**Activity-Based Travel Model User’s Guide:**

**Coordinated Travel – Regional Activity Based Modeling Platform (CT-RAMP) for San Diego County**

|  |  |
| --- | --- |
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1.0 Overview

The SANDAG resident travel model is based on the CT-RAMP (Coordinated Travel Regional Activity-Based Modeling Platform) family of activity-based models. The model has been developed to ensure that the regional transportation planning process can rely on forecasting tools that will be adequate for new socioeconomic environments and emerging planning challenges. It is also equally suitable for conventional highway projects, transit projects, and various policy studies such as highway pricing and HOV analysis.

The CT-RAMP resident travel model is implemented in the PB Common Modeling Framework (CMF), an open-source library created specifically for implementing advanced models. In addition to the CT-RAMP resident travel model, a number of other model components have been developed and integrated into an overall modeling system. These other model components include:

* A heavy truck model covering heavy (8,500 pounds or more) trucks into, out of, and through San Diego
* An interim commercial vehicle model covering other goods and services movements within San Diego
* An internal-external travel model covering travel into and out of San Diego made by San Diego residents
* An external-internal travel model covering non-resident travel into and out of San Diego made by non-Mexican residents
* An external-external travel model covering travel through the San Diego region.
* A Mexican resident travel model covering travel into, out of, and within San Diego County made by Mexican residents
* An airport model covering trips made to and from San Diego airport
* A visitor model covering trips made within San Diego County by overnight visitors.

A special event model, covering trips made to and from special events

Some of these models are also implemented in Java using the CMF, while other, aggregate model components are implemented in TransCAD GISDK, along with network skimming and assignment procedures. Furthermore, the model developed for SANDAG relies on the Production, Exchange, and Consumption (PECAS) land-use model for land use, employment, and population inputs. [Figure 1](#fig1) shows the overall model system. Steps in green are implemented in TransCAD using the GISDK scripting language. These include the initial construction of transport networks from files created by the SANDAG Geographic Information System (GIS), assignment of trip tables to networks, and network skimming. In addition, aggregate special market models, such as the commercial vehicle and heavy truck model, the external-internal travel model, and the external-external travel model, are implemented in TransCAD. TransCAD is also used to construct trip tables from all model components, and control the overall model flow. Java is used to implement the main CT-RAMP resident travel model, as well as all disaggregate simulation-based special market models, such as the internal-external travel model, the visitor travel model, the airport model, and the Mexican resident travel model. Outputs from each model are loaded into a database and the SQL scripts are used to report results from the simulation. EMFAC input files are also created from the simulation using a Python procedure so that air quality from mobile sources can be measured.

The purpose of this Model User’s Guide is to describe the overall structure of the modeling system, how to set up and run the model system, and the model system inputs and outputs. This User’s Guide also discusses the reporting system developed for the model. There are three other documents that complement the User’s Guide, which can be referred to for further information:

* A model specification report, which describes the structure of the resident and special market models (with the exception of the heavy truck model), the mathematical form of each model component, and the variables considered;
* A model estimation report, which describes the estimation results for each model component, with more details on the formulation of each model and the interpretation of the parameter values; and,

A model calibration and validation report, which describes the goodness-of-fit of each model component to observed data for the base year (2008) and the process of adjusting parameters to better match observed data. Since then, the base year has been changed to 2010 and then to 2012 to reflect changes in 2010 Census and San Diego Forward, the new SANDAG RTP. Additional calibration and validation reports for base year 2010 and 2012 are also available as additions to the 2008 calibration and validation report.

Figure 1: SANDAG Modeling System



# 2.0 Computing Environment

This section describes the hardware and software SANDAG uses to execute the model. It is important to note that both the software and model structure are highly configurable and flexible; depending on the analysis needs, the required computing power could vary dramatically. SANDAG currently has the model configured to run on four clusters of three computers each. The hardware and software is described below.

## Hardware

* Operating system: Microsoft Windows Server 2008 Release 2 with Service Pack 1 or Win-7, 64-bit Enterprise edition;
* Processors: Two Intel Xeon processors with 8-16 cores (i.e., two processors with hyper-threading capability);

Memory (RAM): 64.0 GB recommended (48 GB is minimum required memory)

As discussed on the [System Design](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/SystemDesign) page, these computers can act in different roles, each requiring different amounts of memory and computing power. The four clusters are composed of three computers each. The specs and configurations of each cluster are listed in table 2.1 below:

Table 2.1 The Specs and Configurations of Clusters

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cluster** | **Name** | **Make** | **Model** | **Processor** | **Cores** | **RAM** | **Hard Drive** | **OS** |
| Gaucho | Gaucho | Dell | Aprecision T5600 | 2 Intel® Xeon® Processor E5-2687W @3.10GHz | 16 | 64GB | 500GB | Win-7 |
| Gaucho | Wildcat | Dell | Aprecision T5600 | 2 Intel® Xeon® Processor E5-2687W @3.10GHz | 16 | 64GB | 500GB | Win-7 |
| Gaucho | Nittany | Dell | Aprecision T5500 | 2 Intel® Xeon® Processor X5690 @3.47GHz | 12 | 51GB | 250GB | Win-7 |
| Mustang | Mustang | Dell | PowerEdge R610 | 2 Intel® Xeon® Processor X5690 @3.47GHz | 12 | 64GB | 1.6TB | Win Server 2008 R2 Enterprise |
| Mustang | Cobra | Dell | PowerEdge R610 | 2 Intel® Xeon® Processor X5690 @3.47GHz | 12 | 64GB | 1.6TB | Win Server 2008 R2 Enterprise |
| Mustang | Galaxie | Dell | PowerEdge R610 | 2 Intel® Xeon® Processor X5690 @3.47GHz | 12 | 64GB | 1.6TB | Win Server 2008 R2 Enterprise |
| Charger | Charger | Dell | PowerEdge R610 | 2 Intel® Xeon® Processor X5687 @3.60GHz | 8 | 64GB | 2.8TB | Win Server 2008 R2 Enterprise |
| Charger | Baraccuda | Dell | PowerEdge R610 | 2 Intel® Xeon® Processor X5687 @3.60GHz | 8 | 64GB | 2.8TB | Win Server 2008 R2 Enterprise |
| Charger | Thunderbird | Dell | PowerEdge R610 | 2 Intel® Xeon® Processor X5687 @3.60GHz | 8 | 64GB | 2.8TB | Win Server 2008 R2 Enterprise |
| Aztec | Aztec | Dell | Aprecision T5600 | 2 Intel® Xeon® Processor E5-2687W @3.10GHz | 16 | 64GB | 500GB | Win-7 |
| Aztec | Hawkeye | Dell | Aprecision T5600 | 2 Intel® Xeon® Processor E5-2687W @3.10GHz | 16 | 64GB | 500GB | Win-7 |
| Aztec | Aggie | Dell | Aprecision T5500 | 2 Intel® Xeon® Processor X5690 @3.47GHz | 12 | 51GB | 250GB | Win-7 |

## Software

### TransCAD

The travel model currently uses Version 6.0 r2 Build 9065 64-bit TransCAD software. The TransCAD software is used to build skims, manipulate networks, manipulate matrices, perform assignments, and run the aggregate special market models. The Java software, as discussed below, needs to access matrix data in Transcad format. In order to do this, the TransCAD matrix dll and Java matrix package is used. The details of setting up and configuring the software are presented in the [Setup and Configuration](#Setup_and_Configuration) section.

### Java and CT-RAMP

SANDAG’s travel model operates on the open-source Coordinated Travel - Regional Activity-based Modeling Platform (or CT-RAMP) developed by Parsons Brinckerhoff. The software is written in the Java programming language. Because the CT-RAMP software compiles code "on-the-fly", the 64-bit Java Development Kit (version 1.6 or later) must be installed on each computer running the CT-RAMP software. The Java Development Kit includes the Java Runtime Environment. The 64-bit version of the software allows CT-RAMP to take advantage of larger memory addresses.

In addition, at least one of the machines must have a 32-bit version of Java Runtime Environment installed -- specifically the machine that is executing the matrix manager element of CT-RAMP (see the [System Design](#System_Design) section for more details). The 32-bit Runtime Environment allows the CT-RAMP software to communicate directly with data stored in formats dictated by Transcad.

**Microsoft SQL Server Enterprise 2014**

The output of the travel model is handled by Microsoft SQL Server 2014 Enterprise products. ABM output data is loaded via SQL Server Integration Services into a SQL database for management, manipulation, storage, and reporting. It is planned to further leverage these products, along with SQL Server Analysis Services and Reporting Services, to create a full reporting suite accessible internally at SANDAG via report flat files or Microsoft Power Pivot and externally via the web.

### Microsoft Excel (optional)

The CT-RAMP software allows discrete choice models to be specified via spreadsheets, referred to as “[Utility Expression Calculator](#Utility_expression_Calc)” or UECs. These files are Excel-based. See [Appendix](#Appendix) for a more detailed explanation on these Excel files. It is helpful to have Excel installed so that the spreadsheets can be opened, though it is not essential for running the model system.

# 3.0 System Design

This section describes how the software is configured to take advantage of the hardware (see the [Computing Environment section](#Computing_Environment) for details on the hardware and software used in the travel model; see the [Setup and Configuration](#Setup_and_Configuration) section for details on setting up and configuring the SANDAG model to run on a given set of hardware).

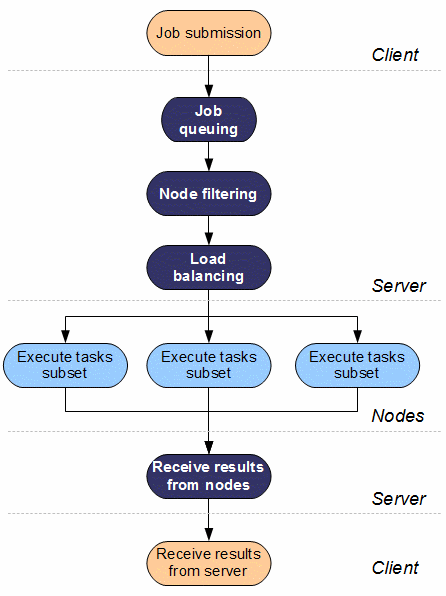
## Distributed Computing

The CT-RAMP resident travel model software uses distributed computing, which allows the models to be distributed across multiple threads and multiple computers. The SANDAG application currently uses three machines, but the software can be configured fairly easy to utilize fewer or more machines. CT-RAMP uses the [Java Parallel Processing Framework](http://www.jppf.org/), or JPPF, to manage the distribution of tasks. JPPF is an open-source Java package. As illustrated below, the JPPF framework consists of three main parts as follows: (i) a driver, also referred to as the JPPF server; (ii) one or more nodes, typically one node is established on each machine; (iii) a client, the CT-RAMP software in this case.

Figure 2: Example CT-RAMP Distributed Setup for SANDAG



As noted in the [Computing Environment](#Computing_Environment) section, each of the current SANDAG clusters uses three computers. For Cluster One, the main CT-RAMP model process, as well as the JPPF driver process, is executed on mustang. For Cluster Two, the CT-RAMP client and JPPF driver processes are executed on charger. The JPPF driver acts like a traffic cop by acquiring tasks from the client and distributing those tasks to the node processes. When the node processes complete tasks, the results are returned back to the client via the JPPF driver. Three nodes are used in each current SANDAG cluster. In Cluster One, the nodes are executed on *mustang*, *cobra* and *galaxie*. In Cluster Two, the nodes are executed on *charger*, *barracuda* and *thunderbird*. These nodes are created prior to executing a model run. After being created, each node listens for tasks from the JPPF driver.



Node processes receive tasks, perform those tasks, and return the results. Nodes are configured to communicate with the driver process when they are started. Properties files determine the number of threads to execute on each node (see [Setup and Configuration](#Setup_and_Configuration) section for details on where these parameters are specified). The JPPF driver attempts to balance computational loads across available nodes. The driver also retrieves class files, i.e. sets of Java code, from the client application and passes those to the nodes as needed.

The CT-RAMP software, which serves as the client, is responsible for creating task objects that can be run in parallel and submitting those to the driver. Because the SANDAG travel model simulates households, the CT-RAMP software is currently configured to create packets of 500 households and sends those packets to the nodes for processing (the size of the household packets are also controlled via a parameter setting in a properties file). As the nodes complete tasks and returns them to the driver, the driver gives the nodes new tasks, attempting to keep each node uniformly busy.

## Household Manager and Matrix Manager

Before executing a model run, the travel model requires a Household Manager and a Matrix Manager to be created. In the SANDAG model application, the Matrix Manager resides on the same machine as the main CT-RAMP client process. Although the Matrix Manager can be instantiated on any machine, the machine must be dongled and TransCAD must be installed on the same machine. This is important because the software utilizes the TransCAD matrix DLL and Java package that ships with TransCAD. When a matrix is read or written by the Matrix Manager, a 32-bit Java Virtual Machine is created, and the TransCAD DLL is called. If the machine is not dongled, or the JVM cannot find the DLL or the Caliper Java Matrix package, and error will be thrown. The Matrix Manager is tasked with managing all of the skim matrices used by the choice models. When a skim is needed, a request is made to the Matrix Manager, which then reads the required skim from disk and stores it in memory. Once in memory, each matrix is available to any other JPPF node process that may need it.

The Household Manager is tasked with managing the simulated households, as well as each simulated person in each simulated household. The Household Manager provides the JPPF nodes with information regarding the households for which the JPPF nodes are applying choice models and stores the resulting information computed by the JPPF nodes. To help keep run time down, the synthetic population is read from disk and stored in memory at the beginning of the application and then continuously updated as choice models are completed and iterations are performed. When the last iteration is complete, the necessary information is written to disk. The current SANDAG implementations instantiate the Household Manager on a different machine than the one used by the main CT-RAMP process.

Both the Household Manager and Matrix Manager have substantial memory footprints.

# 4.0 Setup and Configuration

This section provides details on setting up the travel model to run on a cluster of computers, including descriptions of the necessary configuration files.

## Step 1: Create the required folder structure

The SANDAG travel model is delivered as a compressed folder containing eleven directories, **application, bin, conf, gisdk, input, input\_truck, logFiles, output, sql, python, and uec.** These directories should be placed under the scenario named folder such as *2012*.

The **application directory contains ABM model jar file sandag\_abm.jar and third party libraries.**

The **bin directory contains command line batch files to run ABM from DOS, a batch file to set environmental variables, and the stand alone executables like psexec and pskill.**

**The conf** directory contains all of the model configuration files, Java instructions and properties files, and the Java logging files.

The **gisdk** directory contains all the Transcad scripts necessary to run parts of the model, including highway, transit skims, and assignment, as well as commercial vehicle model, the external model, and the truck model.

**The uec directory** contains all of the [Utility Expression Calculator](#Utility_expression_Calc) (UEC) files that specify the choice models. The SANDAG ABM model is largely a sequence of discrete choice models. CT-RAMP uses the UEC Java package to both locate input variables and specify utility equations that describe each discrete choice. The input variables and specifications are defined and stored in a Microsoft Excel workbook. The use of Excel enhances the flexibility and transparency of the model system -- utility coefficients, model structures, etc., can be edited via Excel (rather than via difficult to follow text files or source code). Each UEC workbook (i.e. Excel file) consists of at least two worksheets. One must be the UEC datasheet, which defines the input files used in the utility expressions, including zonal (vector) data and level-of-service "skims" (matrix data). The second, third, fourth, etc. page specifies one or more multinomial or nested logit models via a unique UEC utility sheet. The utility sheet consists of three sections, as follows:

1. The first section specifies the nesting structure of the logit model -- if omitted, a multinomial structure is assumed;

2. Next, variable names, or tokens, are defined for use in subsequent (moving down rows) utility equations; and,

3. The final section defines the utility terms, typically a variable and a coefficient for each of the logit model's alternatives.

The CT-RAMP Java code controls model flow, handles output files (e.g., trip tables, tour records), facilitates debugging, and allows for the UECs to access variables stored in memory (e.g., the results from upstream logit models). The UEC solve method returns an array of doubles dimensioned to the number of alternatives specified in the utility sheet. The array contains the sum-product of each of the formulas and coefficients for each alternative, which is the utility for each alternative. This array can then be used with a logit model object to first compute alternative probabilities and then simulate choices.

The **input** directory contains all of the input files required to run the specific scenario, including a MGRA-based land use input file, synthetic population files, highway network files, transit network files, bike network files, network access files such as walk and bike time/logsums between MGRAs and TAZs, special market model input files, as well as warm start trip tables. More specifically, the **input** directory contains the following types of data (see [Input Files section](#tbl_input_files) for details on each file):

* MGRA-based land use inputs
* PopSyn data
* Network: highway
* Network: transit
* Network: bike
* Network: auxiliary
* Intermediate: calculated accessibilities data and shadow pricing files
* Special market: Airport Model data
* Special market: Commercial Vehicle Model data
* Special market: Cross Border Model data
* Special market: External Model data
* Special market: Special Event Model data

Special market: Visitor Model data

Truck Model data

Commercial Vehicle Model data

* Warm start trip tables from previous model runs

The **input\_truck** directory contains all truck model input files.

The **logFiles** contains all logging files created during a model run, including logging from the client, logging for each computing node, and logging for specific ABM modules. If a model run bombs, one should look into these log files to debug.

The **output** directory contains all ABM outputs, including both intermediate and final outputs, such as trip lists, trip tables by mode, highway, transit and bike assignment results, highway and transit skimming results, and EMFAC summaries.

The **sql** directory contains all SQL scripts for creating ABM database structure and data loading. At the end of each model run, results in the output folder are loaded into a SQL database, which serves as the foundation for system performance summary and statistical analysis.

The **python** directory contains all Python scripts for creating EMFAC2011 and EMFAC2014 input files.

## Step 2: Configure the CT-RAMP and JPPF Services

As described in prior to execute a model run, the files controlling the CT-RAMP and JPPF services must be configured. The [System Design](#System_Design) section provides a broad overview of these services. When executing the travel model, the user first executes the bin/**runMtxMgr.cmd** file which sets the project drive, directory, kills existing java processes, and specifies the location of the **conf** directory and the **sandag\_abm.jar** file. The **runDriver.cmd** file sets the java driver properties.

The **StartHHandNodes.cmd** file kills all java processes currently running, starts the household manager (runHHMgr.cmd) and specifies the nodes to be used for the model run (runSandag01.cmd, runSandag02.cmd, runSandag03.cmd). The **sandag\_abm.properties** file specifies the location of all the inputs, outputs, UEC files, and other tokens that need to be set. It also specifies which model components to run.

The **CTRampEnv.bat** file sets the ports, the machine names, IP addresses, drive letters to be used for machines, account settings (user name and password), and location of JAVA and Transcad used for the model run. Variables in CTRampEnv.bat are described in the table below, with the SANDAG setup provided as an example.

