333	237	-115	-0.326704545
Maple	398	144		345	244	100	0.694444444
Greensferry Rd						0	#DIV/0!
Meyer	269	101	374	10677	25	-76	-0.752475248
McGuire	386	149	335	13881	96	-53	-0.355704698
US 95	4634	1600		12154	1505	-95	-0.059375
Totals	7168	2584			2335	-249	-0.096362229

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						0	#DIV/0!
Meyer Rd.						0	#DIV/0!
Huetter Rd	54	27	214	14519	30	3	0.111111111
US 95						0	#DIV/0!
Government Way	466	177	218	13442	94	-83	-0.468926554
Rimrock Rd/Meadowwood Ln						0	#DIV/0!
Strahorn Rd	124	47	265	13461	49	2	0.042553191
English Point Rd	106	40	221	1279	21	-19	-0.475000000
Hayden Lake Rd	64	26	273	10390	21	-5	-0.192307692
SH 41						0	#DIV/0!
Totals	814	317			215	-102	-0.321766562

Northbound							
Greensferry Rd						0	#DIV/0!
Meyer Rd.						0	#DIV/0!
Huetter Rd	194	72	214	14519	43	-29	-0.402777778
US 95						0	#DIV/0!
Government Way	900	313	218	13442	249	-64	-0.204472843
Rimrock Rd/Meadowwod Ln						0	#DIV/0!
Strahorn Rd	93	39	265	13461	15	-24	-0.615384615
English Point Rd	154	56	221	1279	15	-41	-0.732142857
Hayden Lake Rd	40	18	273	10390	19	1	0.055555556
SH 41						0	#DIV/0!
Totals	1381	498			341	-157	-0.315261044

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						0	#DIV/0!
Ramsey Rd	424	171	210	104	133	-38	-0.222222222
US 95 n/o SH53	1534	574	209	14520	576	2	0.003484321
Govt Way e/o US95	92	39	321	14409	70	31	0.794871795
Pleasant View	409	145	82	1249	204	59	0.406896552
Totals	2459	929			983	54	0.058127018
Westbound							
BNSF RR Bridge in Rathdrum						0	#DIV/0!
Ramsey Rd	666	261	210	104	254	-7	-0.026819923
US 95 n/o SH53	2381	839	209	13654	809	-30	-0.035756853
Govt Way e/o US95	342	123	321	14409	150	27	0.219512195
Pleasant View	722	270	82	1249	299	29	0.107407407
Totals	4111	1493			1512	19	0.012726055

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						0	#DIV/0!
Diagonal Rd south of Brunner	170	62	286	9610	133	71	1.145161290
SH 41 south of Seasons Rd						0	#DIV/0!
East Twin Lake Rd near SH 41	117	55	281	10385	124	69	1.254545455
US 95 south of Brunner Rd	1817	666	287	14009	565	-101	-0.151651652
Totals	2104	783			822	39	0.049808429
Northbound							
Ramsey Rd south of Brunner						0	#DIV/0!
Diagonal Rd south of Brunner Rd	259	115	286	9610	202	87	0.756521739
SH 41 south of Seasons Rd						0	#DIV/0!
East Twin Lake Rd near SH 41	270	109	281	10385	122	13	0.119266055
US 95 south of Brunner Rd	2604	930	287	14009	887	-43	-0.046236559
Totals	3133	1154			1211	57	0.049393414

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	85	40	292	10908	2	-38	-0.950000000
SH 3 S/O SH97	176	74	268	1220	67	-7	-0.094594595
I90 E/O SH 3	1424	506		4374	480		
US 95 S/O Worley	771	277	302	1217	315	38	0.137184116
O'Gara Rd west of SH 97	26	10	298	13771	12	2	0.200000000
US 95 N/O Worley						0	#DIV/0!
Totals	2482	907			876	-31	-0.034178611
Northbound							
SH 97 north of Harrison							#DIV/0!
Cave Bay Rd @ Rock Creek	81	36	292	10908	2	-34	-0.944444444
SH3 S/O SH97	232	95	268	1220	83	-12	-0.126315789
I90 E/O SH 3	1423	522		8821	539		
US 95 S/O Worley	867	308	302	1217	313	5	0.016233766
O'Gara Rd west of SH 97	22	10	298	13771	18	8	0.800000000
US 95 N/O Worley						0	#DIV/0!
Totals	2625	971			955	-16	-0.016477858

PM PK HR Screenline Validation
2018 KMPO Base FINAL 12-9-19.ver

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						0	#DIV/0!
SH 97 N/O Burma						0	#DIV/0!
Cougar Gulch Rd west of US 95	166	61	289	9644	51	-10	-0.163934426
LaTour Creek Rd south of I 90	25	12	270	13140	10	-2	-0.166666667
Burma Rd	38	14	297	13120	52	38	2.714285714
Totals	229	87			113	26	0.298850575
Northbound							
Sh 3 S/O I 90						0	#DIV/0!
SH 97 N/O Burma						0	#DIV/0!
Cougar Gulch Rd west of US 95	100	35	289	9644	39	4	0.114285714
LaTour Creek Rd south of I 90	37	17	270	13140	16	-1	-0.058823529
Burma Rd	43	26	297	13120	83	57	2.192307692
Totals	180	78			138	60	0.769230769

