2022 Travel Demand Model Update and Validation Report

Metropolitan Area Planning Organization

MAPA Omaha - Council Bluffs Metropolitan Area Planning Agency

Table of Contents

List of Figures

List of Tables

List of Acronyms

%RMSE: Percent Root Mean Square Error

AADT: Average Annual Daily Traffic

APRT: Airport Special Trip Purpose

COMBO: Combination Truck Trip Purpose

CTPP: Census Transportation Planning Products

E-E: External-External Trips

E-I/I-E: External-Internal or Internal-External Trips

FHWA: Federal Highway Administration

HBO: Home-Based Other Trip Purpose

HBSC: Home-Based School Trip Purpose

HBSH: Home-Based Shopping Trip Purpose

HBWL: Low Income Home-Based Work Trip Purpose

HBWM: Medium Income Home-Based Work Trip Purpose

HBWH: High Income Home-Based Work Trip Purpose

HOSP: Hospital Special Trip Purpose

HOT: Hotel Special Trip Purpose

ISMS: Iowa Standardized Model Structure

iTRAM: Iowa Statewide Traffic Model

LBS: Location-Based Service

LUNAME: ISMS Land Use Name

MAPA: Metropolitan Area Planning Agency

MPO: Metropolitan Planning Organization

MPT: Model Project Team

MTP: Metropolitan Transportation Plan

NCHRP 716: National Cooperative Highway Research Program Report 716

NHB: Non-Home Based Trip Purpose

NHTS: National Household Travel Survey

O-D: Origin-Destination

ORBT: Omaha Bus Rapid Transit

RREC: Regional Recreation Special Trip Purpose

SU: Single-Unit Truck Trip Purpose

TAZ: Transportation Analysis Zone

TIP: Transportation Improvement Plan

TDM: Travel Demand Model

TMIP: Travel Model Improvement Program

UNIV: University Special Trip Purpose

VHT: Vehicle Hours Traveled

VMT: Vehicle Miles Traveled

WDWE: Weekday or Weekend

Introduction

This document provides a summary of the 2022 base Metropolitan Area Planning Agency (MAPA) Iowa Standardized Model Structure 2.0 (ISMS 2.0) Travel Demand Model (TDM). A TDM is an important tool for transportation planning that estimates and distributes the area's trips across its transportation network. The modeling process attempts to replicate existing traffic levels and transit ridership and forecast future traffic and transit demand based on anticipated population and employment growth. One of the primary purposes of the TDM is to support the development of the Metropolitan Transportation Plan (MTP). The model can be used to identify potential future deficiencies in the road network and used to estimate the impacts of various scenarios such as adding new roads, changing the capacity of existing roads, or removing roads from the network.

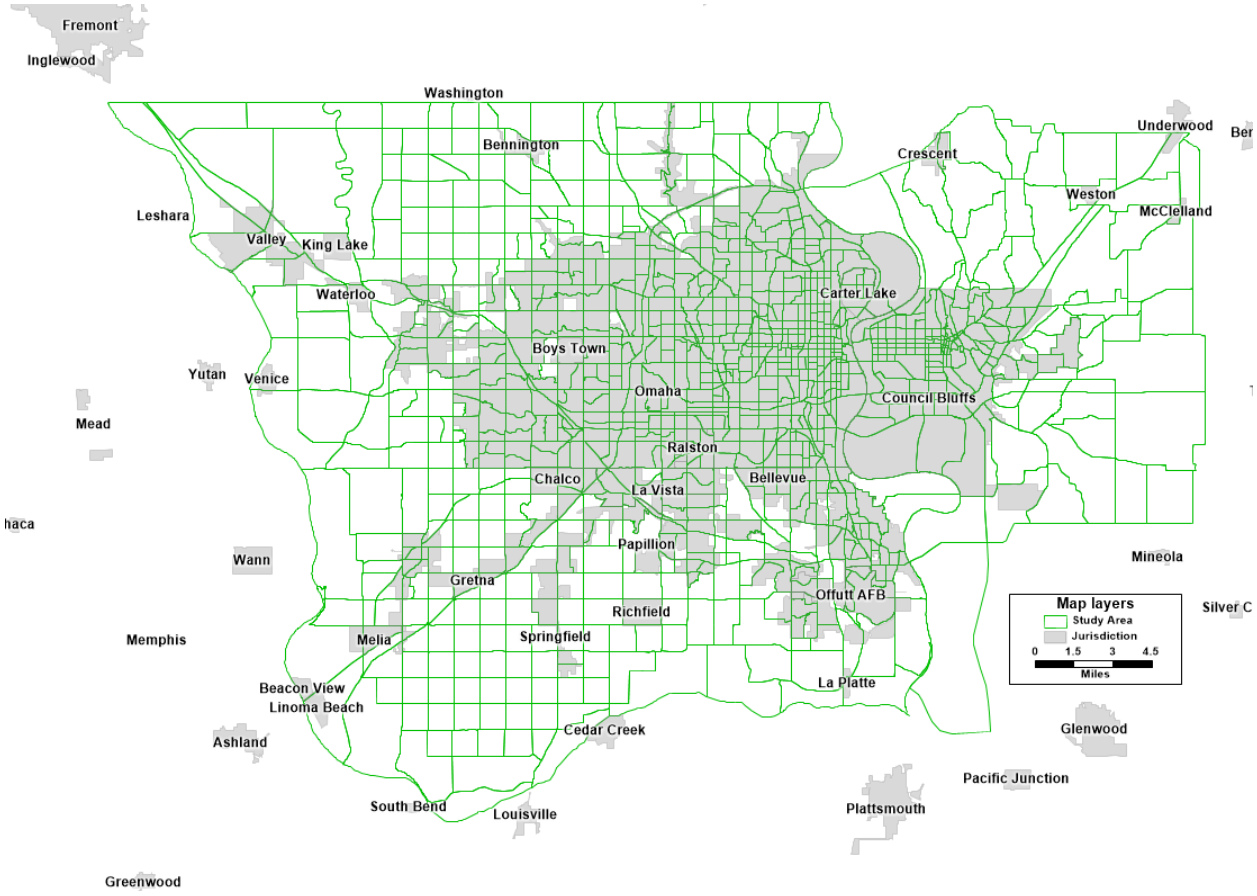
ISMS 2.0 is the current version of the Iowa standard model structure. The ISMS process is in use by every metropolitan planning organization (MPO) in Iowa, as well as all MPOs that border Iowa. ISMS 2.0 has numerous updates to the first version of ISMS (ISMS 1.0), which are discussed in the ISMS 2.0 Manual. More details on default inputs and specific modeling procedures used in the ISMS 2.0 process can be found in the ISMS 2.0 Manual, which is available through the Iowa DOT[1]. This TDM update and validation report can be used as an addendum to the ISMS 2.0 Manual. Inputs that differ from ISMS 2.0 defaults are discussed in this document, as well as validation statistics specific to this model.

Model Updates

The MAPA TDM was updated to a new base year of 2022 using the Iowa Standardized Model Structure 2.0 (ISMS 2.0). The major categories of inputs to the TDM are the transportation network, the parcel-based land use data, which includes households and non-residential land use activity, the Transportation Analysis Zones (TAZs), the transit routes and stops, and the external station inputs. A map of the model area is shown in **Figure 1**.

[1] Iowa Department of Transportation. "Iowa Standardized Model Structure General Travel Demand Modeling/Forecasting Protocols and Procedures, Version 2.0", 2023.

Figure 1 - Study Area



Network Updates

The base year road network was updated from its previous 2015 base year to match 2022 roadway alignments and attributes. MAPA collected information on road projects between 2015 and 2022, which were digitized into the road network. Attributes were reviewed for accuracy throughout the model update process. Intersection control data for Omaha were updated using data from the city. Other intersection control data were copied from the previous base model network and manually updated. A summary of the model network inputs can be found in the ISMS 2.0 Manual.

When the model is run, the input network is copied over to the scenario output folder. The ISMS master network approach is used so that all existing, committed, and planned or other "illustrative" scenario network projects are included in one master network. Attributes are coded that allow certain projects to be "turned on" or "turned off", depending on the scenario being run. Attributes are updated if they have future year attributes and meet certain criteria in the projlut.bin input file. Committed future road projects are ones that have funding committed to them. The MAPA Transportation Improvement Plan (TIP) documents were reviewed for road projects that impact alignments or capacities in the model. These were digitized into the road network during this phase of the project. During a model run, attributes will be updated on the

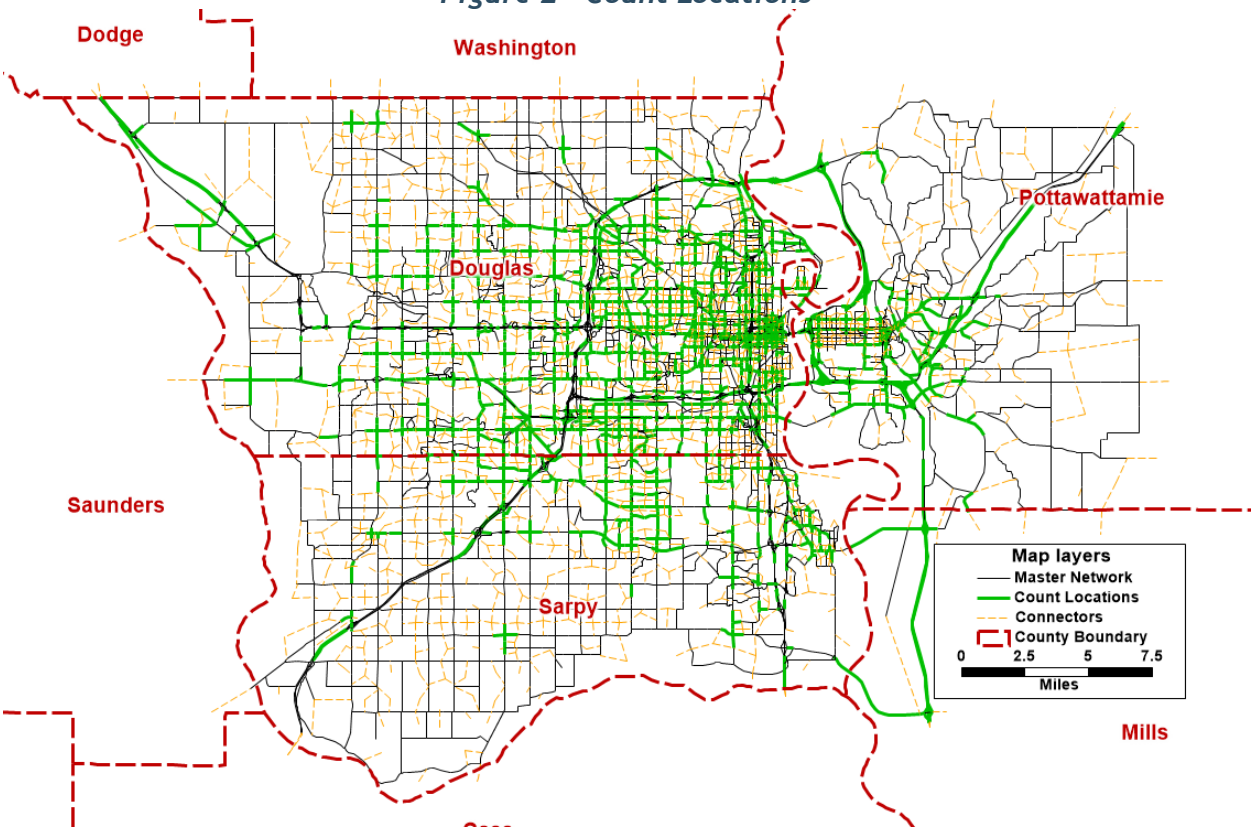
network if the project number has a year less than or equal to the year listed in the column representing the network set that is being run (Committed, Planned, or Illustrative).

The output road network has several new fields added to it during the model runtime. The ISMS 2.0 Manual can be referenced for descriptions of the fields.

Traffic Counts

MAPA collected 2022 count data, which were added to the model road network. The count data came from a variety of sources, including the Nebraska and Iowa DOTs, the City of Omaha, Douglas County, Sarpy County, and others. The Iowa interstate traffic counts were updated using 2022 Iowa Interstate Strip Map counts, which provide counts by direction for all ramps and mainline interstates. Other counts in Iowa are collected for a different quadrant of the state every four years. Pottawattamie and Mills County would have had count data collected in 2020, but because of the COVID-19 pandemic the data was not collected. Instead, 2016 count data were factored by the Iowa DOT Systems Planning bureau based on statewide growth rates by functional class. A selection set of all road network links with traffic counts in the TDM are shown in **Figure 2**.

Figure 2 - Count Locations



Parcel Data Updates

The ISMS framework uses land use parcel data inputs to determine the quantity of trips. The MAPA TDM parcel data was updated to a new base year by obtaining data from assessors for the four counties in the model area (Douglas, Sarpy, Pottawattamie, and Mills) and from the City of Omaha. Data were processed based on the data per ISMS 2.0 Manual guidelines. A comparison of the parcel housing unit data with Census household data is shown in **Table 1.** The vacancy rate in the Omaha-Council Bluffs metropolitan statistical area is 4.9% according to Census data. This is approximately in-line with the 6% higher number of housing units in the parcel data compared to the Census data.

Although the model base year is 2022, the parcel data includes data up to year 2024 from the assessors. Any new developments built after the model base year are filtered out and not used in the base year scenario but will be included in any forecast scenarios equal to or greater than 2024.

Table 1 - Parcel Housing Units Versus Census by Place

Place	Census	Parcels	Difference	Percent Difference
Beacon View	24	29	5	121%
Bellevue	25,888	27,557	1,669	106%
Bennington	794	885	91	111%
Boys Town	46	46	-	100%
Carter Lake	1,512	1,784	272	118%
Chalco	4,473	5,451	978	122%
Councill Bluffs	27,100	29,851	2,751	110%
Cresent City	255	295	40	116%
Gretna	2,008	3,451	1,443	172%
King Lake	109	162	53	149%
La Platte	23	39	16	170%
La Vista	7,249	8,199	950	113%
Linoma Beach	26	37	11	142%
McClelland	56	60	4	107%
Melia	40	40	-	100%
Offutt AFB	1,957	1,996	39	102%
Omaha	207,148	214,313	7,165	103%
Papillion	9,325	9,841	516	106%
Ralston	3,015	3,040	25	101%
Richfield	21	19	(2)	90%
Springfield	606	619	13	102%
Valley	1,523	1,837	314	121%
Venice	45	36	(9)	80%
Waterloo	407	483	76	119%
Weston	128	47	(81)	37%
Total in Cities	293,778	308,025	14,247	105%
Not in City		63,803		
Total	351,482	371,828	20,346	106%

The non-residential land use codes and amount values were compared with the 2015 model parcel data and discussed with the Model Project Team (MPT). Differences were evaluated for reasonableness and edits were made accordingly.

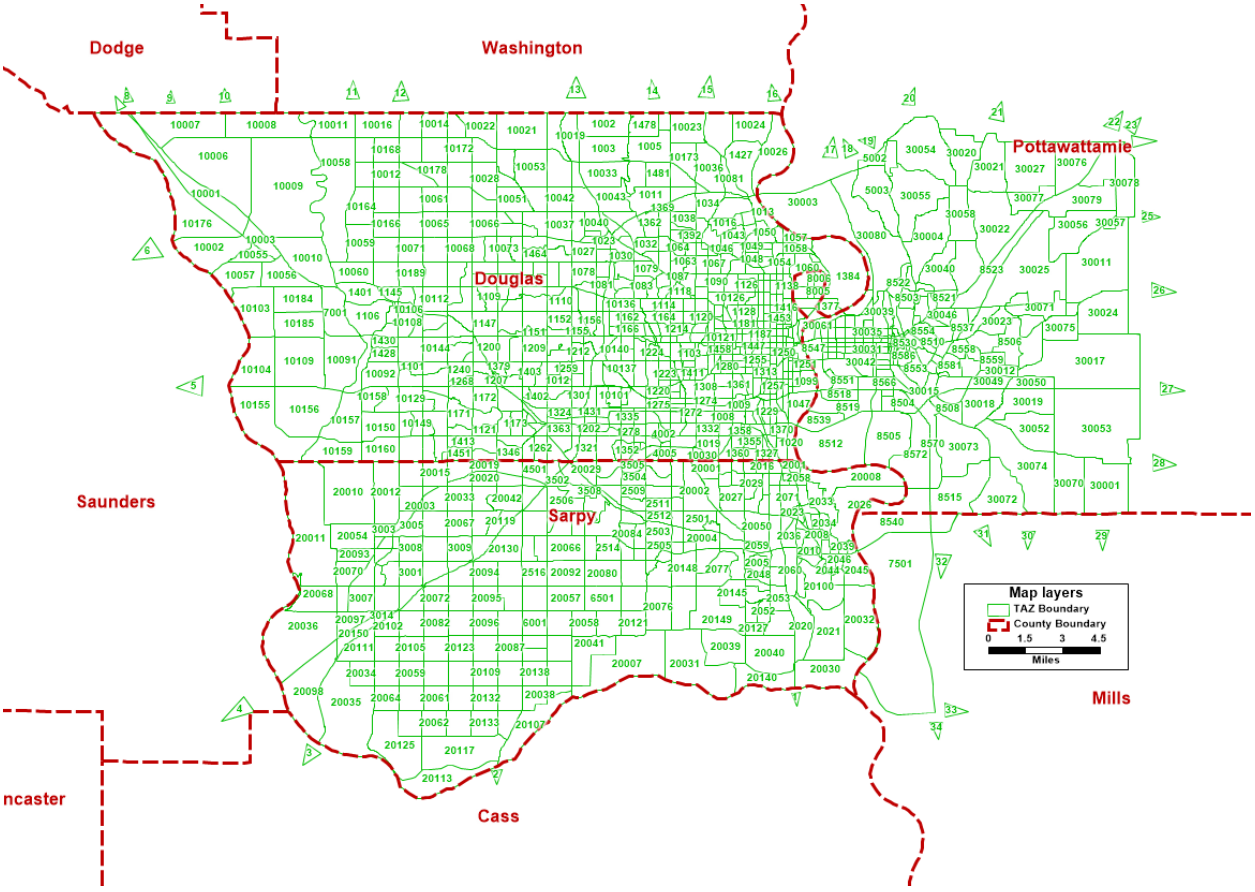
Transportation Analysis Zones (TAZ) Updates

The model area is divided into numerous TAZs. TAZs are geographical areas that represent groups of homes and employment locations with somewhat similar trip making behavior. The TAZ is used as the unit in which the model generates and distributes trips. The MAPA TDM has 1186 TAZs, which are shown in **Figure 3**. 1152 are internal zones and 34 are external station zones.

Parcel land use data is aggregated to the TAZs during a model run, which includes both households and non-residential by land use categories. The ISMS 2.0 Manual Appendix G provides a summary of land uses, and the unit of measure represented by the AMT field.

Households are next disaggregated at the TAZ level by household size and income level percentages from Census Transportation Planning Products (CTPP) data. Trip production rates are then applied to the disaggregated households. Trip attraction rates are separately applied to the land use amounts for each TAZ.

Figure 3 - MAPA TAZs



The TAZ structure and data used the previous model as a starting point. Several TAZs were subdivided where new roads were added to the model or where future road projects were anticipated. The TAZs were also renumbered based on the jurisdiction.

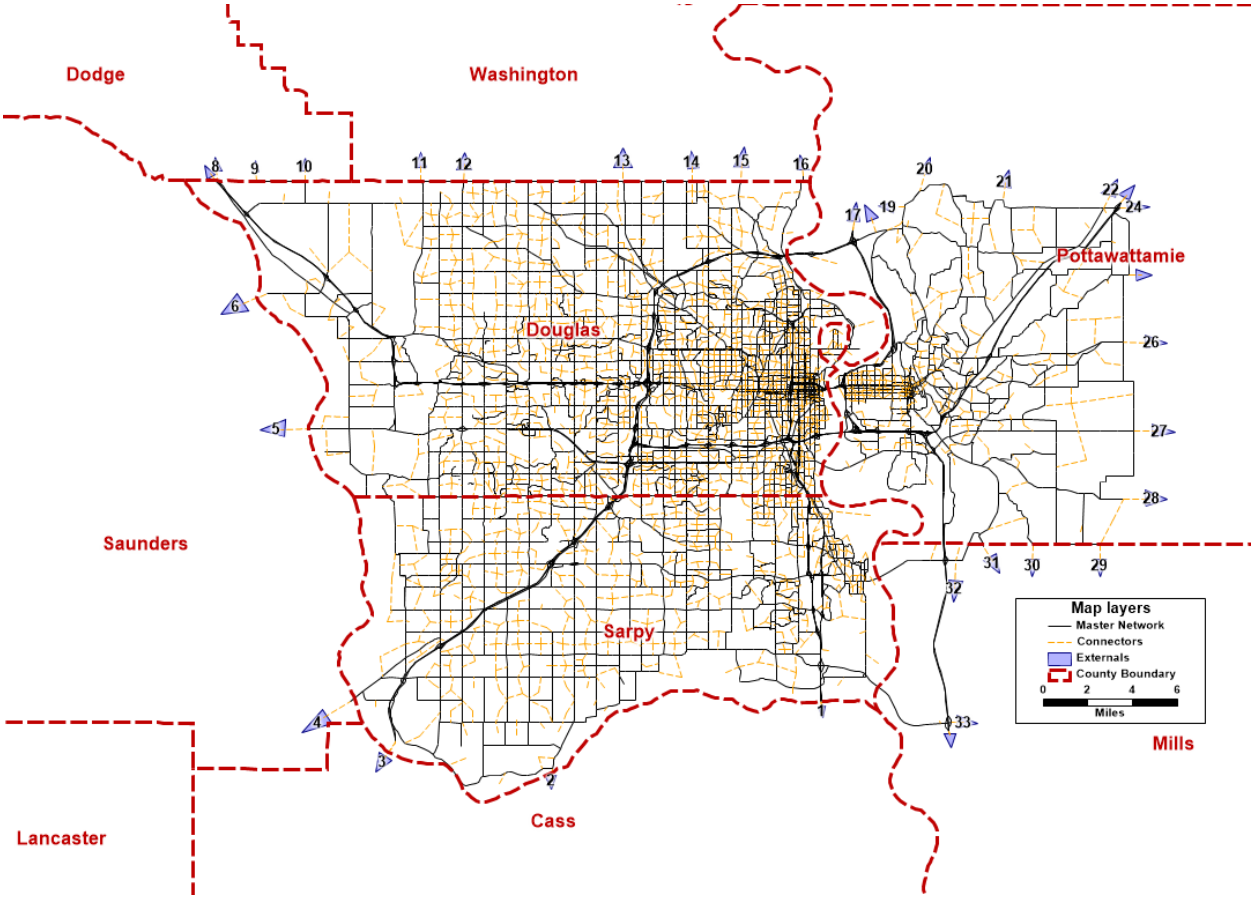
External Analysis Updates

The MAPA TDM has 34 external stations shown in **Figure 4**. Trips both to and from external stations are External-External (E-E) trips. The trips that have one end at an external station and do not have the other trip end at another external station are External-Internal or Internal-External (E-I/I-E) trips.