Table 4.1 Environmental Variables in CTRampEnv.bat

|  |  |
| --- | --- |
| [Statement](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/SetupConfiguration?sortcol=0;table=1;up=0#sorted_table) | [Purpose](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/SetupConfiguration?sortcol=1;table=1;up=0#sorted_table) |
| set JAVA\_32\_PORT=1190  set MATRIX\_MANAGER\_PORT=1191  set HH\_MANAGER\_PORT=1129 | set ports |
| set MAIN=AZTEC  set NODE1=HAWKEYE  set NODE2=AGGIE | set machine names, which vary depending on cluster |
| set MAIN\_IP=172.16.34.30  set HHMGR\_IP=172.16.34.30 | set main IP addresses, which vary depending on cluster |
| set MEMORY\_MTXMGR\_MIN=20000m  set MEMORY\_MTXMGR\_MAX=20000m  set MEMORY\_HHMGR\_MIN=1000m  set MEMORY\_HHMGR\_MAX=12000m  set MEMORY\_CLIENT\_MIN=30000m  set MEMORY\_CLIENT\_MAX=30000m  set MEMORY\_SPMARKET\_MIN=30000m  set MEMORY\_SPMARKET\_MAX=30000m  set MEMORY\_BIKELOGSUM\_MIN=26000m  set MEMORY\_BIKELOGSUM\_MAX=26000m  set MEMORY\_WALKLOGSUM\_MIN=26000m  set MEMORY\_WALKLOGSUM\_MAX=26000m  set MEMORY\_BIKEROUTE\_MIN=26000m  set MEMORY\_BIKEROUTE\_MAX=26000m  set MEMORY\_DATAEXPORT\_MIN=30000m  set MEMORY\_DATAEXPORT\_MAX=30000m  set MEMORY\_EMFAC\_MIN=10000m  set MEMORY\_EMFAC\_MAX=10000m | Set JVM memory allocations |
| set PROPERTIES\_NAME=sandag\_abm | set main property file name |
| set MAPDRIVE=T: | all nodes need to map the scenario drive, currently mapped as T: |
| set MAPDRIVEFOLDER=\\sandag.org\transdata | set MAPDRIVEFOLDER |
| set USERNAME=XX  set PASSWORD=XX | Set account for remote access using psexec |
| set MAPANDRUN=mapAndRun.bat | location of mapAndRun.bat on remote machines |
| set JAVA\_64\_PATH=c:\\program files\\java\ \jre7 | Specify the 64-bit Java path; |
| set JAVA\_PATH\_32=c:\\program files(x86)\\java\jre7 | Specify the 32-bit Java path; needed to interact with 32-bit Transcad library file |
| set JAVA\_HOME\_32=%JAVA\_32\_PATH% | Specify location of Java Home |
| set Transcad\_PATH=c:\\program files\TransCad 6.0 | Specify the Transcad path |
| set PYTHON\_PATH=c:\\Anaconda | Specify Python path |

After preparing the computing environment by setting paths, **runDriver.cmd, runHhMgr.cmd, and runMtxMgr.cmd** then start up three separate Java programs, which need to be initiated prior to the travel model being executed. These three programs are called using the following commands:

Table 4.2 Commands in runDriver.cmd, runHhMgr.cmd, and runMtxMgr.cmd

|  |  |
| --- | --- |
| [Statement](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/SetupConfiguration?sortcol=0;table=2;up=0#sorted_table) | [Purpose](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/SetupConfiguration?sortcol=1;table=2;up=0#sorted_table) |
| start %JAVA\_64\_PATH%\bin\java -server -Xmx16m -cp "%CLASSPATH%" -Dlog4j.configuration=log4j-driver.properties -Djppf.config=jppf-driver.properties org.jppf.server.DriverLauncher | Starts the Java DriverLauncher class using a Java virtual machine with no more than 16 MB of memory (Xmx16m); using the log4j logging service as configured by **log4j-driver.properties**; using the JPPF configuration file **jppf-driver.properties**. This program starts up the JPPF manager, as described in the [System Design](#System_Design) section. |
| start %JAVA\_64\_PATH%/bin/java -server -Xms%MEMORY\_HHMGR\_MIN% -Xmx%MEMORY\_HHMGR\_MAX% -cp "%CLASSPATH%" -Dlog4j.configuration=log4j\_hh.xml org.sandag.abm.application.SandagHouseholdDataManager2 -hostname %HOST\_IP\_ADDRESS% -port %HOST\_PORT% | Starts the Java SANDAGHouseholdDataManager class using a Java virtual machine using the log4j logging service as configured by **log4j\_hh.xml**; defining the host as the machine with the IP address in HOST\_IP. This program starts up the Household manager, as described in the [System Design](#System_Design) section. |
| start %JAVA\_64\_PATH%\bin\java -server -Dname=p%JAVA\_32\_PORT% -Xms%MEMORY\_MTXMGR\_MIN% -Xmx%MEMORY\_MTXMGR\_MAX% -Dlog4j.configuration=log4j\_mtx.xml -DJAVA\_HOME\_32=%JAVA\_64\_PATH% -DJAVA\_32\_PORT=%JAVA\_32\_PORT% org.sandag.abm.ctramp.MatrixDataServer -hostname %HOST\_IP\_ADDRESS% -port %MATRIX\_MANAGER\_PORT% -ram 1500 -label "SANDAG Matrix Server" | Starts the Java MatrixDataServer class using a Java virtual machine using the log4j logging service as configured by **log4j\_mtx.xml**; for the 32-bit Java virtual machine, the **log4j\_mtx\_32.xml** control file is used; the 32-bit Java software can be found in JAVA\_PATH\_32; defining the host as the machine with the IP address in HOST\_IP. |

After preparing the computing environment by setting paths, the **runSandagXX.cmd** (where XX is 01, 02, or 03 in SANDAG’s application) instructions then start up a Java program, which needs to be initiated prior to the travel model being executed. Note that these scripts need to be called from each machine on the cluster individually. The following command is used to start the CT-RAMP nodes:

Table 4.3 Commands to start a node in runSnadagXX.cmd

|  |  |
| --- | --- |
| [Statement](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/SetupConfiguration?sortcol=0;table=3;up=0#sorted_table) | [Purpose](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/SetupConfiguration?sortcol=1;table=3;up=0#sorted_table) |
| start %JAVA\_64\_PATH%\bin\java -server -Xms16m -Xmx16m -cp "%CLASSPATH%" -Dlog4j.configuration=log4j-sandag{X}.properties -Djppf.config=jppf-sandag{X}.properties org.jppf.node.NodeLauncher | Starts the psExec program that starts the node on machine {X}, where {X} is 01, 02, or 03 in SANDAG’s application. |

Most of the JPPF-related configuration parameters have been optimized for the SANDAG travel model application and, as such, need not be modified. There are, however, a handful of parameters described in the table below that may need to be modified to meet the specifications of the computing environment upon which the model is being executed. Each of the files listed below can be found in the **conf** directory.

Table 4.4 JPPF configuration files

|  |  |  |  |
| --- | --- | --- | --- |
| [File Name](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/SetupConfiguration?sortcol=0;table=4;up=0#sorted_table) | [File Function](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/SetupConfiguration?sortcol=1;table=4;up=0#sorted_table) | [Statement](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/SetupConfiguration?sortcol=2;table=4;up=0#sorted_table) | [Purpose](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/SetupConfiguration?sortcol=3;table=4;up=0#sorted_table) |
| jppf-clientDistributed.properties | JPPF Client Driver Control file | driver1.jppf.server.host = 172.16.34.40 | IP address of the main computer (MUSTANG, CHARGER, AZTEC, or GAUCHO) |
| jppf-driver.properties | JPPF Driver Control file | jppf.server.host = 172.16.34.40 | IP address of the main computer (MUSTANG, CHARGER, AZTEC, or GAUCHO) |
| jppf-node{x}.properties | Remote JPPF Node Control file | jppf.server.host = 172.16.34.40 | IP address of the main computer (MUSTANG, CHARGER, AZTEC, or GAUCHO) |
| processing.threads = 18 | Number of computing cores on node {X} |
| other.jvm.options = -Xms45000m -Xmx50000m -Dlog4j.configuration=log4j-sandag{X}.xml -Dnode.name=sandag02 | Maximum amount of memory, in MB, to allocate to node {X} |

The final configuration file that needs to be edited prior to executing a model run is the **sandag\_abm.properties** file located in **conf**. This file serves as the general control module for the entire model application. Descriptions of the properties can be found in section: CT-RAMP [Properties File](#Property_Files)

# 5.0 Input Files

The table below contains brief descriptions of the input files required to execute the SANDAG travel model. See Appendix - Input File Data Dictionary for more details on all variables in each input file.

*Table 5.0 Input File List*

| [File name](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/InputFiles?sortcol=0;table=1;up=0#sorted_table) | [Purpose](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/InputFiles?sortcol=1;table=1;up=0#sorted_table) | [File type](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/InputFiles?sortcol=3;table=1;up=0#sorted_table) | Category | Prepared By |
| --- | --- | --- | --- | --- |
| [mgra13\_based\_input####.csv](#tbl_mgra12_based_input08) | Land use forecast of the size and structure of the region’s economy and corresponding demographic forecast | CSV | Land use | Land use modelers, transportation modelers, and GIS |
| [activity\_code\_indcen\_acs](#tbl_activity_code_indecen) | PECAS activity code categories mapping to Census industry codes; This is used for military occupation mapping. | CSV | Land Use | Land use modelers |
| pecas\_occ\_occsoc\_acs.csv | PECAS activity code categories mapping to Census industry codes | CSV | Land Use | Land use modelers |
| [externalZones.xls](#tbl_externalzones) | List of external LUZs | Excel file | Land Use | Land use modelers |
| [households.csv](#tbl_housholds) | Synthetic households | CSV | PopSyn data | Transportation modelers |
| [persons.csv](#tbl_persons) | Synthetic persons | CSV | PopSyn data | Transportation modelers |
| [hwycov.e00](#tbl_hwycove00) | Highway network from GIS | ESRI input exchange | Network:  Highway | Transportation modelers |
| [Turns.csv](#tbl_turns) | Highway network turns file | CSV | Network:  Highway | Transportation modelers |
| [Linktypeturns.dbf](#tbl_Linktypeturns) | Highway network link type turns table | DBF | Network:  Highway | Transportation modelers |
| [Linktypeturnscst.dbf](#tbl_LINKTYPETURNSCST) | Highway network link type turns cost table | DBF | Network:  Highway | Transportation modelers |
| [trcov.e00](#tbl_trcov) | Transit link layer from GIS | ESRI input exchange | Network:  Transit | Transportation modelers |
| [trlink.bin](#tbl_trlinkbin) | Transit route with a list of links file | Transcad binary file | Network:  Transit | Transportation modelers |
| [trrt.bin](#tbl_trrtbin) | Transit route attribute file | Transcad binary file | Network:  Transit | Transportation modelers |
| [trstop.bin](#tbl_trstop) | Transit stop attribute file | Transcad binary file | Network:  Transit | Transportation modelers |
| [mode5tod.dbf](#tbl_mode5tod) | Transit mode parameters table | DBF | Network:  Transit | Transportation modelers |
| [modexfer.dbf](#tbl_modexfer) | Transit mode transfer prohibition table | DBF | Network:  Transit | Transportation modelers |
| [timexfer.bin](#tbl_timexferbin) | Transit timed transfers between routes table | Transcad binary file | Network:  Transit | Transportation modelers |
| [fare.mtx](#tbl_faremtx) | Transit zonal fare matrix | Transcad matrix | Network:  Transit | Transportation modelers |
| [SANDAG\_Bike\_Net.dbf](#tbl_SANDAG_BIKE_NET) | Bike network links | dbf | Network: Bike network | GIS |
| [SANDAG\_Bike\_Node.dbf](#tbl_SANDAG_BIKE_Node) | Bike network nodes | dbf | Network: Bike network | GIS |
| accessam.csv | Specifies TAPs within drive distance from TAZS for AM period. | Text file – space delimited | Network: auxiliary data | Transportation modelers |
| [tap.ptype](#tbl_tapptype) | TAP Parking type file | Text file – space delimited | Network: auxiliary data | Transportation modelers |
| [zone.term](#tbl_zoneterm) | TAZ terminal times | Text file – space delimited | Network: auxiliary data | Transportation modelers |
| [accessibilities.csv](#tbl_accessibilities) | Origin-based accessibilities | CSV | Intermediate file |  |
| [bikeTazLogsum.csv](#tbl_bikeTazLogsum) | Bike TAZ logsum | CSV | Intermediate: calculated accessibilities data | Transportation modelers |
| [bikeMgraLogsum.csv](#tbl_bikeMgraLogsum) | Bike MGRA logsum | CSV | Intermediate: calculated accessibilities data | Transportation modelers |
| [walkMgraEquivMinutes.csv](#tbl_walkMgraEquivMinutes) | Walk in minutes between MGRAs | CSV | Intermediate: calculated accessibilities data | Transportation modelers |
| [walkMgraTapEquivMinutes.csv](#tbl_walkMgraTapEquivMinutes) | Walk in minutes between MGRAs and TAPs | CSV | Intermediate: calculated accessibilities data | Transportation modelers |
| [airport\_purpose.csv](#tbl_airportpurposecsv) | Airport model tour purpose frequency table | CSV | Special Market:  airport survey | Transportation modelers |
| [airport\_party.csv](#tbl_airport_party) | Airport model party type frequency table | CSV | Special Market:  airport survey | Transportation modelers |
| [airport\_nights.csv](#tbl_airport_nights) | Airport model trip duration frequency table | CSV | Special Market:  airport survey | Transportation modelers |
| [airport\_income.csv](#tbl_airport_income) | Airport model trip income distribution table | CSV | Special Market:  airport survey | Transportation modelers |
| [airport\_departure.csv](#tbl_airport_departure) | Airport model time-of-day distribution for departing trips | CSV | Special Market:  airport survey | Transportation modelers |
| [airport\_arrival.csv](#tbl_airport_arrival) | Airport model time-of-day distribution for arriving trips | CSV | Special Market:  airport survey | Transportation modelers |
| [commVehFF.csv](#tbl_commvehFF) | Commercial Vehicle Model friction factors | CSV | Commercial vehicle data | Transportation modelers |
| [crossBorder\_tourPurpose\_nonSENTRI.csv](#tbl_crossBorder_tourPurpose_nonSENTRI) | Cross Border Model tour purpose distribution for Non-SENTRI tours | CSV | Special market: cross border survey | Transportation modelers |
| [crossBorder\_tourPurpose\_SENTRI.csv](#tbl_crossBorder_tourPurpose_SENTRI) | Cross Border Model tour purpose distribution for SENTRI tours | CSV | Special market: cross border survey | Transportation modelers |
| [crossBorder\_tourEntryAndReturn.csv](#tbl_crossBorder_tourEntryAndReturn) | Cross Border Model tour entry and return time-of-day distribution | CSV | Special market: cross border survey | Transportation modelers |
| [crossBorder\_supercolonia.csv](#tbl_crossBorder_supercolonia) | Cross Border Model distance from Colonias to border crossing locations | CSV | Special market: cross border survey | Transportation modelers |
| [crossBorder\_pointOfEntryWaitTime.csv](#tbl_crossBorder_pointOfEntryWaitTime) | Cross Border Model wait times at border crossing locations table | CSV | Special market: border patrol | GIS - Pat L  vtsql |
| [crossBorder\_stopFrequency.csv](#tbl_crossBorder_stopFrequency) | Cross Border Model stop frequency data | CSV | Special market: cross border survey | Transportation modelers |
| [crossBorder\_stopPurpose.csv](#tbl_crossBorder_stopPurpose) | Cross Border Model stop purpose distribution | CSV | Special market: cross border survey | Transportation modelers |
| [crossBorder\_outboundStopDuration.csv](#tbl_crossBorder_outboundStopDuration) | Cross Border Model time-of-day offsets for outbound stops | CSV | Special market: cross border survey | Transportation modelers |
| [crossBorder\_inboundStopDuration. csv](#tbl_crossBorder_inboundStopDuration) | Cross Border Model time-of-day offsets for inbound stops | CSV | Special market: cross border survey | Transportation modelers |
| [externalExternalTrips.csv](#tbl_externalExternalTrips) | External origin-destination station trip matrix | CSV | Special Market: derived from SCAG survey | Transportation modelers |
| [externalInternalControlTotals.csv](#tbl_externalControlTotals) | External Internal station control totals read by GISDK | CSV | Special Market: derived from SCAG survey | Transportation modelers |
| [internalExternal\_tourTOD.csv](#tbl_internalExternal_tourTOD) | Internal-External Model tour time-of-day frequency distribution | CSV | Special Market: derived from SCAG survey | Transportation modelers |
| [specialEvent\_eventData.csv](#tbl_specialEvent_eventData) | Special events model event data | CSV | Special Market: special event survey | Transportation modelers |
| [specialEvent\_partySize.csv](#tbl_specialEvent_partySize) | Special events model party size frequency distribution | CSV | Special Market: special event survey | Transportation modelers |
| [specialEvent\_income.csv](#tbl_specialEvent_income) | Special events model income distribution | CSV | Special Market: special event survey | Transportation modelers |
| [visitor\_businessFrequency.csv](#tbl_visitor_businessFrequency) | Visitor model tour frequency distribution for business travelers | CSV | Special Market: visitor survey | Transportation modelers |
| [visitor\_personalFrequency.csv](#tbl_visitor_personalFrequency) | Visitor model tour frequency distribution for personal travelers | CSV | Special Market: visitor survey | Transportation modelers |
| [visitor\_partySize.csv](#tbl_visitor_partySize) | Visitor model party size distribution | CSV | Special Market: visitor survey | Transportation modelers |
| [visitor\_autoAvailable.csv](#tbl_visitor_autoAvailable) | Visitor model auto availability distribution | CSV | Special Market: visitor survey | Transportation modelers |
| [visitor\_income.csv](#tbl_visitor_income) | Visitor model income distribution | CSV | Special Market: visitor survey | Transportation modelers |
| [visitor\_tourTOD.csv](#tbl_visitor_tourTOD) | Visitor model tour time-of-day distribution | CSV | Special Market: visitor survey | Transportation modelers |
| [visitor\_stopFrequency.csv](#tbl_visitor_stopFrequency) | Visitor model stop frequency distribution | CSV | Special Market: visitor survey | Transportation modelers |
| [visitor\_stopPurpose.csv](#tbl_visitor_stopPurpose) | Visitor model stop purpose distribution | CSV | Special Market: visitor survey | Transportation modelers |
| [visitor\_outboundStopDuration.csv](#tbl_visitor_outboundStopDuration) | Visitor model time-of-day offsets for outbound stops | CSV | Special Market: visitor survey | Transportation modelers |
| [visitor\_inboundStopDuration.csv](#tbl_visitor_inboundStopDuration) | Visitor model time-of-day offsets for inbound stops | CSV | Special Market: visitor survey | Transportation modelers |
| [TruckTripRates.csv](#tbl_TruckTripRates) | Truck model data: Truck trip rates | CSV | Truck inputs | Transportation modelers |
| [regionalEItrips<year>.csv](#tbl_regionalEltrips) | Truck model data: Truck external to internal data | CSV | Truck inputs | Transportation modelers |
| [regionalIEtrips<year>.csv](#tbl_regionalIEtrips) | Truck model data: Truck internal to external data | CSV | Truck inputs | Transportation modelers |
| [regionalEEtrips<year>.csv](#tbl_regionalEEtrips) | Truck model data: Truck external to external data | CSV | Truck inputs | Transportation modelers |
| [specialGenerators.csv](#tbl_specialGenerators) | Truck model data: Truck special generator data | CSV | Truck inputs | Transportation modelers |
| [temporaryStaticInputs.csv](#tbl_tempStatic) | Transponder ownership input file | CSV | Transdonder ownership input file | Transportation modelers |
| [luzToTazSeries13.xls](#tbl_LUZtoTAZ) | Mapping between LUZ to TAZ | Excel | GIS | GIS |
| trip\_XX.mtx | Warm start trip table; XX is the TOD (EA, AM, MD, PM, and EV) | TransCAD matrix | Warm start trip tables | Transportation modelers |