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	77	34	277	13462	28	-6	-0.176470588
SH 41 south of Spirit Lake						0	#DIV/0!
US 95 north of Athol	1294	471	278	10563	511	40	0.084925690
SH 41 north of Spirit Lake	693	249	279	10884	249	0	0.000000000
Totals	2064	754			788	34	0.045092838
Northbound							
Perimeter Rd north of SH 54	85	38	277	13462	40	2	0.052631579
SH 41 south of Spirit Lake						0	#DIV/0!
US 95 north of Athol	1428	510	278	10563	535	25	0.049019608
SH 41 north of Spirit Lake	1049	366	279	10884	375	9	0.024590164
Totals	2562	914			950	36	0.039387309

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						0	#DIV/0!
Prairie Rd.	584	225	45	8834	230	5	0.022222222
Riverbend Ave						0	#DIV/0!
SH 53 (W/O Prairie Ave)						0	#DIV/0!
Poleline Ave.						0	#DIV/0!
Totals	584	225			230	5	0.022222222
Westbound							
SH 53							#DIV/0!
Seltice Way						0	#DIV/0!
Prairie Rd.	290	111	45	8834	127	16	0.144144144
Riverbend Ave						0	#DIV/0!
SH 53 W/O Prairie Ave						0	#DIV/0!
Poleline Ave.						0	#DIV/0!
Totals	290	111			127	16	0.144144144

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
McGuire Rd. Screenline # 16							
Eastbound							
SH 53	1710	717	83	248	682	-35	-0.048814505
Seltice Way						0	#DIV/0!
Poleline Ave.						0	#DIV/0!
Prairie Rd.						0	#DIV/0!
Totals	1710	717			682	-35	-0.048814505
Westbound							
SH 53	1106	431	83	248	352		0.000000000
Seltice Way						0	#DIV/0!
Poleline Ave.						0	#DIV/0!
Prairie Rd.						0	#DIV/0!

Totals	1106	431			352	-79	-0.183294664

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
Chase Rd. Screenline # 17							
Eastbound							
Hayden Rd.						0	#DIV/0!
Prairie Rd.						0	#DIV/0!
Poleline Ave.						0	#DIV/0!
Seltice Way						0	#DIV/0!
Totals	0				0	0	#DIV/0!
Westbound							
Hayden Rd.						0	#DIV/0!
Prairie Rd.						0	#DIV/0!
Poleline Rd.						0	#DIV/0!
Seltice Way						0	#DIV/0!
Totals	0	0			0	0	#DIV/0!

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 St. Screenline # 18							
Eastbound							
Prairie Rd.						0	#DIV/0!
Poleline Ave.						0	#DIV/0!
4th Ave.						0	#DIV/0!
Seltice Way		717	10	13899	721	4	0.005578801
3rd Ave.						0	#DIV/0!
Totals	0	717			721	4	0.005578801
Westbound							
Prairie Rd.						0	#DIV/0!
Poleline Ave.						0	#DIV/0!
4th Ave.						0	#DIV/0!
Seltice Way		793	10	13899	779	-14	-0.017654477
3rd Ave.						0	#DIV/0!
Totals	0	793			779	-14	-0.017654477

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
Idaho St. Screenline # 19							
Eastbound							
Prairie Rd.		425	52	413	404	-21	-0.049411765
Poleline						0	#DIV/0!
Seltice Way		612	11	689	670	58	0.094771242
4th Ave.						0	#DIV/0!
Totals	0	1037			1074	37	0.035679846
Westbound							
Prairie Rd.		351	52	413	288	-63	-0.179487179
Poleline						0	#DIV/0!
Seltice Way		934	11	689	889	-45	-0.048179872
4th Ave.						0	#DIV/0!
Totals	0	1285			1177	-108	-0.084046693

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
Greensferrry Rd. Screenline # 20							
Eastbound							
Prairie Rd.	571	214	54	421	367		0.000000000
Poleline Ave.							#DIV/0!
16th							#DIV/0!
12th							#DIV/0!
Mullan Ave							#DIV/0!
Seltice Way							#DIV/0!
Wyoming Ave							#DIV/0!
Hayden Rd.	445	166	64	6243	233	67	0.403614458
SH 53	1660	650	104	9487	604	-46	-0.070769231
3rd Ave.						0	#DIV/0!
Totals	2676	1030			1204	174	0.168932039
Westbound							
Prairie Rd.	821	314	54	421	418		0.000000000
Poleline Ave.							#DIV/0!