Traffic counts at the external stations and StreetLight data were used to prepare the external inputs. The external station forecast volumes were prepared by the Iowa and Nebraska DOTs and reviewed by the MPT. Changes in the E-E trip distribution patterns from the base year to the forecast were estimated using the Iowa Statewide Traffic Model (iTRAM). The Traffic_Forecasts.bin specifies how trips from StreetLight should be disaggregated to the ISMS trip purposes. These values were adjusted during model calibration and reviewed with the MPT. The inputs are listed in **Appendix 1 – External Station Inputs.**

During the execution of the model, external inputs are split into E-I/I-E and E-E trips. The E-E trips are adjusted with an iterative proportional fitting procedure to balance trips. The E-I/I-E trips are added to the internal trips prior to balancing.

Figure 4 - External Station Locations

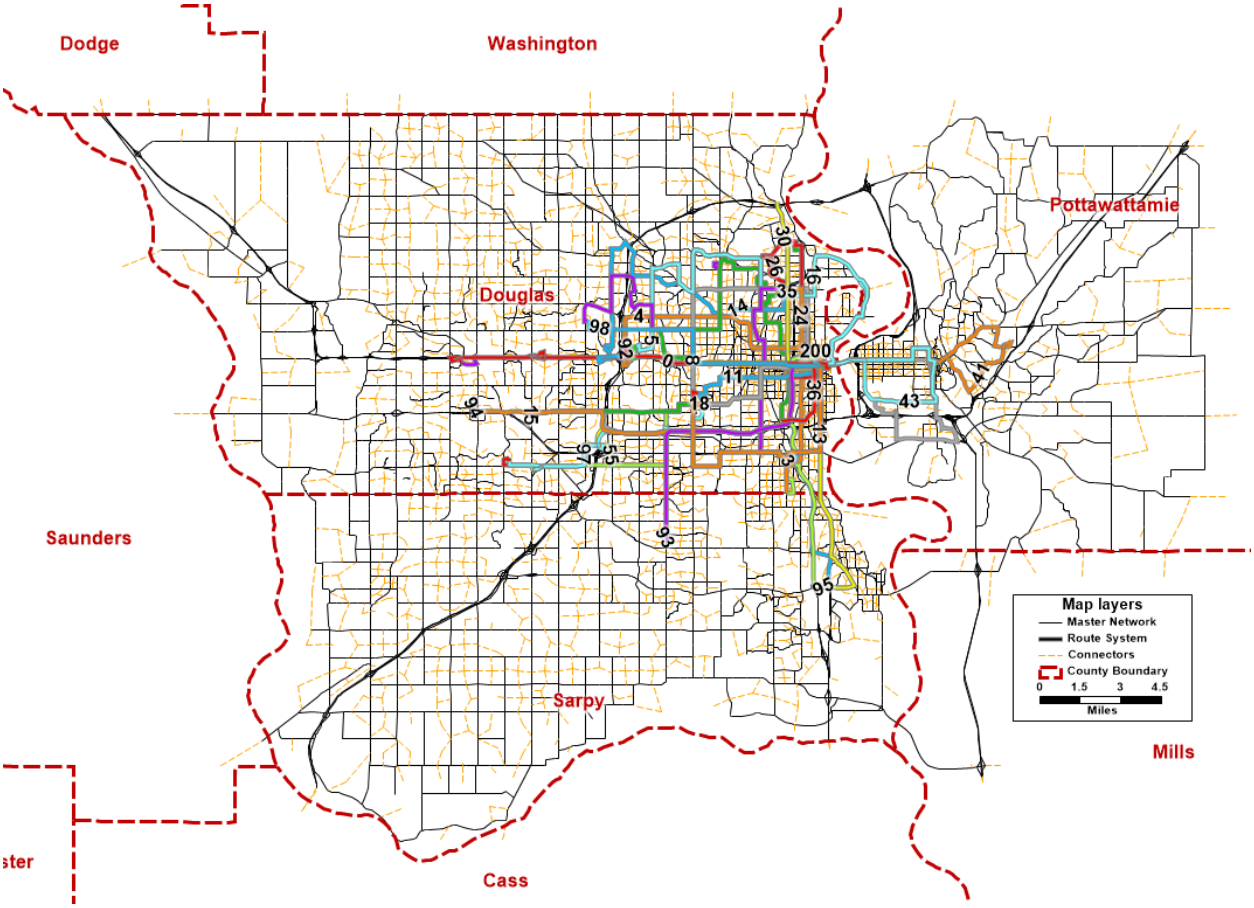


Transit Routes and Stops

Transit route alignments were updated using information provided by Metro Transit. Routes often vary by times of the day or days of the week. Whenever there was a variation, the new alignment was modeled as a new route. The attribute for route number is consistent among all variations so that results can be easily grouped. Headways and fares were updated with information from Metro Transit for all time periods. Transit stop locations were added for each route based on locations shown on Google Maps.

During the model processing, transit routes are copied to output folders for both weekday and weekend time periods and the headways by time period are used to prepare a modeled headway and calculate transit skims that are used in mode choice. The transit routes and stops in the MAPA model are shown in **Figure 5**.

Figure 5 - Transit Routes and Stops



Trip Rates

Default trip production rates that were developed from a 2017 National Household Travel Survey Add-on for Des Moines and have subsequently been used for numerous ISMS travel demand models were used. The more recent Des Moines trip rates were used as a starting point for this model instead of the 2009 MAPA NHTS surveyed rates because they were much more recent than the local data. Trip production rates are shown in **Appendix 2 – Trip Production Rates**. The only adjustment was to the Airport trip purpose (APRT), which was calibrated based on counts near Eppley Airport.

The prior ISMS model trip attraction rates were also from the National Household Travel Survey (NHTS) Add-on. Yet, sample sizes for many land uses and time periods were extremely low or zero, which required significant inferring of trip rates. Thus, Replica data was leveraged to estimate trip attraction rates by classifying the trips produced by the Replica 2022 model synthetic population into ISMS trip purposes and dividing by land use amount values from the parcel data.

Unreasonable trip rate values were removed – in particular school (HBSC) trip rates for land uses that do not have schools. For land uses with larger sample sizes, the NHTS Add-on trip attraction rates were used. For other land uses, Replica data was used after careful review for reasonableness. The final trip attraction rates are shown in **Appendix 3 – Trip Attraction Rates**.

Auto Occupancy

A NHTS Add-on was conducted for the MAPA model area in 2009. Since that time, the ISMS procedure was adopted which would require reprocessing the survey for various inputs, including auto occupancies. Meanwhile, a more recent 2017 NHTS Add-on from the Des Moines metropolitan area that had already been processed for ISMS is used for various default ISMS inputs. The MPT determined that the default ISMS auto occupancies would be a reasonable surrogate for the MAPA model. The values were adjusted slightly to match observed Vehicle Miles Traveled (VMT). **Table 2** shows the final input auto occupancy values compared to NCHRP 716[2] where available.

[2] Transportation Research Board. "National Cooperative Highway Research Program Report 716 Travel Demand Forecasting: Parameters and Techniques", 2012.

Table 2 - Auto Occupancy Values

PURPOSE	WDWE	am	pm	op	md	NCHRP 716
HBWL	wd	1.05	1.05	1.05	1.05	
HBWL	we	1.09	1.09	1.09	1.09	
HBWM	wd	1.05	1.05	1.05	1.05	1.10
HBWM	we	1.09	1.09	1.09	1.09	
HBWH	wd	1.05	1.05	1.05	1.05	
HBWH	we	1.09	1.09	1.09	1.09	
HBSC	wd	1.40	1.40	1.40	1.40	N/A
HBSC	we	1.40	1.40	1.40	1.40	
HBSH	wd	1.40	1.40	1.40	1.40	
HBSH	we	1.65	1.65	1.65	1.65	1.75
HBO	wd	1.55	1.55	1.55	1.55	
HBO	we	1.65	1.65	1.65	1.65	
NHB	wd	1.45	1.45	1.45	1.45	1.66
NHB	we	1.80	1.80	1.80	1.80	
UNIV	wd	1.20	1.20	1.20	1.20	
UNIV	we	1.50	1.50	1.50	1.50	
HOSP	wd	1.14	1.14	1.14	1.14	
HOSP	we	1.14	1.14	1.14	1.14	
APRT	wd	1.40	1.40	1.40	1.40	N/A
APRT	we	1.60	1.60	1.60	1.60	
RREC	wd	1.43	1.43	1.43	1.43	
RREC	we	1.73	1.73	1.73	1.73	
HOT	wd	1.29	1.29	1.29	1.29	
HOT	we	1.73	1.73	1.73	1.73	

Calibration and Validation

The model development goal is to create a realistic picture of travel patterns in the study area. As such, models should be calibrated to reflect current travel conditions. Travel is unique in each community. Therefore, results need to be reviewed in detail and adjustments made to inputs or parameters to match local conditions after data errors are ruled out. Each adjustment needs to be done without unreasonably modifying inputs to unrealistic values, which might constrain the model in future scenario years.

Validation refers to the statistical and non-statistical reasonableness checks used to assess the accuracy of the model. The best practice is to perform validation checks on each major step of the model process. This helps to ensure that data and model structure errors are limited or completely omitted throughout the process, and that the model will be flexible enough to respond to transportation and land use scenarios to be effectively used as a forecasting tool. The main validation checks and calibration adjustments are discussed below.

Trip Generation Validation Checks and Calibration Adjustments

Each trip has a beginning and an end, and it is necessary for the trip producing trips ends to be equal to the number trip attracting ends. The initial (unbalanced) productions and attractions in the model are never completely equal due to different data sources and trip rate sources, the ratios of productions and attractions by trip purpose should be reasonably close prior to balancing. If they are not, then it could be because of an input data error (either land use input data or trip rates) or a model processing error.

Because there is confidence in the total number of trip productions by trip purpose, the initial Replica-based trip attractions were factored to the total of productions. This allows the Replica data to estimate the relative difference in trip rates by land use and time period while keeping the total number of trips by purpose reasonable. The final factors that were used are shown in **Table 3.**

Table 3 -Trip Attraction Rate Balancing Factors

	HBWL	HBWM	HBWH	HBSC	HBSH	HBO	NHB	UNI	HOSP	APRT	RREC	HOT
Weekday Factor	2.57	1.18	1.29	1.97	1.90	1.25	1.00	2.38	0.58	6.39	5.65	2.41
Weekend Factor	3.26	0.96	0.53	2.02	2.25	1.15	1.00	2.11	0.71	5.74	7.18	2.12

The Travel Model Improvement Program (TMIP) *Travel Model Validation and Reasonableness Checking Manual*, 2nd Edition recommends a preferred ratio of between 0.90 – 1.10 for unbalanced productions and attractions before trip balancing. The unbalanced trip ratios by trip purpose for the MAPA TDM are shown in **Table 4** below.

Table 4 - Unbalanced Production and Attraction Ratios

	HBWL	HBWM	HBWH	HBSC	HBSH	HBO	UNI	HOSP	APRT	RREC	HOT	SU	COMBO	Total
Weekday Ratio	1.03	1.08	1.01	0.97	0.95	1.03	0.95	0.95	0.97	1.03	1.03	1.00	1.00	1.00
Weekend Ratio	1.04	1.04	0.99	0.97	0.94	1.05	0.96	0.96	0.98	0.99	1.03	1.00	1.00	1.00
Weighted Average	1.03	1.07	1.01	0.97	0.95	1.04	0.95	0.95	0.97	1.01	1.03	1.00	1.00	1.00

The final balanced trips per household are shown in **Table 5** and compared to Table 5.2 from The Travel Model Improvement Program (TMIP) *Travel Model Validation and Reasonableness Checking Manua*l (Second Edition)[3].

[3] Federal Highway Administration. "Travel Model Validation and Reasonableness Checking Manual, Second Edition", September, 2010.

*Table 5 - Balanced Trips Per Household**

Source	Trips per Household
Model (Weekday)	11.04
Model (Weekend)	9.59
Model (Weighted Average)	10.63
TMIP**	10.84

*Trucks not included

The ISMS process includes several special trip purposes which removes the need for most special generators, but it still includes an option to use one if necessary. The Henry Doorly Zoo and Aquarium is a unique land use that does not fit into any primary (HBWL, HBWM, HBWH, HBSC, HBSH, HBO, NHB, SU, and COMBO) or special (UNIV, HOSP, APRT, RREC, HOT) ISMS trip purpose cleanly.

Special generator trips for the zoo were estimated using StreetLight data. 16,000 trip attractions, split between HBSH, HBO, and NHB trip purposes were added for the zoo. The time period and weekday versus weekend split of trips was also determined using StreetLight data, which suggests that the vast majority of trips to the zoo occur during the mid-day time period for both weekday and weekend, and nearly two-thirds of the trips occur during the weekend.

Trip Distribution Validation Checks and Calibration Adjustments

The trip distribution step takes the balanced trips and for each TAZ allocates them to other TAZs based on network travel times and friction factors. This is done using the gravity model within TransCAD.

Replica data was processed into one-minute and one-mile groups based on the Fall 2022 weekday Replica model for trips starting or ending in the model area. Replica data was processed into the primary ISMS trip purposes using Replica trip purpose and previous trip purpose data.

StreetLight data was downloaded for 2022 Location Based Service (LBS) data for the model region, including external stations as passthrough zones. An origin-destination matrix was created using StreetLight data and applied to an average weekday shortest path matrix using congested travel times to calculate one minute and one mile time groups. StreetLight LBS data provides percentages to split the Original-Destination (O-D) trips into HBW, HBO, and NHB trip purposes.

Adjustments were made to the model to better replicate both travel distances and travel times, including reviewing multiple intersection delay procedures, adjusting density values and terminal times, and adjusting trip purpose friction factors.

The initial friction factor curves were borrowed from the previous ISMS version of the model by trip purpose. Slight adjustments were made to better match StreetLight trip length frequency distribution curves for available trip purposes and to improve the ratio of count VMT to model

volume VMT. The model frequency distribution curves closely align with StreetLight data for both miles and minutes.

Replica data provides another dataset that can be used for comparison, however Replica data represents modeled data rather than observed data. The trip length frequency distribution curves from Replica match the model and StreetLight data closely in terms of miles, but less closely in terms of minutes. The modeled versus StreetLight and Replica trip length frequency distribution curves are shown in **Figure 6, Figure 7 and Figure 8**. Only the trip purposes that include both StreetLight and Replica data are shown.

Figure 6 - Home-Based Work Trip Length Distribution Curves (Miles and Minutes)

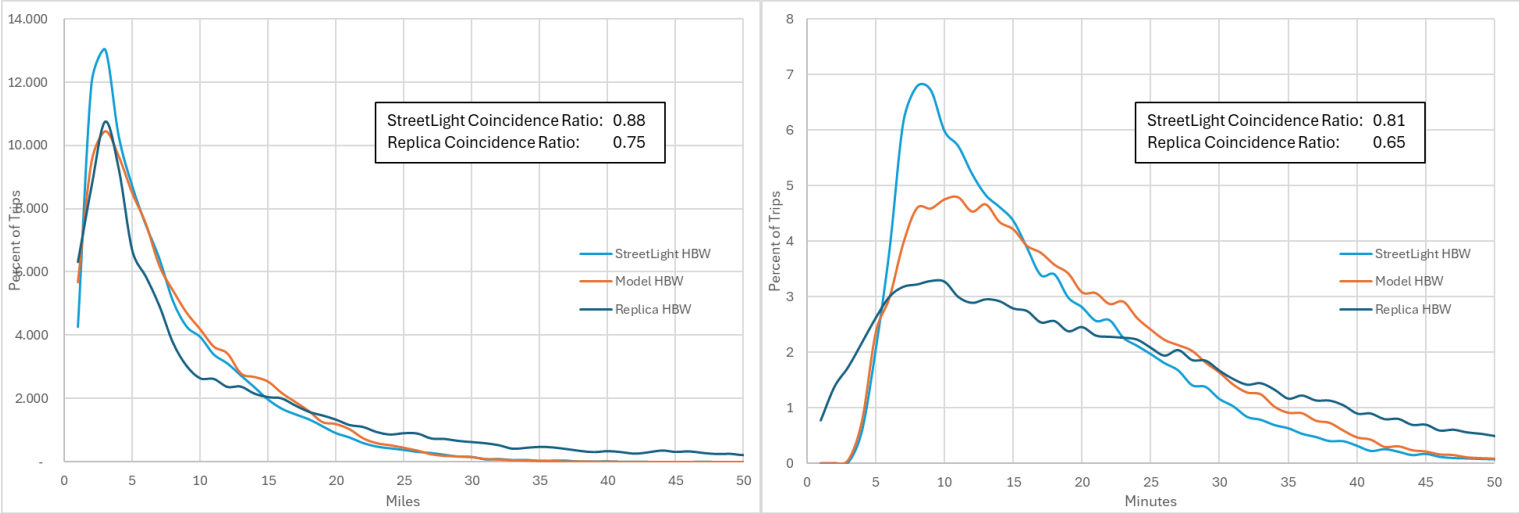


Figure 7 - Home-Based Other Trip Length Distribution Curves (Miles and Minutes)

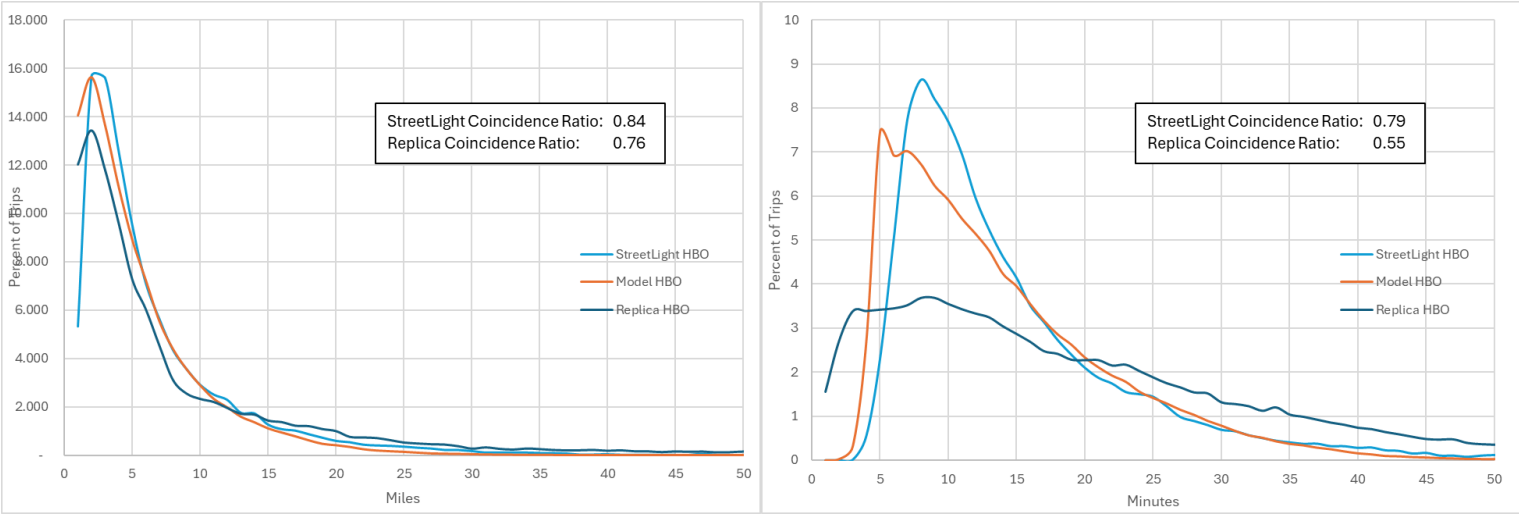
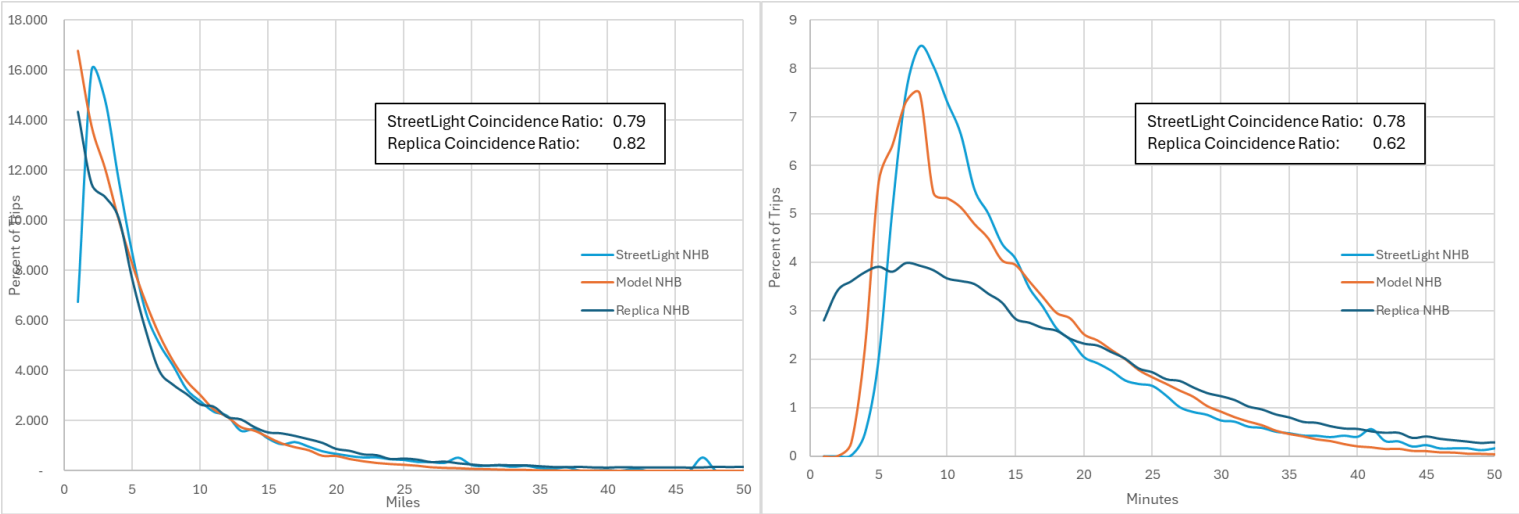


Figure 8 - Non-Home Based Trip Length Distribution Curves (Miles and Minutes)



A summary of the coincidence ratios, which measures the fit of two trip length frequency distribution curves is shown in **Table 6 and Table 7** for miles and minutes, respectively. A ratio over 0.70 is generally considered a good fit. The model trip length frequency distribution curves consistently match the StreetLight-derived distribution curves well. The model and Replica-derived trip length frequency distribution curves are also a very close match, particularly in terms of miles. Replica travel times have slower travel times than the values used for the model and StreetLight, as shown in the trip length frequency distribution curves, which is what is causing the slightly lower coincidence ratios for Replica trips for the travel time curves. The StreetLight COMBO truck trips provided non-intuitive results in terms of quantity and percentages of trips, so they were not used for calibration.