# 6.0 Properties File

The CT-RAMP software that executes the demand model portion of the SANDAG travel model is controlled by a standard Java control or properties file (please see [System Design](#System_Design) section for an overview of the model components). The table below identifies, describes, and provides an example for each of the variables expected to be in the properties file by the CT-RAMP software. After initially configuring the travel model (see the [Setup and Configuration](#Setup_and_Configuration) section for details), only a handful of these properties will be modified for a typical scenario analysis. The primary use for many of the properties is to facilitate software execution when calibrating the travel model and/or to locate and fix software bugs. Comments preceded with a pound (#) sign are ignored by the Java software.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [**Property**](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/PropertiesFile?sortcol=0;table=1;up=0#sorted_table) | [**Expected Data type**](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/PropertiesFile?sortcol=1;table=1;up=0#sorted_table) | | [**Example value**](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/PropertiesFile?sortcol=2;table=1;up=0#sorted_table) | [**Purpose**](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/PropertiesFile?sortcol=3;table=1;up=0#sorted_table) |
| **CLUSTER PROPERTIES** | | | | |
| RunModel.MatrixServerAddress | | String | 172.16.34.30 | matrix server address |
| RunModel.MatrixServerPort | | Integer | 1191 | matrix server port number |
| RunModel.HouseholdServerAddress | | String | 172.16.34.30 | household server address |
| RunModel.HouseholdServerPort | | Integer | 1129 | household server port number |
| **RUN PROPERTIES: MODEL COMPONENT SWITCHES** | | | | |
| RunModel.skipCopyWarmupTripTables | | Boolean | false | Skip copying warm start trip tables to output folder |
| RunModel.skipCopyBikeLogsum | | Boolean | false | Skip copying bike logsum to output folder |
| RunModel.skipCopyWalkImpedance | | Boolean | false | Skip copying walk impedance to output folder |
| RunModel.skipBuildHwyNetwork | | Boolean | false | Skip building highway network |
| RunModel.skipBuildTransitNetwork | | Boolean | false | Skip building transit network |
| RunModel.skipWalkLogsums | | Boolean | false | Skip creating walk logsum |
| RunModel.skipBikeLogsums | | Boolean | false | Skip creating bike logsum |
| RunModel.startFromIteration | | Integer | 1 | Iteration to start a model run from |
| RunModel.skipHighwayAssignment | | Boolean | false,false,false | Skip highway assignment |
| RunModel.skipHighwaySkimming | | Boolean | false,false,false | Skip highway skimming |
| RunModel.skipTransitSkimming | | Boolean | false,false,false | Skip transit skimming |
| RunModel.skipCoreABM | | Boolean | false,false,false | Skip ABM core model |
| RunModel.skipOtherSimulateModel | | Boolean | false,false,false | Skip non-core simulated models |
| RunModel.skipCTM | | Boolean | false,false,false | Skip commercial travel model |
| RunModel.skipEI | | Boolean | false,false,false | Skip external-internal model |
| RunModel.skipTruck | | Boolean | false,false,false | Skip truck model |
| RunModel.skipTripTableCreation | | Boolean | false,false,false | Skip creating trip tables |
| RunModel.skipFinalHighwayAssignment | | Boolean | false | Skip final highway assignment |
| RunModel.skipFinalTransitAssignment | | Boolean | false | Skip final transit assignment |
| RunModel.collapseOnOffByRoute | | Boolean | false | Skip collapsing transit on-off by route tables |
| RunModel.skipFinalHighwaySkimming | | Boolean | false | Skip final highway skimming |
| RunModel.skipFinalTransitSkimming | | Boolean | false | Skip final transit skimming |
| RunModel.skipLUZSkimCreation | | Boolean | true | Skip creating land use skims |
| RunModel.skipDataExport | | Boolean | false | Skip data exporting |
| RunModel.skipDataLoadRequest | | Boolean | false | Skip data loading request |
| RunModel.skipDeleteIntermediateFiles | | Boolean | false | Skip deleting intermediate files |
| **LOGGING PROPERTIES** | | | | |
| Trace | Boolean | | false | True or False whether to trace zones |
| Trace.otaz | Integer | | 1638 | Specify which origin taz to trace |
| Trace.dtaz | Integer | | 2447 | Specify which destination taz to trace |
| Seek | Boolean | | false | True or False whether to seek households |
| Process.Debug.HHs.Only | Boolean | | false | True of False whether to debug households |
| Debug.Trace.HouseholdIdList | String | | 566425 | Specify which household IDs to trace |
| internalExternal.seek | Boolean | | false | True or false to seek Internal External trip model |
| internalExternal.trace | Integer | | 1 | Specify what zone to trace for internal external trip model |
| crossBorder.seek | Boolean | | false | True or False to seek Cross Border Model |
| crossBorder.trace | Integer | | 12 | Specify what zone to trace for Cross Border model |
| visitor.seek | Boolean | | false | True or False to seek Visitor Model |
| visitor.trace | Integer | | 742 | Specify what zone to trace for Visitor model |
| RunModel.LogResults | Boolean | | true | log results into a text file |
| **PATH PROPERTIES** | | | | |
| Project.Directory | String | | %project.folder%/ | Project.Directory |
| generic.path | String | | %project.folder%/input/ | Inputs folder |
| scenario.path | String | | %project.folder%/ | scenario folder |
| skims.path | String | | %project.folder%/output/ | outputs folder |
| uec.path | String | | %project.folder%/uec/ | UEC folder |
| report.path | String | | %project.folder%/report/ | Report folder |
| **SCENARIO PROPERTIES** | | | | |
| mgra.socec.file | String | | input/mgra13\_based\_input${year}.csv | location of mgra land use file |
| scenarioYear | String | | ${year} | Scenario year |
| aoc.fuel | String | | ${aoc.fuel} | Auto operating costs: Fuel cost |
| aoc.maintenance | String | | ${aoc.maintenance} | Auto operating costs: Maintenance cost |
| crossBorder.run.concurrent | Boolean | | true | Cross border model is run using Java 7 Fork\Join Framework. |
| crossBorder.concurrent.parallelism | Integer | | 8 | Parallelism controls number of simultaneous threads |
| crossBorder.tours | Integer | | ${crossBorder.tours | Number of tours |
| crossBorder.sentriShare | Float | | 0.1826 | Share of tours that are SENTRI |
| visitor.hotel.occupancyRate | Float | | 0.7 | specify Hotel occupancy rate |
| visitor.household.occupancyRate | Float | | 0.018 | Specify household/residential occupancy rate |
| visitor.hotel.businessPercent | Float | | 0.3 | Specify proportion of hotel visitors on business trip |
| visitor.household.businessPercent | Float | | 0.04 | Specify proportion of household/residential visitors on business trip |
| airport.enplanements | Long Integer | | ${airport.enplanements | Specify number of enplanements |
| airport.connecting | Long Integer | | ${airport.connecting} | Specify number of connecting flights (transfers) |
| airport.annualizationFactor | Integer | | 365 | Specify annualization factor |
| airport.averageSize | Float | | 1.7 | Specify travel average party size |
| airport.airportMgra | Integer | | ${airport.airportMgra} | Specify Airport MGRA # |
| truck.FFyear | Integer | | 2008 | Specify the year that the truck model is being run for |
| **CORE MODEL RUN PROPERTIES: CONTROL STEPS RUN IN CORE MODEL** | | | | |
| Model.Random.Seed | Integer | | 1 | Starting value for model random seed number (added to household IDs to create unique random number for each household) |
| RunModel.Clear.MatrixMgr.At.Start | Boolean | | false | Clear matrix manager at the start of run |
| UsualWorkLocationChoice.ShadowPrice.Input.File | String | | input/ShadowPricingOutput\_work\_44.csv | File Name Work Location shadow price |
| UsualSchoolLocationChoice.ShadowPrice.Input.File | String | | input/ShadowPricingOutput\_school\_24.csv | File Name School Location shadow price |
| uwsl.ShadowPricing.Work.MaximumIterations | Integer | | 1 | maximum number of iterations for work shadow price |
| uwsl.ShadowPricing.School.MaximumIterations | Integer | | 1 | maximum number of iterations for school shadow price |
| uwsl.ShadowPricing.OutputFile | String | | output/ShadowPricingOutput.csv | output file name for shadow price |
| uwsl.run.workLocChoice | Boolean | | true | True or False whether to run this model component |
| uwsl.run.schoolLocChoice | Boolean | | true | True or False whether to run this model component |
| uwsl.write.results | Boolean | | true | True of False whether to write out usual work and school location results |
| uwsl.use.new.soa | Boolean | | false | true or false whether to use new soa for the work/school DC model |
| nmdc.use.new.soa | Boolean | | false | true or false whether to use new soa for the non-mandatory DC models |
| slc.use.new.soa | Boolean | | false | true or false whether to use new soa for the stop location choice models |
| TourModeChoice.Save.UtilsAndProbs | Boolean | | true | Save utilities and probabilities in tour mode choice output files |
| distributed.task.packet.size | Integer | | 200 | Distributed task packet size |
| RunModel.RestartWithHhServer | String | | none | model can be restarted with certain files already generated…..values include 'none' (run whole model), 'uwsl', 'ao', 'stf' |
| RunModel.PreAutoOwnership | Boolean | | true | True or False whether to run this model component |
| RunModel.UsualWorkAndSchoolLocationChoice | Boolean | | true | True or False whether to run this model component |
| RunModel.AutoOwnership | Boolean | | true | True or False whether to run this model component |
| RunModel.TransponderChoice | Boolean | | true | True or False whether to run this model component |
| RunModel.FreeParking | Boolean | | true | True or False whether to run this model component |
| RunModel.CoordinatedDailyActivityPattern | Boolean | | true | True or False whether to run this model component |
| RunModel.IndividualMandatoryTourFrequency | Boolean | | true | True or False whether to run this model component |
| RunModel.MandatoryTourModeChoice | Boolean | | true | True or False whether to run this model component |
| RunModel.MandatoryTourDepartureTimeAndDuration | Boolean | | true | True or False whether to run this model component |
| RunModel.JointTourFrequency | Boolean | | true | True or False whether to run this model component |
| RunModel.JointTourLocationChoice | Boolean | | true | True or False whether to run this model component |
| RunModel.JointTourDepartureTimeAndDuration | Boolean | | true | True or False whether to run this model component |
| RunModel.JointTourModeChoice | Boolean | | true | True or False whether to run this model component |
| RunModel.IndividualNonMandatoryTourFrequency | Boolean | | true | True or False whether to run this model component |
| RunModel.IndividualNonMandatoryTourLocationChoice | Boolean | | true | True or False whether to run this model component |
| RunModel.IndividualNonMandatoryTourDepartureTimeAndDuration | Boolean | | true | True or False whether to run this model component |
| RunModel.IndividualNonMandatoryTourModeChoice | Boolean | | true | True or False whether to run this model component |
| RunModel.AtWorkSubTourFrequency | Boolean | | true | True or False whether to run this model component |
| RunModel.AtWorkSubTourLocationChoice | Boolean | | true | True or False whether to run this model component |
| RunModel.AtWorkSubTourDepartureTimeAndDuration | Boolean | | true | True or False whether to run this model component |
| RunModel.AtWorkSubTourModeChoice | Boolean | | true | True or False whether to run this model component |
| RunModel.StopFrequency | Boolean | | true | True or False whether to run this model component |
| RunModel.StopLocation | Boolean | | true | True or False whether to run this model component |
| **INPUT PROPERTIES** | | | | |
| PopulationSynthesizer.InputToCTRAMP.HouseholdFile | String | | input/households.csv | location of popsyn households.csv file |
| PopulationSynthesizer.InputToCTRAMP.PersonFile | String | | input/persons.csv | location of popsyn persons.csv file |
| PopulationSynthesizer.OccupCodes | String | | input/pecas\_occ\_occsoc.csv | location of popsyn pecas\_occ\_occsoc.csv file |
| PopulationSynthesizer.IndustryCodes | String | | input/activity\_code\_indcen.csv | location of popsyn activity\_code\_indcen.csv file |
| PopulationSynthesizer.MilitaryIndustryRange |  | | 9670,9870 | Used to recode military occupation. This is necessary because military workers identify themselves as non-military occupations. |
| mgra.wlkacc.taps.and.distance.file | String | | input/mgra\_tap\_walk.prn | location of walk access and distance file |
| taz.driveaccess.taps.file | String | | input/accessam.csv | location of drive access file |
| tap.ptype.file | String | | input/tap.ptype | location of ptype file |
| mgra.walkdistance.file | String | | input/mgra\_mgra\_walk.prn | location of mgra walk distance file |
| taz.parkingtype.file | String | | input/zone.park | location of parking type file |
| taz.terminal.time.file | String | | input/zone.term | location of zonal terminal time file |
| **OUTPUT PROPERTIES** | | | | |
| Results.WriteDataToFiles | Boolean | | true | write data to files |
| Results.HouseholdDataFile | String | | output/householdData.csv | output name of household data file |
| Results.PersonDataFile | String | | output/personData.csv | output name of person data file |
| Results.IndivTourDataFile | String | | output/indivTourData.csv | output name of individual tour data file |
| Results.JointTourDataFile | String | | output/jointTourData.csv | output name of joint tour data file |
| Results.IndivTripDataFile | String | | output/indivTripData.csv | output name of individual trip data file |
| Results.JointTripDataFile | String | | output/jointTripData.csv | output name of joint trip data file |
| Results.CBDFile | String | | output/cbdParking.csv | output name of CBD parking file |
| Results.PNRFile | String | | output/pnrParking.csv | output name of PNR parking file |
| Results.WriteDataToDatabase | Boolean | | false | Write data to a database |
| Results.HouseholdTable | String | | household\_data | output name of household data file in database |
| Results.PersonTable | String | | person\_data | output name of person data file in database |
| Results.IndivTourTable | String | | indiv\_tour\_data | output name of individual tour data file in database |
| Results.JointTourTable | String | | joint\_tour\_data | output name of joint tour data file in database |
| Results.IndivTripTable | String | | indiv\_trip\_data | output name of individual trip data file in database |
| Results.JointTripTable | String | | joint\_trip\_data | output name of joint trip data file in database |
| Results.AutoTripMatrix | String | | output/autoTrips | output name of auto trip matrix |
| Results.TranTripMatrix | String | | output/tranTrips | output name of transit trip matrix |
| Results.NMotTripMatrix | String | | output/nmotTrips | output name of non-motorized trip matrix |
| Results.OthrTripMatrix | String | | output/othrTrips | output name of other modes trip matrix |
| Results.PNRFile | String | | output/PNRByTAP\_Vehicles.csv | output name of PNR by TAP Vehicle Trip file |
| Results.CBDFile | String | | output/CBDByMGRA\_Vehicles.csv | output name of CBD by MGRA Vehicle Trip file |
| Results.MatrixType | String | | TRANSCAD | Matrix type for trip tables |
| Results.AutoOwnership | String | | output/aoResults.csv | auto ownership output file name and location |
| read.pre.ao.results | Boolean | | FALSE | read in the old pre-auto ownership results file |
| read.pre.ao.filename | String | | output/aoResults\_pre.csv | pre auto ownership output file name and location |
| Results.UsualWorkAndSchoolLocationChoice | String | | output/wsLocResults.csv | usual work and school location output file name and location |
| read.uwsl.results | Boolean | | FALSE | Read in the old uwsl results? |
| read.uwsl.filename | String | | output/wsLocResults\_1.csv | old uwsl result file name and location to read in |
| **CORE MODEL UECS** | | | | |
| acc.uec.file | String | | %project.folder%/uec/Accessibilities.xls | Accessibilities.xls location |
| acc.data.page | Integer | | 0 | Accessibilities data page |
| acc.transit.offpeak.page | Integer | | 1 | Accessibilities offpeak page |
| acc.transit.peak.page | Integer | | 2 | Accessibilities peak page |
| acc.transit.walkaccess.page | Integer | | 3 | Accessibilities walk access page |
| acc.transit.driveaccess.page | Integer | | 4 | Accessibilities drive access page |
| acc.sov.offpeak.page | Integer | | 5 | Accessibilities SOV offpeak |
| acc.sov.peak.page | Integer | | 6 | Accessibilities SOV peak |
| acc.hov.offpeak.page | Integer | | 7 | Accessibilities HOV offpeak |
| acc.hov.peak.page | Integer | | 8 | Accessibilities HOV peak |
| acc.nonmotorized.page | Integer | | 9 | Accessibilities non-motorized |
| acc.constants.page | Integer | | 10 | Accessibilities constants |
| acc.sizeTerm.page | Integer | | 11 | Accessibilities size terms |
| acc.schoolSizeTerm.page | Integer | | 12 | Accessibilities school size terms |
| acc.workerSizeTerm.page | Integer | | 13 | Accessibilities worker size terms |
| acc.dcUtility.uec.file | String | | %project.folder%/uec/Accessibilities\_DC.xls | Accessibilities\_DC.xls location |
| acc.dcUtility.data.page | Integer | | 0 | DC Accessibilities data page |
| acc.dcUtility.page | Integer | | 1 | DC Accessibilities utility page |
| acc.output.file | String | | input/accessibilities.csv | accessibilities.csv location |
| acc.read.input.file | Boolean | | false | Read the accessibilities as input or generate accessibilities on the fly |