16th							#DIV/0!
12th							#DIV/0!
Mullan Ave							#DIV/0!
Seltice Way							#DIV/0!
Wyoming Ave							#DIV/0!
Hayden Rd.	536	208	64	6243	275	67	0.322115385
SH 53	1056	389	104	9487	289	-100	-0.257069409
3rd Ave.						0	#DIV/0!
Totals	2413	911			982	71	0.077936334

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.	978	356	32	13801	274	-82	-0.230337079
Mullan Ave		706	20	672	715	9	0.012747875
Seltice Way		627	116	10417	1037	410	0.653907496
Lancaster	79	41	114	9346	17	-24	-0.585365854
Wyoming						0	#DIV/0!
Nagel Ln	214	92	366	13702	79	-13	-0.141304348
Prairie Rd.		474	363	10122	620	146	0.308016878
Hayden Rd.						0	#DIV/0!
Boekel Rd	160	62	89	11679	72	10	0.161290323
Totals	1431	2358			2814	456	0.193384224
Westbound							
McCarney St N/O SR41							#DIV/0!
Poleline Rd.	1004	379	32	13801	245	-134	-0.353562005
Mullan Ave		504	20	672	448	-56	-0.111111111
Seltice Way		588	116	10417	609	21	0.035714286
Lancaster	104	45	114	9346	34	-11	-0.244444444
Wyoming						0	#DIV/0!
Nagel Ln	212	75	366	13702	70	-5	-0.066666667
Prairie Rd.		550	363	10122	737	187	0.340000000
Hayden Rd.						0	#DIV/0!
Boekel Rd	172	78	89	11679	103	25	0.320512821
Totals	1492	2219			2246	27	0.012167643

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.	920	324	60	323	484	160	0.49382716
Prairie Rd.						0	#DIV/0!
Seltice Way						0	#DIV/0!
Mullan Ave						0	#DIV/0!
Maplewood						0	#DIV/0!
Boekel Ave	307	125	1	9233	62	-63	-0.504
Totals	1227	449			546	97	0.216035635
Westbound							
Wyoming Ave						0	#DIV/0!
Hayden Rd.	1111	417	60	323	611	194	0.465227818
Prairie Rd.						0	#DIV/0!
Mullan Ave						0	#DIV/0!
Seltice Way						0	#DIV/0!
Maplewood						0	#DIV/0!
Boekel Ave	523	190	1	9233	124	-66	-0.347368421
Totals	1634	607			735	128	0.210873147

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	50	22	124	65	13	-9	-0.409090909
Garwood Rd						0	#DIV/0!
Hwy 53						0	#DIV/0!
Lancaster Ave						0	#DIV/0!
Wyoming Ave	650	245	129	251	89	-156	-0.636734694
Miles Ave	187	70	130	14712	84	14	0.200000000
Hayden Ave	805	387	131	332	353	-34	-0.087855297
Honeysuckle Ave	714	248	132	13457	103	-145	-0.584677419
Prairie Ave	2413	818	133	13926	1030	212	0.259168704

Appleway						0	#DIV/0!
Kathleen Ave						0	#DIV/0!
Dalton Ave	596	231	136	13849	261	30	0.129870130
Hanley Ave	1131	813	135	9492	501	-312	-0.383763838
Ironwood Dr	1309	495	140	10300	543	48	0.096969697
Boekel Rd						0	#DIV/0!
Wilbur Ave	220	79	323	12890	130	51	0.645569620
Totals	8075	3408			3107	-301	-0.088321596
Westbound							
Ohio Match Rd	26	11	124	65	18	7	0.636363636
Garwood Rd						0	#DIV/0!
Hwy 53						0	#DIV/0!
Lancaster Ave						0	#DIV/0!
Wyoming Ave	441	179	129	251	121	-58	-0.324022346
Miles Ave	99	37	130	14712	70	33	0.891891892
Hayden Ave	739	331	131	332	501	170	0.513595166
Honeysuckle Ave	926	320	132	13457	110	-210	-0.656250000
Prairie Ave	2233	790	133	13926	938	148	0.187341772
Appleway						0	#DIV/0!
Kathleen Ave						0	#DIV/0!
Dalton Ave	578	212	136	13849	277	65	0.306603774
Hanley Ave	1169	419	135	9492	448	29	0.069212411
Ironwood Dr	2249	803	140	10300	1269	466	0.580323786
Boekel Rd						0	#DIV/0!
Wilbur Ave	404	176	323	12890	159	-17	-0.096590909
Totals	8864	3278			3911	633	0.193105552

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	99	42	164	14401	54	12	0.285714286
Garwood Rd	137	52		80	53	1	0.019230769
Boekel Rd	161	88	127	11558	74	-14	-0.159090909
Lancaster Ave						0	#DIV/0!
Hayden Ave		586	170	12169	442	-144	-0.245733788
Honeysuckle Ave						0	#DIV/0!
Prairie Ave		798	172	12159	902	104	0.130325815
Dalton Ave						0	#DIV/0!
Kathleen Ave		633	176	12917	537	-96	-0.151658768
Neider Ave						0	#DIV/0!
Appleway Ave		728	178	874	658	-70	-0.096153846
Ironwood Blvd						0	#DIV/0!
Walnut St						0	#DIV/0!
Hanley Ave		518	174	12132	531	13	0.025096525
US 95						0	#DIV/0!
Old US 95 n/o SH53						0	#DIV/0!
Miles Ave						0	#DIV/0!
Wyoming Ave						0	#DIV/0!
Totals	397	3445			3251	-194	-0.056313498
Westbound							
Ohio Match Rd	69	31	164	14401	40	9	0.290322581
Garwood Rd	259	91		80	56	-35	-0.384615385
Boekel Rd	388	135	127	11558	468		
Lancaster Ave						0	#DIV/0!
Hayden Ave		600	170	12169	579	-21	-0.035000000
Honeysuckle Ave						0	#DIV/0!
Prairie Ave		747	172	12159	866	119	0.159303882
Dalton Ave						0	#DIV/0!
Kathleen Ave		620	176	12917	568	-52	-0.083870968
Neider Ave						0	#DIV/0!
Appleway Ave		684	178	874	592	-92	-0.134502924
Ironwood Blvd						0	#DIV/0!
Walnut St						0	#DIV/0!
Hanley Ave		516	174	12132	526	10	0.019379845
US 95						0	#DIV/0!
Old US 95 n/o SH53						0	#DIV/0!
Miles Ave						0	#DIV/0!
Wyoming Ave						0	#DIV/0!
Totals	716	3424			3695	271	0.079147196