Table 6 - Trip Mile Frequency Distribution Curve Coincidence Ratios

Trip Purpose	StreetLight Coincidence Ratio	Replica Coincidence Ratio
HBW (all income levels)	0.88	0.75
HBSC	-	0.74
HBSH	-	0.78
HBO	0.84	0.76
NHB	0.79	0.82
SU	0.81	-
COMBO	N/A	-

Table 7 - Trip Minute Frequency Distribution Curve Coincidence Ratios

Trip Purpose	StreetLight Coincidence Ratio	Replica Coincidence Ratio
HBW (all income levels)	0.81	0.65
HBSC	-	0.74
HBSH	-	0.66
HBO	0.79	0.55
NHB	0.78	0.62
SU	0.82	-
COMBO	N/A	-

A comparison of average travel times was made with StreetLight and Replica data. The average travel times and average travel distances are shown in **Table 8** and **Table 9**. Travel distances in the model align well with StreetLight data and are shorter than Replica for most trip purposes. In terms of travel times, the model results are generally in between StreetLight and Replica average travel times.

Table 8 - Average Distance (Miles)

	Model	StreetLight	Replica
HBW	8.12	7.61	11.36
HBSC	5.15	-	5.08
HBSH	6.58	-	7.33
HBO	5.53	5.62	7.62
NHB	5.95	6.30	7.24
SU	8.11	8.53	-
COMBO	19.93	N/A	-

Table 9 - Average Time (Minutes)

	Model	StreetLight	Replica
HBW	18.25	15.28	22.73
HBSC	12.88	-	13.85
HBSH	15.87	-	18.45
HBO	13.79	13.70	19.54
NHB	14.71	14.66	17.68
SU	18.05	17.59	-
COMBO	32.86	N/A	-

The HBW trips are split into low-, medium-, and high-income household work trips in ISMS. The average travel distances and times are shown in **Table 10**. High income work trips have longer trip lengths and durations.

Table 10 - Home-based Work by Income Level Average Travel Distances and Times

	Average Miles	Average Minutes
HBWL	6.74	15.15
HBWM	8.55	17.57
HBWH	9.32	20.02

Friction factor curves show the desirability of making trips of certain distances. The x-axis represents minutes of travel time, and the y-axis represents the friction factor, which is the utility or likelihood of making a certain distance trip. Friction factors vary by trip purpose as people will typically travel farther for a work trip than other trip purposes. The flatter a curve, the more desirable longer trips are relative to a steeper curve and thus the model would produce longer average trip lengths.

Figure 9 – Figure 12 below show the friction factor curves used for each non-special trip purpose and trucks. National Cooperative Highway Research Program Report 716 (NCHRP 716) provides typical friction factor values for HBW, HBO, and NHB trip purposes that can be used for comparison. Minor modifications were made to the trip purposes for most gamma coefficients to better match the fit with StreetLight data, but the changes are minor and hardly visible in terms of the friction factor curves. Truck trip friction factor curves were modified to fit better with StreetLight data.

Figure 9 - HBW Friction Factor Curves (All Income Levels)

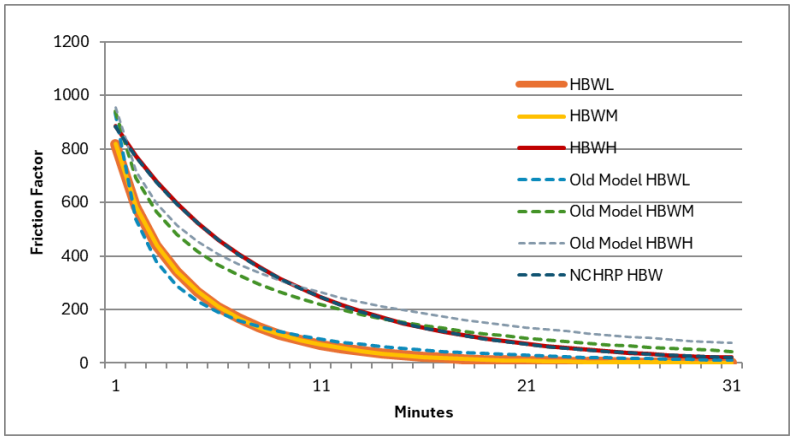


Figure 10 - Home-based Shopping, Other and School Trip Purpose Friction Factor Curves

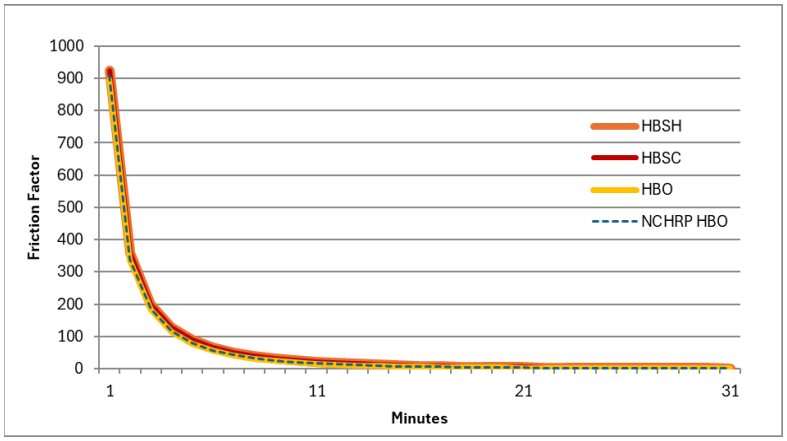


Figure 11 - NHB Friction Factor Curve

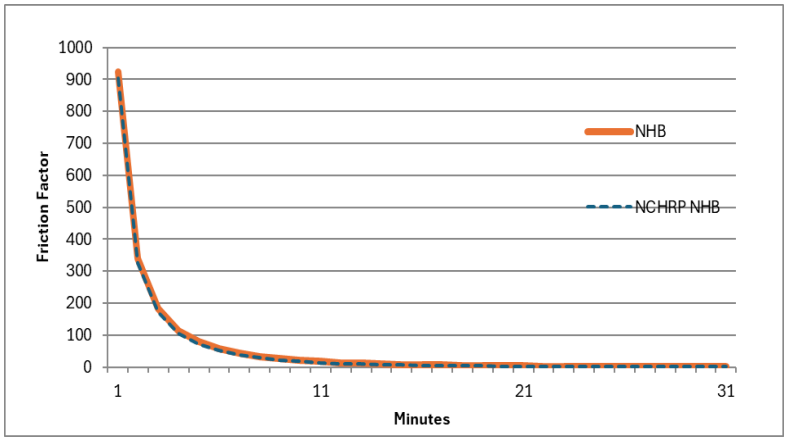
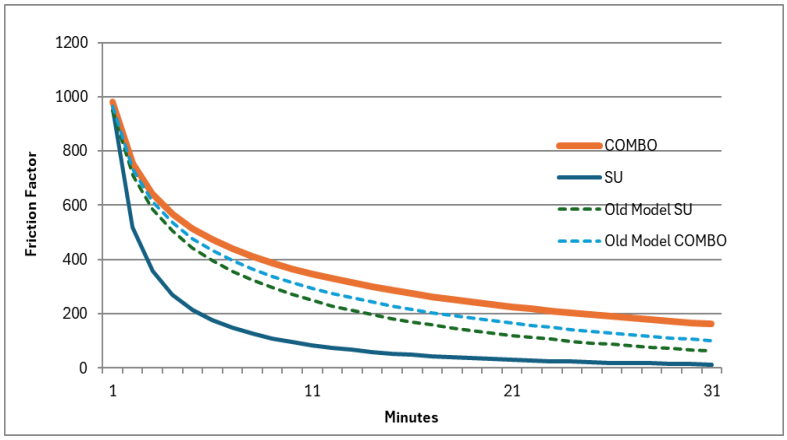
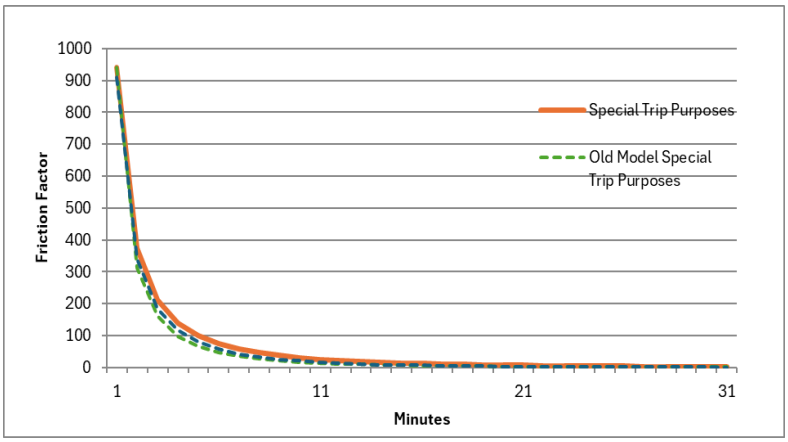


Figure 12 - Truck Friction Factor Curves



Special trip purpose travel times are mainly determined by the location of the special trip purpose land use and the amount of external trips for that purpose. For example, since there is a single passenger airport in the MAPA model area, airport (APRT) trip productions will end at the airport whether the friction factor curve is made steeper or flatter. All special trip purposes used the same gamma coefficient values, which were slightly modified from the previous model to lengthen trips (**Figure 13**).

Figure 13 - Special Trip Purpose Friction Factor Curves



The resulting average travel distances and times for each special trip purpose are shown in **Table 11**. External trips have a large impact on the average travel distances and times for special trip purposes since many users of the facilities that generate special trip purpose attractions come from outside the model area for a unique service. Airport trips are the longest since there is only a single destination that attracts APRT trips.

Table 11 – Special Trip Purpose Average Travel Distances and Times

	Average Miles	Average Minutes
UNIV	8.80	21.02
HOSP	6.71	16.88
APRT	16.45	31.26
RREC	11.71	24.51
HOT	8.00	18.96

During the trip distribution gravity model, K-Factors can be added to reduce or enhance origin and destination pairs that the gravity model does not represent accurately. K-Factors are often referred to as a "socioeconomic" factor to adjust travel propensity between origin-destination pairs that are not otherwise accounted for in the trip distribution model. In some situations, K factors may be warranted, but ideally are not required (or desired) in a trip distribution model. K-Factors are commonly used for major river crossings since travelers may perceive destinations that involve crossing a bridge as farther away.

The MAPA model uses K-Factors for the Missouri River crossing to better match distribution patterns and traffic volumes on the bridges. A combination of traffic counts on the bridges, StreetLight data and a previous study on HBW income distribution patterns that used the 2009 NHTS Add-on data were used to calibrate the K-Factors. **Table 12** shows the calibrated K-Factors.

Table 12 - Missouri River K-Factors by Purpose

Purpose	K-Factor
HBWL	0.50
HBWM	0.50
HBWH	0.50
HBSC	0.10
HBSH	0.75
HBO	0.25
NHB	0.25
UNIV	0.50
HOSP	0.50
APRT	1.00
RREC	0.50
HOT	0.50
SU	0.75
COMBO	1.00

The calibrated HBW percentage of trips crossing the Missouri River is shown in **Table 13**. For instance, the model estimates that 5.3% of low income HBW trips cross the state line. The percentage of HBW trips in the model is roughly in-line with the 2009 NHTS Add-on data. The higher NHTS Add-on HBWL river crossing percentage from Nebraska to Iowa was not used as a target since it is likely sample size error in the survey that results in the lowest income groups crossing the bridge the most.

Table 13 - Home-Based Work by Income Group River Crossings

Purpose	Iowa to Nebraska	Nebraska to Iowa	Total River Crossing
Model			
HBWL	3.3%	2.0%	5.3%
HBWM	2.7%	2.1%	4.8%
HBWH	2.1%	4.8%	6.9%
HBW Total	2.5%	3.5%	6.1%
NHTS[4] (2009)			
HBWL	2.9%	5.3%	8.2%
HBWM	1.9%	2.2%	4.1%
HBWH	3.0%	3.5%	6.5%
HBW Total	2.7%	3.6%	6.3%

[4] Carbee, Jason; Petersen, Eric; Zhang, Yunfei. "Implementation of Income-based Distribution", March, 2016.

StreetLight data for 2022 was used to estimate the distribution of trips within and between the two states. A comparison is shown in **Table 14**. Passenger trips from the model are a very close match with StreetLight data. The model SU truck percentages are a close fit with StreetLight data for the percentage of trips that cross the river but has a higher percentage of trips in Nebraska than in Iowa. Without the COMBO truck trips, which provided non-intuitive results in the StreetLight data, the model and StreetLight data match very closely overall.

Table 14 – State Distribution Percentage Comparison with StreetLight Data

Vehicle Mode	Within Nebraska	Nebraska to Iowa	Iowa to Nebraska	Iowa to Iowa
Model				
Passenger	88%	2%	2%	8%
SU	81%	3%	3%	13%
Combo	82%	5%	4%	9%
All	88%	2%	2%	8%
StreetLight				
Passenger	88%	2%	1%	9%
SU	85%	4%	4%	7%
Combo	N/A	N/A	N/A	N/A
All	83%	3%	3%	10%
All (without Combo)	87%	2%	2%	9%

Model-estimated flow for all bridges that cross the river compared to counts are shown in **Table 15**. The model slightly overestimates the total of all counts over the river. The Highway 34 bridge location overestimates trips significantly, which accounts for most of the overestimate over the river. The Percent Root Mean Squared Error (%RMSE) measures the average error between the model-estimated and counted volumes. The %RMSE of 28% shows that the volumes on the bridges match the counts reasonably well overall.

Table 15 – Model-estimated volume compared to Counts for Bridges over Missouri River

	Sum of AADT Volume
Model Volume	109,870
Counts	91,825
Ratio	1.20
Percent RMSE	28.04%

Mode Choice Validation Checks and Calibration Adjustments

The MAPA non-motorized trip procedure differs from the non-motorized trip procedure used by default in ISMS and was transferred from the final MAPA pre-ISMS model into the ISMS process. The procedure is called the “3 Ds” process. The procedure is summarized in the 2010 MAPA model documentation.

The first step in the non-motorized is to develop trip tables of possible trips for each of the six trip types using a gravity model with very steep friction factors. This assures that the modeled non-motorized trips will be predominantly intrazonal and very short interzonal trips.

These possible trips are multiplied times shares calculated with a binary logit model. The binomial logit model is calculated for each trip type and each TAZ-to-TAZ pair as:

$$share = \frac{e^{u\,walk/bike}}{e^{u\,walk/bike} + e^{u\,motorized}}$$

where *u walk/bike* and *u motorized* are utility functions for the two modes. The calculate share depends only on the difference between the two utility functions. Therefore, it is convenient to set *u motorized* equal to zero. As e raised to the 0 power equals 1, the equation can be simplified as:

$$share = \frac{e^{u\,walk/bike}}{e^{u\,walk/bike} + 1}$$

The "3 Ds" – "Density", "Diversity", and "Design" – are used as independent variables. The 3 Ds have been used extensively in studies of land use/transportation interactions throughout the United States. "Density" includes separate measures of housing density (units per square mile) and employment density (employees per square miles). "Diversity" concerns whether there are a mix of land uses, especially jobs and housing. "Design" approximates the walkability of a neighborhood by counting the number of intersections per square mile (GIS calculations from U.S. Census TIGER data).

The model incorporates these variables both directly and indirectly. Model variables include:

- HD2 – square root of the number of housing units per square mile
- ED2 – square root of the number of jobs per square mile
- IDEX – intersection density index relative to land use density calculated as:

  intersections per square mile / ((HD2 + ED2) ^ 0.5)[5]

The "3 D" procedure variables were updated using the updated road network and parcel data. Jobs were estimated using employment density values to convert non-residential land use to employment.

Non-motorized trips by trip purpose were calculated from Replica data and used as a validation target for the MAPA non-motorized trip procedure. The logit model constants were adjusted to approximate the Replica non-motorized trip targets by trip purpose. The constants are shown in **Table 16**. The calibrated non-motorized trips by purpose compared to Replica data are shown in **Table 17.**

[5] Marshall, Norm. "MAPA Time-of-Day Multimodal Travel Demand Model Estimation and Validation", January, 2013.

Table 16 – MAPA "3 D" Non-motorized Logit Model Constants

Purpose	Constants
HBWL	-7.5
HBWM	-7.5
HBWH	-7.6
HBSC	-1.3
HBSH	-5.8
HBO	-3.0
NHB	-4.5
UNIV	-1.0

Table 17 – Non-motorized Trips by Trip Purpose Comparison – Weekday

Purpose	Model	Replica
HBWL	4,433	4,422
HBWM	3,575	3,811
HBWH	5,106	5,279
HBSC	66,605	62,038
HBSH	44,525	44,636
HBO*	68,049	68,035
NHB	115,773	114,096
Total	308,066	302,317

*UNIV trip purpose included with HBO trip purpose for comparison

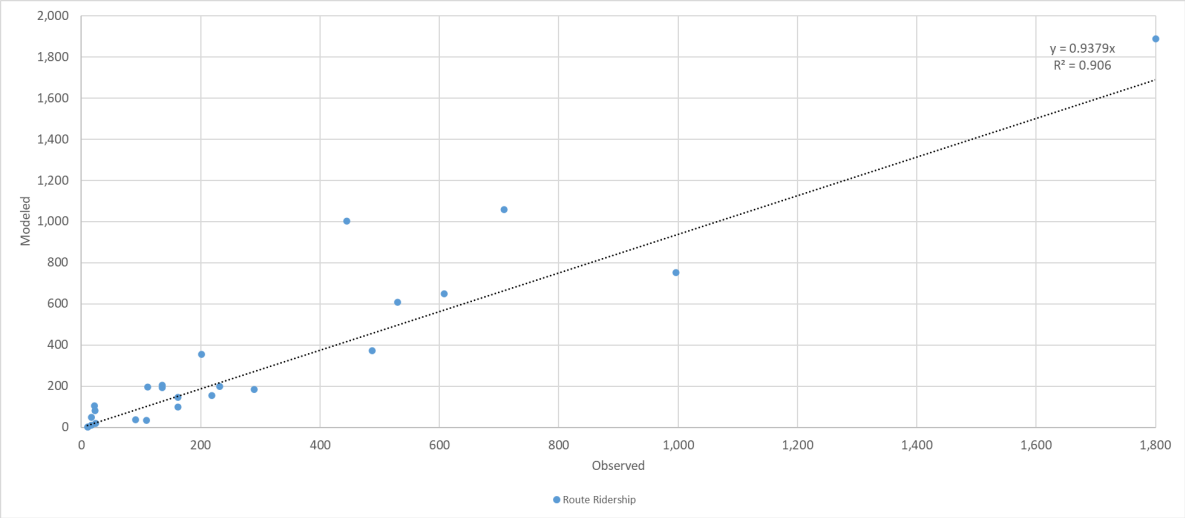
Monthly transit ridership data by route was provided by the Metro Transit for October 2022. Ridership totals were divided by 31 to estimate an average daily ridership by route. Ridership for the Omaha Bus Rapid Transit (ORBT) route was reviewed for October 2023 and 2024 as well to determine a reasonable range of outcomes. The number 1800 was settled on by the PMT in coordination with Meto Transit for the average daily ridership validation target.

The model-estimated ridership by route compared with observed ridership data is shown in **Table 18**. **Figure 14** shows a scatterplot and linear trendline of observed versus modeled ridership. While ridership by route results vary for each route, the model estimates the correct magnitude of trips and the scatterplot shows a very good fit of the model-estimated ridership to the observed ridership (0.906). The Bus Rapid Transit (BRT) mode constants and Express route constants were adjusted down to better fit ridership estimates for those modes. The calibrated constants by trip purpose and mode are listed in **Appendix 4 – Mode Choice Constants.**

Table 18 - Observed versus Modeled Ridership by Route

2023 Ridership by Route Average Weekday		
Route	Average Daily Ridership	Modeled Daily Ridership
0 (ORBT)	**1,800**	1,889
3	530	609
4	708	1,058
5	201	353
8	136	204
11	289	184
13	488	371
14	231	197
15	608	650
16	91	37
18	1,816	1,269
24	996	752
26	111	195
30	445	1,002
35	162	147
36	109	35
41	161	98
43	219	154
55	135	193
92	22	80
93	10	2
94	11	2
95	17	50
97	22	104
98	17	11
200	24	19
Sum	9,359	9,666

Figure 14 - Observed Versus Modeled Ridership by Route



Tables 19 and **20** show the calibrated percent of person trips by mode for both weekday and weekend for the primary passenger trip purposes.