| lu.acc.dcUtility.uec.file | String | | %project.folder%/uec/Accessibilities\_LU\_DC.xls | Accessibilities\_LU\_DC.xls location |
| lu.acc.dcUtility.data.page | Integer | | 0 | LU DC Accessibilities data page |
| lu.acc.dcUtility.page | Integer | | 1 | LU DC Accessibilities utility page |
| lu.accessibility.alts.file | String | | Acc\_LU\_alts.csv | LU Accessibilities alternatives |
| lu.acc.output.file | String | | output/luAccessibilities.csv | luAccessibilities.csv location |
| lu.acc.mc.logsums.output.file | String | | output/luLogsums.csv | luLogsums.csv location |
| lu.acc.simple.averaging.method | Boolean | | true | # set either or both averaging methods to be used to write LU accessibilities files and also requires command line parameter "-luAcc true" and acc.read.input.file = false |
| lu.acc.logit.averaging.method | Boolean | | true | # set either or both averaging methods to be used to write LU accessibilities files and also requires command line parameter "-luAcc true" and acc.read.input.file = false |
| accessibility.alts.file | String | | Acc\_alts.csv | Accessibilities alternatives |
| acc.mandatory.uec.file | String | | %project.folder%/uec/MandatoryAccess.xls | MandatoryAccess.xls location |
| acc.mandatory.data.page | Integer | | 0 | Mandatory Access data page |
| acc.mandatory.auto.page | Integer | | 1 | Mandatory Access auto page |
| acc.mandatory.autoLogsum.page | Integer | | 2 | Mandatory Access autoLogsum page |
| acc.mandatory.bestWalkTransit.page | Integer | | 3 | Mandatory Access best Walk Transit page |
| acc.mandatory.bestDriveTransit.page | Integer | | 4 | Mandatory Access best Drive Transit page |
| acc.mandatory.transitLogsum.page | Integer | | 5 | Mandatory Access transit logsum page |
| ao.uec.file | String | | AutoOwnership.xls | File name of auto ownership UEC |
| ao.data.page | Integer | | 0 | Auto ownership UEC data page |
| ao.model.page | Integer | | 1 | Auto ownership UEC utility page |
| uwsl.dc.uec.file | String | | TourDestinationChoice.xls | File Name of Tour Destination Choice UEC |
| uwsl.dc2.uec.file | String | | TourDestinationChoice2.xls | File Name of Tour Destination Choice 2 UEC |
| uwsl.soa.uec.file | String | | DestinationChoiceAlternativeSample.xls | File Name of Destination Choice Alternative Sample UEC |
| uwsl.soa.alts.file | String | | DestinationChoiceAlternatives.csv | File name of the alternatives (MGRAs) available to the destination choice models (part of the model design; this should not be changed) |
| uwsl.work.soa.SampleSize | Integer | | 30 | Sample size of Work Destination Choice |
| uwsl.school.soa.SampleSize | Integer | | 30 | Sample size of School Destination Choice |
| work.soa.uec.file | String | | TourDcSoaDistance.xls | File Name of Tour Distance DC SOA UEC for Work Purpose, includes TAZ Size in the expressions |
| work.soa.uec.data | Integer | | 0 | Work Tour Distance SOA UEC data page |
| work.soa.uec.model | Integer | | 1 | Work Tour Distance SOA UEC utility page |
| univ.soa.uec.file | String | | TourDcSoaDistanceNoSchoolSize.xls | File Name of Tour Distance DC SOA UEC for School Purpose; school purposes do not include TAZ Size in the expressions so that the utilities can be stored as exponentiated distance utility matrices for university, and then multiplied by the university segment size terms |
| univ.soa.uec.data | Integer | | 0 | University Tour Distance SOA UEC data page |
| univ.soa.uec.model | Integer | | 1 | University Tour Distance SOA UEC utility page |
| hs.soa.uec.file | String | | TourDcSoaDistanceNoSchoolSize.xls | File Name of Tour Distance DC SOA UEC for School Purpose; school purposes do not include TAZ Size in the expressions so that the utilities can be stored as exponentiated distance utility matrices for high school, and then multiplied by the high school segment size terms |
| hs.soa.uec.data | Integer | | 0 | High School Tour Distance SOA UEC data page |
| hs.soa.uec.model | Integer | | 2 | High School Tour Distance SOA UEC utility page |
| gs.soa.uec.file | String | | TourDcSoaDistanceNoSchoolSize.xls | File Name of Tour Distance DC SOA UEC for School Purpose; school purposes do not include TAZ Size in the expressions so that the utilities can be stored as exponentiated distance utility matrices for grade school, and then multiplied by the grade school segment size terms |
| gs.soa.uec.data | Integer | | 0 | Grade School Tour Distance SOA UEC data page |
| gs.soa.uec.model | Integer | | 3 | Grade School Tour Distance SOA UEC utility page |
| ps.soa.uec.file | String | | TourDcSoaDistanceNoSchoolSize.xls | File Name of Tour Distance DC SOA UEC for School Purpose; school purposes do not include TAZ Size in the expressions so that the utilities can be stored as exponentiated distance utility matrices for preschool, and then multiplied by the preschool segment size terms |
| ps.soa.uec.data | Integer | | 0 | Preschool Tour Distance SOA UEC data page |
| ps.soa.uec.model | Integer | | 4 | Preschool Tour Distance SOA UEC utility page |
| tc.choice.avgtts.file | String | | input/temporaryStaticInputs.csv | File name of average travel times for transponder ownership |
| tc.uec.file | String | | TransponderOwnership.xls | File name of transponder ownership UEC |
| tc.data.page | Integer | | 0 | Transponder ownership UEC data page |
| tc.model.page | Integer | | 1 | Transponder ownership UEC utility page |
| fp.uec.file | String | | ParkingProvision.xls | File name of parking provision UEC |
| fp.data.page | Integer | | 0 | Parking Provision UEC data page |
| fp.model.page | Integer | | 1 | Parking Provision UEC utility page |
| cdap.uec.file | String | | CoordinatedDailyActivityPattern.xls | File name of CDAP UEC |
| cdap.data.page | Integer | | 0 | CDAP UEC data page |
| cdap.one.person.page | Integer | | 1 | CDAP UEC utility for one person page |
| cdap.two.person.page | Integer | | 2 | CDAP UEC utility for 2 persons page |
| cdap.three.person.page | Integer | | 3 | CDAP UEC utility for 3 persons page |
| cdap.all.person.page | Integer | | 4 | CDAP UEC utility for All member interation page |
| cdap.joint.page | Integer | | 5 | CDAP UEC utility for joint tours page |
| imtf.uec.file | String | | MandatoryTourFrequency.xls | File name of Mandatory tour frequency UEC |
| imtf.data.page | Integer | | 0 | Mandatory tour frequency UEC data page |
| imtf.model.page | Integer | | 1 | mandatory tour frequency UEC utility page |
| nonSchool.soa.uec.file | String | | TourDcSoaDistance.xls | File Name of Tour Distance DC SOA UEC for Non Work/School Purposes, includes TAZ Size in the expressions |
| escort.soa.uec.data | Integer | | 0 | Escort Tour Distance SOA UEC data page |
| escort.soa.uec.model | Integer | | 2 | Escort Tour Distance SOA UEC utility page |
| other.nonman.soa.uec.data | Integer | | 0 | Other Non-mandatory Tour Distance SOA UEC data page |
| other.nonman.soa.uec.model | Integer | | 3 | Other Non-mandatory Tour Distance SOA UEC utility page |
| atwork.soa.uec.data | Integer | | 0 | At-Work Sub-Tour Distance SOA UEC data page |
| atwork.soa.uec.model | Integer | | 4 | At-Work Sub-Tour Distance SOA UEC utility page |
| soa.taz.dist.alts.file | String | | SoaTazDistAlts.csv | File name of Sample of Alternatives of TAZs |
| nmdc.dist.alts.file | String | | NonMandatoryTlcAlternatives.csv | File name of non-mandatory tour alternatives |
| nmdc.soa.alts.file | String | | DestinationChoiceAlternatives.csv | File name of the alternatives (MGRAs) available to the destination choice models (part of the model design; this should not be changed) |
| nmdc.soa.SampleSize | Integer | | 30 | Sample size of non-mandatory Destination choice |
| nmdc.uec.file2 | String | | TourDestinationChoice2.xls | File Name of Tour Destination Choice 2 UEC |
| nmdc.uec.file | String | | TourDestinationChoice.xls | File Name of Tour Destination Choice UEC |
| nmdc.data.page | Integer | | 0 | Non-mandatory Tour DC UEC data page |
| nmdc.escort.model.page | Integer | | 7 | Escort Tour Destination Choice UEC utility page |
| nmdc.shop.model.page | Integer | | 8 | Shop Tour Destination Choice UEC utility page |
| nmdc.maint.model.page | Integer | | 9 | Maintenance Tour Destination Choice UEC utility page |
| nmdc.eat.model.page | Integer | | 10 | Eating Out Tour Destination Choice UEC utility page |
| nmdc.visit.model.page | Integer | | 11 | Visiting Tour Destination Choice UEC utility page |
| nmdc.discr.model.page | Integer | | 12 | Discretionary Tour Destination Choice UEC utility page |
| nmdc.atwork.model.page | Integer | | 13 | At-Work Sub-Tour Destination Choice UEC utility page |
| nmdc.soa.uec.file | String | | DestinationChoiceAlternativeSample.xls | File Name of Destination Choice Alternative Sample UEC |
| nmdc.soa.data.page | Integer | | 0 | Non-mandatory TOUR SOA UEC data page |
| nmdc.soa.escort.model.page | Integer | | 6 | Escort TOUR SOA UEC utility page |
| nmdc.soa.shop.model.page | Integer | | 7 | Shop TOUR SOA UEC utility page |
| nmdc.soa.maint.model.page | Integer | | 7 | Maintenance TOUR SOA UEC utility page |
| nmdc.soa.eat.model.page | Integer | | 7 | Eating Out TOUR SOA UEC utility page |
| nmdc.soa.visit.model.page | Integer | | 7 | Visiting TOUR SOA UEC utility page |
| nmdc.soa.discr.model.page | Integer | | 7 | Discretionary TOUR SOA UEC utility page |
| nmdc.soa.atwork.model.page | Integer | | 8 | At-Work Sub-Tour SOA UEC utility page |
| tourModeChoice.uec.file | String | | TourModeChoice.xls | File name of Tour Mode choice UEC |
| tourModeChoice.maint.model.page | Integer | | 4 | Maintenance Tour Mode Choice UEC utility page |
| tourModeChoice.discr.model.page | Integer | | 5 | Discretionary Tour Mode Choice UEC utility page |
| tourModeChoice.atwork.model.page | Integer | | 6 | At-Work Sub-Tour Mode Choice UEC utility page |
| departTime.uec.file | String | | TourDepartureAndDuration.xls | File name of Tour TOD Choice UEC |
| departTime.data.page | Integer | | 0 | Tour TOD Choice UEC data page |
| departTime.work.page | Integer | | 1 | Work Tour TOD Choice UEC utility page |
| departTime.univ.page | Integer | | 2 | University Tour TOD Choice UEC utility page |
| departTime.school.page | Integer | | 3 | School Tour TOD Choice UEC utility page |
| departTime.escort.page | Integer | | 4 | Escort Tour TOD Choice UEC utility page |
| departTime.shop.page | Integer | | 5 | Shop Tour TOD Choice UEC utility page |
| departTime.maint.page | Integer | | 6 | Maintenance Tour TOD Choice UEC utility page |
| departTime.eat.page | Integer | | 7 | Eating Out Tour TOD Choice UEC utility page |
| departTime.visit.page | Integer | | 8 | Visiting Tour TOD Choice UEC utility page |
| departTime.discr.page | Integer | | 9 | Discretionary Tour TOD Choice UEC utility page |
| departTime.atwork.page | Integer | | 10 | At-Work Sub-Tour TOD Choice UEC utility page |
| departTime.alts.file | String | | DepartureTimeAndDurationAlternatives.csv | File name of Departure time and duration alternatives |
| jtfcp.uec.file | String | | JointTourFrequency.xls | File name of Joint Tour Frequency UEC |
| jtfcp.alternatives.file | String | | JointAlternatives.csv | File name of joint tour alternatives by purpose and party composition combinations |
| jtfcp.data.page | Integer | | 0 | Joint Tour Frequency UEC data page |
| jtfcp.freq.comp.page | Integer | | 1 | Joint Tour Frequency UEC utility composition page |
| jtfcp.participate.page | Integer | | 2 | Joint Tour Frequency UEC utility participation page |
| inmtf.uec.file | String | | NonMandatoryIndividualTourFrequency.xls | File name of Individual non-mandatory tour frequency UEC |
| inmtf.FrequencyExtension.ProbabilityFile | String | | IndividualNonMandatoryTourFrequencyExtensionProbabilities\_p1.csv | File name of Individual non-mandatory tour frequency extension probabilities |
| IndividualNonMandatoryTourFrequency.AlternativesList.InputFile | String | | IndividualNonMandatoryTourFrequencyAlternatives.csv | File name of individual non-mandatory tour frequency alternatives (combinations) |
| inmtf.data.page | Integer | | 0 | Individual Non-mandatory tour frequency UEC data page |
| inmtf.perstype1.page | Integer | | 1 | Individual Non-mandatory tour frequency UEC utility for Full time workers page |
| inmtf.perstype2.page | Integer | | 2 | Individual Non-mandatory tour frequency UEC utility for Part time workers page |
| inmtf.perstype3.page | Integer | | 3 | Individual Non-mandatory tour frequency UEC utility for University students page |
| inmtf.perstype4.page | Integer | | 4 | Individual Non-mandatory tour frequency UEC utility for Non-workers page |
| inmtf.perstype5.page | Integer | | 5 | Individual Non-mandatory tour frequency UEC utility for Retirees page |
| inmtf.perstype6.page | Integer | | 6 | Individual Non-mandatory tour frequency UEC utility for Driving students page |
| inmtf.perstype7.page | Integer | | 7 | Individual Non-mandatory tour frequency UEC utility for Pre-driving students page |
| inmtf.perstype8.page | Integer | | 8 | Individual Non-mandatory tour frequency UEC utility for Preschool students page |
| awtf.uec.file |  | | AtWorkSubtourFrequency.xls | File name of at-work sub-tour frequency UEC |
| awtf.data.page | Integer | | 0 | At-Work Sub-Tour Frequency UEC Data page |
| awtf.model.page | Integer | | 1 | At-Work Sub-Tour Frequency UEC Utility page |
| stf.uec.file | String | | StopFrequency.xls | File name of Stop Frequency UEC |
| stf.purposeLookup.proportions | String | | StopPurposeLookupProportions.csv | File name of Stop Purpose Lookup proportions |
| stf.data.page | Integer | | 0 | Stop Frequency UEC data page |
| stf.work.page | Integer | | 1 | Stop Frequency for Work Tour UEC utility page |
| stf.univ.page | Integer | | 2 | Stop Frequency for University Tour UEC utility page |
| stf.school.page | Integer | | 3 | Stop Frequency for School Tour UEC utility page |
| stf.escort.page | Integer | | 4 | Stop Frequency for Escort Tour UEC utility page |
| stf.shop.page | Integer | | 5 | Stop Frequency for Shop Tour UEC utility page |
| stf.maint.page | Integer | | 6 | Stop Frequency for Maintenance Tour UEC utility page |
| stf.eat.page | Integer | | 7 | Stop Frequency for Eating Out Tour UEC utility page |
| stf.visit.page | Integer | | 8 | Stop Frequency for Visiting Tour UEC utility page |
| stf.discr.page | Integer | | 9 | Stop Frequency for Discretionary Tour UEC utility page |
| stf.subtour.page | Integer | | 10 | Stop Frequency for At-Work Sub-Tour UEC utility page |
| slc.uec.file | String | | StopLocationChoice.xls | File Name of Stop Location Choice UEC |
| slc.uec.data.page | Integer | | 0 | Stop Location Choice UEC data page |
| slc.mandatory.uec.model.page | Integer | | 1 | Stop Location Choice for Mandatory Tours UEC utility page |
| slc.maintenance.uec.model.page | Integer | | 2 | Stop Location Choice for Maintenance Tours UEC utility page |
| slc.discretionary.uec.model.page | Integer | | 3 | Stop Location Choice for Discretionary Tours UEC utility page |
| slc.alts.file | String | | SlcAlternatives.csv | File name of stop location choice alternatives |
| slc.soa.alts.file | String | | DestinationChoiceAlternatives.csv | File name of the alternatives (MGRAs) available to the destination choice models (part of the model design; this should not be changed) |
| auto.slc.soa.distance.uec.file | String | | SlcSoaDistanceUtility.xls | File name of Stop Location Sample of Alternatives Choice UEC for tour modes other than walk or bike - for transit, availability of stop for transit is set in java code |
| auto.slc.soa.distance.data.page | Integer | | 0 | Stop Location SOA Choice UEC data page |
| auto.slc.soa.distance.model.page | Integer | | 1 | Stop Location SOA Choice UEC utility page |
| slc.soa.size.uec.file | String | | SlcSoaSize.xls | File Name of Stop Location Choice Size Terms UEC |
| slc.soa.size.uec.data.page | Integer | | 0 | Stop Location Choice Size terms UEC data page |
| slc.soa.size.uec.model.page | Integer | | 1 | Stop Location Choice Size terms UEC utility page |
| stop.depart.arrive.proportions | String | | StopDepartArriveProportions.csv | File name of Stop Location Time of Day proportions |
| tripModeChoice.uec.file | String | | TripModeChoice.xls | File name of Trip mode choice UEC |
| plc.uec.file | String | | ParkLocationChoice.xls | File name of Parking Location Choice UEC |
| plc.uec.data.page | Integer | | 0 | Parking Location Choice UEC data page |
| plc.uec.model.page | Integer | | 1 | Parking Location Choice UEC utility page |
| plc.alts.corresp.file | String | | ParkLocationAlts.csv | File name of parking location alternatives (MGRAs) |
| plc.alts.file | String | | ParkLocationSampleAlts.csv | File name of parking location sample of alternatives |
| mgra.avg.cost.output.file | String | | mgraParkingCost.csv | File name of average parking costs by MGRA |
| mgra.avg.cost.dist.coeff.work | Float | | -8.6 | Parking location model coefficient for walking distance to destination for Work purpose |
| mgra.avg.cost.dist.coeff.other | Float | | -4.9 | Parking location model coefficient for walking distance to destination for other purposes |
| park.cost.reimb.mean | Float | | -0.05 | Parking location model mean parking cost reimbursement |
| park.cost.reimb.std.dev | Float | | 0.54 | Parking location model standard deviation for parking cost reimbursement |
| utility.bestTransitPath.uec.file | String | | BestTransitPathUtility.xls | File name of best transit path UEC |
| utility.bestTransitPath.data.page | Integer | | 0 | Best Transit Path UEC data page |
| utility.bestTransitPath.tapToTap.ea.page | Integer | | 1 | Best Transit Path UEC for TAP to TAP Early AM utility page |
| utility.bestTransitPath.tapToTap.am.page | Integer | | 2 | Best Transit Path UEC for TAP to TAP AM utility page |
| utility.bestTransitPath.tapToTap.md.page | Integer | | 3 | Best Transit Path UEC for TAP to TAP MD utility page |