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	1072	404	90	8826	189	-215	-0.532178218

Rockford Bay Rd east of US 95	252	96	290	9001	51	-45	-0.468750000
US 95 north of Rockford Bay	1056	389		13504	556	167	0.429305913
Elder Rd @ Washington Line	261	88	266	14420	32	-56	-0.636363636
SH 58 @ Washington Line	313	117	267	9283	131	14	0.119658120
Conkling Rd east of US 95	91	33	294	13365	23	-10	-0.303030303
SH 53 @ Washington State Line	1826	679	93	13244	700	21	0.030927835
Riverview east of Washington Line						0	#DIV/0!
Totals	4871	1806			1682	-124	-0.068660022
Westbound							
Seltice Way W/O Beck Rd	734	293	90	8826	210	-83	-0.283276451
US 95 north of Rockford Bay	819	294		13509	612	318	1.081632653
Rockford Bay Rd east of 95	222	86	290	9001	44	-42	-0.488372093
Elder Rd @ Washington Line	206	73	266	14420	54	-19	-0.260273973
SH 58 @ Washington Line	376	135	267	9283	140	5	0.037037037
Conkling Rd east of US 95	56	23	294	13365	8	-15	-0.652173913
SH 53 @ Washington State Line	966	343	93	13244	335	-8	-0.023323615
Riverview east of Washington Line						0	#DIV/0!
Totals	3379	1247			1403	156	0.125100241

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	34	13	274	13950	2	-11	-0.846153846
Mullan Trail Rd north of I 90						0	#DIV/0!
Sunnyside Rd south of Mullan Trail	75	35	301	11432	38	3	0.085714286
I 90 @ Shoshone Co. Line	1424	506	319	1160	480	-26	-0.051383399
Fernan Lake Rd @ CdA City Limit	56	26	271	10798	0	-26	-1.0000000000
SH 54 West of Farragut Park Entrance	496	183			148	-35	-0.191256831
Lancaster Rd east of Rimrock						0	#DIV/0!
Careywood west of Perimeter	58	25		11699	20	-5	-0.2000000000
Canyon Rd west of Shoshone County	96	38		10902	3	-35	-0.921052632
Totals	2239	826			691	-135	-0.163438257
Westbound							
Bunco Rd @ Nunn Rd							#DIV/0!
Ohio Match Rd East of Rimrock Rd	27	13	274	13950	3	-10	-0.769230769
Mullan Trail Rd north of I 90						0	#DIV/0!
Sunnyside Rd south of Mullan Trail	51	18	301	11432	13	-5	-0.277777778
I 90 (@ Shoshone Co. Line)	1423	522	269	1157	539	17	0.032567050
Fernan Lake Rd @ CdA City Limit	86	33	271	10798	0	-33	-1.000000000
SH 54 West of Farragut Park Entrance	383	152			105	-47	-0.309210526
Lancaster Rd east of Rimrock						0	#DIV/0!
Careywood west of Perimeter	60	23		11699	22	-1	-0.043478261
Canyon Rd west of Shoshone County	50	22		10902	6	-16	-0.727272727
Totals	2080	783			688	-95	-0.121328225

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	747	256	145	13459	151	-105	-0.410156250
Miles Ave	441	152	147	285	161	9	0.059210526
Hayden Ave	736	249	148	341	252	3	0.012048193
Honeysuckle Ave	788	273	149	13829	394	121	0.443223443
Prairie Ave	1227	419	150	448	733	314	0.749403341
Wilbur Ave	106	38	151	477	148	110	2.894736842
Hanley Ave		400	152	13792	487	87	0.217500000
Dalton Ave	982	355	153	602	410	55	0.154929577
Neider Ave	997	345	155	816	544	199	0.576811594
Appleway/Best Ave						0	#DIV/0!
Northwest Blvd	1585	546	163	1032	354	-192	-0.351648352
Wyoming Ave						0	#DIV/0!
Harrison Ave	897	304	72	10468	666	362	1.190789474
Foster Ave						0	#DIV/0!
Kathleen	1530	540	154	11310	363	-177	-0.327777778
Totals	10036	3877			4663	786	0.202734073
Westbound							
Lancaster Ave	484	197	145	13459	88	-109	-0.553299492
Miles Ave	265	92	147	285	72	-20	-0.217391304
Hayden Ave	740	306	148	341	198	-108	-0.352941176
Honeysuckle Ave	855	308	149	13829	485	177	0.574675325
Prairie Ave	1195	328	150	448	557	229	0.698170732
Wilbur Ave	72	34	151	477	123	89	2.617647059
Hanley Ave		366	152	13792	298	-68	-0.185792350
Dalton Ave	611	212	153	602	321	109	0.514150943