Table 19 - Percent Person Trips by Mode – Weekday

	HBWL	HBWM	HBWH	HBSC	HBSH	HBO	NHB	Total
Nonmotorized	2.6%	1.7%	1.3%	21.7%	7.1%	6.2%	9.5%	7.3%
Transit	0.7%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.2%
Persons in Auto	96.7%	98.1%	98.6%	78.3%	92.9%	93.8%	90.5%	92.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 20 - Percent Person Trips by Mode – Weekend

	HBWL	HBWM	HBWH	HBSC	HBSH	HBO	NHB	Total
Nonmotorized	2.5%	1.6%	1.3%	10.6%	6.9%	6.1%	9.2%	6.8%
Transit	0.5%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%
Persons in Auto	97.0%	98.3%	98.7%	89.4%	93.1%	93.8%	90.8%	93.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Feedback

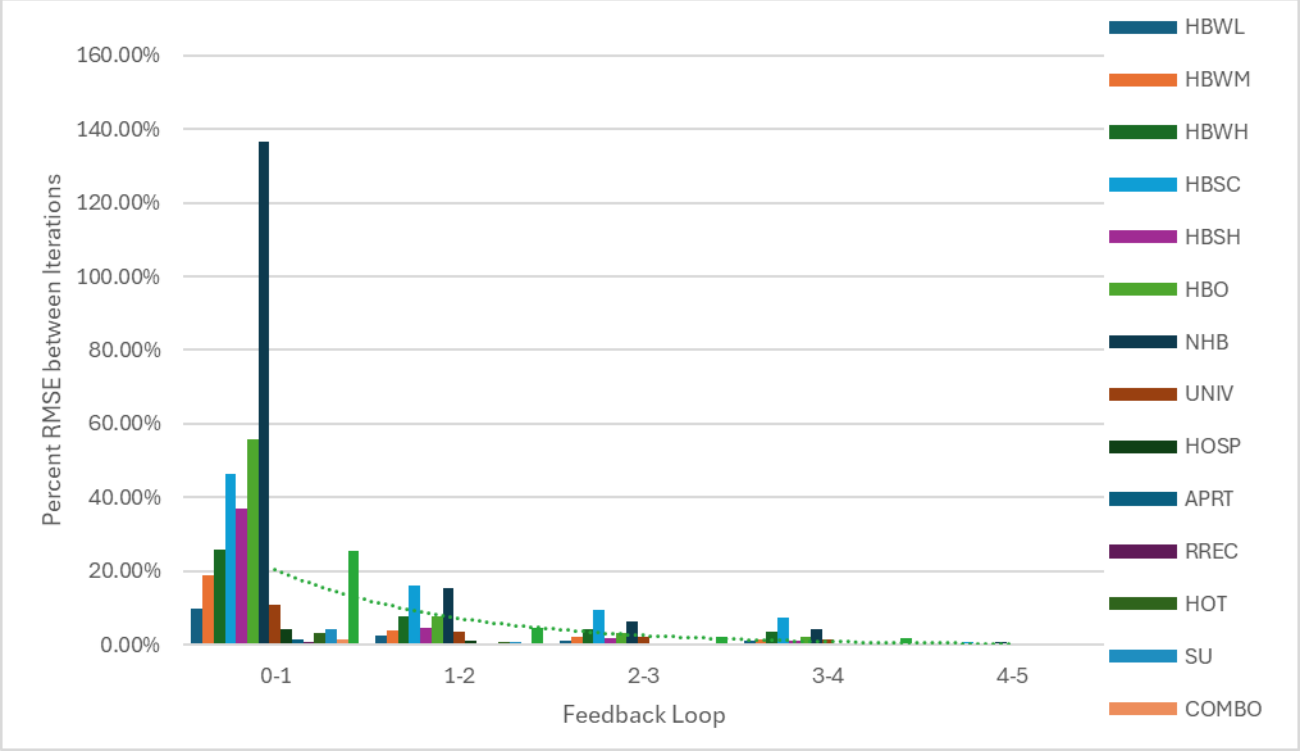
The ISMS framework allows for the use of feedback loops, which feeds congested travel times back into network before calculating shortest paths between zonal pairs and re-distributing trips.

Feedback loops were tested during the MAPA model calibration. Trip length frequency curves showed an improvement in travel times compared to StreetLight data when using feedback loops, which led the MPT to decide to include them in the model process.

The change in the final original-destination (O-D) table results from one feedback iteration to the next were tested for each trip purpose in terms of %RMSE which measures the average

deviation of trips between iterations for all O-D trips, which is shown in **Figure 15**. Initially, trip purposes with many possible production and attraction locations varied dramatically as trips in the model found different trip end locations that avoided congestion. This is most noticeable with the NHB trip purpose. By feedback iteration number five, all trip purposes had very little change in the O-D table from feedback iteration four. Thus, five feedback iterations were used for the calibrated MAPA model.

Figure 15 - Feedback Iteration Stability



Traffic Assignment Validation Checks and Calibration Adjustments

The goal of a TDM is to replicate travel patterns as accurately as possible throughout each step of the model, without placing too many unreasonable constraints on its operation. Ultimately, the model-predicted volumes should have a strong correlation with observed traffic count data but not be over-calibrated and limit the sensitivity of the model to input changes.

In the traffic assignment step the model attempts to minimize a trip's cost (in ISMS, this is travel time) between its origin and destination. Travel time is a function of speeds and distance traveled.

A comparison of model-estimated Vehicle Miles Traveled (VMT) to VMT for count locations shows that all functionally classified road categories are all within the validation goals provided by FHWA in 1990 **(Table 21)**, which suggests that the model has the correct magnitude of vehicles on the network overall and by functional class.

Table 21 - Model-Estimated VMT by Functional Class Compared to Observed VMT

	Number of Counts	Vehicle Miles Traveled (VMT)		Error		Validation Goal*
Functional Class		**Estimated**	**Observed**	**Difference**	**Percent**	
Freeway/Expressway	199	2,305,853	2,273,734	32,119	1.4%	+/-7%
Principal Arterial	421	1,261,641	1,389,067	-127,426	-9.2%	+/-10%
Minor Arterial	740	1,558,570	1,662,923	-104,353	-6.3%	+/-15%
Collector	536	533,451	467,386	66,065	14.1%	+/-20%
Local	98	72,943	73,343	-400	-0.5%	N/A
Ramps	192	242,708	204,789	37,919	18.5%	N/A
Total	**2,186**	**5,659,515**	**5,793,110**	**-133,595**	**-2.3%**	**N/A**

*FHWA-1990 goals

%RMSE is a standard model validation check that measures the average error between the model-estimated and counted volumes. The lower the value, the less the difference there is between the model-estimated volumes and the counts. **Table 22 and Table 23** show the %RMSE stratified in two different ways: by volume groups and by functional class. The %RMSE in the MAPA TDM is within the preferable validation target for most volume groups and well within the acceptable validation target for all volume groups. By functional class the model meets the ISMS Preferred criteria for all categories except for Collector/Local roads, which is within the acceptable target range. Given that count data comes from a variety of data sources and Iowa count data not on the interstates are factored 2016 counts, this amount of error is not unexpected or unreasonable.

Table 22 - Percent Root Mean Squared Error by Volume Groups

Volume Range	Number of Counts	% RMSE	Validation Goal*	
			Acceptable	Preferable
0 - 5,000	868	**77.73%**	100%	45%
5,000 - 10,000	488	**35.32%**	45%	35%
10,000 - 15,000	267	**23.50%**	35%	27%
15,000 - 20,000	191	**21.45%**		
20,000 – 30,000	263	**22.53%**		
30,000 – 40,000	69	**22.69%**		
40,000 – 50,000	17	**16.99%**		
50,000 – 60,000	13	**17.09%**		
60,000 – 70,000	4	**16.19%**		

*Florida Standard Urban Transportation Modeling Systems (FSUTMS)

Table 23 - Percent Root Mean Squared Error by Functional Class

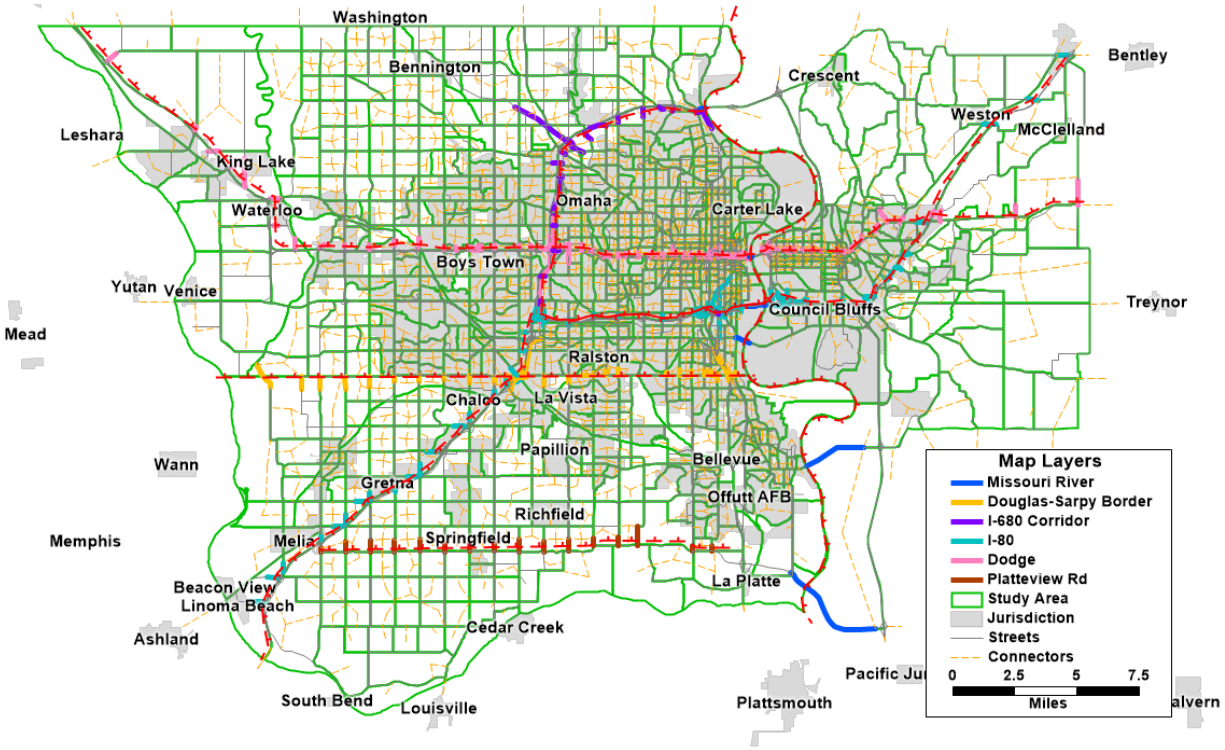
Link Type	Number of Counts	% RMSE	ISMS Acceptable	ISMS Preferred
Interstate	141	19.78%	30%	25%
Principal Arterial	479	22.58%	35%	30%
Minor Arterial	740	32.44%	45%	40%
Collector	536	56.45%	65%	50%
Local	98	79.41%	N/A	N/A
Ramp	192	49.23%	N/A	N/A
Total	**2186**	**31.35%**	**35%**	**30%**

Screenlines are another assignment validation tool that can help find where within the model area the results poorly replicate counts. Six screenlines were created as shown in **Figure 16** and summarized in **Table 24** are overestimated, mostly because of the Highway 34 bridge, but the %RMSE shows that on average the model replicates counts reasonably well. The screenline along Platteview Road has a higher ratio and %RMSE. Yet, most of the counts are low volume and the sum of all of the counts is also low, so the relatively higher values are not unexpected. Otherwise, the model does not show consistent bias by location according to the screenlines.

Table 24 - Screenline Summary

Screenline	Total Model Flow	Total of Counts	Ratio	%RMSE
Missouri River	109,870	91,825	1.20	28.04%
Douglas-Sarpy Border	270,049	276,844	0.98	19.51%
I-680 Corridor	150,138	140,278	1.07	33.95%
I-80	263,127	278,997	0.94	31.28%
Dodge	448,335	468,037	0.96	32.61%
Platteview Road	8,869	6,705	1.32	45.99%

Figure 16 - Screenline Locations



Conclusions and Next Steps

The major edits, updates, and adjustments that were made to the MAPA TDM were discussed in this documentation. The ISMS Manual 2.0 can be referenced for more details about modeling procedures and data sources. The calibration process and validation results were also discussed in detail. The validation results indicate that the MAPA TDM is an accurate and useable forecasting tool by both ISMS and FHWA standards.

Appendices

Appendix 1 - External Station Inputs

Table 25 - External Station Inputs - AADT Targets

TAZ	2022				2050			
	AADT	Auto	SU	Combo	AADT	Auto	SU	Combo
1	19,300	695	155	19,300	25,792	24,704	890	198
2	7,890	585	260	7,890	11,181	10,099	749	333
3	43,634	3,860	4,595	43,634	73,966	61,975	3,861	8148
4	5,270	231	354	5,270	7,494	6,746	296	453
5	7,015	90	635	7,015	9,907	8,979	115	813
6	1,805	135	70	1,805	2,573	2,310	173	89
7	5,600	75	135	5,600	6,623	6,384	85	154
8	19,635	1,085	510	19,635	30,577	28,280	1,221	1076
9	165	6	4	165	200	188	7	4
10	220	-	-	220	251	251	-	0
11	955	-	-	955	1,089	1,089	-	0
12	3,165	137	113	3,165	4,371	4,051	175	145
13	8,070	236	69	8,070	10,720	10,330	302	88
14	700	-	-	700	798	798	-	0
15	6,195	210	295	6,195	8,576	7,930	269	377
16	105	-	-	105	120	120	-	0
17	17,126	781	2,870	17,126	34,892	28,760	1,312	4820
18	50	-	-	50	57	57	-	0
19	60	5	4	60	79	68	6	5
20	2,430	173	108	2,430	3,091	2,770	197	123
21	737	-	-	737	840	840	-	0
22	3,287	225	166	3,287	4,193	3,747	257	189

TAZ	2022				2050			
	AADT	Auto	SU	Combo	AADT	Auto	SU	Combo
23	17,401	1,041	5,285	17,401	45,890	33,654	2,014	10223
24	788	38	44	788	1,577	1,428	69	80
25	40	4	-	40	50	46	5	0
26	3,410	207	205	3,410	4,892	4,365	265	262
27	4,450	172	234	4,450	6,216	5,696	220	300
28	120	19	4	120	163	137	22	5
29	79	11	4	79	107	90	13	5
30	71	4	1	71	87	81	5	1
31	3,520	59	140	3,520	4,240	4,013	67	160
32	1,247	56	154	1,247	1,661	1,422	64	176
33	11,700	529	596	11,700	16,416	14,976	677	763
34	13,600	485	3,770	13,600	25,354	19,312	689	5353

Table 26 - External Station Inputs - AADT Targets

Productions							Attractions						
HBSCP	HBSHP	HBOP	UNIVP	HOSPP	RRECP	HOTP	HBSCA	HBSHA	HBOA	UNIVA	HOSPA	RRECA	HOTA
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%

Productions							Attractions						
HBSCP	HBSHP	HBOP	UNIVP	HOSPP	RRECP	HOTP	HBSCA	HBSHA	HBOA	UNIVA	HOSPA	RRECA	HOTA
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%
2%	42%	51%	0%	2%	1%	2%	2%	42%	51%	0%	2%	1%	2%

Appendix 2 - Trip Production Rates

Table 27 - Trip Production Rates

Trip Purpose	Household Size	Income Level	Weekday				Weekend				
			AM	Mid-Day	PM	Off Peak	AM	Mid-Day	PM	Off Peak	AADT
HBWL	1	1	0.308	0.225	0.158	0.152	0.093	0.091	0.102	0.104	0.713
HBWL	2	1	0.624	0.456	0.320	0.309	0.204	0.199	0.223	0.227	1.464
HBWL	3	1	0.928	0.679	0.476	0.459	0.454	0.442	0.495	0.505	2.357
HBWL	4	1	1.144	0.837	0.586	0.566	0.476	0.463	0.519	0.530	2.805
HBWM	1	2	0.417	0.305	0.214	0.206	0.060	0.058	0.065	0.066	0.886
HBWM	2	2	0.649	0.475	0.333	0.321	0.137	0.133	0.149	0.152	1.433
HBWM	3	2	0.815	0.596	0.418	0.403	0.193	0.188	0.210	0.215	1.824
HBWM	4	2	1.039	0.761	0.533	0.514	0.193	0.188	0.210	0.215	2.263
HBWH	1	3	0.417	0.305	0.214	0.206	0.072	0.070	0.079	0.080	0.901
HBWH	2	3	0.658	0.481	0.337	0.325	0.072	0.070	0.079	0.080	1.373
HBWH	3	3	0.815	0.596	0.418	0.403	0.072	0.070	0.079	0.080	1.680
HBWH	4	3	1.039	0.761	0.533	0.514	0.072	0.070	0.079	0.080	2.119
HBSC	1	1	0.008	0.005	0.000	0.003	0.004	0.002	0.002	0.009	0.016
HBSC	1	2	0.008	0.005	0.000	0.003	0.004	0.002	0.002	0.009	0.016
HBSC	1	3	0.008	0.005	0.000	0.003	0.004	0.002	0.002	0.009	0.016
HBSC	2	1	0.094	0.059	0.005	0.031	0.009	0.003	0.004	0.019	0.145
HBSC	2	2	0.094	0.059	0.005	0.031	0.009	0.003	0.004	0.019	0.145
HBSC	2	3	0.094	0.059	0.005	0.031	0.009	0.003	0.004	0.019	0.145
HBSC	3	1	0.773	0.490	0.043	0.252	0.019	0.008	0.008	0.041	1.134
HBSC	3	2	0.773	0.490	0.043	0.252	0.019	0.008	0.008	0.041	1.134
HBSC	3	3	0.773	0.490	0.043	0.252	0.019	0.008	0.008	0.041	1.134
HBSC	4	1	1.013	0.643	0.056	0.331	0.021	0.009	0.009	0.046	1.483
HBSC	4	2	1.013	0.643	0.056	0.331	0.021	0.009	0.009	0.046	1.483
HBSC	4	3	1.013	0.643	0.056	0.331	0.021	0.009	0.009	0.046	1.483
HBSH	1	1	0.057	0.215	0.289	0.334	0.213	0.299	0.297	0.656	1.058
HBSH	1	2	0.059	0.222	0.299	0.346	0.213	0.299	0.297	0.656	1.080

Trip Purpose	Household Size	Income Level	Weekday				Weekend				
			AM	Mid-Day	PM	Off Peak	AM	Mid-Day	PM	Off Peak	AADT
HBSH	1	3	0.069	0.261	0.351	0.406	0.213	0.299	0.297	0.656	1.196
HBSH	2	1	0.106	0.400	0.538	0.623	0.370	0.519	0.516	1.140	1.918
HBSH	2	2	0.106	0.400	0.538	0.623	0.370	0.519	0.516	1.140	1.918
HBSH	2	3	0.119	0.447	0.601	0.696	0.370	0.519	0.516	1.140	2.058
HBSH	3	1	0.119	0.447	0.601	0.696	0.436	0.612	0.608	1.344	2.187
HBSH	3	2	0.130	0.491	0.660	0.764	0.472	0.663	0.659	1.456	2.390
HBSH	3	3	0.130	0.491	0.660	0.764	0.509	0.714	0.710	1.568	2.462
HBSH	4	1	0.130	0.491	0.660	0.764	0.509	0.714	0.710	1.568	2.462
HBSH	4	2	0.135	0.508	0.682	0.790	0.557	0.782	0.777	1.717	2.605
HBSH	4	3	0.135	0.508	0.682	0.790	0.852	1.195	1.188	2.625	3.185
HBO	1	1	0.115	0.228	0.329	0.229	0.155	0.286	0.405	0.529	1.037
HBO	1	2	0.191	0.380	0.548	0.382	0.163	0.301	0.426	0.556	1.485
HBO	1	3	0.255	0.506	0.730	0.509	0.304	0.561	0.794	1.036	2.199
HBO	2	1	0.284	0.565	0.815	0.567	0.236	0.435	0.615	0.804	2.191
HBO	2	2	0.284	0.565	0.815	0.567	0.236	0.435	0.615	0.804	2.191
HBO	2	3	0.350	0.696	1.004	0.699	0.401	0.739	1.046	1.366	2.979
HBO	3	1	0.379	0.753	1.087	0.757	0.401	0.739	1.046	1.366	3.141
HBO	3	2	0.446	0.886	1.278	0.890	0.457	0.841	1.191	1.555	3.655
HBO	3	3	0.509	1.012	1.461	1.017	0.567	1.045	1.479	1.931	4.292
HBO	4	1	0.567	1.127	1.626	1.133	0.700	1.291	1.826	2.385	4.953
HBO	4	2	0.567	1.127	1.626	1.133	0.834	1.537	2.174	2.840	5.290
HBO	4	3	0.637	1.266	1.826	1.272	0.892	1.644	2.326	3.037	5.828
NHB	1	1	0.225	0.370	0.340	0.839	0.119	0.348	0.320	0.574	1.657
NHB	1	2	0.254	0.417	0.383	0.946	0.149	0.433	0.399	0.715	1.913
NHB	1	3	0.281	0.462	0.424	1.046	0.194	0.566	0.521	0.933	2.213
NHB	2	1	0.366	0.602	0.553	1.363	0.216	0.630	0.580	1.039	2.764
NHB	2	2	0.381	0.626	0.575	1.418	0.216	0.630	0.580	1.039	2.847
NHB	2	3	0.385	0.632	0.581	1.433	0.219	0.638	0.587	1.052	2.879
NHB	3	1	0.402	0.661	0.607	1.498	0.241	0.703	0.647	1.159	3.048