| utility.bestTransitPath.tapToTap.pm.page | Integer | | 4 | Best Transit Path UEC for TAP to TAP PM utility page |
| utility.bestTransitPath.tapToTap.ev.page | Integer | | 5 | Best Transit Path UEC for TAP to TAP Evening utility page |
| utility.bestTransitPath.walkAccess.page | Integer | | 6 | Best Transit Path UEC for Walk Access to Transit utility page |
| utility.bestTransitPath.driveAccess.page | Integer | | 7 | Best Transit Path UEC for Drive Access to Transit utility page |
| utility.bestTransitPath.walkEgress.page | Integer | | 8 | Best Transit Path UEC for Walk Egress to Transit utility page |
| utility.bestTransitPath.driveEgress.page | Integer | | 9 | Best Transit Path UEC for Drive Egress to Transit utility page |
| skims.auto.uec.file | String | | AutoSkims.xls | File name of Auto Skims UEC |
| skims.auto.data.page | Integer | | 0 | Auto Skims data page |
| skims.auto.ea.page | Integer | | 1 | Auto skims Early AM utility page |
| skims.auto.am.page | Integer | | 2 | Auto skims AM utility page |
| skims.auto.md.page | Integer | | 3 | Auto skims MD utility page |
| skims.auto.pm.page | Integer | | 4 | Auto skims PM utility page |
| skims.auto.ev.page | Integer | | 5 | Auto skims Evening utility page |
| taz.distance.uec.file | String | | tazDistance.xls | File name of TAZ Distance UEC |
| taz.distance.data.page | Integer | | 0 | TAZ Distance UEC data page |
| taz.od.distance.ea.page | Integer | | 1 | TAZ Distance UEC Early AM utility page |
| taz.od.distance.am.page | Integer | | 2 | TAZ Distance UEC AM utility page |
| taz.od.distance.md.page | Integer | | 3 | TAZ Distance UEC MD utility page |
| taz.od.distance.pm.page | Integer | | 4 | TAZ Distance UEC PM utility page |
| taz.od.distance.ev.page | Integer | | 5 | TAZ Distance UEC Evening utility page |
| skim.walk.transit.walk.uec.file | String | | WalkTransitWalkSkims.xls | File name of Walk Transit Walk Skims UEC |
| skim.walk.transit.walk.data.page | Integer | | 0 | Walk Transit Walk Skims UEC data page |
| skim.walk.local.walk.ea.page | Integer | | 1 | Walk Local Walk Early AM Skims UEC utility page |
| skim.walk.local.walk.am.page | Integer | | 3 | Walk Local Walk AM Skims UEC utility page |
| skim.walk.local.walk.md.page | Integer | | 5 | Walk Local Walk MD Skims UEC utility page |
| skim.walk.local.walk.pm.page | Integer | | 7 | Walk Local Walk PM Skims UEC utility page |
| skim.walk.local.walk.ev.page | Integer | | 9 | Walk Local Walk Evening Skims UEC utility page |
| skim.walk.premium.walk.ea.page | Integer | | 2 | Walk Premium Walk Early AM Skims UEC utility page |
| skim.walk.premium.walk.am.page | Integer | | 4 | Walk Premium Walk AM Skims UEC utility page |
| skim.walk.premium.walk.md.page | Integer | | 6 | Walk Premium Walk MD Skims UEC utility page |
| skim.walk.premium.walk.pm.page | Integer | | 8 | Walk Premium Walk PM Skims UEC utility page |
| skim.walk.premium.walk.ev.page | Integer | | 10 | Walk Premium Walk Evening Skims UEC utility page |
| skim.walk.transit.drive.uec.file | String | | WalkTransitDriveSkims.xls | File name of Walk Transit Drive Skims UEC |
| skim.walk.transit.drive.data.page | Integer | | 0 | Walk Transit Drive Skims UEC data page |
| skim.walk.local.drive.ea.page | Integer | | 1 | Walk Local Drive Early AM Skims UEC utility page |
| skim.walk.local.drive.am.page | Integer | | 3 | Walk Local Drive AM Skims UEC utility page |
| skim.walk.local.drive.md.page | Integer | | 5 | Walk Local Drive MD Skims UEC utility page |
| skim.walk.local.drive.pm.page | Integer | | 7 | Walk Local Drive PM Skims UEC utility page |
| skim.walk.local.drive.ev.page | Integer | | 9 | Walk Local Drive Evening Skims UEC utility page |
| skim.walk.premium.drive.ea.page | Integer | | 2 | Walk Premium Drive Early AM Skims UEC utility page |
| skim.walk.premium.drive.am.page | Integer | | 4 | Walk Premium Drive AM Skims UEC utility page |
| skim.walk.premium.drive.md.page | Integer | | 6 | Walk Premium Drive MD Skims UEC utility page |
| skim.walk.premium.drive.pm.page | Integer | | 8 | Walk Premium Drive PM Skims UEC utility page |
| skim.walk.premium.drive.ev.page | Integer | | 10 | Walk Premium Drive Evening Skims UEC utility page |
| skim.drive.transit.walk.uec.file | String | | DriveTransitWalkSkims.xls | File name of Drive Transit Walk Skims UEC |
| skim.drive.transit.walk.data.page | Integer | | 0 | Drive Transit Walk Skims UEC data page |
| skim.drive.local.walk.ea.page | Integer | | 1 | Drive Local Walk Early AM Skims UEC utility page |
| skim.drive.local.walk.am.page | Integer | | 3 | Drive Local Walk AM Skims UEC utility page |
| skim.drive.local.walk.md.page | Integer | | 5 | Drive Local Walk MD Skims UEC utility page |
| skim.drive.local.walk.pm.page | Integer | | 7 | Drive Local Walk PM Skims UEC utility page |
| skim.drive.local.walk.ev.page | Integer | | 9 | Drive Local Walk Evening Skims UEC utility page |
| skim.drive.premium.walk.ea.page | Integer | | 2 | Drive Premium Walk Early AM Skims UEC utility page |
| skim.drive.premium.walk.am.page | Integer | | 4 | Drive Premium Walk AM Skims UEC utility page |
| skim.drive.premium.walk.md.page | Integer | | 6 | Drive Premium Walk MD Skims UEC utility page |
| skim.drive.premium.walk.pm.page | Integer | | 8 | Drive Premium Walk PM Skims UEC utility page |
| skim.drive.premium.walk.ev.page | Integer | | 10 | Drive Premium Walk Evening Skims UEC utility page |
| **IE MODEL SETTINGS (Run as part of CT-RAMP)** | | | | |
| RunModel.InternalExternal | Boolean | | true | True or False to run the Internal to External model |
| ie.uec.file | String | | InternalExternalTripChoice.xls | File name of Internal to External Trip choice UEC |
| ie.data.page | Integer | | 0 | Internal External Trip Choice UEC data page |
| ie.model.page | Integer | | 1 | Internal External Trip Choice UEC utility page |
| ie.logsum.distance.coeff | Float | | -0.05 | Internal External Trip choice logsum distance coefficient |
| external.tazs | String | | 1,2,3,4,5,6,7,8,9,10,11,12 | Listing of external station TAZs |
| internalExternal.dc.uec.file | String | | InternalExternalDestinationChoice.xls | File name of Internal External Destination choice UEC |
| internalExternal.dc.uec.data.page | Integer | | 0 | Internal External Destination Choice UEC data page |
| internalExternal.dc.uec.model.page | Integer | | 1 | Internal External Destination Choice UEC utility page |
| internalExternal.dc.uec.alts.file | String | | InternalExternalDestinationChoiceAlternatives.csv | File name of internal external destination choice alternatives |
| internalExternal.tour.tod.file | String | | input/internalExternal\_tourTOD.csv | File location/name of internal external TOD proportions |
| internalExternal.trip.mc.uec.file | String | | internalExternalTripModeChoice.xls | File name of internal external Trip Mode choice UEC |
| internalExternal.trip.mc.data.page | Integer | | 0 | Internal External Trip Mode choice UEC data page |
| internalExternal.trip.mc.model.page | Integer | | 1 | Internal External Trip Mode choice UEC utility page |
| internalExternal.trip.output.file | String | | output/internalExternalTrips.csv | File location/name of internal external resulting trips |
| internalExternal.results.autoTripMatrix | String | | output/autoInternalExternalTrips | File location/name of internal external resulting auto trips |
| internalExternal.results.nMotTripMatrix | String | | output/nmotInternalExternalTrips | File location/name of internal external resulting non-motorized trips |
| internalExternal.results.tranTripMatrix | String | | output/tranInternalExternalTrips | File location/name of internal external resulting transit trips |
| internalExternal.results.othrTripMatrix | String | | output/othrInternalExternalTrips | File location/name of internal external resulting other modes trips |
| crossBorder.tours | Integer | | 93730 | Control Total: number of tours in the cross border model |
| crossBorder.sentriShare | Float | | 0.1826 | Share of Sentri users |
| crossBorder.purpose.nonsentri.file | String | | input/crossBorder\_tourPurpose\_nonSENTRI.csv | File location/name of cross border non-sentri shares by tour purpose |
| crossBorder.purpose.sentri.file | String | | input/crossBorder\_tourPurpose\_SENTRI.csv | File location/name of cross border sentri shares by tour purpose |
| crossBorder.tour.tod.file | String | | input/crossBorder\_tourEntryAndReturn.csv | File location/name of cross border tour time of day proportions |
| crossBorder.dc.soa.uec.file | String | | CrossBorderDestinationChoiceSample.xls | File name of cross border destination choice Sample of alternatives UEC |
| crossBorder.dc.soa.data.page | Integer | | 0 | Cross Border Destination Choice SOA UEC data page |
| crossBorder.dc.soa.model.page | Integer | | 1 | Cross Border Destination Choice SOA UEC utility page |
| crossBorder.dc.soa.size.page | Integer | | 2 | Cross Border Destination Choice SOA UEC Size terms page |
| crossborder.dc.soa.alts.file | String | | CrossBorderDestinationChoiceSoaAlternatives.csv  CrossBorderDestinationChoiceSoaAlternatives2010.csv | File name of cross border destination choice Sample of alternatives from and to point of entry and exits (MGRA) |
| crossBorder.dc.uec.file | String | | CrossBorderDestinationChoice.xls  CrossBorderDestinationChoice2010.xls | File name of Cross Border Destination Choice UEC |
| crossBorder.dc.data.page | Integer | | 0 | Cross Border Destination Choice UEC data page |
| crossBorder.dc.model.page | Integer | | 1 | Cross Border Destination Choice UEC utility page |
| crossborder.dc.alts.file | String | | CrossBorderDestinationChoiceAlternatives.csv | File name of Cross Border destination choice alternatives |
| crossBorder.dc.colonia.file | String | | input/crossBorder\_supercolonia.csv | File location/name of Cross Border Super Colonia input file (population distance to border, etc.) |
| crossBorder.dc.colonia.distance.parameter | Float | | -0.19 | Cross Border model colonia distance coefficient |
| crossBorder.dc.soa.sampleRate | Integer | | 30 | Cross Border model Sample Size |
| crossBorder.tour.mc.uec.file | String | | CrossBorderTourModeChoice.xls | File name of Cross Border Tour Mode Choice UEC |
| crossBorder.tour.mc.data.page | Integer | | 0 | Cross Border Tour Mode Choice UEC data page |
| crossBorder.tour.mc.mandatory.model.page | Integer | | 1 | Cross Border Tour Mode Choice UEC for Mandatory Tour Purposes utility page |
| crossBorder.tour.mc.nonmandatory.model.page | Integer | | 2 | Cross Border Tour Mode Choice UEC for Non-Mandatory Tour Purposes utility page |
| crossBorder.poe.waittime.file | String | | input/crossBorder\_pointOfEntryWaitTime.csv | File location/name of Cross Border point of entry wait times |
| crossBorder.trip.mc.uec.file | String | | CrossBorderTripModeChoice.xls | File name Cross Border Trip Mode Choice UEC |
| crossBorder.trip.mc.data.page | Integer | | 0 | Cross Border Trip Mode Choice UEC data page |
| crossBorder.trip.mc.model.page | Integer | | 1 | Cross Border Trip Mode Choice UEC utility page |
| crossBorder.stop.frequency.file | String | | input/crossBorder\_stopFrequency.csv | File location/name of Cross Border Stop Frequency proportions |
| crossBorder.stop.purpose.file | String | | input/crossBorder\_stopPurpose.csv | File location/name of Cross Border Stop Purpose proportions |
| crossBorder.slc.soa.uec.file | String | | CrossBorderStopLocationChoiceSample.xls | File name of Cross Border Stop Location Choice Sample of alternatives UEC |
| crossBorder.slc.soa.data.page | Integer | | 0 | Cross Border Stop Location Choice SOA UEC data page |
| crossBorder.slc.soa.model.page | Integer | | 1 | Cross Border Stop Location Choice SOA UEC utility page |
| crossBorder.slc.soa.alts.file | String | | SoaTazDistAlts.csv | File name of Sample of Alternatives of TAZs |
| crossBorder.slc.uec.file | String | | CrossBorderStopLocationChoice.xls | File name of Cross Border Stop Location Choice UEC |
| crossBorder.slc.data.page | Integer | | 0 | Cross Border Stop Location Choice UEC data page |
| crossBorder.slc.model.page | Integer | | 1 | Cross Border Stop Location Choice UEC utility page |
| crossBorder.stop.outbound.duration.file | String | | input/crossBorder\_outboundStopDuration.csv | File location/name of Cross Border Stop Outbound duration proportions |
| crossBorder.stop.inbound.duration.file | String | | input/crossBorder\_inboundStopDuration.csv | File location/name of Cross Border Stop Inbound duration proportions |
| crossBorder.tour.output.file | String | | output/crossBorderTours.csv | File location/name of Cross border tour output file |
| crossBorder.trip.output.file | String | | output/crossBorderTrips.csv | File location/name of Cross Border trip output file |
| crossBorder.results.autoTripMatrix | String | | output/autoCrossBorderTrips | File location/name of Cross Border auto trips |
| crossBorder.results.nMotTripMatrix | String | | output/nmotCrossBorderTrips | File location/name of Cross Border non-motorized trips |
| crossBorder.results.tranTripMatrix | String | | output/tranCrossBorderTrips | File location/name of Cross Border transit trips |
| crossBorder.results.othrTripMatrix | String | | output/othrCrossBorderTrips | File location/name of Cross Border other modes trips |
| **VISITOR MODEL SETTINGS** | | | | |
| visitor.business.tour.file | String | | input/visitor\_businessFrequency.csv | File location/name of visitors on business trip tour frequency proportions |
| visitor.personal.tour.file | String | | input/visitor\_personalFrequency.csv | File location/name of visitors on personal trip tour frequency proportions |
| visitor.partySize.file | String | | input/visitor\_partySize.csv | File location/name of visitor proportion of trips by tour purpose and party size |
| visitor.autoAvailable.file | String | | input/visitor\_autoAvailable.csv | File location/name of visitor's auto availability by tour purpose |
| visitor.income.file | String | | input/visitor\_income.csv | File location/name of visitor's income proportion by tour purpose |
| visitor.dc.soa.uec.file | String | | VisitorDestinationChoiceSample.xls | File name of Visitor Destination choice sample UEC |
| visitor.dc.soa.data.page | Integer | | 0 | Visitor destination choice Sample of Alternatives UEC data page |
| visitor.dc.soa.work.page | Integer | | 1 | Visitor destination choice Sample of Alternatives UEC Work Tour utility page |
| visitor.dc.soa.recreate.page | Integer | | 2 | Visitor destination choice Sample of Alternatives UEC Recreation Tour utility page |
| visitor.dc.soa.dining.page | Integer | | 3 | Visitor destination choice Sample of Alternatives UEC Dining Tour utility page |
| visitor.dc.soa.size.page | Integer | | 4 | Visitor destination choice Sample of Alternatives UEC Size Terms utility page |
| visitor.dc.soa.alts.file | String | | SoaTazDistAlts.csv | File name of Sample of Alternatives of TAZs |
| visitor.dc.uec.file | String | | VisitorDestinationChoice.xls | File name of Visitor Destination Choice UEC |
| visitor.dc.data.page | Integer | | 0 | Visitor Destination Choice UEC data page |
| visitor.dc.work.page | Integer | | 1 | Visitor Destination Choice UEC Work Tour utility page |
| visitor.dc.recreate.page | Integer | | 2 | Visitor Destination Choice UEC Recreation Tour utility page |
| visitor.dc.dining.page | Integer | | 3 | Visitor Destination Choice UEC Dining Tour utility page |
| visitor.tour.tod.file | String | | input/visitor\_tourTOD.csv | File location/name of Visitor Tour TOD proportions |
| visitor.mc.uec.file | String | | VisitorTourModeChoice.xls | File name of Visitor Tour Mode choice UEC |
| visitor.mc.data.page | Integer | | 0 | Visitor Tour Mode Choice UEC data page |
| visitor.mc.model.page | Integer | | 1 | Visitor Tour Mode Choice UEC utility page |
| visitor.stop.frequency.file | String | | input/visitor\_stopFrequency.csv | File location/name of Visitor Stop Frequency proportions |
| visitor.stop.purpose.file | String | | input/visitor\_stopPurpose.csv | File location/name of Visitor Stop Purpose proportions |
| visitor.stop.outbound.duration.file | String | | input/visitor\_outboundStopDuration.csv | File location/name of Visitor Outbound Stop Duration proportions |
| visitor.stop.inbound.duration.file | String | | input/visitor\_inboundStopDuration.csv | File location/name of Visitor Inbound Stop Duration proportions |
| visitor.slc.soa.uec.file | String | | VisitorStopLocationChoiceSample.xls | File name of Visitor Stop Location Choice Sample of Alternatives UEC |
| visitor.slc.soa.data.page | Integer | | 0 | Visitor Stop Location Choice SOA UEC data page |
| visitor.slc.soa.model.page | Integer | | 1 | Visitor Stop Location Choice SOA UEC utility page |
| visitor.slc.uec.file | String | | VisitorStopLocationChoice.xls | File name of Visitor Stop Location Choice UEC |
| visitor.slc.data.page | Integer | | 0 | Visitor Stop Location Choice UEC data page |
| visitor.slc.model.page | Integer | | 1 | Visitor Stop Location Choice UEC utility page |
| visitor.trip.mc.uec.file | String | | VisitorTripModeChoice.xls | File name of Visitor Trip Mode Choice UEC |
| visitor.trip.mc.data.page | Integer | | 0 | Visitor Trip Mode Choice UEC data page |
| visitor.trip.mc.model.page | Integer | | 1 | Visitor Trip Mode Choice UEC utility page |
| visitor.tour.output.file | String | | output/visitorTours.csv | File location/name of visitor tour output file |
| visitor.trip.output.file | String | | output/visitorTrips.csv | File location/name of visitor trip output file |
| visitor.results.autoTripMatrix | String | | output/autoVisitorTrips | File location/name of visitor auto trips output file |
| visitor.results.nMotTripMatrix | String | | output/nmotVisitorTrips | File location/name of visitor non-motorized trips output file |