Neider Ave	1227	416	155	816	441	25	0.060096154
Appleway/Best Ave						0	#DIV/0!
Northwest Blvd	1584	552	163	1032	789	237	0.429347826
Wyoming Ave						0	#DIV/0!
Harrison Ave	727	266	72	10468	355	89	0.334586466
Foster Ave						0	#DIV/0!
Kathleen	835	310	154	11310	300	-10	-0.032258065
Totals	8595	3387			4027	640	0.188957780

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	864	-7	-0.008036739
I 90 Ramp @ Spokane St EB On		458	102	717	391	-67	-0.146288210
I 90 Ramp @ Seltice Way EB On						0	#DIV/0!
SR 90 @ Pleasant View Rd EB Off		435	87	785	361	-74	-0.170114943
SR 90 @ Pleasant View Rd		404	86	786	520	116	0.287128713
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	906	188	0.261838440
I 90 Ramp @ US 95		478	181	915	557	79	0.165271967
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	126	16	0.145454545
I 90 Ramp @ 15th St EB Off		596	310	10430	497	-99	-0.166107383
I 90 Ramp @ 23rd St (One Way)						0	#DIV/0!
I 90 Ramp @ Beck Rd EB Off						0	#DIV/0!
I 90 Ramp @ Beck Rd EB On						0	#DIV/0!
Totals	0	4070			4222	152	0.037346437
Westbound							
I 90 Ramp @ Spokane St WB On		507	100	684	509	2	0.003944773
I 90 Ramp @ Spokane St Off		523	101	720	555	32	0.061185468
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		417	85	737	486	69	0.165467626
SR 90 @ Pleasant View Rd WB Off		378	84	740	583	205	0.542328042
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	1045	57	0.057692308
I 90 Ramp @ US 95 WB Off Ramp		329	179	904	386	57	0.173252280
I 90 Ramp @ 3rd/4th St WB On		691	157	14596	829	138	0.199710564
I 90 Ramp @ 3rd/4th St WB Off		243	158	923	350	107	0.440329218
I 90 Ramp @ 23rd St WB On						0	#DIV/0!
I 90 Ramp @ 23rd St WB Off						0	#DIV/0!
I 90 Ramp @ 15th St to Hazel		127	308	8814	24	-103	-0.811023622
I 90 Ramp @ SH 41 WB Off						0	#DIV/0!
I 90 Ramp @ 15th St WB On		416	307	10432	502	86	0.206730769
I 90 Ramp @ Beck Rd WB Off						0	
I90 Ramp @ Beck Rd WB On						0	
Totals	0	4619			5269	650	0.1407231

PM PK HR Screenline Validation
2018 KMPO Base FINAL 12-9-19.ver

SB/NB 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 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?
Spokane River Crossing Screenline # 1	Spokane River Crossing Screenline									
Southbound	312	411	99	32	517	805	288	56	65	Y
Northbound	205	394	189	92						
Seltice Screenline # 2	Seltice Screenline									
Southbound	2594	2444	-150	-6	5725	5476	-249	-4	59	Y
Northbound	3131	3032	-99	-3						
Harrison Ave Screenline # 3	Harrison Ave Screenline									
Southbound	919	1040	121	13	1560	1912	352	23	63	Y
Northbound	641	872	231	36						
Appleway Ave/Best Screenline # 4	Appleway Ave/Best Screenline									
Southbound	2623	2516	-107	-4	5712	5433	-279	-5	59	Y
Northbound	3089	2917	-172	-6						
Seltice Way/Mullan Rd/Kathleen Screenline # 5	Seltice Way/Mullan Rd/Kathleen									
Southbound	5334	5107	-227	-4	11239	11232	-7	0	54	Y
Northbound	5905	6125	220	4						
Poleline Rd Screenline # 6	Poleline Rd Screenline									
Southbound	3741	4053	312	8	8140	8635	495	6	56	Y
Northbound	4399	4582	183	4						
Prairie Rd. Screenline # 7	Prairie Rd. Screenline									
Southbound	4605	5077	472	10	10100	10288	188	2	55	Y
Northbound	5495	5211	-284	-5						
Hayden Ave Screenline # 8	Hayden Ave Screenline									
Southbound	1996	2016	20	1	4580	4351	-229	-5	61	Y
Northbound	2584	2335	-249	-10						
Lancaster Rd. Screenline # 9	Lancaster Rd. Screenline									
Southbound	317	215	-102	-32	815	556	-259	-32	65	Y
Northbound	498	341	-157	-32						
SH 53 - US 95 Screenline # 10	SH 53 - US 95 Screenline									
Southbound	929	983	54	6	2422	2495	73	3	63	Y
Northbound	1493	1512	19	1						
Twin Lakes Nat. Forest Screenline # 11	Twin Lakes Nat. Forest Screenline									
Southbound	783	822	39	5	1937	2033	96	5	63	Y
Northbound	1154	1211	57	5						
US 95 to SH 3 Screenline # 12	US 95 to SH 3 Screenline									
Southbound	907	876	-31	-3	1878	1831	-47	-3	63	Y
Northbound	971	955	-16	-2						
SH 93 to LaTour Creek Screenline # 13	SH 93 to LaTour Creek Rd Screenline									
Southbound	87	113	26	30	165	251	86	52	65	Y
Northbound	78	138	60	77						
Spirit Lake/Pend O'Reille Screenline # 14	Spirit Lake/Pend O'Reille Screenline # 12									
Southbound	754	788	34	5	1668	1738	70	4	63	Y
Northbound	914	950	36	4						