Trip Purpose	Household Size	Income Level	Weekday				Weekend				
			AM	Mid-Day	PM	Off Peak	AM	Mid-Day	PM	Off Peak	AADT
NHB	3	2	0.476	0.782	0.719	1.773	0.285	0.831	0.765	1.370	3.607
NHB	3	3	0.515	0.847	0.778	1.920	0.328	0.958	0.882	1.580	3.971
NHB	4	1	0.515	0.847	0.778	1.920	0.350	1.023	0.941	1.686	4.043
NHB	4	2	0.571	0.939	0.863	2.128	0.378	1.103	1.015	1.819	4.447
NHB	4	3	0.657	1.079	0.992	2.446	0.511	1.491	1.372	2.458	5.362
UNIV	1	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
UNIV	1	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
UNIV	1	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
UNIV	2	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
UNIV	2	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
UNIV	2	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
UNIV	3	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
UNIV	3	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
UNIV	3	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
UNIV	4	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
UNIV	4	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
UNIV	4	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
HOSP	1	1	0.007	0.014	0.020	0.014	0.006	0.012	0.017	0.022	0.056
HOSP	1	2	0.007	0.014	0.020	0.014	0.006	0.012	0.017	0.022	0.056
HOSP	1	3	0.007	0.014	0.020	0.014	0.006	0.012	0.017	0.022	0.056
HOSP	2	1	0.008	0.017	0.024	0.017	0.006	0.012	0.017	0.022	0.063
HOSP	2	2	0.008	0.017	0.024	0.017	0.006	0.012	0.017	0.022	0.063
HOSP	2	3	0.008	0.017	0.024	0.017	0.006	0.012	0.017	0.022	0.063
HOSP	3	1	0.011	0.023	0.033	0.023	0.010	0.019	0.026	0.034	0.089
HOSP	3	2	0.011	0.023	0.033	0.023	0.010	0.019	0.026	0.034	0.089
HOSP	3	3	0.011	0.023	0.033	0.023	0.010	0.019	0.026	0.034	0.089
HOSP	4	1	0.013	0.025	0.037	0.025	0.011	0.021	0.029	0.038	0.100
HOSP	4	2	0.013	0.025	0.037	0.025	0.011	0.021	0.029	0.038	0.100
HOSP	4	3	0.013	0.025	0.037	0.025	0.011	0.021	0.029	0.038	0.100

Trip Purpose	Household Size	Income Level	Weekday				Weekend				
			AM	Mid-Day	PM	Off Peak	AM	Mid-Day	PM	Off Peak	AADT
APRT	1	1	0.004	0.006	0.007	0.006	0.004	0.005	0.007	0.005	0.022
APRT	1	2	0.004	0.006	0.007	0.006	0.004	0.005	0.007	0.005	0.022
APRT	1	3	0.015	0.021	0.026	0.021	0.014	0.019	0.024	0.019	0.081
APRT	2	1	0.007	0.010	0.012	0.010	0.006	0.009	0.011	0.009	0.037
APRT	2	2	0.007	0.010	0.012	0.010	0.006	0.009	0.011	0.009	0.037
APRT	2	3	0.007	0.010	0.012	0.010	0.006	0.009	0.011	0.009	0.037
APRT	3	1	0.007	0.010	0.012	0.010	0.006	0.009	0.011	0.009	0.037
APRT	3	2	0.015	0.021	0.026	0.021	0.013	0.019	0.024	0.019	0.080
APRT	3	3	0.015	0.021	0.026	0.021	0.013	0.019	0.024	0.019	0.080
APRT	4	1	0.007	0.010	0.012	0.010	0.006	0.009	0.011	0.009	0.037
APRT	4	2	0.015	0.021	0.026	0.021	0.013	0.019	0.024	0.019	0.080
APRT	4	3	0.022	0.031	0.039	0.032	0.020	0.029	0.036	0.029	0.122
RREC	1	1	0.001	0.002	0.002	0.002	0.003	0.006	0.008	0.010	0.012
RREC	1	2	0.001	0.002	0.002	0.002	0.003	0.006	0.008	0.010	0.012
RREC	1	3	0.001	0.002	0.002	0.002	0.003	0.006	0.008	0.010	0.012
RREC	2	1	0.001	0.002	0.004	0.003	0.003	0.006	0.008	0.010	0.015
RREC	2	2	0.001	0.002	0.004	0.003	0.003	0.006	0.008	0.010	0.015
RREC	2	3	0.001	0.002	0.004	0.003	0.003	0.006	0.008	0.010	0.015
RREC	3	1	0.004	0.008	0.012	0.008	0.003	0.006	0.008	0.010	0.031
RREC	3	2	0.004	0.008	0.012	0.008	0.003	0.006	0.008	0.010	0.031
RREC	3	3	0.004	0.008	0.012	0.008	0.003	0.006	0.008	0.010	0.031
RREC	4	1	0.004	0.008	0.012	0.008	0.007	0.013	0.018	0.023	0.041
RREC	4	2	0.004	0.008	0.012	0.008	0.007	0.013	0.018	0.023	0.041
RREC	4	3	0.004	0.008	0.012	0.008	0.007	0.013	0.018	0.023	0.041
HOT	1	1	0.007	0.014	0.021	0.014	0.005	0.009	0.012	0.016	0.052
HOT	1	2	0.007	0.014	0.021	0.014	0.005	0.009	0.012	0.016	0.052
HOT	1	3	0.007	0.014	0.021	0.014	0.005	0.009	0.012	0.016	0.052
HOT	2	1	0.007	0.014	0.021	0.014	0.004	0.008	0.011	0.014	0.051
HOT	2	2	0.007	0.014	0.021	0.014	0.004	0.008	0.011	0.014	0.051

Trip Purpose	Household Size	Income Level	Weekday				Weekend				
			AM	Mid-Day	PM	Off Peak	AM	Mid-Day	PM	Off Peak	AADT
HOT	2	3	0.007	0.014	0.021	0.014	0.004	0.008	0.011	0.014	0.051
HOT	3	1	0.007	0.014	0.021	0.014	0.008	0.015	0.021	0.028	0.061
HOT	3	2	0.007	0.014	0.021	0.014	0.008	0.015	0.021	0.028	0.061
HOT	3	3	0.007	0.014	0.021	0.014	0.008	0.015	0.021	0.028	0.061
HOT	4	1	0.007	0.014	0.021	0.014	0.008	0.015	0.021	0.028	0.061
HOT	4	2	0.007	0.014	0.021	0.014	0.008	0.015	0.021	0.028	0.061
HOT	4	3	0.007	0.014	0.021	0.014	0.008	0.015	0.021	0.028	0.061

Appendix 3 - Trip Attraction Rates

Table 28 - Trip Attraction Rates

LUC	LUNAME	Time Period	HBWL	HBWM	HBWH	HBSC	HBSH	HBO	NHB	UNIV	HOSP	APRT	RREC	HOT	SU	Combo	Sum
10	RES	wdam	0.069	0.056	0.190	0.000	0.026	0.432	0.140	0.000	0.000	0.000	0.000	0.000	0.008	0.003	0.924
10	RES	wdmd	0.026	0.017	0.046	0.000	0.038	0.397	0.473	0.000	0.000	0.000	0.000	0.000	0.016	0.006	1.018
10	RES	wdop	0.024	0.017	0.051	0.000	0.039	0.346	0.158	0.000	0.000	0.000	0.000	0.000	0.025	0.010	0.669
10	RES	wdpm	0.012	0.008	0.021	0.000	0.045	0.306	0.236	0.000	0.000	0.000	0.000	0.000	0.016	0.006	0.650
10	RES	weam	0.025	0.011	0.017	0.000	0.022	0.276	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.415
10	RES	wemd	0.031	0.012	0.016	0.000	0.093	0.769	0.423	0.000	0.000	0.000	0.000	0.000	0.001	0.000	1.344
10	RES	weop	0.015	0.006	0.008	0.000	0.040	0.269	0.164	0.000	0.000	0.000	0.000	0.000	0.002	0.005	0.509
10	RES	wepm	0.012	0.005	0.006	0.000	0.056	0.346	0.198	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.623
11	SFD	wdam	0.069	0.056	0.190	0.000	0.026	0.432	0.140	0.000	0.000	0.000	0.000	0.000	0.008	0.003	0.924
11	SFD	wdmd	0.026	0.017	0.046	0.000	0.038	0.397	0.473	0.000	0.000	0.000	0.000	0.000	0.016	0.006	1.018
11	SFD	wdop	0.024	0.017	0.051	0.000	0.039	0.346	0.158	0.000	0.000	0.000	0.000	0.000	0.025	0.010	0.669
11	SFD	wdpm	0.012	0.008	0.021	0.000	0.045	0.306	0.236	0.000	0.000	0.000	0.000	0.000	0.016	0.006	0.650
11	SFD	weam	0.025	0.011	0.017	0.000	0.022	0.276	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.415
11	SFD	wemd	0.031	0.012	0.016	0.000	0.093	0.769	0.423	0.000	0.000	0.000	0.000	0.000	0.001	0.000	1.344
11	SFD	weop	0.015	0.006	0.008	0.000	0.040	0.269	0.164	0.000	0.000	0.000	0.000	0.000	0.002	0.005	0.509
11	SFD	wepm	0.012	0.005	0.006	0.000	0.056	0.346	0.198	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.623
19	MHP	wdam	0.069	0.056	0.190	0.000	0.026	0.432	0.140	0.000	0.000	0.000	0.000	0.000	0.008	0.003	0.924
19	MHP	wdmd	0.026	0.017	0.046	0.000	0.038	0.397	0.473	0.000	0.000	0.000	0.000	0.000	0.016	0.006	1.018
19	MHP	wdop	0.024	0.017	0.051	0.000	0.039	0.346	0.158	0.000	0.000	0.000	0.000	0.000	0.025	0.010	0.669
19	MHP	wdpm	0.012	0.008	0.021	0.000	0.045	0.306	0.236	0.000	0.000	0.000	0.000	0.000	0.016	0.006	0.650
19	MHP	weam	0.025	0.011	0.017	0.000	0.022	0.276	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.415
19	MHP	wemd	0.031	0.012	0.016	0.000	0.093	0.769	0.423	0.000	0.000	0.000	0.000	0.000	0.001	0.000	1.344
19	MHP	weop	0.015	0.006	0.008	0.000	0.040	0.269	0.164	0.000	0.000	0.000	0.000	0.000	0.002	0.005	0.509
19	MHP	wepm	0.012	0.005	0.006	0.000	0.056	0.346	0.198	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.623
20	SFA	wdam	0.069	0.056	0.190	0.000	0.026	0.432	0.140	0.000	0.000	0.000	0.000	0.000	0.008	0.003	0.924
20	SFA	wdmd	0.026	0.017	0.046	0.000	0.038	0.397	0.473	0.000	0.000	0.000	0.000	0.000	0.016	0.006	1.018
20	SFA	wdop	0.024	0.017	0.051	0.000	0.039	0.346	0.158	0.000	0.000	0.000	0.000	0.000	0.025	0.010	0.669

LUC	LUNAME	Time Period	HBWL	HBWM	HBWH	HBSC	HBSH	HBO	NHB	UNIV	HOSP	APRT	RREC	HOT	SU	Combo	Sum
20	SFA	wdpm	0.012	0.008	0.021	0.000	0.045	0.306	0.236	0.000	0.000	0.000	0.000	0.000	0.016	0.006	0.650
20	SFA	weam	0.025	0.011	0.017	0.000	0.022	0.276	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.415
20	SFA	wemd	0.031	0.012	0.016	0.000	0.093	0.769	0.423	0.000	0.000	0.000	0.000	0.000	0.001	0.000	1.344
20	SFA	weop	0.015	0.006	0.008	0.000	0.040	0.269	0.164	0.000	0.000	0.000	0.000	0.000	0.002	0.005	0.509
20	SFA	wepm	0.012	0.005	0.006	0.000	0.056	0.346	0.198	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.623
21	APT	wdam	0.069	0.056	0.190	0.000	0.026	0.432	0.140	0.000	0.000	0.000	0.000	0.000	0.008	0.003	0.924
21	APT	wdmd	0.026	0.017	0.046	0.000	0.038	0.397	0.473	0.000	0.000	0.000	0.000	0.000	0.016	0.006	1.018
21	APT	wdop	0.024	0.017	0.051	0.000	0.039	0.346	0.158	0.000	0.000	0.000	0.000	0.000	0.025	0.010	0.669
21	APT	wdpm	0.012	0.008	0.021	0.000	0.045	0.306	0.236	0.000	0.000	0.000	0.000	0.000	0.016	0.006	0.650
21	APT	weam	0.025	0.011	0.017	0.000	0.022	0.276	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.415
21	APT	wemd	0.031	0.012	0.016	0.000	0.093	0.769	0.423	0.000	0.000	0.000	0.000	0.000	0.001	0.000	1.344
21	APT	weop	0.015	0.006	0.008	0.000	0.040	0.269	0.164	0.000	0.000	0.000	0.000	0.000	0.002	0.005	0.509
21	APT	wepm	0.012	0.005	0.006	0.000	0.056	0.346	0.198	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.623
22	DOR	wdam	0.069	0.056	0.190	0.000	0.026	0.432	0.140	0.000	0.000	0.000	0.000	0.000	0.008	0.003	0.924
22	DOR	wdmd	0.026	0.017	0.046	0.000	0.038	0.397	0.473	0.000	0.000	0.000	0.000	0.000	0.016	0.006	1.018
22	DOR	wdop	0.024	0.017	0.051	0.000	0.039	0.346	0.158	0.000	0.000	0.000	0.000	0.000	0.025	0.010	0.669
22	DOR	wdpm	0.012	0.008	0.021	0.000	0.045	0.306	0.236	0.000	0.000	0.000	0.000	0.000	0.016	0.006	0.650
22	DOR	weam	0.025	0.011	0.017	0.000	0.022	0.276	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.415
22	DOR	wemd	0.031	0.012	0.016	0.000	0.093	0.769	0.423	0.000	0.000	0.000	0.000	0.000	0.001	0.000	1.344
22	DOR	weop	0.015	0.006	0.008	0.000	0.040	0.269	0.164	0.000	0.000	0.000	0.000	0.000	0.002	0.005	0.509
22	DOR	wepm	0.012	0.005	0.006	0.000	0.056	0.346	0.198	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.623
23	STUD	wdam	0.069	0.056	0.190	0.000	0.026	0.432	0.140	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.913
23	STUD	wdmd	0.026	0.017	0.046	0.000	0.038	0.397	0.473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.996
23	STUD	wdop	0.024	0.017	0.051	0.000	0.039	0.346	0.158	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.634
23	STUD	wdpm	0.012	0.008	0.021	0.000	0.045	0.306	0.236	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.628
23	STUD	weam	0.025	0.011	0.017	0.000	0.022	0.276	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.415
23	STUD	wemd	0.031	0.012	0.016	0.000	0.093	0.769	0.423	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.343
23	STUD	weop	0.015	0.006	0.008	0.000	0.040	0.269	0.164	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.502
23	STUD	wepm	0.012	0.005	0.006	0.000	0.056	0.346	0.198	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.622
24	RET	wdam	0.069	0.056	0.190	0.000	0.026	0.432	0.140	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.913
24	RET	wdmd	0.026	0.017	0.046	0.000	0.038	0.397	0.473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.996

LUC	LUNAME	Time Period	HBWL	HBWM	HBWH	HBSC	HBSH	HBO	NHB	UNIV	HOSP	APRT	RREC	HOT	SU	Combo	Sum
24	RET	wdop	0.024	0.017	0.051	0.000	0.039	0.346	0.158	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.634
24	RET	wdpm	0.012	0.008	0.021	0.000	0.045	0.306	0.236	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.628
24	RET	weam	0.025	0.011	0.017	0.000	0.022	0.276	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.415
24	RET	wemd	0.031	0.012	0.016	0.000	0.093	0.769	0.423	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.343
24	RET	weop	0.015	0.006	0.008	0.000	0.040	0.269	0.164	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.502
24	RET	wepm	0.012	0.005	0.006	0.000	0.056	0.346	0.198	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.622
25	SNF	wdam	0.080	0.159	0.227	0.000	0.000	0.137	0.153	0.000	0.000	0.000	0.000	0.000	0.018	0.000	0.774
25	SNF	wdmd	0.048	0.054	0.065	0.000	0.000	0.171	0.402	0.000	0.000	0.000	0.000	0.000	0.043	0.000	0.782
25	SNF	wdop	0.032	0.039	0.054	0.000	0.000	0.108	0.118	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.359
25	SNF	wdpm	0.023	0.027	0.028	0.000	0.000	0.061	0.139	0.000	0.000	0.000	0.000	0.000	0.010	0.000	0.287
25	SNF	weam	0.030	0.034	0.023	0.000	0.000	0.089	0.050	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.234
25	SNF	wemd	0.028	0.036	0.018	0.000	0.000	0.260	0.322	0.000	0.000	0.000	0.000	0.000	0.017	0.000	0.682
25	SNF	weop	0.024	0.014	0.008	0.000	0.000	0.094	0.112	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.256
25	SNF	wepm	0.014	0.010	0.005	0.000	0.000	0.069	0.112	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.215
26	HOT	wdam	0.084	0.100	0.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.538	0.010	0.000	0.812
26	HOT	wdmd	0.035	0.035	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.969	0.023	0.000	1.086
26	HOT	wdop	0.034	0.037	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.508	0.015	0.000	0.617
26	HOT	wdpm	0.016	0.014	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.333	0.012	0.000	0.384
26	HOT	weam	0.035	0.021	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.306	0.009	0.000	0.378
26	HOT	wemd	0.039	0.020	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.987	0.020	0.001	1.073
26	HOT	weop	0.021	0.014	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.529	0.020	0.000	0.587
26	HOT	wepm	0.012	0.007	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.351	0.016	0.000	0.388
27	GQ	wdam	0.069	0.056	0.190	0.000	0.026	0.432	0.140	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.913
27	GQ	wdmd	0.026	0.017	0.046	0.000	0.038	0.397	0.473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.996
27	GQ	wdop	0.024	0.017	0.051	0.000	0.039	0.346	0.158	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.634
27	GQ	wdpm	0.012	0.008	0.021	0.000	0.045	0.306	0.236	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.628
27	GQ	weam	0.025	0.011	0.017	0.000	0.022	0.276	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.415
27	GQ	wemd	0.031	0.012	0.016	0.000	0.093	0.769	0.423	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.343
27	GQ	weop	0.015	0.006	0.008	0.000	0.040	0.269	0.164	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.502
27	GQ	wepm	0.012	0.005	0.006	0.000	0.056	0.346	0.198	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.622
30	MFG	wdam	0.250	0.218	0.728	0.000	0.169	0.107	0.270	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.742

LUC	LUNAME	Time Period	HBWL	HBWM	HBWH	HBSC	HBSH	HBO	NHB	UNIV	HOSP	APRT	RREC	HOT	SU	Combo	Sum
30	MFG	wdmd	0.075	0.063	0.169	0.000	0.224	0.169	0.689	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.388
30	MFG	wdop	0.091	0.076	0.218	0.000	0.187	0.113	0.173	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.857
30	MFG	wdpm	0.030	0.024	0.068	0.000	0.176	0.112	0.243	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.653
30	MFG	weam	0.087	0.045	0.069	0.000	0.109	0.064	0.085	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.459
30	MFG	wemd	0.076	0.042	0.054	0.000	0.378	0.171	0.342	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.064
30	MFG	weop	0.050	0.024	0.033	0.000	0.133	0.055	0.136	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.431
30	MFG	wepm	0.025	0.013	0.018	0.000	0.186	0.073	0.138	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.453
31	IPK	wdam	0.073	0.140	0.177	0.000	0.101	0.102	0.173	0.000	0.000	0.000	0.000	0.000	0.052	0.003	0.822
31	IPK	wdmd	0.029	0.044	0.050	0.000	0.149	0.105	0.523	0.000	0.000	0.000	0.000	0.000	0.126	0.008	1.033
31	IPK	wdop	0.032	0.051	0.053	0.000	0.106	0.066	0.156	0.000	0.000	0.000	0.000	0.000	0.023	0.004	0.491
31	IPK	wdpm	0.012	0.017	0.018	0.000	0.154	0.045	0.225	0.000	0.000	0.000	0.000	0.000	0.046	0.002	0.520
31	IPK	weam	0.022	0.026	0.016	0.000	0.104	0.071	0.063	0.000	0.000	0.000	0.000	0.000	0.014	0.003	0.318
31	IPK	wemd	0.022	0.024	0.012	0.000	0.275	0.171	0.340	0.000	0.000	0.000	0.000	0.000	0.043	0.006	0.893
31	IPK	weop	0.015	0.013	0.007	0.000	0.096	0.046	0.129	0.000	0.000	0.000	0.000	0.000	0.020	0.005	0.331
31	IPK	wepm	0.007	0.007	0.004	0.000	0.185	0.048	0.158	0.000	0.000	0.000	0.000	0.000	0.015	0.002	0.425
32	WAR	wdam	0.066	0.137	0.158	0.000	0.065	0.054	0.137	0.000	0.000	0.000	0.000	0.000	0.049	0.004	0.670
32	WAR	wdmd	0.029	0.045	0.044	0.000	0.117	0.060	0.385	0.000	0.000	0.000	0.000	0.000	0.108	0.007	0.794
32	WAR	wdop	0.030	0.051	0.053	0.000	0.084	0.047	0.114	0.000	0.000	0.000	0.000	0.000	0.017	0.006	0.400
32	WAR	wdpm	0.012	0.017	0.017	0.000	0.117	0.029	0.163	0.000	0.000	0.000	0.000	0.000	0.033	0.002	0.390
32	WAR	weam	0.021	0.028	0.014	0.000	0.068	0.032	0.043	0.000	0.000	0.000	0.000	0.000	0.018	0.005	0.228
32	WAR	wemd	0.020	0.023	0.011	0.000	0.214	0.093	0.239	0.000	0.000	0.000	0.000	0.000	0.034	0.006	0.641
32	WAR	weop	0.016	0.013	0.007	0.000	0.092	0.036	0.094	0.000	0.000	0.000	0.000	0.000	0.016	0.009	0.283
32	WAR	wepm	0.008	0.007	0.004	0.000	0.138	0.033	0.118	0.000	0.000	0.000	0.000	0.000	0.010	0.003	0.320
33	FTER	wdam	0.015	0.053	0.021	0.000	0.000	0.028	0.037	0.000	0.000	0.000	0.000	0.000	0.031	0.000	0.186
33	FTER	wdmd	0.008	0.007	0.008	0.000	0.000	0.009	0.055	0.000	0.000	0.000	0.000	0.000	0.072	0.009	0.168
33	FTER	wdop	0.004	0.014	0.013	0.000	0.000	0.006	0.013	0.000	0.000	0.000	0.000	0.000	0.018	0.005	0.073
33	FTER	wdpm	0.000	0.011	0.002	0.000	0.000	0.009	0.019	0.000	0.000	0.000	0.000	0.000	0.009	0.006	0.056
33	FTER	weam	0.000	0.004	0.002	0.000	0.000	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.063	0.006	0.096
33	FTER	wemd	0.010	0.006	0.002	0.000	0.000	0.038	0.037	0.000	0.000	0.000	0.000	0.000	0.058	0.006	0.156
33	FTER	weop	0.005	0.006	0.001	0.000	0.000	0.009	0.015	0.000	0.000	0.000	0.000	0.000	0.067	0.005	0.107
33	FTER	wepm	0.005	0.004	0.001	0.000	0.000	0.022	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.052