| visitor.results.tranTripMatrix | String | | output/tranVisitorTrips | File location/name of visitor transit trips output file |
| visitor.results.othrTripMatrix | String | | output/othrVisitorTrips | File location/name of visitor other modes trips output file |
| visitor.uec.file | String | | VisitorSize.xls | File name for visitor size UEC file (for visitor estimation only) |
| visitor.uec.data.page | Integer | | 0 | Visitor UEC data page (for visitor estimation only) |
| visitor.uec.sizeTerms.page | Integer | | 1 | Visitor UEC size terms page (for visitor estimation only) |
| **AIRPORT MODEL SETTINGS** | | | | |
| airport.purpose.file | String | | input/airport\_purpose.csv | File location/name of Airport model tour purpose proportions |
| airport.size.file | String | | input/airport\_party.csv | File location/name of Airport model distribution of tours by party size and tour purpose |
| airport.duration.file | String | | input/airport\_nights.csv | File location/name of Airport model distribution of tours by number of nights and tour purpose |
| airport.income.file | String | | input/airport\_income.csv | File location/name of Airport model distribution of tours by income group and tour purpose |
| airport.departureTime.file | String | | input/airport\_departure.csv | File location/name of Airport model distribution of tours by departure time and tour purpose |
| airport.arrivalTime.file | String | | input/airport\_arrival.csv | File location/name of Airport model distribution of tours by arrival time and tour purpose |
| airport.output.file | String | | output/airport\_out.csv | File location/name of Airport model output |
| airport.results.matrixType | String | | TRANSCAD | Specify resulting matrix file type |
| airport.dc.uec.file | String | | AirportDestinationChoice.xls | File name of Airport Destination Choice UEC |
| airport.dc.data.page | Integer | | 0 | Airport Destination Choice UEC data page |
| airport.dc.size.page | Integer | | 5 | Airport Destination Choice UEC size terms page |
| airport.dc.segment1.page | Integer | | 1 | Airport Destination Choice UEC Resident business segment utility page |
| airport.dc.segment2.page | Integer | | 2 | Airport Destination Choice UEC Resident personal segment utility page |
| airport.dc.segment3.page | Integer | | 3 | Airport Destination Choice UEC Visitor business segment utility page |
| airport.dc.segment4.page | Integer | | 4 | Airport Destination Choice UEC Visitor personal segment utility page |
| airport.mc.uec.file | String | | AirportModeChoice.xls | File name of Airport Mode choice UEC |
| airport.mc.data.page | Integer | | 0 | Airport Mode Choice UEC data page |
| airport.mc.da.page | Integer | | 1 | Airport Mode Choice UEC Drive Alone utility page |
| airport.mc.s2.page | Integer | | 2 | Airport Mode Choice UEC Shared Ride 2 utility page |
| airport.mc.s3.page | Integer | | 3 | Airport Mode Choice UEC Shared Ride 3+ utility page |
| airport.mc.transit.page | Integer | | 4 | Airport Mode Choice UEC Transit utility page |
| airport.mc.accessMode.page | Integer | | 5 | Airport Mode Choice UEC Arrival Mode utility page |
| airport.results.autoTripMatrix | String | | output/autoAirportTrips | File location/name of Airport Auto Trips output file |
| airport.results.nMotTripMatrix | String | | output/nmotAirportTrips | File location/name of Airport non-motorized Trips output file |
| airport.results.tranTripMatrix | String | | output/tranAirportTrips | File location/name of Airport transit Trips output file |
| airport.results.othrTripMatrix | String | | output/othrAirportTrips | File location/name of Airport other modes Trips output file |
| **TRUCK MODEL SETTINGS** | | | | |
| truck.DFyear | String | | 2008,2010,2015,2020,2025,2030,2035,2040,2045,2050 | These are the years that there is truck model data for |
| truck.luOverRide | Boolean | | "False" | Setting that is based upon the old truck model code. It should always be set to false. Allows one to override the land-use data with a different file called “lu.csv” |
| **REPORT SECTION** | | | | |
| Report.exportData | Boolean | | True |  |
| Report.iteration |  | | 3 |  |
| Report.tables |  | | taztotap,indivtrips,jointtrips,airporttrips,cbtrips,visitortours,visitortrips,ietrip,commtrip,eetrip,eitrip,tazskim,tapskim,trucktrip |  |
| **TRIP TABLE SETTINGS** | | | | |
| occ3plus.purpose.Work | Float | | 3.34 | Specify 3+ occupancy multiplier for trip table creation for Work Purpose |
| occ3plus.purpose.University | Float | | 3.34 | Specify 3+ occupancy multiplier for trip table creation for University Purpose |
| occ3plus.purpose.School | Float | | 3.34 | Specify 3+ occupancy multiplier for trip table creation for School Purpose |
| occ3plus.purpose.Escort | Float | | 3.34 | Specify 3+ occupancy multiplier for trip table creation for Escort Purpose |
| occ3plus.purpose.Shop | Float | | 3.34 | Specify 3+ occupancy multiplier for trip table creation for Shop Purpose |
| occ3plus.purpose.Maintenance | Float | | 3.34 | Specify 3+ occupancy multiplier for trip table creation for Maintenance Purpose |
| occ3plus.purpose.EatingOut | Float | | 3.34 | Specify 3+ occupancy multiplier for trip table creation for Eating Out Purpose |
| occ3plus.purpose.Visiting | Float | | 3.34 | Specify 3+ occupancy multiplier for trip table creation for Visiting Purpose |
| occ3plus.purpose.Discretionary | Float | | 3.34 | Specify 3+ occupancy multiplier for trip table creation for Discretionary Purpose |
| occ3plus.purpose.WorkBased | Float | | 3.34 | Specify 3+ occupancy multiplier for trip table creation for Discretionary Purpose |
| **ACTIVE TRANSPORTATION MODEL SETTINGS** | | | | |
| active.node.file |  | | %project.folder%/input/SANDAG\_Bike\_NODE.dbf | Determine which DBF file the model reads to obtain data on nodes in the active transportation network. |
| active.node.id |  | | NodeLev\_ID | Determines which column in the node file is the unique identifier |
| active.node.fieldnames |  | | mgra,taz,x,y,tap,signalized | Together, determine mapping between java SandagBikeNode object fields and node DBF file columns |
| active.node.columns |  | | MGRA,TAZ,XCOORD,YCOORD,TAP,Signal |
| active.edge.file |  | | %project.folder%/input/SANDAG\_Bike\_NET.dbf | Determines which DBF file the model reads to obtain data on edges in the active transportation network. |
| active.edge.anode |  | | A | Determine which columns in the edge DBF contain foreign keys to the unique identifiers of the first and second nodes in the edges. |
| active.edge.bnode |  | | B |
| active.edge.directional |  | | false | Determines whether the edge DBF file contains separate records for edges in the AB and BA directions. |
| active.edge.fieldnames |  | | functionalClass,distance,gain,bikeClass,lanes,cycleTrack,bikeBlvd,roadsegid | Together, determine the mapping between java SandagBikeEdge object fields and edge DBF file columns for AB and BA direction |
| active.edge.columns.ab |  | | Func\_Class,Distance,AB\_Gain,ABBikeClas,AB\_Lanes,Bike2Sep,Bike3Blvd,ROADSEGID |
| active.edge.columns.ba |  | | Func\_Class,Distance,BA\_Gain,BABikeClas,BA\_Lanes,Bike2Sep,Bike3Blvd,ROADSEGID |
| active.edge.centroid.field |  | | functionalClass | Together, determine which SandagBikeEdge field can be queried to determine if an edge is a centroid connector, and which value corresponds to centroid connectors |
| active.edge.centroid.value |  | | 10 |
| active.edge.autospermitted.field |  | | functionalClass | Together, determine which SandagBikeEdge field can be queried to determine if an edge is shared by motorized traffic, and which values allow auto travel |
| active.edge.autospermitted.values |  | | 1, 2, 3, 4, 5, 6, 7 |
| active.sample.distance.breaks |  | | 99 | Together, customize path alternative sampling algorithm. distance.breaks determines the upper boundary of distance intervals for which the parameters below apply, pathsizes determines the target choice set size, accounting for path overlap, count.min determines the minimum sample count, and count.max determines the maximum sample count. |
| active.sample.pathsizes |  | | 2 |
| active.sample.count.min |  | | 10 |
| active.sample.count.max |  | | 100 |
| active.sample.random.scale.coef |  | | 0.5 | Determines the variance of the random coefficients in path generation |
| active.sample.random.scale.link |  | | 0.7 | Determines the variance of the random link cost multiplier in path generation. |
| active.sample.random.seeded |  | | true | Determines whether random link costs should be seeded. True will cause results to be reproducible, while false can be used to evaluate simulation error. |
| active.sample.maxcost |  | | 998 | Determines maximum cost in path search. For any node which is reachable only by a path that exceeds this cost, the path search will not consider paths extending from this node |
| active.maxdist.bike.taz |  | | 20.0 | Determines maximum distance of bike TAZ-TAZ trips, bike MGRA-MGRA trips, walk MGRA-MGRA trips, and walk MGRA-TAP segments in miles. |
| active.maxdist.bike.mgra |  | | 2.0 |
| active.maxdist.walk.mgra |  | | 3.0 |
| active.maxdist.walk.tap |  | | 1.0 |
| active.output.bike |  | | %project.folder%/output/ | Determines output directory for writing of bike and walk logsum matrices, network assignments, and path traces. |
| active.output.walk |  | | %project.folder%/output/ |
| active.coef.distcla0 |  | | 0.858 | Determine average of random coefficients in bicycle path generation for distance on ordinary streets (in miles), distance on Class I facilities, distance on Class II facilities, distance on Class III facilities, distance on arterials without bike lanes, distance traveling the wrong way, distance on cycle tracks, distance on bike boulevards, elevation gain (in feet), the number of turns, the number of signals (excluding right turns and through junctions), the number of un-signalized left turns from major arterials, the number of un-signalized left turns from minor arterials, the number of un-signalized crossings of major arterials, and the number of un-signalized crossings of minor arterials. |
| active.coef.distcla1 |  | | 0.348 |
| active.coef.distcla2 |  | | 0.544 |
| active.coef.distcla3 |  | | 0.858 |
| active.coef.dartne2 |  | | 1.050 |
| active.coef.dwrongwy |  | | 3.445 |
| active.coef.dcyctrac |  | | 0.424 |
| active.coef.dbikblvd |  | | 0.343 |
| active.coef.nonscenic |  | | 0.300 |
| active.coef.gain |  | | 0.015 |
| active.coef.turn |  | | 0.083 |
| active.coef.signals |  | | 0.040 |
| active.coef.unlfrma |  | | 0.360 |
| active.coef.unlfrmi |  | | 0.150 |
| active.coef.untoma |  | | 0.480 |
| active.coef.untomi |  | | 0.100 |
| active.coef.distance.walk |  | | 20.0 | Determine walk path generalized cost coefficients for distance in miles, and elevation gain in feet. |
| active.coef.gain.walk |  | | 0.034 |
| active.walk.minutes.per.mile |  | | 20 | Determines inverse speed of walking and biking for estimation of actual time skims. |
| active.bike.minutes.per.mile |  | | 6 |
| active.trace.origins.taz |  | | 500, 1000, 1500, 2000, 2500, 3000, 3500, 4000, 4500 | Determine the origin TAZs, MGRAs, and TAPs for which model will trace results of path generation and output node sequences to the disk. If exclusive is true, the model will only run for these origins. If false, the model will run for all origins |
| active.trace.origins.mgra |  | | 1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000, 9000, 10000, 11000, 12000, 13000, 14000, 15000, 16000, 17000, 18000, 19000, 20000 |
| active.trace.origins.tap |  | | 1, 3, 5, 7, 8, 9, 15 |
| active.trace.exclusive |  | | false |
| active.debug.origin |  | | 200003500 | Determine the origin and destination node ids for which the model will trace the results of the bicycle path choice UEC calculations. |
| active.debug.destination |  | | 200003601 |
| active.trace.outputassignmentpaths |  | | false |  |
| path.choice.uec.spreadsheet |  | | %project.folder%/uec/BikeTripPathChoice.xls | Determines the file location, model, and data tabs of the bicycle path choice UEC Excel workbook. |
| path.choice.uec.model.sheet |  | | 1 |
| path.choice.uec.data.sheet |  | | 0 |
| path.choice.max.path.count |  | | 200 |  |
| btpc.alts.file |  | | bike\_path\_alts.csv | Determines the location of the file listing the numbers of the bicycle path choice alternatives. |
| active.logsum.matrix.file.bike.taz |  | | bikeTazLogsum.csv | Determine the ouput files for the bike TAZ logsum matrix, bike MGRA logsum matrix, walk MGRA-MGRA logsum matrix, and walk MGRA-TAP logsum matrix. |
| active.logsum.matrix.file.bike.mgra |  | | bikeMgraLogsum.csv |
| active.logsum.matrix.file.walk.mgra |  | | walkMgraEquivMinutes.csv |
| active.logsum.matrix.file.walk.mgratap |  | | walkMgraTapEquivMinutes.csv |
| active.bike.write.derived.network |  | | true | Determine whether and to which file the edge, node, and traversal attributes calculated internally in Java should be written for debugging purposes. |
| active.bike.derived.network.edges |  | | derivedBikeEdges.csv |
| active.bike.derived.network.nodes |  | | derivedBikeNodes.csv |
| active.bike.derived.network.traversals |  | | derivedBikeTraversals.csv |
| active.assignment.file.bike |  | | bikeAssignmentResults.csv | Determines to which file the results of the bicycle network assignment should be written. |
| **SUMMIT SETTINGS** | | | | |
| summit.output.directory | String | | output/ | File location for Summit output |
| summit.purpose.Work | Integer | | 1 | Specify code for Work Purpose |
| summit.purpose.University | Integer | | 2 | Specify code for University Purpose |
| summit.purpose.School | Integer | | 3 | Specify code for School Purpose |
| summit.purpose.Escort | Integer | | 4 | Specify code for Escort Purpose |
| summit.purpose.Shop | Integer | | 4 | Specify code for Shop Purpose |
| summit.purpose.Maintenance | Integer | | 4 | Specify code for Maintenance Purpose |
| summit.purpose.EatingOut | Integer | | 5 | Specify code for Eating out Purpose |
| summit.purpose.Visiting | Integer | | 5 | Specify code for Visiting Purpose |
| summit.purpose.Discretionary | Integer | | 5 | Specify code for Discretionary Purpose |
| summit.purpose.WorkBased | Integer | | 6 | Specify code for At-Work Sub Tour Purpose |
| summit.filename.1 | String | | Work | Specify file name for Work Purpose |
| summit.filename.2 | String | | University | Specify file name for University Purpose |
| summit.filename.3 | String | | School | Specify file name for School Purpose |
| summit.filename.4 | String | | Maintenance | Specify file name for Maintenance Purpose |
| summit.filename.5 | String | | Discretionary | Specify file name for Discretionary Purpose |
| summit.filename.6 | String | | Workbased | Specify file name for At-Work Sub tour Purpose |
| summit.ivt.file.1 | Float | | -0.016 | Specify in-vehicle time coefficient for Work Purpose |
| summit.ivt.file.2 | Float | | -0.016 | Specify in-vehicle time coefficient for University Purpose |
| summit.ivt.file.3 | Float | | -0.01 | Specify in-vehicle time coefficient for School Purpose |
| summit.ivt.file.4 | Float | | -0.017 | Specify in-vehicle time coefficient for Maintenance Purpose |
| summit.ivt.file.5 | Float | | -0.015 | Specify in-vehicle time coefficient for Discretionary Purpose |
| summit.ivt.file.6 | Float | | -0.032 | Specify in-vehicle time coefficient for At-work Sub tour Purpose |
| summit.modes | Integer | | 26 | Specify number of modes in the model |
| summit.mode.array | String | | 0,0,0,0,0,0,0,0,0, 0, 1, 1, 1, 1, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 0 | Specify mode array; 0 for auto modes/school bus mode, 1 for walk transit, 2 for drive transit modes |
| summit.upperEA | Integer | | 3 | Specify upper limit code for Early AM time period |
| summit.upperAM | Integer | | 9 | Specify upper limit code for AM time period |
| summit.upperMD | Integer | | 22 | Specify upper limit code for Midday time period |
| summit.upperPM | Integer | | 29 | Specify upper limit code for PM time period |
| **SPECIAL EVENT SETTINGS** | | | | |
| specialEvent.event.file | String | | input/specialEvent\_eventData.csv | File location/name of Special event data (MGRA, time starts/ends, attendance, parking cost, etc.) |
| specialEvent.seek | Boolean | | false | True or False to seek Special event model |
| specialEvent.trace | Integer | | 406 | Specify what zone to trace for Special event model |
| specialEvent.partySize.file | String | | input/specialEvent\_partySize.csv | File location/name of Special event proportions by event type and party size |
| specialEvent.income.file | String | | input/specialEvent\_income.csv | File location/name of Special event proportions by event type and income |
| specialEvent.saveUtilsAndProbs | Boolean | | true | True of false whether to save utilities and probabilities to output file |
| specialEvent.dc.uec.file | String | | SpecialEventOriginChoice.xls | File name for Special Event Origin Choice UEC |
| specialEvent.dc.data.page | Integer | | 0 | Special Event Orgin Choice UEC Data page |
| specialEvent.dc.model.page | Integer | | 1 | Special Event Orgin Choice UEC utility page |
| specialEvent.dc.size.page | Integer | | 2 | Special Event Orgin Choice UEC size terms page |
| specialEvent.trip.mc.uec.file | String | | SpecialEventTripModeChoice.xls | File name for Special Event Trip Mode Choice UEC |
| specialEvent.trip.mc.data.page | Integer | | 0 | Special Event Trip Mode Choice UEC data page |
| specialEvent.trip.mc.model.page | Integer | | 1 | Special Event Trip Mode Choice UEC utility page |
| specialEvent.tour.output.file | String | | output/specialEventTours.csv | File location/name for special event tours output file |
| specialEvent.trip.output.file | String | | output/specialEventTrips.csv | File location/name for special event trips output file |