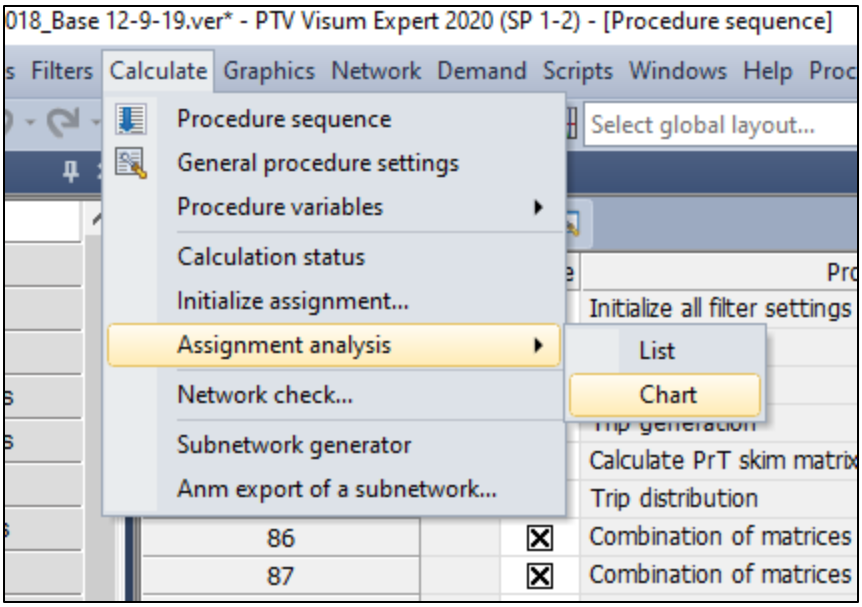
EB/WB Screenlines Screenlines	Total PM Peak Actual Directional Count	Total PM Peak Modeled Directional Volume	Modeled - Actual PM Peak Count	((Modeled - Actual) / Actual PM Peak Count)*100	Total PM Peak Actual Bi-Directional Count	Total PM Peak Modeled Bi-Directional Volume	Total PM Peak Volume - Actual Bi-Directional Count	(Modeled - Actual) / Actual Bi-Directional PM Peak Count*100	% Allowable Deviation per TMIP FHA	Within Allowable Deviation?
Pleasant View Rd. Screenline # 15	Pleasant View Rd. Screenline									
Eastbound	225	230	5	2	336	357	21	6	65	Y
Westbound	111	127	16	14						
McGuire Rd. Screenline # 16	McGuire Rd. Screenline									
Eastbound	717	682	-35	-5	1148	1034	-114	-10	64	Y
Westbound	431	352	-79	-18						
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	717	721	4	1	1510	1500	-10	-1	64	Y
Westbound	793	779	-14	-2						
Idaho St Screenline # 19	Idaho St Screenline									
Eastbound	1037	1074	37	4	2322	2251	-71	-3	63	Y
Westbound	1285	1177	-108	-8						
Greensferry Screenline # 20	Greensferry Screenline									
Eastbound	1030	1204	174	17	1941	2186	245	13	63	Y
Westbound	911	982	71	8						
SH 41 Screenline # 21	SH 41 Screenline									
Eastbound	2358	2814	456	19	4577	5060	483	11	60	Y
Westbound	2219	2246	27	1						
Huetter Rd Screenline # 22	Huetter Rd Screenline									
Eastbound	449	546	97	22	1056	1281	225	21	64	Y
Westbound	607	735	128	21						
Ramsey Rd Screenline # 23	Ramsey Rd Screenline									
Eastbound	3408	3107	-301	-9	6686	7018	332	5	58	Y
Westbound	3278	3911	633	19						
US 95 Screenline # 24	US 95 Screenline									