LUC	LUNAME	Time Period	HBWL	HBWM	HBWH	HBSC	HBSH	HBO	NHB	UNIV	HOSP	APRT	RREC	HOT	SU	Combo	Sum
34	STOR	wdam	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.124	0.011	0.134
34	STOR	wdmd	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.352	0.030	0.382
34	STOR	wdop	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.060	0.022	0.082
34	STOR	wdpm	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.237	0.013	0.250
34	STOR	weam	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.071	0.027	0.098
34	STOR	wemd	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.206	0.092	0.298
34	STOR	weop	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.059	0.048	0.106
34	STOR	wepm	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.066	0.015	0.081
35	EXT	wdam	0.011	0.005	0.010	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.057	0.000	0.087
35	EXT	wdmd	0.000	0.000	0.010	0.000	0.000	0.000	0.020	0.000	0.000	0.000	0.000	0.000	0.081	0.000	0.112
35	EXT	wdop	0.000	0.014	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.000	0.032
35	EXT	wdpm	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
35	EXT	weam	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
35	EXT	wemd	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.057	0.000	0.061
35	EXT	weop	0.000	0.000	0.000	0.000	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009
35	EXT	wepm	0.000	0.000	0.000	0.000	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.013
36	LF	wdam	0.040	0.099	0.095	0.000	0.000	0.000	0.037	0.000	0.000	0.000	0.000	0.000	0.099	0.000	0.370
36	LF	wdmd	0.013	0.031	0.027	0.000	0.020	0.000	0.063	0.000	0.000	0.000	0.000	0.000	0.262	0.000	0.416
36	LF	wdop	0.027	0.019	0.014	0.000	0.000	0.026	0.026	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.111
36	LF	wdpm	0.013	0.025	0.007	0.000	0.000	0.000	0.021	0.000	0.000	0.000	0.000	0.000	0.026	0.000	0.092
36	LF	weam	0.000	0.030	0.014	0.000	0.012	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.063	0.000	0.124
36	LF	wemd	0.000	0.020	0.000	0.000	0.024	0.024	0.026	0.000	0.000	0.000	0.000	0.000	0.115	0.000	0.209
36	LF	weop	0.000	0.010	0.003	0.000	0.012	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.031
36	LF	wepm	0.000	0.020	0.003	0.000	0.024	0.006	0.011	0.000	0.000	0.000	0.000	0.000	0.011	0.000	0.073
40	CAIR	wdam	0.004	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.291	0.000	0.000	0.020	0.000	0.336
40	CAIR	wdmd	0.001	0.003	0.005	0.000	0.002	0.000	0.000	0.000	0.000	1.053	0.000	0.000	0.066	0.001	1.131
40	CAIR	wdop	0.004	0.006	0.006	0.000	0.001	0.000	0.000	0.000	0.000	2.593	0.000	0.000	0.049	0.002	2.661
40	CAIR	wdpm	0.001	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1.448	0.000	0.000	0.025	0.000	1.478
40	CAIR	weam	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.167	0.000	0.000	0.025	0.000	0.197
40	CAIR	wemd	0.002	0.002	0.001	0.000	0.002	0.000	0.000	0.000	0.000	1.074	0.000	0.000	0.083	0.001	1.166
40	CAIR	weop	0.003	0.003	0.001	0.000	0.000	0.000	0.000	0.000	0.000	2.469	0.000	0.000	0.090	0.000	2.566

LUC	LUNAME	Time Period	HBWL	HBWM	HBWH	HBSC	HBSH	HBO	NHB	UNIV	HOSP	APRT	RREC	HOT	SU	Combo	Sum
40	CAIR	wepm	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.226	0.000	0.000	0.046	0.000	1.273
42	ROW	wdam	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
42	ROW	wdmd	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
42	ROW	wdop	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
42	ROW	wdpm	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
42	ROW	weam	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
42	ROW	wemd	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
42	ROW	weop	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
42	ROW	wepm	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
43	UTL	wdam	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
43	UTL	wdmd	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
43	UTL	wdop	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
43	UTL	wdpm	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
43	UTL	weam	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
43	UTL	wemd	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
43	UTL	weop	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
43	UTL	wepm	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
44	PARK	wdam	0.030	0.028	0.105	0.000	0.033	0.052	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.293
44	PARK	wdmd	0.013	0.010	0.030	0.000	0.060	0.109	0.114	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.335
44	PARK	wdop	0.014	0.011	0.035	0.000	0.068	0.079	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.236
44	PARK	wdpm	0.008	0.007	0.022	0.000	0.059	0.077	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.213
44	PARK	weam	0.011	0.005	0.009	0.000	0.014	0.035	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.095
44	PARK	wemd	0.009	0.004	0.007	0.000	0.048	0.108	0.095	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.272
44	PARK	weop	0.006	0.003	0.004	0.000	0.013	0.032	0.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.091
44	PARK	wepm	0.003	0.002	0.002	0.000	0.020	0.046	0.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.110
45	TERM	wdam	2.455	1.542	5.912	0.000	0.000	0.424	0.877	0.000	0.000	0.000	0.000	0.000	0.000	0.000	11.210
45	TERM	wdmd	0.630	0.030	0.318	0.000	0.000	1.165	2.592	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.735
45	TERM	wdop	1.322	0.272	1.335	0.000	0.000	0.848	0.953	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.730
45	TERM	wdpm	0.567	0.000	0.000	0.000	0.000	0.953	0.953	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.473
45	TERM	weam	1.027	0.078	0.368	0.000	0.000	0.524	0.267	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.264
45	TERM	wemd	0.770	0.000	0.205	0.000	0.000	0.611	0.801	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.387

LUC	LUNAME	Time Period	HBWL	HBWM	HBWH	HBSC	HBSH	HBO	NHB	UNIV	HOSP	APRT	RREC	HOT	SU	Combo	Sum
45	TERM	weop	0.257	0.155	0.205	0.000	0.000	0.437	0.610	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.663
45	TERM	wepm	0.000	0.000	0.041	0.000	0.000	0.349	0.534	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.924
50	SFC	wdam	0.209	0.347	0.371	0.000	2.269	0.273	1.008	0.000	0.000	0.000	0.000	0.000	0.098	0.002	4.577
50	SFC	wdmd	0.097	0.128	0.118	0.000	4.267	0.489	4.613	0.000	0.000	0.000	0.000	0.000	0.214	0.007	9.933
50	SFC	wdop	0.080	0.107	0.106	0.000	2.741	0.387	2.257	0.000	0.000	0.000	0.000	0.000	0.038	0.006	5.720
50	SFC	wdpm	0.056	0.060	0.050	0.000	4.488	0.390	3.689	0.000	0.000	0.000	0.000	0.000	0.050	0.003	8.785
50	SFC	weam	0.074	0.077	0.032	0.000	2.671	0.220	0.551	0.000	0.000	0.000	0.000	0.000	0.057	0.004	3.685
50	SFC	wemd	0.085	0.074	0.031	0.000	9.314	0.869	4.838	0.000	0.000	0.000	0.000	0.000	0.140	0.011	15.361
50	SFC	weop	0.044	0.032	0.013	0.000	3.237	0.328	2.255	0.000	0.000	0.000	0.000	0.000	0.044	0.007	5.960
50	SFC	wepm	0.030	0.026	0.012	0.000	5.793	0.390	3.169	0.000	0.000	0.000	0.000	0.000	0.036	0.005	9.461
51	NSC	wdam	0.231	0.334	0.390	0.000	1.610	1.012	1.059	0.000	0.000	0.000	0.000	0.000	0.054	0.001	4.690
51	NSC	wdmd	0.092	0.126	0.130	0.000	3.342	1.983	5.889	0.000	0.000	0.000	0.000	0.000	0.163	0.002	11.728
51	NSC	wdop	0.069	0.104	0.094	0.000	1.917	1.560	2.759	0.000	0.000	0.000	0.000	0.000	0.022	0.000	6.524
51	NSC	wdpm	0.047	0.062	0.056	0.000	3.242	1.693	3.891	0.000	0.000	0.000	0.000	0.000	0.036	0.001	9.028
51	NSC	weam	0.090	0.077	0.036	0.000	2.054	0.798	0.618	0.000	0.000	0.000	0.000	0.000	0.040	0.000	3.713
51	NSC	wemd	0.092	0.077	0.036	0.000	7.502	3.518	6.738	0.000	0.000	0.000	0.000	0.000	0.115	0.004	18.083
51	NSC	weop	0.037	0.037	0.016	0.000	2.310	1.263	2.838	0.000	0.000	0.000	0.000	0.000	0.038	0.001	6.540
51	NSC	wepm	0.037	0.031	0.014	0.000	4.362	1.746	3.646	0.000	0.000	0.000	0.000	0.000	0.034	0.001	9.871
52	CSC	wdam	0.041	0.060	0.076	0.000	1.108	0.084	0.412	0.000	0.000	0.000	0.000	0.000	0.039	0.001	1.820
52	CSC	wdmd	0.019	0.024	0.023	0.000	2.513	0.175	2.573	0.000	0.000	0.000	0.000	0.000	0.115	0.003	5.445
52	CSC	wdop	0.011	0.018	0.021	0.000	1.263	0.129	1.113	0.000	0.000	0.000	0.000	0.000	0.021	0.001	2.577
52	CSC	wdpm	0.011	0.012	0.013	0.000	2.347	0.145	1.961	0.000	0.000	0.000	0.000	0.000	0.031	0.001	4.521
52	CSC	weam	0.016	0.012	0.006	0.000	1.663	0.075	0.303	0.000	0.000	0.000	0.000	0.000	0.030	0.003	2.108
52	CSC	wemd	0.016	0.013	0.007	0.000	6.269	0.366	3.583	0.000	0.000	0.000	0.000	0.000	0.104	0.005	10.363
52	CSC	weop	0.010	0.006	0.003	0.000	1.637	0.110	1.203	0.000	0.000	0.000	0.000	0.000	0.034	0.004	3.007
52	CSC	wepm	0.007	0.006	0.003	0.000	3.402	0.167	2.055	0.000	0.000	0.000	0.000	0.000	0.038	0.001	5.678
53	RSC	wdam	0.022	0.036	0.043	0.000	0.233	0.031	0.097	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.471
53	RSC	wdmd	0.010	0.021	0.014	0.000	0.828	0.117	0.973	0.000	0.000	0.000	0.000	0.000	0.039	0.001	2.002
53	RSC	wdop	0.001	0.005	0.005	0.000	0.311	0.164	0.366	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.858
53	RSC	wdpm	0.006	0.008	0.007	0.000	0.744	0.201	0.768	0.000	0.000	0.000	0.000	0.000	0.009	0.001	1.743
53	RSC	weam	0.004	0.005	0.003	0.000	0.433	0.024	0.084	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.557

LUC	LUNAME	Time Period	HBWL	HBWM	HBWH	HBSC	HBSH	HBO	NHB	UNIV	HOSP	APRT	RREC	HOT	SU	Combo	Sum
53	RSC	wemd	0.001	0.006	0.004	0.000	2.733	0.269	1.769	0.000	0.000	0.000	0.000	0.000	0.038	0.000	4.819
53	RSC	weop	0.001	0.001	0.002	0.000	0.522	0.162	0.542	0.000	0.000	0.000	0.000	0.000	0.007	0.000	1.237
53	RSC	wepm	0.000	0.003	0.001	0.000	1.384	0.285	1.066	0.000	0.000	0.000	0.000	0.000	0.009	0.000	2.748
55	AUC	wdam	0.066	0.094	0.122	0.000	0.724	0.016	0.315	0.000	0.000	0.000	0.000	0.000	0.038	0.002	1.377
55	AUC	wdmd	0.029	0.030	0.043	0.000	1.370	0.023	1.314	0.000	0.000	0.000	0.000	0.000	0.080	0.003	2.892
55	AUC	wdop	0.021	0.038	0.034	0.000	0.606	0.009	0.364	0.000	0.000	0.000	0.000	0.000	0.006	0.001	1.079
55	AUC	wdpm	0.009	0.013	0.016	0.000	1.046	0.013	0.808	0.000	0.000	0.000	0.000	0.000	0.019	0.001	1.924
55	AUC	weam	0.013	0.017	0.012	0.000	0.738	0.021	0.124	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.939
55	AUC	wemd	0.021	0.019	0.007	0.000	2.317	0.048	1.088	0.000	0.000	0.000	0.000	0.000	0.029	0.000	3.528
55	AUC	weop	0.012	0.011	0.004	0.000	0.587	0.010	0.360	0.000	0.000	0.000	0.000	0.000	0.014	0.000	0.998
55	AUC	wepm	0.012	0.006	0.003	0.000	1.108	0.020	0.548	0.000	0.000	0.000	0.000	0.000	0.009	0.000	1.704
56	SS	wdam	0.893	0.763	2.527	0.000	1.445	0.687	1.036	0.000	0.000	0.000	0.000	0.000	0.013	0.003	7.368
56	SS	wdmd	0.272	0.225	0.562	0.000	2.121	0.880	3.287	0.000	0.000	0.000	0.000	0.000	0.014	0.004	7.364
56	SS	wdop	0.284	0.224	0.706	0.000	1.716	0.692	1.157	0.000	0.000	0.000	0.000	0.000	0.034	0.009	4.821
56	SS	wdpm	0.105	0.080	0.238	0.000	1.822	0.646	1.622	0.000	0.000	0.000	0.000	0.000	0.014	0.004	4.530
56	SS	weam	0.275	0.163	0.230	0.000	1.336	0.486	0.442	0.000	0.000	0.000	0.000	0.000	0.000	0.001	2.933
56	SS	wemd	0.307	0.132	0.183	0.000	4.466	1.514	2.521	0.000	0.000	0.000	0.000	0.000	0.001	0.001	9.124
56	SS	weop	0.152	0.086	0.104	0.000	1.597	0.493	1.014	0.000	0.000	0.000	0.000	0.000	0.003	0.002	3.451
56	SS	wepm	0.086	0.044	0.062	0.000	2.264	0.669	1.156	0.000	0.000	0.000	0.000	0.000	0.001	0.001	4.284
57	FF	wdam	1.241	1.417	1.221	0.000	0.434	5.769	3.398	0.000	0.000	0.000	0.000	0.000	0.150	0.007	13.637
57	FF	wdmd	0.527	0.551	0.433	0.000	0.688	16.112	26.165	0.000	0.000	0.000	0.000	0.000	0.540	0.018	45.034
57	FF	wdop	0.463	0.446	0.382	0.000	0.383	14.933	14.566	0.000	0.000	0.000	0.000	0.000	0.091	0.010	31.273
57	FF	wdpm	0.356	0.278	0.212	0.000	0.702	15.169	13.329	0.000	0.000	0.000	0.000	0.000	0.088	0.007	30.140
57	FF	weam	0.499	0.368	0.121	0.000	0.469	4.287	1.920	0.000	0.000	0.000	0.000	0.000	0.259	0.007	7.930
57	FF	wemd	0.514	0.327	0.120	0.000	1.642	28.489	29.409	0.000	0.000	0.000	0.000	0.000	0.445	0.038	60.985
57	FF	weop	0.276	0.179	0.060	0.000	0.500	13.436	15.126	0.000	0.000	0.000	0.000	0.000	0.161	0.027	29.765
57	FF	wepm	0.316	0.138	0.045	0.000	0.871	14.160	13.069	0.000	0.000	0.000	0.000	0.000	0.114	0.008	28.721
58	SDR	wdam	0.504	0.674	0.593	0.000	0.375	1.091	0.976	0.000	0.000	0.000	0.000	0.000	0.039	0.001	4.253
58	SDR	wdmd	0.225	0.224	0.198	0.000	0.881	3.066	5.549	0.000	0.000	0.000	0.000	0.000	0.128	0.002	10.273
58	SDR	wdop	0.174	0.218	0.161	0.000	0.562	3.604	3.366	0.000	0.000	0.000	0.000	0.000	0.042	0.002	8.130
58	SDR	wdpm	0.110	0.110	0.097	0.000	0.966	4.063	3.757	0.000	0.000	0.000	0.000	0.000	0.037	0.003	9.142

LUC	LUNAME	Time Period	HBWL	HBWM	HBWH	HBSC	HBSH	HBO	NHB	UNIV	HOSP	APRT	RREC	HOT	SU	Combo	Sum
58	SDR	weam	0.206	0.151	0.060	0.000	0.596	0.972	0.529	0.000	0.000	0.000	0.000	0.000	0.040	0.000	2.554
58	SDR	wemd	0.175	0.125	0.051	0.000	2.133	6.503	6.833	0.000	0.000	0.000	0.000	0.000	0.142	0.004	15.966
58	SDR	weop	0.080	0.060	0.022	0.000	0.763	3.544	3.883	0.000	0.000	0.000	0.000	0.000	0.071	0.003	8.425
58	SDR	wepm	0.090	0.056	0.021	0.000	1.558	4.716	4.272	0.000	0.000	0.000	0.000	0.000	0.040	0.001	10.753
59	ORC	wdam	0.143	0.236	0.238	0.000	0.638	0.241	0.514	0.000	0.000	0.000	0.000	0.000	0.071	0.021	2.101
59	ORC	wdmd	0.082	0.092	0.086	0.000	1.184	0.431	2.091	0.000	0.000	0.000	0.000	0.000	0.180	0.091	4.238
59	ORC	wdop	0.055	0.077	0.077	0.000	0.661	0.251	0.897	0.000	0.000	0.000	0.000	0.000	0.120	0.065	2.203
59	ORC	wdpm	0.032	0.042	0.029	0.000	1.211	0.222	1.193	0.000	0.000	0.000	0.000	0.000	0.091	0.034	2.854
59	ORC	weam	0.065	0.051	0.025	0.000	0.710	0.190	0.287	0.000	0.000	0.000	0.000	0.000	0.059	0.058	1.445
59	ORC	wemd	0.072	0.051	0.023	0.000	2.275	0.690	2.068	0.000	0.000	0.000	0.000	0.000	0.208	0.153	5.540
59	ORC	weop	0.026	0.027	0.011	0.000	0.825	0.252	0.843	0.000	0.000	0.000	0.000	0.000	0.140	0.112	2.235
59	ORC	wepm	0.022	0.015	0.007	0.000	1.410	0.216	1.110	0.000	0.000	0.000	0.000	0.000	0.095	0.044	2.919
60	GO	wdam	0.391	0.354	1.346	0.000	0.269	0.417	0.388	0.000	0.000	0.000	0.000	0.000	0.002	0.000	3.168
60	GO	wdmd	0.115	0.096	0.301	0.000	0.428	0.583	1.110	0.000	0.000	0.000	0.000	0.000	0.004	0.001	2.638
60	GO	wdop	0.114	0.096	0.320	0.000	0.296	0.383	0.291	0.000	0.000	0.000	0.000	0.000	0.008	0.001	1.508
60	GO	wdpm	0.053	0.039	0.120	0.000	0.290	0.380	0.432	0.000	0.000	0.000	0.000	0.000	0.004	0.001	1.318
60	GO	weam	0.134	0.065	0.114	0.000	0.125	0.272	0.128	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.837
60	GO	wemd	0.112	0.055	0.089	0.000	0.435	0.757	0.663	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.110
60	GO	weop	0.054	0.029	0.045	0.000	0.136	0.234	0.248	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.747
60	GO	wepm	0.035	0.019	0.029	0.000	0.196	0.318	0.284	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.881
61	GOV	wdam	0.391	0.354	1.346	0.000	0.269	0.417	0.388	0.000	0.000	0.000	0.000	0.000	0.002	0.000	3.168
61	GOV	wdmd	0.115	0.096	0.301	0.000	0.428	0.583	1.110	0.000	0.000	0.000	0.000	0.000	0.003	0.001	2.637
61	GOV	wdop	0.114	0.096	0.320	0.000	0.296	0.383	0.291	0.000	0.000	0.000	0.000	0.000	0.007	0.001	1.508
61	GOV	wdpm	0.053	0.039	0.120	0.000	0.290	0.380	0.432	0.000	0.000	0.000	0.000	0.000	0.003	0.001	1.318
61	GOV	weam	0.134	0.065	0.114	0.000	0.125	0.272	0.128	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.837
61	GOV	wemd	0.112	0.055	0.089	0.000	0.435	0.757	0.663	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.110
61	GOV	weop	0.054	0.029	0.045	0.000	0.136	0.234	0.248	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.747
61	GOV	wepm	0.035	0.019	0.029	0.000	0.196	0.318	0.284	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.881
62	HRO	wdam	0.587	0.797	3.028	0.000	0.404	0.626	0.582	0.000	0.000	0.000	0.000	0.000	0.002	0.000	6.026
62	HRO	wdmd	0.173	0.144	0.452	0.000	0.641	0.875	1.665	0.000	0.000	0.000	0.000	0.000	0.003	0.001	3.954
62	HRO	wdop	0.171	0.144	0.480	0.000	0.444	0.574	0.436	0.000	0.000	0.000	0.000	0.000	0.007	0.001	2.257