# 7.0 Run the Model

This section provides instructions for executing the travel model. For a description of the underlying computing environment, see the Computing Environment section; for a general description of the underlying system design, see the [System Design](#System_Design) section; for a description of the configuration files likely needing to be modified before executing the model, see the [Setup and Configuration](#Setup_and_Configuration) section.

## Execute Entire Model Stream via TransCAD

One can run though the entire model stream from the CT-RAMP java based models through assignment from a TransCAD macro. This macro starts the household manager, matrix manager, JPPF driver, builds skims, runs all model components, and performs highway and transit assignments. The current SANDAG implementation runs three full iterations of the models (i.e. the model starts with assignment of base-year trip tables, and speeds from previous assignments are fed back through the entire model stream, meaning steps 2 through 6 in Figure 3).

The following is a list of the GISDK macros and a description of its purpose that need to be compiled in the list file, ***sandag\_abm.lst***. In order to run the model from TransCAD, the “path” parameter in the sandag\_abm\_master.rsc must be edited to point to the scenario directory before the sandag\_abm.lst file is compiled. Once ***sandag\_abm.lst*** is compiled, the model can be run by clicking the test button in TransCAD, and typing *Run SANDAG ABM*.

Table 7.0 List of GISDK Scripts

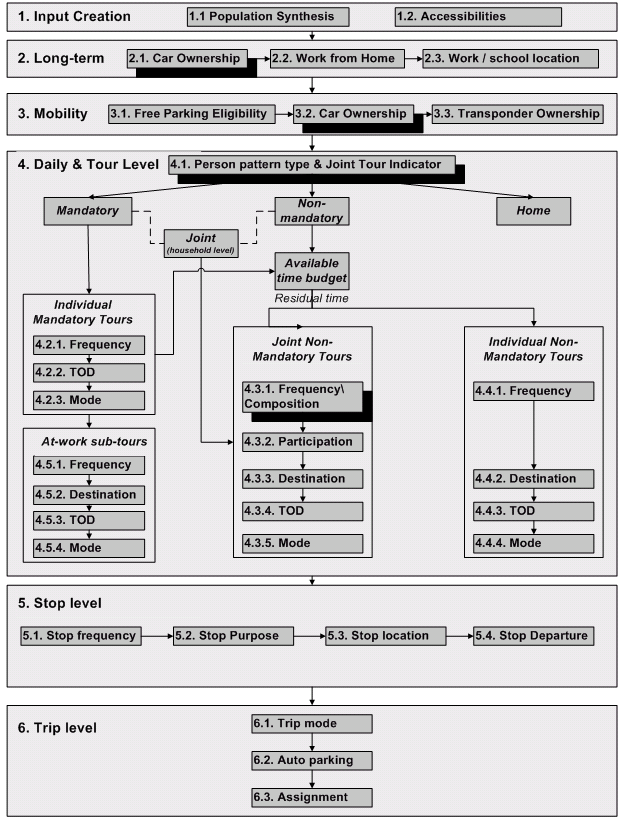
| [GISDK](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/SetupConfiguration?sortcol=1;table=1;up=0#sorted_table) Script | [Purpose](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/SetupConfiguration?sortcol=1;table=1;up=0#sorted_table) |
| --- | --- |
| sandag\_abm\_master.rsc | Master script that runs the entire model stream. It starts the DOS prompts for the household manager, matrix manager, JPPF driver, and runs the CT-RAMP models, as well as the model components run by Transcad, and finally the highway and transit assignment. |
| parameter.rsc | Sets the parameters of the model including maximum number of TAZs, TAPs, external zones, routes, and links |
| SandagCommon.rsc | . Script to read properties, delete intermediate output files, format time and date, export matrix, aggregate matrix, etc. |
| createhwynet.rsc | Creates the highway transcad network |
| hwyassign.rsc | Runs highway assignment. |
| hwyskim.rsc | Runs highway skims |
| createtrnroutes.rsc | Creates the transit route network |
| trnskim.rsc | Runs transit skims |
| trnassign.rsc | Runs transit assignment |
| commVehGen.rsc | Runs commercial vehicle model trip generation |
| commVehDist.rsc | Runs commercial vehicle model trip distribution |
| commVehTOD.rsc | Runs commercial vehicle model time of day choice |
| commVehDiversion.rsc | Runs commercial vehicle model toll diversions. |
| createtodtables.rsc | Creates the trip tables by time of day for assignment |
| externalInternal.rsc | Runs the external internal model |
| TruckModel.rsc | Runs the truck model |
| create\_LUZ\_Skims.rsc | Creates land use skims |
| sandag\_abm\_output.rsc | Scripts to convert TransCAD files such as networks, loaded volumes, transit tables, etc. to CSV files. |
| exportTCData.rsc | Converts TransCAD files to CSV files before loading data to SQL database. |
| Utilities.rsc | Script to run commonly used functions in transcad, i.e. Close All, export matrices, create matrices, rename files, etc. |
| dbox.rsc | A GUI to allow users running scenarios in a batch. |

The GISDK script sandag\_abm\_master.rsc controls the model flow. The following section describes the key steps executed in the script:

* Create bike and walk logsums using runSandagWalkLogsums.cmd and runSandagBikeLogsums.cmd. These two batch files create walk and bike impedances between MGRA to MGRA pairs, MGRA to TAP pairs, and TAZ to TAZ pairs.
* Create highway network using createhwynet.rsc. This is to create highway network from the input highway coverage file.
* Create transit network using createtrnroutes.rsc. This is to create transit network from the input transit coverage file.
* Start matrix manager using runMtxMgr.cmd.
* Start JPPF driver using runDriver.cmd.
* Start household manager and nodes using StartHHAndNodes.cmd.
* Run highway assignment using hwyassign.rsc.
* Create highway skims using hwyskim.rsc.
* Create transit skims using trnskim.rsc.
* Run San Diego resident model using runSandagAbm\_SDRM.cmd. It contains a list of MS-DOS instructions that control model flow of San Diego resident models, including the core model which models San Diego resident trips contained within the region and the internal external trip model that models San Diego resident trips with trip ends outside the region.
* Run special market model using runSandagAbm\_SMM.cmd. It contains a list of MS-DOS instructions that control model flow of special market models, including airport, cross border, and visitor models. The special event model is not in a standard model flow.
* Run commercial travel model using a sequence of GISDK scripts. Run external-internal model using externalInternal.rsc.
* Run truck model using TruckModel.rsc.
* Create trip tables with combined demand from all model components above using createtodtables.rsc.
* Run final highway assignment using hwyassign.rsc.
* Run final highway skimming using hwyskim.rsc.
* Run final transit assignment using tranassign.rsc.
* Run final transit skimming using transkim.rsc.
* Export output data to csv files using exportTCData.rsc and DataExporter.bat.
* Send data loading request using DataLoadRequest.bat to load flat output files into SQL database.

An additional step RunEMFAC2011 needs to be run from DOD command line to create EMFAC2011 input files. This step is not included as part of the standard model flow as it relies on a successful loading of output files in the database.

Figure 3. Basic Model Design and Linkage between CT-RAMP-Models



## Run only CT-RAMP Components

The CT-RAMP model components can be run without Transcad if the highway and transit skims have already been created. This method of running the model is useful for calibrating certain components of the model. It can be run for any iteration, and at any sample rate. It is useful to run these models at a sample rate of 20 to 25% for calibration since the model runs for only one to two hours.

Prior to executing the CT-RAMP model, the user must call these **DOS commands** from the main computer (mustang or charger in the SANDAG application). To do this, first navigate to scenario-specific directory on the computer from which you want to run the Household Manager, Matrix Manager and JPPF driver.

* To run the matrix manager, type this at the prompt: **runMtxMgr.cmd <<drive letter:>><<space>> <<path of scenario directory>>** Example: runMtxMgr.cmd d: \projects\sandag\series12\base2008\_5\_period (Note the backslashes).
* To run the JPPF driver, type this at the prompt after running the matrix manager: **runDriver.cmd <<drive letter:>><<space>> <<path of scenario directory>>** Example: runDriver.cmd d: \projects\sandag\series12\base2008\_5\_period (Note the backslashes).
* To start the household manager, type this after the prompt after running the matrix manager and the JPPF driver: **StartHHandNodes.cmd <<drive letter:>><<space>> <<path of scenario directory>>** Example: StartHHandNodes.cmd d: \projects\sandag\series12\base2008\_5\_period (Note the backslashes).
* Finally with the Household Manager, Matrix Manager, and JPPF Driver started and standing by on the main machine and JPPF nodes standing by on each of the satellite machines, the travel model can be executed by typing this after the prompt: **runSandagAbm\_SDRM.cmd<<<<drive letter:>><<space>> <<path of scenario directory>><<sample rate>><<space>><<iteration>>** Example: runSandagAbm\_SDRM.cmd d: /projects/sandag/series12/base2008\_5\_period 0.25 1 (Note the forward slashes for running the model)

# 8.0 Output Files

The table below contains brief descriptions of the output files from the SANDAG travel model. See Appendix – Output Files Data Dictionary for more details on all variables in each output file.

*Table 8.0 Output File List*

| [File name](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/InputFiles?sortcol=0;table=1;up=0#sorted_table) | [Description](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/InputFiles?sortcol=1;table=1;up=0#sorted_table) | [File type](http://mtcgis.mtc.ca.gov/foswiki/bin/view/Main/InputFiles?sortcol=3;table=1;up=0#sorted_table) | |
| --- | --- | --- | --- |
| [Hwy.dbd](#tbl_1Hwy) | Transcad output highway geographic file | Caliper Standard Geographic Database | |
| [Transit.dbd](#tbl_2transit) | Transcad output transit geographic file | Caliper Standard Geographic Database | |
| [transitrtS.dbd (1)](#tbl_trstop) | Transcad ouput transit stop network | Caliper Standard Geographic Database | |
| [Transitrt.rts (2)](#tbl_2transit) | Transcad output transit route system ( route/stop ) layer | Transcad RTS | |
| [impdan\_XX.mtx](#tbl_3Impedance) | Impedance matrices for drive alone non-toll, for 5 time periods (XX=EA, AM, MD, PM,EV) | Transcad MTX | |
| [impdat\_XX.mtx](#tbl_impdat) | Impedance matrices for drive alone, toll, for 5 time periods (XX=EA, AM, MD, PM,EV) | Transcad MTX | |
| [Imps2nh\_XX.mtx](#tbl_xx_imps2nh) | Impedance matrices for shared ride 2-person, non-toll, for 5 time periods (XX=EA, AM, MD, PM,EV) | Transcad MTX | |
| [Imps2th\_XX.mtx](#tbl_xx_imps2nh_2person) | Impedance matrices for shared ride 2-person, toll, for 5 time periods (XX=EA, AM, MD, PM,EV) | Transcad MTX | |
| [Imps2nh\_XX.mtx](#tbl_xx_imps2nh_3person) | Impedance matrices for shared ride 3+person, non-toll, for 5 time periods (XX=EA, AM, MD, PM,EV) | Transcad MTX | |
| [Imps2th\_XX.mtx](#tbl_xx_imps2nh_3toll) | Impedance matrices for shared ride 3+person, toll, for 5 time periods (XX=EA, AM, MD, PM,EV) | Transcad MTX | |
| [Implocl\_XX.mtx](#tbl_xx_implocl) | Impedance matrices for local bus transit, for 5 time periods (XX=EA, AM, MD, PM,EV) | Transcad MTX | |
| [Implocl\_XXo.mtx](#tbl_xx_implocl_localbus) | Condensed Impedance matrices for local bus transit, for 5 time periods (XX=EA, AM, MD, PM,EV) | Transcad MTX | |
| [Impprem\_XX.mtx](#tbl_xx_impprem_premiumlbus) | Impedance matrices for premium bus transit, for 5 time periods (XX=EA, AM, MD, PM,EV) | Transcad MTX | |
| [Imppreml\_XXo.mtx](#tbl_xx_implocl_premiumlbus) | Condensed Impedance matrices for premium bus transit, for 5 time periods (XX=EA, AM, MD, PM,EV) | Transcad MTX | |
| [Imp\*hdn\_XX.mtx](#tbl_imphdn13) | Commercial vehicle skims for non-toll, 3 classes (LHDN, MHDN, HHDN), and by 5 time period: XX=EA,AM,MD,PM,EV. | Transcad MTX | |
| [Imp\*hdt\_XX.mtx](#tbl_imphdt14) | Commercial vehicle skims for toll, 3 classes (LHDT, MHDT, HHDT), and by 5 time period: XX=EA,AM,MD,PM,EV. | Transcad MTX | |
| [Imptrk\_XX.mtx](#tbl_zz_imptrk15) | Truck skims by 5 time period: XX = EA, AM, MD, PM, EV; | Transcad MTX |
| [[transit mode]\_[time period].tnw](#tbl_zz_imptrk15) | Transit networks by mode (local/premium), and time period (early AM, AM, midday, PM, evening). | Transcad TNW | |
| [Aoresults\_pre.csv](#tbl_zz_preaoresults16) | Pre-Auto-ownership output file | CSV | |
| [Aoresults.csv](#tbl_zz_preaoresults16) | Post-Auto-ownership output file | CSV | |
| [Wslocresults\_[iteration].csv](#tbl_zz_wslocresults) | Work and school location output file for each iteration | CSV | |
| [Householdata\_[iteration].csv](#tbl_zz_householdata) | Household output file for each iteration | CSV | |
| [Persondata\_[iteration].csv](#tbl_zz_personData) | Person output file for each iteration | CSV | |
| [Indivtourdata\_[iteration].csv](#tbl_zz_indivtourData) | Individual tour output file for each iteration | CSV | |
| [Jointtourdata\_[iteration].csv](#tbl_qq_jointTourData) | Joint tour output file for each iteration | CSV | |
| [Indivtripdata\_[iteration].csv](#tbl_qq_indivTrip) | Individual trip output file for each iteration | CSV | |
| [Jointripdata\_[iteration].csv](#tbl_qq_jointTripData) | Joint trip output file for each iteration | CSV | |
| [autoTrips\_XX.mtx](#tbl_qq_autotrips) | Residential Auto Trip Matrix for 5 time periods:  XX = EA, AM, MD, PM, EV | Transcad MTX | |
| [tranTrips\_XX.mtx](#tbl_qq_tranTrips) | Residential Transit Trip Matrix for 5 time periods:  XX = EA, AM, MD, PM, EV | Transcad MTX | |
| [nmotTRips\_XX.mtx](#tbl_qq_Nonmotorized) | Residential Non-motorized Trip Matrix for 5 time periods:  XX = EA, AM, MD, PM, EV | Transcad MTX | |
| [othrTrips\_XX.mtx](#tbl_qq_otherTrips) | Residential Other Trip Matrix for 5 time periods:  XX = EA, AM, MD, PM, EV | Transcad MTX | |
| [Airport\_out.csv](#aa_airportout) | Airport model data list output file | CSV | |
| [[mode]AirportTrips\_XX.mtx](#aa_airportAutoTripsMatrix) | Output Airport trip tables by 4 modes (auto, transit, non-motorized, other) and 5 time periods:  XX = EA, AM, MD, PM, EV. | Transcad MTX | |
| [crossBorderTours.csv](#aa_crossBorderTours) | Cross border tour list output file | CSV | |
| [CrossBorderTrips.csv](#aa_crossBorderTrips) | Cross border trip list output file | CSV | |
| [[mode]CrossBorderTrips\_[XX.mtx](#autoVisitorTrips) | Output Cross Border trip tables by 4 modes (auto, transit, non-motorized, other) and 5 time periods:  XX = EA, AM, MD, PM, EV | Transcad MTX | |
| [visitorTours.csv](#visitorTours) | Visitor tour list output file | CSV | |
| [visitorTrips.csv](#visitorTrips) | Visitor trip list output file | CSV | |
| [[mode]VisitorTrips\_XX.mtx](#visitorTrips) | Output Visitor trip tables by 4 modes (auto, transit, non-motorized, other) and 5 time periods:  XX = EA, AM, MD, PM, EV.  . | Transcad MTX | |
| [internalExternalTrips.csv](#internalExternalTrips) | Internal External trip list output file | CSV | |
| [[mode]InternalExternalTrips\_XX.mtx](#internalExternalTrips) | Output Internal External trip tables by 4 modes (auto, transit, non-motorized, other) and 5 time periods: XX= EA, AM, MD, PM, EV. | Transcad MTX | |
| [tazCommVeh.csv](#tazCommVeh) | Commercial vehicle trip generation output by TAZ | CSV | |
| [commVehTrips.mtx](#CommVehTrips) | Commercial vehicle trip distribution output | Transcad MTX | |
| [commVehTripsTOD.mtx](#commVehTripsTOD) | Commercial vehicle trips by time period (early AM, AM, midday, PM, evening). | Transcad MTX | |
| [usSD[purpose]PA.mtx](#PA) | External to internal production to attraction distribution output matrix by purpose (work and non-work) | Transcad MTX | |
| [usSD[purpose]daily.mtx](#Daily) | External to internal origin to destination distribution output matrix by purpose (work and non-work) | Transcad MTX | |
| [usSD[purpose]\_XX.mtx](#Daily) | External to internal origin to destination distribution output matrix by 2 purposes (work and non-work) and 5 time periods:  XX = EA, AM, MD, PM, EV(early AM, AM, midday, PM, evening). | Transcad MTX | |
| [regionalEEtrips.csv](#regionalEEtripsCSV) | Regional Truck external to external trip list | CSV | | |
| [regionalEETrips.mtx](#regionalEEtripsMTX) | Regional Truck external to external trips converted from CSV to a transcad matrix | Transcad MTX | |
| [distributionMatricesTruck.mtx](#distributionMatricesTruck) | Truck Distribution matrix by 3 truck types (LHD, MHD, HHD) plus the internal external and external internal tables | Transcad MTX | |
| [dailyDistributionMatricesTruckAll.mtx](#distributionMatricesTruckALL) | Daily Truck Distribution matrix by the 3 truck types (LHD, MHD, HHD) | Transcad MTX | |
| [dailyDistributionMatricesTruck\_XX.mtx](#distributionMatricesTruckDAILY) | Truck Distribution matrix by the 6 truck types (LHD-Non-toll, MHD Non-toll, HHD Non-toll, LHD toll, MHD toll, HHD toll) plus external to external) by 5 time periods:  XX = EA, AM,MD, PM,EV | Transcad MTX | |
| [externalExternal.mtx](#tbl_externalExternal) | External to external trips converted from csv to transcad matrix | Transcad MTX | |
| [Trip\_XX.mtx](#total_vehicle_trip) | Total Trip tables to assign to the highway network by 5 time periods: (EA, AM, MD, PM, EV)  (and 14 classes (SOV\_GP, SOV\_PAY, SR2\_GP, SR2\_HOV, SR2\_PAY, SR3\_GP ,SR3\_HOV ,SR3\_PAY ,lhdn, mhdn,hhdn,lhdt, mhdt, hhdt) | Transcad MTX | |
| [tranTotalTrips\_XX.mtx](#tranTotalTrips) | Total transit trip tables to assign to the transit network, by 5 time periods:  XX = EA, AM, MD, PM, EV | Transcad MTX | | |
| blendMatrix.mtx | A blended travel time matrix for commercial vehicle distribution model--the weighted average of the AM travel time (one-third weight) and the midday travel time (two-thirds weight) | Transcad MTX | | |
| WrkProb.mtx | Work purpose EI trip toll splits matrix | Transcad MTX | | |
| nonProb.mtx | Non-Work purpose EI trip toll splits matrix | Transcad MTX | | |
| [Hwyload\_[time period].bin](#Hwyload) | Loaded highway network attributes (speeds, volumes, VOC, etc.) by time period and class | Transcad binary file | | |
| [ono[access mode]\_[line haul mode]\_[time period].bin](#ONO) | On and off binary file for each access mode, line haul mode and time period by route and stop and access/egress mode. | Transcad binary file | | |
| [ntl[access mode]\_[line haul mode]\_[time period].bin](#NTL) | Walk flow binary file for each access mode, line haul mode and time period | Transcad binary file | | |
| [flow[access mode]\_[line haul mode]\_[time period].bin](#FLOW) | Flow table binary file for each access mode, line haul mode and time period by route and stop to stop. | Transcad binary file | | |
| [agg[access mode]\_[line haul mode]\_[time period].bin](#NTL2nd) | Flow Aggregation table binary file for each access mode, line haul mode and time period by route and stop to stop. | Transcad binary file | | |
| [ono<<access mode>>\_<<line haul mode>>\_<<time period>>\_COLL.bin](#ONO2nd) | On and off binary file for each access mode, line haul mode and time period by route and access/egress mode. | Transcad binary file | | |
| [ono<<access mode>>\_<<line haul mode>>\_<<time period>>\_COLL.csv](#ONO2nd) | On and off CSV file for each access mode, line haul mode and time period by route and access/egress mode. | CSV | | |
| [ono<<access mode>>\_<<line haul mode>>\_<<time period>>\_COLL\_JOIN.bin](#ONO2nd) | On and off binary file for each access mode, line haul mode and time period by route and access/egress mode, and this table adds in route information like route ID, route name, headways, fare amount. | Transcad binary file | | |
| [ono<<access mode>>\_<<line haul mode>>\_<<time period>>\_COLL\_JOIN.csv](#tbl_xx_70) | On and off CSV file for each access mode, line haul mode and time period by route and access/egress mode, and this table adds in route information like route ID, route name, headways, fare amount | CSV | | |
| [luAccessibilities\_simple.csv](#tbl_xx_luAccess) | Aggregated accessibilities of each LUZ, by applying simple average method | CSV | | |
| [luAccessibilities\_logit.csv](#luLogsums_logit) | Accessibilities of each LUZ, by applying logit weighted average method of TAZs | CSV | | |
| [luLogsums\_simple.csv](#luLogsums_simple) | Computed Mode Choice Logsum from each pair of origin LUZ to destination LUZ, by applying simplified average method of TAZs | CSV | | |
| [luLogsums\_logit.csv](#tbl_xx_luLogsums) | Computed Mode Choice Logsum from each pair of origin LUZ to destination LUZ, by applying logit weighted average method of TAZs | CSV | | |
| [CBDByMGRA\_Vehicles.csv](#tbl_xx_CBD) | Number of vehicles of each MGRA in CBD, by 5 time periods | CSV | | |
| [PNRByTAP\_Vehicles.csv](#tbl_xxPNRBY) | Park and Ride by each TAP, and by 5 time period | CSV | | |
| [mgraParkingCost.csv](#tbl_xxParkingCost) | Weighted average parking cost of each MGRA | CSV | | |
| [EMFAC2014-SG Output-[YEAR].xls](#tbl_GHG_EMFA2014) | The output emission result form EMFAC2014 | xls | | |
| [EMFAC2014-SANDAG-[YEAR]\_[SERVER]-[SEASON]-[YEAR]\_planning\_[DATETIMESTAMP].xls](#tbl_GHG_EMFA2014) | The output emission result from EMFAC2014 | xls | | |