PM PK HR Screenline Validation
2018 KMPO Base FINAL 12-9-19.ver

Eastbound	3445	3251	-194	-6	6869	6946	77	1	58	Y
Westbound	3424	3695	271	8						
West Side KMPO Screenline # 25	West Side KMPO Screenline									
Eastbound	1806	1682	-124	-7	3053	3085	32	1	62	Y
Westbound	1247	1403	156	13						
East Side KMPO Screenline # 26	East Side KMPO Screenline									
Eastbound	826	691	-135	-16	1609	1379	-230	-14	64	Y
Westbound	783	688	-95	-12						
Government Way Screenline # 27	Government Way Screenline									
Eastbound	3877	4663	786	20	7264	8690	1426	20	56	Y
Westbound	3387	4027	640	19						
I 90 Ramps Screenline # 28	I 90 Ramps Screenline									
Eastbound	4070	4222	152	4	8689	9491	802	9	55	Y
Westbound	4619	5269	650	14						
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	25901	26461	560	2	56458	57036	578	1	31	Y
Northbound	30557	30575	18	0						
All East-West Screenline	All East-West Screenline									
Eastbound	23965	24887	922	4	47060	50278	3218	7	33	Y
Westbound	23095	25391	2296	10						
Total Screenlines	Total Screenlines									
					103518	107314	3796	4	27	Y

Appendix E: Final Model Results Assignment Analysis Comparison

The 2018 KMPO Base Model **"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:

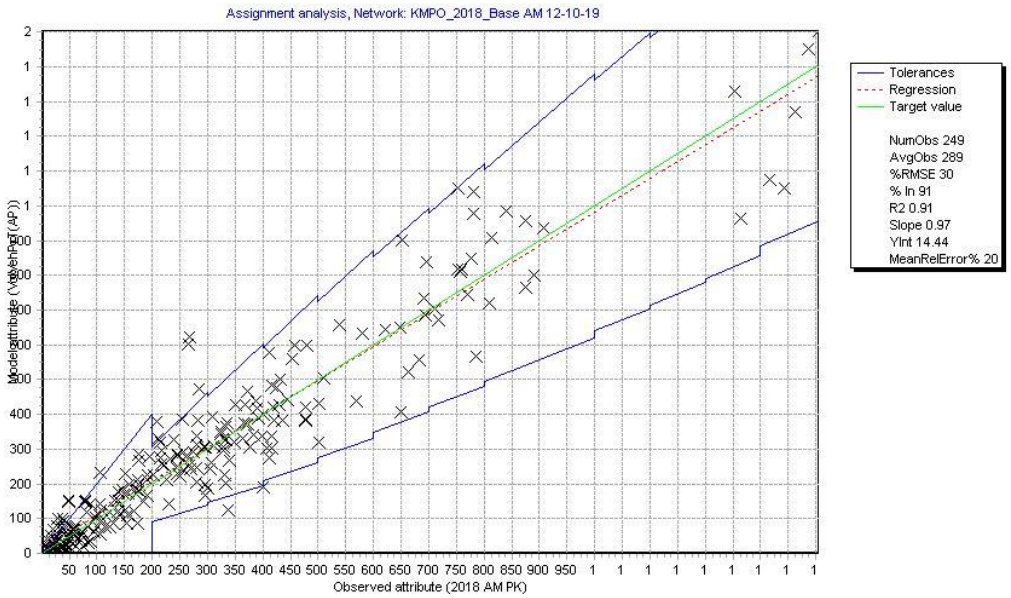
For hourly flows, the GEH formula is:

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

Notes:

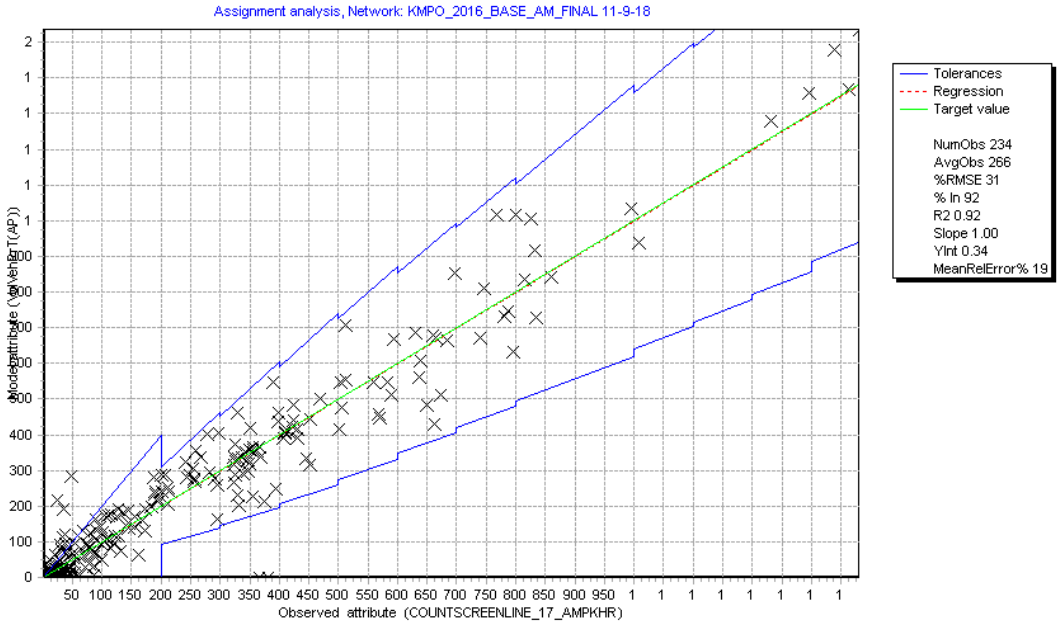
m = output traffic volume from the simulation model (vph)
c = input traffic volume (vph)

The graph below displays the final 2018 KMPO Base Model AM PK HR “assignment analysis” of the network reported inside the model for AM PK HR results.