LUC	LUNAME	Time Period	HBWL	HBWM	HBWH	HBSC	HBSH	HBO	NHB	UNIV	HOSP	APRT	RREC	HOT	SU	Combo	Sum
62	HRO	wdpm	0.079	0.059	0.180	0.000	0.436	0.570	0.648	0.000	0.000	0.000	0.000	0.000	0.003	0.001	1.975
62	HRO	weam	0.200	0.097	0.171	0.000	0.187	0.408	0.191	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.256
62	HRO	wemd	0.168	0.082	0.134	0.000	0.652	1.135	0.994	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.165
62	HRO	weop	0.081	0.044	0.068	0.000	0.204	0.351	0.371	0.000	0.000	0.000	0.000	0.000	0.001	0.000	1.120
62	HRO	wepm	0.052	0.028	0.044	0.000	0.294	0.477	0.426	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.322
63	LIB	wdam	0.106	0.176	0.338	0.000	0.033	0.427	0.281	0.000	0.000	0.000	0.000	0.000	0.011	0.002	1.374
63	LIB	wdmd	0.056	0.089	0.120	0.000	0.062	0.795	1.149	0.000	0.000	0.000	0.000	0.000	0.015	0.000	2.285
63	LIB	wdop	0.028	0.033	0.089	0.000	0.041	0.265	0.314	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.776
63	LIB	wdpm	0.028	0.020	0.061	0.000	0.070	0.435	0.426	0.000	0.000	0.000	0.000	0.000	0.013	0.000	1.054
63	LIB	weam	0.035	0.033	0.030	0.000	0.068	0.520	0.154	0.000	0.000	0.000	0.000	0.000	0.009	0.000	0.849
63	LIB	wemd	0.021	0.019	0.016	0.000	0.146	1.547	1.090	0.000	0.000	0.000	0.000	0.000	0.015	0.000	2.855
63	LIB	weop	0.021	0.012	0.015	0.000	0.049	0.346	0.342	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.785
63	LIB	wepm	0.007	0.010	0.006	0.000	0.097	0.542	0.543	0.000	0.000	0.000	0.000	0.000	0.004	0.000	1.210
64	PO	wdam	0.056	0.193	0.251	0.000	0.967	0.062	0.460	0.000	0.000	0.000	0.000	0.000	0.031	0.028	2.047
64	PO	wdmd	0.087	0.178	0.099	0.000	1.653	0.328	1.376	0.000	0.000	0.000	0.000	0.000	0.059	0.031	3.812
64	PO	wdop	0.111	0.091	0.111	0.000	1.173	0.401	0.608	0.000	0.000	0.000	0.000	0.000	0.031	0.053	2.579
64	PO	wdpm	0.119	0.135	0.096	0.000	1.659	0.231	1.065	0.000	0.000	0.000	0.000	0.000	0.037	0.006	3.348
64	PO	weam	0.040	0.047	0.023	0.000	0.972	0.043	0.164	0.000	0.000	0.000	0.000	0.000	0.000	0.093	1.381
64	PO	wemd	0.060	0.068	0.031	0.000	3.263	0.518	1.108	0.000	0.000	0.000	0.000	0.000	0.022	0.083	5.154
64	PO	weop	0.040	0.036	0.018	0.000	1.292	0.419	0.509	0.000	0.000	0.000	0.000	0.000	0.031	0.201	2.545
64	PO	wepm	0.060	0.015	0.010	0.000	1.826	0.195	0.781	0.000	0.000	0.000	0.000	0.000	0.062	0.009	2.958
65	BNK	wdam	0.295	0.627	1.021	0.000	0.156	0.588	0.694	0.000	0.000	0.000	0.000	0.000	0.093	0.003	3.477
65	BNK	wdmd	0.112	0.229	0.309	0.000	0.303	0.818	2.231	0.000	0.000	0.000	0.000	0.000	0.251	0.000	4.254
65	BNK	wdop	0.081	0.185	0.247	0.000	0.170	0.380	0.781	0.000	0.000	0.000	0.000	0.000	0.051	0.001	1.894
65	BNK	wdpm	0.055	0.091	0.134	0.000	0.289	0.261	0.801	0.000	0.000	0.000	0.000	0.000	0.052	0.000	1.682
65	BNK	weam	0.104	0.128	0.081	0.000	0.167	0.379	0.239	0.000	0.000	0.000	0.000	0.000	0.051	0.001	1.150
65	BNK	wemd	0.104	0.111	0.071	0.000	0.532	1.125	1.780	0.000	0.000	0.000	0.000	0.000	0.140	0.001	3.863
65	BNK	weop	0.051	0.045	0.037	0.000	0.180	0.330	0.687	0.000	0.000	0.000	0.000	0.000	0.062	0.001	1.393
65	BNK	wepm	0.045	0.038	0.030	0.000	0.295	0.227	0.652	0.000	0.000	0.000	0.000	0.000	0.048	0.000	1.334
66	FS	wdam	0.099	0.234	0.340	0.000	0.025	0.168	0.239	0.000	0.000	0.000	0.000	0.000	0.033	0.000	1.137
66	FS	wdmd	0.034	0.077	0.109	0.000	0.027	0.189	0.510	0.000	0.000	0.000	0.000	0.000	0.056	0.000	1.002

LUC	LUNAME	Time Period	HBWL	HBWM	HBWH	HBSC	HBSH	HBO	NHB	UNIV	HOSP	APRT	RREC	HOT	SU	Combo	Sum
66	FS	wdop	0.015	0.074	0.118	0.000	0.010	0.106	0.139	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.464
66	FS	wdpm	0.008	0.027	0.035	0.000	0.025	0.064	0.182	0.000	0.000	0.000	0.000	0.000	0.005	0.001	0.348
66	FS	weam	0.049	0.046	0.026	0.000	0.063	0.098	0.085	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.373
66	FS	wemd	0.026	0.041	0.026	0.000	0.091	0.266	0.385	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.843
66	FS	weop	0.023	0.014	0.013	0.000	0.018	0.078	0.136	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.287
66	FS	wepm	0.003	0.013	0.008	0.000	0.023	0.067	0.143	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.256
67	CEM	wdam	0.010	0.035	0.038	0.000	0.007	0.060	0.052	0.000	0.000	0.000	0.000	0.000	0.011	0.000	0.213
67	CEM	wdmd	0.015	0.016	0.010	0.000	0.034	0.071	0.199	0.000	0.000	0.000	0.000	0.000	0.044	0.000	0.390
67	CEM	wdop	0.008	0.008	0.008	0.000	0.028	0.054	0.057	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.169
67	CEM	wdpm	0.003	0.008	0.003	0.000	0.062	0.023	0.092	0.000	0.000	0.000	0.000	0.000	0.012	0.000	0.202
67	CEM	weam	0.003	0.009	0.007	0.000	0.013	0.042	0.028	0.000	0.000	0.000	0.000	0.000	0.012	0.000	0.114
67	CEM	wemd	0.013	0.005	0.002	0.000	0.055	0.103	0.170	0.000	0.000	0.000	0.000	0.000	0.038	0.002	0.388
67	CEM	weop	0.003	0.004	0.001	0.000	0.038	0.020	0.059	0.000	0.000	0.000	0.000	0.000	0.011	0.000	0.135
67	CEM	wepm	0.000	0.003	0.004	0.000	0.047	0.024	0.092	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.176
68	RF	wdam	0.145	0.279	0.372	0.000	0.011	0.367	0.293	0.000	0.000	0.000	0.000	0.000	0.017	0.000	1.484
68	RF	wdmd	0.065	0.090	0.100	0.000	0.044	0.478	0.891	0.000	0.000	0.000	0.000	0.000	0.047	0.000	1.714
68	RF	wdop	0.062	0.079	0.087	0.000	0.059	0.240	0.281	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.816
68	RF	wdpm	0.039	0.045	0.046	0.000	0.051	0.188	0.328	0.000	0.000	0.000	0.000	0.000	0.015	0.000	0.712
68	RF	weam	0.058	0.053	0.035	0.000	0.022	0.284	0.122	0.000	0.000	0.000	0.000	0.000	0.009	0.000	0.584
68	RF	wemd	0.056	0.054	0.027	0.000	0.079	0.779	0.810	0.000	0.000	0.000	0.000	0.000	0.028	0.001	1.834
68	RF	weop	0.035	0.024	0.012	0.000	0.069	0.224	0.289	0.000	0.000	0.000	0.000	0.000	0.009	0.000	0.662
68	RF	wepm	0.023	0.020	0.011	0.000	0.071	0.199	0.298	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.629
69	OPS	wdam	0.047	0.095	0.111	0.000	0.001	0.015	0.071	0.000	0.000	0.000	0.000	0.000	0.040	0.000	0.379
69	OPS	wdmd	0.048	0.032	0.027	0.000	0.023	0.041	0.143	0.000	0.000	0.000	0.000	0.000	0.134	0.000	0.448
69	OPS	wdop	0.073	0.028	0.035	0.000	0.029	0.045	0.035	0.000	0.000	0.000	0.000	0.000	0.021	0.000	0.265
69	OPS	wdpm	0.037	0.015	0.015	0.000	0.025	0.017	0.040	0.000	0.000	0.000	0.000	0.000	0.025	0.000	0.173
69	OPS	weam	0.019	0.017	0.010	0.000	0.001	0.008	0.017	0.000	0.000	0.000	0.000	0.000	0.014	0.000	0.087
69	OPS	wemd	0.037	0.017	0.007	0.000	0.027	0.043	0.057	0.000	0.000	0.000	0.000	0.000	0.066	0.000	0.254
69	OPS	weop	0.061	0.008	0.005	0.000	0.052	0.044	0.020	0.000	0.000	0.000	0.000	0.000	0.023	0.000	0.213
69	OPS	wepm	0.035	0.007	0.002	0.000	0.027	0.021	0.021	0.000	0.000	0.000	0.000	0.000	0.016	0.000	0.130
70	HOSP	wdam	0.413	0.333	1.139	0.000	0.334	0.000	0.479	0.000	0.622	0.000	0.000	0.000	0.009	0.001	3.330

LUC	LUNAME	Time Period	HBWL	HBWM	HBWH	HBSC	HBSH	HBO	NHB	UNIV	HOSP	APRT	RREC	HOT	SU	Combo	Sum
70	HOSP	wdmd	0.184	0.115	0.298	0.000	0.563	0.000	1.718	0.000	0.934	0.000	0.000	0.000	0.009	0.001	3.822
70	HOSP	wdop	0.106	0.094	0.288	0.000	0.314	0.000	0.453	0.000	0.446	0.000	0.000	0.000	0.024	0.003	1.726
70	HOSP	wdpm	0.061	0.043	0.117	0.000	0.325	0.000	0.737	0.000	0.498	0.000	0.000	0.000	0.009	0.001	1.791
70	HOSP	weam	0.113	0.066	0.101	0.000	0.089	0.000	0.172	0.000	0.433	0.000	0.000	0.000	0.000	0.000	0.974
70	HOSP	wemd	0.141	0.060	0.086	0.000	0.319	0.000	1.115	0.000	1.336	0.000	0.000	0.000	0.001	0.000	3.057
70	HOSP	weop	0.047	0.024	0.042	0.000	0.083	0.000	0.366	0.000	0.367	0.000	0.000	0.000	0.002	0.000	0.931
70	HOSP	wepm	0.047	0.022	0.034	0.000	0.137	0.000	0.473	0.000	0.521	0.000	0.000	0.000	0.001	0.000	1.233
71	OHC	wdam	0.255	0.507	0.780	0.000	0.148	0.000	0.000	0.000	0.621	0.000	0.000	0.000	0.034	0.000	2.346
71	OHC	wdmd	0.097	0.142	0.185	0.000	0.286	0.000	0.000	0.000	1.333	0.000	0.000	0.000	0.062	0.000	2.105
71	OHC	wdop	0.068	0.147	0.204	0.000	0.091	0.000	0.000	0.000	0.401	0.000	0.000	0.000	0.011	0.000	0.923
71	OHC	wdpm	0.049	0.067	0.092	0.000	0.174	0.000	0.000	0.000	0.424	0.000	0.000	0.000	0.018	0.000	0.823
71	OHC	weam	0.080	0.085	0.062	0.000	0.085	0.000	0.000	0.000	0.301	0.000	0.000	0.000	0.012	0.000	0.625
71	OHC	wemd	0.085	0.084	0.052	0.000	0.276	0.000	0.000	0.000	1.264	0.000	0.000	0.000	0.015	0.000	1.775
71	OHC	weop	0.035	0.037	0.028	0.000	0.102	0.000	0.000	0.000	0.429	0.000	0.000	0.000	0.011	0.000	0.641
71	OHC	wepm	0.035	0.033	0.020	0.000	0.138	0.000	0.000	0.000	0.397	0.000	0.000	0.000	0.006	0.000	0.629
73	REC	wdam	0.072	0.115	0.122	0.000	0.038	0.471	0.265	0.000	0.000	0.000	0.000	0.000	0.015	0.000	1.098
73	REC	wdmd	0.037	0.053	0.044	0.000	0.039	0.747	0.991	0.000	0.000	0.000	0.000	0.000	0.041	0.001	1.952
73	REC	wdop	0.017	0.034	0.039	0.000	0.043	0.461	0.454	0.000	0.000	0.000	0.000	0.000	0.005	0.000	1.053
73	REC	wdpm	0.016	0.028	0.022	0.000	0.055	0.570	0.554	0.000	0.000	0.000	0.000	0.000	0.014	0.000	1.259
73	REC	weam	0.040	0.027	0.012	0.000	0.044	0.666	0.173	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.968
73	REC	wemd	0.029	0.028	0.011	0.000	0.097	2.040	1.613	0.000	0.000	0.000	0.000	0.000	0.025	0.001	3.844
73	REC	weop	0.014	0.014	0.006	0.000	0.045	0.522	0.569	0.000	0.000	0.000	0.000	0.000	0.007	0.000	1.179
73	REC	wepm	0.010	0.012	0.004	0.000	0.085	0.888	0.738	0.000	0.000	0.000	0.000	0.000	0.006	0.000	1.742
74	CUL	wdam	0.074	0.099	0.116	0.000	0.000	0.316	0.207	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.812
74	CUL	wdmd	0.017	0.023	0.054	0.000	0.000	0.517	0.766	0.000	0.000	0.000	0.000	0.000	0.026	0.000	1.403
74	CUL	wdop	0.028	0.018	0.043	0.000	0.008	0.327	0.312	0.000	0.000	0.000	0.000	0.000	0.013	0.002	0.752
74	CUL	wdpm	0.011	0.031	0.017	0.000	0.000	0.448	0.400	0.000	0.000	0.000	0.000	0.000	0.022	0.000	0.930
74	CUL	weam	0.022	0.011	0.013	0.000	0.000	0.395	0.110	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.554
74	CUL	wemd	0.014	0.019	0.012	0.000	0.000	1.624	1.313	0.000	0.000	0.000	0.000	0.000	0.009	0.000	2.991
74	CUL	weop	0.000	0.015	0.002	0.000	0.005	0.415	0.517	0.000	0.000	0.000	0.000	0.000	0.009	0.000	0.963
74	CUL	wepm	0.014	0.011	0.001	0.000	0.000	0.564	0.510	0.000	0.000	0.000	0.000	0.000	0.004	0.000	1.105

LUC	LUNAME	Time Period	HBWL	HBWM	HBWH	HBSC	HBSH	HBO	NHB	UNIV	HOSP	APRT	RREC	HOT	SU	Combo	Sum
75	CCEN	wdam	0.021	0.070	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.220	0.000	0.006	0.000	1.366
75	CCEN	wdmd	0.025	0.025	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.901	0.000	0.019	0.000	2.979
75	CCEN	wdop	0.008	0.008	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.509	0.000	0.005	0.000	1.558
75	CCEN	wdpm	0.004	0.009	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.265	0.000	0.006	0.002	1.295
75	CCEN	weam	0.010	0.009	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.814	0.000	0.013	0.000	1.851
75	CCEN	wemd	0.016	0.012	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.719	0.000	0.010	0.003	6.764
75	CCEN	weop	0.005	0.002	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.101	0.000	0.008	0.000	3.122
75	CCEN	wepm	0.010	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.158	0.000	0.000	0.000	3.172
76	PA	wdam	0.156	0.303	0.373	0.000	0.035	0.316	0.293	0.000	0.000	0.000	0.000	0.000	0.029	0.001	1.505
76	PA	wdmd	0.069	0.087	0.089	0.000	0.079	0.485	0.898	0.000	0.000	0.000	0.000	0.000	0.060	0.001	1.768
76	PA	wdop	0.052	0.078	0.091	0.000	0.072	0.293	0.353	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.946
76	PA	wdpm	0.033	0.039	0.052	0.000	0.145	0.325	0.418	0.000	0.000	0.000	0.000	0.000	0.014	0.000	1.027
76	PA	weam	0.039	0.056	0.028	0.000	0.054	0.343	0.136	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.664
76	PA	wemd	0.056	0.057	0.027	0.000	0.230	1.123	1.017	0.000	0.000	0.000	0.000	0.000	0.024	0.000	2.534
76	PA	weop	0.018	0.023	0.011	0.000	0.095	0.333	0.429	0.000	0.000	0.000	0.000	0.000	0.009	0.000	0.918
76	PA	wepm	0.017	0.019	0.009	0.000	0.200	0.505	0.521	0.000	0.000	0.000	0.000	0.000	0.009	0.000	1.281
77	MIL	wdam	0.191	0.454	0.639	0.000	0.253	0.124	0.461	0.000	0.000	0.000	0.000	0.000	0.055	0.000	2.177
77	MIL	wdmd	0.122	0.171	0.192	0.000	0.410	0.219	1.254	0.000	0.000	0.000	0.000	0.000	0.095	0.002	2.465
77	MIL	wdop	0.099	0.129	0.183	0.000	0.177	0.143	0.229	0.000	0.000	0.000	0.000	0.000	0.009	0.000	0.969
77	MIL	wdpm	0.052	0.054	0.044	0.000	0.213	0.127	0.363	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.860
77	MIL	weam	0.056	0.063	0.044	0.000	0.225	0.068	0.098	0.000	0.000	0.000	0.000	0.000	0.016	0.000	0.570
77	MIL	wemd	0.047	0.054	0.029	0.000	0.599	0.270	0.559	0.000	0.000	0.000	0.000	0.000	0.012	0.000	1.570
77	MIL	weop	0.035	0.030	0.015	0.000	0.246	0.148	0.115	0.000	0.000	0.000	0.000	0.000	0.011	0.000	0.600
77	MIL	wepm	0.022	0.014	0.009	0.000	0.249	0.121	0.181	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.597
78	JAIL	wdam	0.044	0.067	0.131	0.000	0.060	0.206	0.096	0.000	0.000	0.000	0.000	0.000	0.009	0.000	0.613
78	JAIL	wdmd	0.079	0.023	0.037	0.000	0.169	0.256	0.209	0.000	0.000	0.000	0.000	0.000	0.023	0.000	0.795
78	JAIL	wdop	0.065	0.019	0.036	0.000	0.340	0.399	0.049	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.913
78	JAIL	wdpm	0.021	0.015	0.013	0.000	0.176	0.155	0.052	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.433
78	JAIL	weam	0.029	0.009	0.009	0.000	0.003	0.040	0.043	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.135
78	JAIL	wemd	0.007	0.011	0.012	0.000	0.126	0.137	0.114	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.413
78	JAIL	weop	0.180	0.003	0.004	0.000	0.413	0.275	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.915

LUC	LUNAME	Time Period	HBWL	HBWM	HBWH	HBSC	HBSH	HBO	NHB	UNIV	HOSP	APRT	RREC	HOT	SU	Combo	Sum
78	JAIL	wepm	0.005	0.001	0.002	0.000	0.188	0.113	0.040	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.352
79	TOUR	wdam	0.082	0.168	0.215	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.700	0.000	0.000	0.000	2.164
79	TOUR	wdmd	0.020	0.056	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.907	0.000	0.000	0.000	3.004
79	TOUR	wdop	0.020	0.075	0.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.626	0.000	0.000	0.000	0.752
79	TOUR	wdpm	0.000	0.028	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.537	0.000	0.000	0.000	0.575
79	TOUR	weam	0.000	0.038	0.004	0.000	0.018	0.000	0.000	0.000	0.000	0.000	0.569	0.000	0.000	0.000	0.629
79	TOUR	wemd	0.000	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.705	0.000	0.032	0.000	1.753
79	TOUR	weop	0.026	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.454	0.000	0.000	0.000	0.495
79	TOUR	wepm	0.026	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.512	0.000	0.000	0.000	0.561
80	PS	wdam	0.866	0.724	2.639	0.000	0.059	2.020	0.856	0.000	0.000	0.000	0.000	0.000	0.002	0.000	7.166
80	PS	wdmd	0.228	0.213	0.562	0.000	0.086	2.222	2.683	0.000	0.000	0.000	0.000	0.000	0.002	0.000	5.995
80	PS	wdop	0.216	0.190	0.653	0.000	0.062	1.894	0.946	0.000	0.000	0.000	0.000	0.000	0.007	0.001	3.969
80	PS	wdpm	0.122	0.069	0.286	0.000	0.078	1.676	1.228	0.000	0.000	0.000	0.000	0.000	0.002	0.000	3.462
80	PS	weam	0.289	0.183	0.238	0.000	0.044	1.350	0.330	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.434
80	PS	wemd	0.349	0.125	0.207	0.000	0.144	3.587	2.072	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.485
80	PS	weop	0.170	0.071	0.100	0.000	0.060	1.179	0.761	0.000	0.000	0.000	0.000	0.000	0.001	0.000	2.340
80	PS	wepm	0.086	0.048	0.066	0.000	0.056	1.484	0.942	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.682
81	ELEM	wdam	0.013	0.027	0.044	1.665	0.001	0.042	0.028	0.000	0.000	0.000	0.000	0.000	0.002	0.000	1.822
81	ELEM	wdmd	0.005	0.009	0.012	0.003	0.004	0.050	0.082	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.170
81	ELEM	wdop	0.006	0.007	0.010	0.000	0.003	0.015	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.056
81	ELEM	wdpm	0.004	0.004	0.006	0.004	0.003	0.018	0.026	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.066
81	ELEM	weam	0.004	0.005	0.004	0.000	0.000	0.012	0.007	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.033
81	ELEM	wemd	0.004	0.004	0.003	0.001	0.005	0.035	0.041	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.094
81	ELEM	weop	0.004	0.002	0.001	0.000	0.003	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.036
81	ELEM	wepm	0.003	0.002	0.001	0.001	0.004	0.010	0.014	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.035
82	JRHS	wdam	0.012	0.021	0.032	2.068	0.000	0.061	0.032	0.000	0.000	0.000	0.000	0.000	0.004	0.000	2.229
82	JRHS	wdmd	0.003	0.005	0.007	0.002	0.000	0.086	0.114	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.222
82	JRHS	wdop	0.002	0.004	0.006	0.002	0.000	0.016	0.014	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.045
82	JRHS	wdpm	0.001	0.002	0.004	0.001	0.000	0.023	0.029	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.060
82	JRHS	weam	0.002	0.003	0.003	0.001	0.000	0.013	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.027
82	JRHS	wemd	0.002	0.003	0.002	0.001	0.000	0.032	0.037	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.078

LUC	LUNAME	Time Period	HBWL	HBWM	HBWH	HBSC	HBSH	HBO	NHB	UNIV	HOSP	APRT	RREC	HOT	SU	Combo	Sum
82	JRHS	weop	0.002	0.001	0.001	0.000	0.000	0.006	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020
82	JRHS	wepm	0.001	0.001	0.001	0.000	0.000	0.006	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020
83	SRHS	wdam	0.030	0.030	0.046	1.341	0.002	0.098	0.072	0.000	0.000	0.000	0.000	0.000	0.005	0.000	1.625
83	SRHS	wdmd	0.016	0.009	0.012	0.053	0.007	0.113	0.185	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.402
83	SRHS	wdop	0.013	0.007	0.012	0.030	0.005	0.036	0.036	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.139
83	SRHS	wdpm	0.014	0.007	0.010	0.024	0.006	0.040	0.055	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.158
83	SRHS	weam	0.008	0.004	0.003	0.048	0.002	0.038	0.020	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.125
83	SRHS	wemd	0.010	0.005	0.003	0.035	0.013	0.090	0.096	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.255
83	SRHS	weop	0.010	0.002	0.002	0.011	0.006	0.018	0.025	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.075
83	SRHS	wepm	0.008	0.003	0.002	0.006	0.008	0.018	0.027	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.073
84	COLL	wdam	0.039	0.046	0.049	0.453	0.021	0.000	0.000	0.290	0.000	0.000	0.000	0.000	0.002	0.000	0.900
84	COLL	wdmd	0.046	0.024	0.018	0.152	0.045	0.000	0.000	0.623	0.000	0.000	0.000	0.000	0.004	0.000	0.911
84	COLL	wdop	0.052	0.019	0.017	0.098	0.024	0.000	0.000	0.162	0.000	0.000	0.000	0.000	0.001	0.000	0.373
84	COLL	wdpm	0.032	0.019	0.014	0.032	0.029	0.000	0.000	0.200	0.000	0.000	0.000	0.000	0.001	0.000	0.326
84	COLL	weam	0.015	0.009	0.004	0.115	0.007	0.000	0.000	0.061	0.000	0.000	0.000	0.000	0.000	0.000	0.212
84	COLL	wemd	0.032	0.012	0.005	0.094	0.038	0.000	0.000	0.257	0.000	0.000	0.000	0.000	0.000	0.000	0.438
84	COLL	weop	0.049	0.007	0.003	0.030	0.026	0.000	0.000	0.112	0.000	0.000	0.000	0.000	0.002	0.000	0.229
84	COLL	wepm	0.021	0.008	0.003	0.018	0.024	0.000	0.000	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.168
89	ORS	wdam	0.428	0.808	0.936	0.663	0.000	0.000	0.000	1.852	0.000	0.000	0.000	0.000	0.097	0.000	4.785
89	ORS	wdmd	0.198	0.177	0.152	0.176	0.054	0.000	0.000	3.724	0.000	0.000	0.000	0.000	0.482	0.000	4.963
89	ORS	wdop	0.177	0.249	0.235	0.112	0.039	0.000	0.000	1.138	0.000	0.000	0.000	0.000	0.008	0.000	1.958
89	ORS	wdpm	0.156	0.110	0.078	0.072	0.039	0.000	0.000	1.013	0.000	0.000	0.000	0.000	0.020	0.000	1.489
89	ORS	weam	0.172	0.144	0.080	0.164	0.000	0.000	0.000	0.522	0.000	0.000	0.000	0.000	0.020	0.000	1.102
89	ORS	wemd	0.158	0.125	0.063	0.147	0.064	0.000	0.000	1.865	0.000	0.000	0.000	0.000	0.028	0.000	2.450
89	ORS	weop	0.053	0.058	0.050	0.049	0.091	0.000	0.000	0.958	0.000	0.000	0.000	0.000	0.008	0.000	1.267
89	ORS	wepm	0.053	0.039	0.026	0.025	0.073	0.000	0.000	0.830	0.000	0.000	0.000	0.000	0.000	0.000	1.045
90	GC	wdam	0.047	0.068	0.089	0.000	0.002	0.188	0.132	0.000	0.000	0.000	0.000	0.000	0.012	0.000	0.539
90	GC	wdmd	0.028	0.027	0.026	0.000	0.033	0.301	0.453	0.000	0.000	0.000	0.000	0.000	0.050	0.001	0.918
90	GC	wdop	0.042	0.025	0.024	0.000	0.041	0.210	0.168	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.516
90	GC	wdpm	0.022	0.019	0.016	0.000	0.034	0.217	0.188	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.508
90	GC	weam	0.009	0.015	0.007	0.000	0.002	0.226	0.087	0.000	0.000	0.000	0.000	0.000	0.018	0.000	0.365

LUC	LUNAME	Time Period	HBWL	HBWM	HBWH	HBSC	HBSH	HBO	NHB	UNIV	HOSP	APRT	RREC	HOT	SU	Combo	Sum
90	GC	wemd	0.015	0.012	0.005	0.000	0.057	0.744	0.628	0.000	0.000	0.000	0.000	0.000	0.034	0.002	1.497
90	GC	weop	0.030	0.012	0.003	0.000	0.045	0.226	0.217	0.000	0.000	0.000	0.000	0.000	0.009	0.001	0.544
90	GC	wepm	0.018	0.009	0.003	0.000	0.047	0.348	0.251	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.684
91	CAS	wdam	0.076	0.067	0.155	0.000	0.062	0.000	0.111	0.000	0.000	0.000	0.507	0.000	0.000	0.000	0.978
91	CAS	wdmd	0.083	0.033	0.062	0.000	0.108	0.000	0.399	0.000	0.000	0.000	1.789	0.000	0.000	0.000	2.473
91	CAS	wdop	0.052	0.021	0.052	0.000	0.141	0.000	0.261	0.000	0.000	0.000	1.604	0.000	0.000	0.000	2.130
91	CAS	wdpm	0.037	0.015	0.039	0.000	0.119	0.000	0.254	0.000	0.000	0.000	1.392	0.000	0.000	0.000	1.856
91	CAS	weam	0.025	0.020	0.025	0.000	0.015	0.000	0.142	0.000	0.000	0.000	1.419	0.000	0.000	0.000	1.647
91	CAS	wemd	0.014	0.010	0.012	0.000	0.032	0.000	0.650	0.000	0.000	0.000	2.039	0.000	0.000	0.000	2.757
91	CAS	weop	0.040	0.015	0.019	0.000	0.038	0.000	0.516	0.000	0.000	0.000	2.561	0.000	0.000	0.000	3.190
91	CAS	wepm	0.081	0.029	0.024	0.000	0.068	0.000	0.958	0.000	0.000	0.000	4.900	0.000	0.000	0.000	6.060
92	STAD	wdam	0.044	0.038	0.089	0.000	0.036	0.000	0.063	0.000	0.000	0.000	0.290	0.000	0.000	0.000	0.559
92	STAD	wdmd	0.047	0.019	0.035	0.000	0.062	0.000	0.228	0.000	0.000	0.000	1.022	0.000	0.000	0.000	1.413
92	STAD	wdop	0.030	0.012	0.030	0.000	0.081	0.000	0.149	0.000	0.000	0.000	0.916	0.000	0.000	0.000	1.217
92	STAD	wdpm	0.021	0.008	0.022	0.000	0.068	0.000	0.145	0.000	0.000	0.000	0.796	0.000	0.000	0.000	1.061
92	STAD	weam	0.014	0.012	0.014	0.000	0.009	0.000	0.081	0.000	0.000	0.000	0.811	0.000	0.000	0.000	0.941
92	STAD	wemd	0.008	0.006	0.007	0.000	0.018	0.000	0.371	0.000	0.000	0.000	1.165	0.000	0.000	0.000	1.576
92	STAD	weop	0.023	0.008	0.011	0.000	0.022	0.000	0.295	0.000	0.000	0.000	1.464	0.000	0.000	0.000	1.823
92	STAD	wepm	0.046	0.017	0.014	0.000	0.039	0.000	0.547	0.000	0.000	0.000	2.800	0.000	0.000	0.000	3.463
93	APRK	wdam	0.030	0.028	0.105	0.000	0.033	0.052	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.293
93	APRK	wdmd	0.013	0.010	0.030	0.000	0.060	0.109	0.114	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.335
93	APRK	wdop	0.014	0.011	0.035	0.000	0.068	0.079	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.236
93	APRK	wdpm	0.008	0.007	0.022	0.000	0.059	0.077	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.213
93	APRK	weam	0.011	0.005	0.009	0.000	0.014	0.035	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.095
93	APRK	wemd	0.009	0.004	0.007	0.000	0.048	0.108	0.095	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.272
93	APRK	weop	0.006	0.003	0.004	0.000	0.013	0.032	0.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.091
93	APRK	wepm	0.003	0.002	0.002	0.000	0.020	0.046	0.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.110
94	PPRK	wdam	0.007	0.014	0.018	0.000	0.001	0.027	0.020	0.000	0.000	0.000	0.000	0.000	0.012	0.000	0.099
94	PPRK	wdmd	0.003	0.006	0.005	0.000	0.002	0.040	0.064	0.000	0.000	0.000	0.000	0.000	0.023	0.000	0.142
94	PPRK	wdop	0.002	0.003	0.006	0.000	0.004	0.025	0.020	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.065
94	PPRK	wdpm	0.001	0.004	0.003	0.000	0.002	0.032	0.024	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.074

LUC	LUNAME	Time Period	HBWL	HBWM	HBWH	HBSC	HBSH	HBO	NHB	UNIV	HOSP	APRT	RREC	HOT	SU	Combo	Sum
94	PPRK	weam	0.003	0.003	0.001	0.000	0.000	0.038	0.011	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.063
94	PPRK	wemd	0.001	0.002	0.002	0.000	0.007	0.121	0.091	0.000	0.000	0.000	0.000	0.000	0.010	0.000	0.234
94	PPRK	weop	0.001	0.001	0.001	0.000	0.004	0.032	0.029	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.069
94	PPRK	wepm	0.000	0.000	0.001	0.000	0.004	0.055	0.041	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.107
95	IAG	wdam	0.101	0.202	0.175	0.000	0.501	0.000	0.217	0.000	0.000	0.000	0.000	0.000	0.178	0.000	1.374
95	IAG	wdmd	0.073	0.080	0.101	0.000	0.982	0.031	0.830	0.000	0.000	0.000	0.000	0.000	0.403	0.007	2.507
95	IAG	wdop	0.073	0.076	0.060	0.000	0.562	0.009	0.428	0.000	0.000	0.000	0.000	0.000	0.103	0.000	1.310
95	IAG	wdpm	0.028	0.025	0.014	0.000	1.185	0.009	0.670	0.000	0.000	0.000	0.000	0.000	0.306	0.000	2.236
95	IAG	weam	0.035	0.068	0.019	0.000	0.641	0.012	0.125	0.000	0.000	0.000	0.000	0.000	0.217	0.000	1.118
95	IAG	wemd	0.058	0.065	0.027	0.000	1.732	0.037	0.773	0.000	0.000	0.000	0.000	0.000	0.363	0.000	3.055
95	IAG	weop	0.012	0.014	0.017	0.000	0.689	0.012	0.296	0.000	0.000	0.000	0.000	0.000	0.025	0.007	1.072
95	IAG	wepm	0.012	0.038	0.008	0.000	1.259	0.020	0.524	0.000	0.000	0.000	0.000	0.000	0.203	0.000	2.063
96	AG	wdam	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
96	AG	wdmd	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
96	AG	wdop	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
96	AG	wdpm	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
96	AG	weam	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
96	AG	wemd	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
96	AG	weop	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
96	AG	wepm	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
99	VAC	wdam	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
99	VAC	wdmd	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
99	VAC	wdop	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
99	VAC	wdpm	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
99	VAC	weam	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
99	VAC	wemd	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
99	VAC	weop	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
99	VAC	wepm	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Appendix 4 - Mode Choice Constants

Table 29 - Mode Choice Constants

Constant Name	Peak Constant	Off-Peak Constant
HBWL Walk to Local Constant	0.00	0.00
HBWL Walk to Express Constant	-3.95	-3.95
HBWL Walk to BRT Constant	-0.28	-0.28
HBWL Walk to DBRT Constant	0.27	0.27
HBWL Walk to LRT Constant	0.71	0.71
HBWL Drive to Local Constant	0.00	0.00
HBWL Drive to Express Constant	-3.75	-3.75
HBWL Drive to BRT Constant	-0.35	-0.35
HBWL Drive to DBRT Constant	0.12	0.12
HBWL Drive to LRT Constant	0.48	0.48
HBWL Walk to Transit Constant	-2.43	-2.17
HBWL Drive to Transit Constant	-4.55	-4.19
HBWM Walk to Local Constant	0.00	0.00
HBWM Walk to Express Constant	-3.45	-3.45
HBWM Walk to BRT Constant	-0.28	-0.28
HBWM Walk to DBRT Constant	0.27	0.27
HBWM Walk to LRT Constant	0.71	0.71
HBWM Drive to Local Constant	0.00	0.00
HBWM Drive to Express Constant	-2.05	-2.05
HBWM Drive to BRT Constant	-0.35	-0.35
HBWM Drive to DBRT Constant	0.12	0.12
HBWM Drive to LRT Constant	0.48	0.48
HBWM Walk to Transit Constant	-3.16	-2.98
HBWM Drive to Transit Constant	-5.25	-6.79
HBWH Walk to Local Constant	0.00	0.00
HBWH Walk to Express Constant	-2.65	-2.65

Constant Name	Peak Constant	Off-Peak Constant
HBWH Walk to BRT Constant	-0.28	-0.28
HBWH Walk to DBRT Constant	0.27	0.27
HBWH Walk to LRT Constant	0.71	0.71
HBWH Drive to Local Constant	0.00	0.00
HBWH Drive to Express Constant	-1.35	-1.35
HBWH Drive to BRT Constant	-0.35	-0.35
HBWH Drive to DBRT Constant	0.12	0.12
HBWH Drive to LRT Constant	0.48	0.48
HBWH Walk to Transit Constant	-3.29	-3.73
HBWH Drive to Transit Constant	-4.55	-6.79
HBSC Walk to Local Constant	0.00	0.00
HBSC Walk to Express Constant	-3.75	-3.75
HBSC Walk to BRT Constant	-0.20	-0.20
HBSC Walk to DBRT Constant	0.41	0.41
HBSC Walk to LRT Constant	0.93	0.93
HBSC Drive to Local Constant	0.00	0.00
HBSC Drive to Express Constant	-0.75	-0.75
HBSC Drive to BRT Constant	-0.33	-0.33
HBSC Drive to DBRT Constant	0.17	0.17
HBSC Drive to LRT Constant	0.55	0.55
HBSC Walk to Transit Constant	-4.95	-5.05
HBSC Drive to Transit Constant	-7.15	-7.05
HBSH Walk to Local Constant	0.00	0.00
HBSH Walk to Express Constant	-4.25	-4.25
HBSH Walk to BRT Constant	-0.20	-0.20
HBSH Walk to DBRT Constant	0.41	0.41
HBSH Walk to LRT Constant	0.93	0.93
HBSH Drive to Local Constant	0.00	0.00
HBSH Drive to Express Constant	-3.25	-3.25
HBSH Drive to BRT Constant	-0.33	-0.33

Constant Name	Peak Constant	Off-Peak Constant
HBSH Drive to DBRT Constant	0.17	0.17
HBSH Drive to LRT Constant	0.55	0.55
HBSH Walk to Transit Constant	-6.55	-4.89
HBSH Drive to Transit Constant	-7.80	-7.80
HBO Walk to Local Constant	0.00	0.00
HBO Walk to Express Constant	-4.25	-4.25
HBO Walk to BRT Constant	-0.20	-0.20
HBO Walk to DBRT Constant	0.41	0.41
HBO Walk to LRT Constant	0.93	0.93
HBO Drive to Local Constant	0.00	0.00
HBO Drive to Express Constant	-3.75	-3.75
HBO Drive to BRT Constant	-0.33	-0.33
HBO Drive to DBRT Constant	0.17	0.17
HBO Drive to LRT Constant	0.55	0.55
HBO Walk to Transit Constant	-5.65	-4.43
HBO Drive to Transit Constant	-7.65	-7.55
NHB Walk to Local Constant	0.00	0.00
NHB Walk to Express Constant	-3.75	-3.75
NHB Walk to BRT Constant	-0.39	-0.39
NHB Walk to DBRT Constant	0.05	0.05
NHB Walk to LRT Constant	0.37	0.37
NHB Drive to Local Constant	0.00	0.00
NHB Drive to Express Constant	-2.25	-2.25
NHB Drive to BRT Constant	-0.55	-0.55
NHB Drive to DBRT Constant	0.00	0.00
NHB Drive to LRT Constant	-0.04	-0.04
NHB Walk to Transit Constant	-5.70	-4.71
NHB Drive to Transit Constant	-7.25	-7.15
UNIV Walk to Local Constant	0.00	0.00
UNIV Walk to Express Constant	-1.25	-1.25

Constant Name	Peak Constant	Off-Peak Constant
UNIV Walk to BRT Constant	-0.28	-0.28
UNIV Walk to DBRT Constant	0.00	0.00
UNIV Walk to LRT Constant	0.00	0.00
UNIV Drive to Local Constant	0.00	0.00
UNIV Drive to Express Constant	-1.25	-1.25
UNIV Drive to BRT Constant	-0.35	-0.35
UNIV Drive to DBRT Constant	0.00	0.00
UNIV Drive to LRT Constant	0.00	0.00
UNIV Walk to Transit Constant	0.00	0.10
UNIV Drive to Transit Constant	-0.75	-0.65
HOSP Walk to Local Constant	0.00	0.00
HOSP Walk to Express Constant	-4.25	-4.25
HOSP Walk to BRT Constant	-0.20	-0.20
HOSP Walk to DBRT Constant	0.41	0.41
HOSP Walk to LRT Constant	0.93	0.93
HOSP Drive to Local Constant	0.00	0.00
HOSP Drive to Express Constant	-3.75	-3.75
HOSP Drive to BRT Constant	-0.33	-0.33
HOSP Drive to DBRT Constant	0.17	0.17
HOSP Drive to LRT Constant	0.55	0.55
HOSP Walk to Transit Constant	-5.65	-5.05
HOSP Drive to Transit Constant	-7.80	-7.80
APRT Walk to Local Constant	0.00	0.00
APRT Walk to Express Constant	-4.25	-4.25
APRT Walk to BRT Constant	-0.20	-0.20
APRT Walk to DBRT Constant	0.41	0.41
APRT Walk to LRT Constant	0.93	0.93
APRT Drive to Local Constant	0.00	0.00
APRT Drive to Express Constant	-3.75	-3.75
APRT Drive to BRT Constant	-0.33	-0.33

Constant Name	Peak Constant	Off-Peak Constant
APRT Drive to DBRT Constant	0.17	0.17
APRT Drive to LRT Constant	0.55	0.55
APRT Walk to Transit Constant	-5.65	-5.05
APRT Drive to Transit Constant	-7.90	-7.80
RREC Walk to Local Constant	0.00	0.00
RREC Walk to Express Constant	-4.25	-4.25
RREC Walk to BRT Constant	-0.20	-0.20
RREC Walk to DBRT Constant	0.41	0.41
RREC Walk to LRT Constant	0.93	0.93
RREC Drive to Local Constant	0.00	0.00
RREC Drive to Express Constant	-3.75	-3.75
RREC Drive to BRT Constant	-0.33	-0.33
RREC Drive to DBRT Constant	0.17	0.17
RREC Drive to LRT Constant	0.55	0.55
RREC Walk to Transit Constant	-5.65	-5.05
RREC Drive to Transit Constant	-7.80	-7.80
HOT Walk to Local Constant	0.00	0.00
HOT Walk to Express Constant	-4.25	-4.25
HOT Walk to BRT Constant	-0.20	-0.20
HOT Walk to DBRT Constant	0.41	0.41
HOT Walk to LRT Constant	0.93	0.93
HOT Drive to Local Constant	0.00	0.00
HOT Drive to Express Constant	-3.75	-3.75
HOT Drive to BRT Constant	-0.33	-0.33
HOT Drive to DBRT Constant	0.17	0.17
HOT Drive to LRT Constant	0.55	0.55
HOT Walk to Transit Constant	-5.65	-5.05
HOT Drive to Transit Constant	-7.80	-7.80