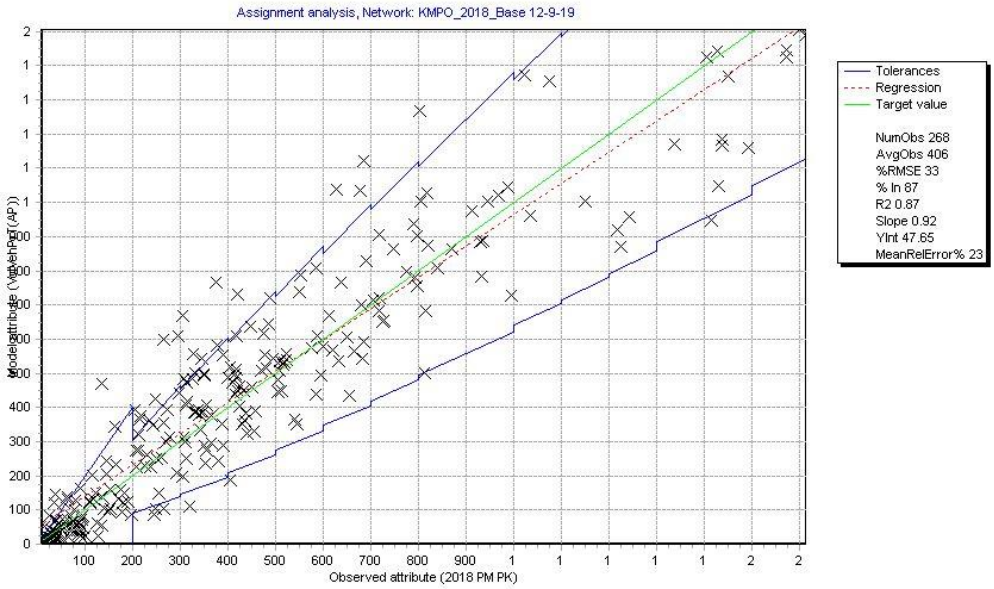
2018 KMPO AM PK HR Final Base Model Assignment Analysis Chart

The graph below is from the final 2016 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 2016 base model to the updated 2018 base model.



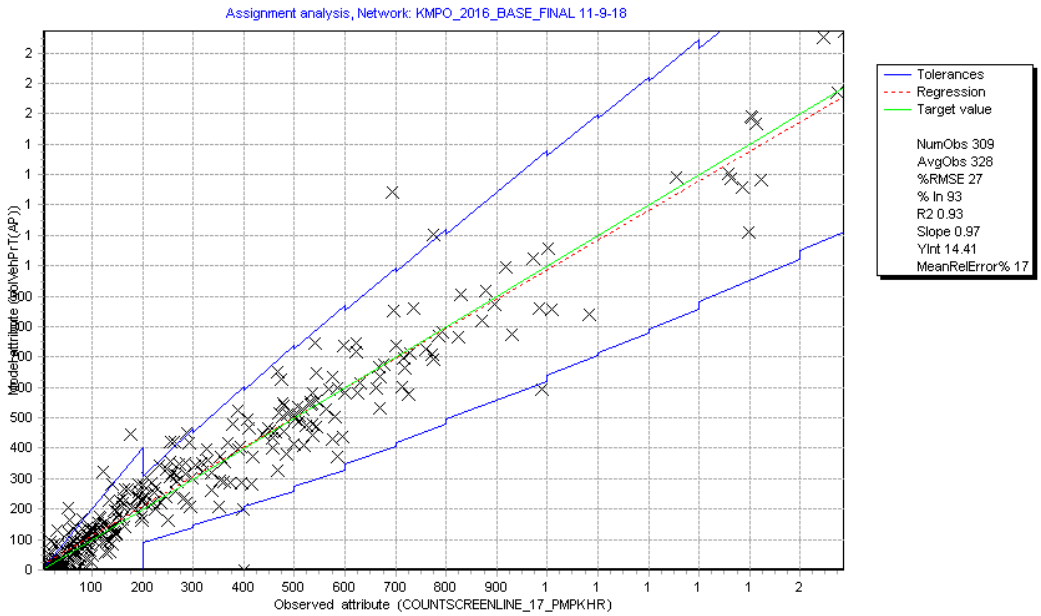
2016 KMPO Previous AM PK HR Final Base Model Assignment Analysis Chart (for comparison only)

The graph below displays the final 2018 KMPO Base Model PM PK HR "assignment analysis" of the network reported inside the model for PM PK HR results.



2018 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 results of the 2018 PM run are do not improve on those of the previous 2016 model; however, the 2018 results are still within reason of the acceptable targets.



2016 Previous PM PK HR Final Base Model Assignment Analysis Chart (for comparison only)