*Notes1: This file dictionary is same as the dictionary for table 5-13: trstop.bin*

*Notes2: This File dictionary is same as the file Transit.dbd*

# 9.0 Reporting Framework

## Overview

All relevant ABM output is loaded into a Microsoft SQL Server Enterprise 2014 database. Reporting is currently handled in the database via programmability objects and ad-hoc queries. In order to access the output database the user should have Microsoft SQL Server Management Studio 2014 installed. A data warehouse and reporting suite leveraging Microsoft SQL Server Analysis and Reporting services is still in development.

## Database

ABM outputs are loaded into a SQL Server database. As improvements are made to the ABM, the database evolves too. The current database schema can be found [here](database.htm).

## EMFAC Integration

SANDAG staff developed a procedure to integrate ABM with EMFAC2014 for greenhouse gas emission analysis. First a user needs to run a Python-SQL based procedure to generate EMFAC2014 input files using ABM outputs. Once the inputs are generated, the user then needs to run EMFAC2014 software to create greenhouse gas emission measures.

The Python-SQL procedure relies on two SQL Functions in the ABM database, emfac.fn\_emfac\_2014\_vmt and emfac.fn\_emfac\_2014\_vmt\_speed. The first function creates VMT by EMFAC2014 vehicle and technology group. The second function creates percent of VMT by 5 mile speed bins between 0 and 70 mph. These functions rely entirely on tables preloaded in the database, including the default EMFAC2014 inventory tables, the mapping table between EMFAC2014 vehicle types and SANDAG model vehicle types, and model assignment and network output from ABM runs.

To run the Python-SQL based procedure, these software/libraries should be installed on a user’s computer:

* Install pymssql. For example in C:\Anaconda\Lib\site-packages.
* Install python excel (xlwt) packages. For example in C:\Anaconda\Lib\site-packages\xlwt.
* Install pyodbc. For example in C:\Anaconda\Lib\site-packages\sqlalchemy.

To run the EMFAC2014 input builder:

1. Load ABM outputs into the database for a given model run.
2. Open a DOS window, navigate to \python folder, execute emfac2014\_abm.py with this usage:

Python emfac2014\_abm.py <Scenario ID> <Season: Annual | Summer | Winter> <SB 375: On | Off> <Output Path>

The EMFAC2014 input files are written to the \output folder as EMFAC2014-SANDAG-[YEAR]-[SEASON]-[YEAR] -<sb375>.xlsx

# Appendix

# Appendix 1: Input File Data Dictionary

Table 5.1: mgra13\_based\_input####.csv

*Note: #### is scenario year*

| Column Name | Description |
| --- | --- |
| mgra | MGRANumber |
| TAZ | TAZ Number |
| hs | housing structures |
| hs\_sf | single family structures |
| hs\_mf | multi family structures |
| hs\_mh | mobile homes |
| hh | total number of households |
| hh\_sf | number of households - single family |
| hh\_mf | number of households - mulitple family |
| hh\_mh | number of mobile homes |
| gq\_civ | GQ civilian |
| gq\_mil | GQ military |
| i1 | Number of households with income less than $15,000 ($2007) |
| i2 | Number of households with income $15,000-$29,999 ($2007) |
| i3 | Number of households with income $30,000-$44,999 ($2007) |
| i4 | Number of households with income $45,000-$59,999 ($2007) |
| i5 | Number of households with income $60,000-$74,999 ($2007) |
| i6 | Number of households with income $75,000-$99,999 ($2007) |
| i7 | Number of households with income $100,000-$124,999 ($2007) |
| i8 | Number of households with income $125,000-$149,999 ($2007) |
| i9 | Number of households with income $150,000-$199,999 ($2007) |
| i10 | Number of households with income $200,000 or more ($2007) |
| hhs | household size |
| pop | total population |
| hhp | total household population (exclude gq pop) |
| emp\_ag | Agriculture |
| emp\_const\_non\_bldg\_prod | Construction Non-Building production (including mining) |
| emp\_const\_non\_bldg\_office | Construction Non-Building office support (including mining) |
| emp\_utilities\_prod | Utilities production |
| emp\_utilities\_office | Utilities office support |
| emp\_const\_bldg\_prod | Construction of Buildings production |
| emp\_const\_bldg\_office | Construction of Buildings office support |
| emp\_mfg\_prod | Manufacturing production |
| emp\_mfg\_office | Manufacturing office support |
| emp\_whsle\_whs | Wholesale and Warehousing |
| emp\_trans | Transportation Activity |
| emp\_retail | Retail Activity |
| emp\_prof\_bus\_svcs | Professional and Business Services |
| emp\_prof\_bus\_svcs\_bldg\_maint | Professional and Business Services (Building Maintenance) |
| emp\_pvt\_ed\_k12 | Private Education K-12 |
| emp\_pvt\_ed\_post\_k12\_oth | Private Education Post-Secondary (Post K-12) and Other |
| emp\_health | Health Services |
| emp\_personal\_svcs\_office | Personal Services Office Based |
| emp\_amusement | Amusement Services |
| emp\_hotel | Hotels and Motels |
| emp\_restaurant\_bar | Restaurants and Bars |
| emp\_personal\_svcs\_retail | Personal Services Retail Based |
| emp\_religious | Religious Activity |
| emp\_pvt\_hh | Private Households |
| emp\_state\_local\_gov\_ent | State and Local Government Enterprises Activity |
| emp\_fed\_non\_mil | Federal Non-Military Activity |
| emp\_fed\_mil | Federal Military Activity |
| emp\_state\_local\_gov\_blue | State and Local Government Non-Education Activity production |
| emp\_state\_local\_gov\_white | State and Local Government Non-Education Activity office support |
| emp\_public\_ed | Public Education K-12 and other |
| emp\_own\_occ\_dwell\_mgmt | Owner-Occupied Dwellings Management and Maintenance Activity |
| emp\_fed\_gov\_accts | Federal Government Accounts |
| emp\_st\_lcl\_gov\_accts | State and Local Government Accounts |
| emp\_cap\_accts | Capital Accounts |
| emp\_total | Total employment |
| EnrollGradeKto8 | Grade School K-8 enrollment |
| EnrollGrade9to12 | Grade School 9-12 enrollment |
| collegeEnroll | Major College enrollment |
| otherCollegeEnroll | Other College enrollment |
| AdultSchEnrl | Adult School enrollment |
| ech\_dist | Elementary school district |
| hch\_dist | High school district |
| pseudoMSA | Pseudo MSA |
| parkarea | Category determining functionality of parking models –  parkarea field codes  1: Trips with destinations in this MGRA may choose to park in a different MGRA, parking charges apply (downtown)  2: Trips with destinations in parkarea 1 may choose to park in this MGRA, parking charges might apply (quarter mile buffer around downtown)  3: Only trips with destinations in this MGRA may park here, parking charges apply (outside downtown paid parking, only show cost no capacity issue)  4: Only trips with destinations in this MGRA may park here, parking charges do not apply (outside downtown, free parking) |
| hstallsoth | Number of stalls allowing hourly parking for trips with destinations in other MGRAs |
| hstallssam | Number of stalls allowing hourly parking for trips with destinations in the same MGRA |
| hparkcost | Average cost of parking for one hour in hourly stalls in this MGRA, dollars |
| numfreehrs | Number of hours of free parking allowed before parking charges begin in hourly stalls |
| dstallsoth | Stalls allowing daily parking for trips with destinations in other MGRAs |
| dstallssam | Stalls allowing daily parking for trips with destinations in the same MGRA |
| dparkcost | Average cost of parking for one day in daily stalls, dollars |
| mstallsoth | Stalls allowing monthly parking for trips with destinations in other MGRAs |
| mstallssam | Stalls allowing monthly parking for trips with destinations in the same MGRA |
| mparkcost | Average cost of parking for one day in monthly stalls, amortized over 22 workdays, dollars |
| TotInt | Total intersections |
| DUDen | Dwelling unit density |
| EmpDen | Employment density |
| PopDen | Population density |
| RetEmpDen | Retail employment density |
| TotIntBin | Total intersection bin |
| EmpDenBin | Employment density bin |
| DuDenBin | Dwelling unit density bin |
| ZIP09 | 2009 Zip Code |
| ParkActive | Acres of Active Park |
| OpenSpaceParkPreserve | Acres of Open Park or Preserve |
| BeachActive | Acres of Active Beach |
| BudgetRoom | Number of budget hotel rooms |
| EconomyRoom | Number of economy hotel rooms |
| LuxuryRoom | Number of luxury hotel rooms |
| MidpriceRoom | Number of midprice rooms |
| UpscaleRoom | Number of upscale rooms |
| HotelRoomTotal | Total number of hotel rooms |

Table 5.2: Activity mapping to Industry codes– activity\_code\_indcen\_acs.csv

|  |  |
| --- | --- |
| Column Name | Description |
| indcen | Industry code defined in PECAS: They are about 270 industry categories grouped by 6-digit NAICS code (North American Industrial Classification System) |
| activity\_code | Activity code defined in PECAS: They are about 30 types of activities grouped by the industry categories:   |  | | --- | | 1 = Agriculture | | 3 = Construction Non-Building office support (including mining) | | 5 = Utilities office support | | 9 = Manufacturing office support | | 10 = Wholesale and Warehousing | | 11 = Transportation Activity | | 12 = Retail Activity | | 13 = Professional and Business Services | | 14 = Professional and Business Services (Building Maintenance) | | 16 = Private Education Post-Secondary (Post K-12) and Other | | 17 = Health Services | | 18 = Personal Services Office Based | | 19 = Amusement Services | | 20 = Hotels and Motels | | 21 = Restaurants and Bars | | 22 = Personal Services Retail Based | | 23 = Religious Activity | | 24 = Private Households | | 25 = State and Local Government Enterprises Activity | | 27 = Federal Non-Military Activity | | 28 = Federal Military Activity | | 30 = State and Local Government Non-Education Activity office support | | 31 = Public Education | |

Table 5.2: pecas\_occ\_occsoc\_acs.csv

|  |  |
| --- | --- |
| Column Name | Description |
| occsoc5 | Detailed occupation codes defined by Standard Occupational Classification (SOC) system: http://www.bls.gov/soc/ |
| commodity\_id | Commodity code defined in PECAS: the detailed SOC occupations are grouped into 6 types of laborers, which are included as part of commodity:   |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | 51 | Services Labor | | 52 | Work at Home Labor | | 53 | Sales and Office Labor | | 54 | Natural Resources Construction and Maintenance Labor | | 55 | Production Transportation and Material Moving Labor | | 56 | Military Labor | | |

Table 5.3: Listing of External Zones Attributes – externalzones.xls

|  |  |
| --- | --- |
| Column Name | Description |
| Internal Cordon LUZ | Internal Cordon Land use zone |
| External LUZ | External land use zone |
| Cordon Point | Cordon Point description |
| Destination Approximation | Name of approximate city destination |
| Miles to be Added to Cordon Point | Miles to be added to cordon point |
| Travel Time | Travel time to external zone |
| Border Delay | Border delay time |
| Minutes to be Added to Cordon Point | Minutes to be added to cordon point |
| MPH | Average miles per hour based on miles and minutes to be added to cordon point |

Table 5.4: Population Synthesizer Household data – households.csv

| Column Name | Description |
| --- | --- |
| HHID | Unique Household ID |
| household\_serial\_no | Household serial number |
| TAZ | TAZ of household |
| MGRA | MGRA of household |
| HINCCAT1 | Household income category:   * <$30k * $30-60k * $60-100k * $100-150k * $150k+ |
| HINC | Household income |
| HWORKERS | Number of workers in household |
| VEH | Number of vehicles in household |
| PERSONS | Number of persons in household |
| HHT | Household/family type:   1. Not in universe (vacant or GQ) 2. Family household:married-couple 3. Family household:male householder,no wife present 4. Family household:female householder,no husband present 5. Nonfamily household:male householder, living alone 6. Nonfamily household:male householder, not living alone 7. Nonfamily household:female householder, living alone 8. Nonfamily household:female householder, not living alone |
| BLDGSZ | Building size - Number of Units in Structure & Quality:   1. Mobile home or trailer 2. One-family house detached 3. One-family house attached 4. 2 Apartments 5. 3-4 Apartments 6. 5-9 Apartments 7. 10-19 Apartments 8. 20-49 Apartments 9. 50 or more apartments 10. Boad, RV, van, etc. |
| UNITTYPE | Household unit type (3):   1. Household 2. Non-Institutional Group Quarters 3. Institutional Group Quarters |
| VERSION | (1655) |
| POVERTY | (.961941) |

Table 5.5: Population Synthesizer Person data – persons.csv

| Column Name | Description |
| --- | --- |
| scenario\_id |  |
| lu\_person\_id | Person ID |
| lu\_hh\_id | Household ID |
| pnum | Person Number |
| age | Age of person |
| sex\_id | Gender of person 1 = Male, 2 = Female |
| military\_id | 0 N/A Less than 17 Years Old  1 Yes, Now on Active Duty  2 Yes, on Active Duty in Past, but Not Now  3 No, Training for Reserves/National Guard Only  4 No, Never Served in the Military |
| pemploy\_id | 1 Employed Full-Time  2 Employed Part-Time  3 Unemployed or Not in Labor Force  4 Less than 16 Years Old |
| pstudent\_id | 1 Pre K-12  2 College Undergrad+Grad and Prof. School  3 Not Attending School |
| ptype\_id | ptype\_desc age\_ work\_status school\_status  1 Full-time Worker 18+ Full-time None  2 Part-time Worker 18+ Part-time None  3 College Student 18+ Any College+  4 Non-working Adult 18-64 Unemployed None  5 Non-working Senior 65+ Unemployed None  6 Driving Age Student 16-17 Any Pre-college  7 Non-driving Student 6-16 None Pre-college  8 Pre-school 0-5 None None |
| educ\_id | Educational Attainment:  0. N/A (Under 3 years)  1. No schooling completed  2. Nursery school to 4th grade  3. 5th grade or 6th grade  4. 7th grade or 8th grade  5. 9th grade  6. 10th grade  7. 11th grade  8. 12th grade,no diploma  9. High school graduate  10. Some college,but less than 1 year  11. One or more years of college,no degree  12. Associate degree  13. Bachelor ’s degree  14. Master ’s degree  15. Professional degree  16. Doctorate degree |
| grade\_id | 0 N/A (not attending school)  1 Nursery school/preschool  2 Kindergarten  3 Grade 1 to grade 4  4 Grade 5 to grade 8  5 Grade 9 to grade 12  6 College undergraduate  7 Graduate or professional school |
| occen5 | Occupation  **0 .**Not in universe (Under 16 years or LAST- WRK =2)  **1..997.** Legal census occupation code |
| occsoc5 | Detailed occupation codes defined by Standard Occupational Classification (SOC) system: http://www.bls.gov/soc/ |
| indcen | Industry code defined in PECAS: They are about 270 industry categories grouped by 6-digit NAICS code (North American Industrial Classification System) |
| weeks\_worked\_id | 0 N/A (less than 16 years old/did not work in past 12 months)  1 50 to 52 weeks  2 48 to 49 weeks  3 40 to 47 weeks  4 27 to 39 weeks  5 14 to 26 weeks  6 13 weeks or less |
| hours\_worked | Hours worked in 2010  **0.** Not in universe (Under 16 years)  **1..99.** 1 to 99 hours worked per week |
| race\_id | 1 White Alone  2 Black or African American Alone  3 American Indian Alone  4 Alaska Native Alone  5 American Indian and Alaska Native Tribes specified; or American Indian or Alaska Native, not specified and no other races  6 Asian Alone  7 Native Hawaiian and Other Pacific Islander Alone  8 Some Other Race Alone  9 Two or More Major Race Groups |
| hisp\_id | 1 Not Spanish/Hispanic/Latino  2 Mexican  3 Puerto Rican  4 Cuban  5 Dominican  6 Costa Rican  7 Guatemalan  8 Honduran  9 Nicaraguan  10 Panamanian  11 Salvadoran  12 Other Central American  13 Argentinean  14 Bolivian  15 Chilean  16 Colombian  17 Ecuadorian  18 Paraguayan  19 Peruvian  20 Uruguayan  21 Venezuelan  22 Other South American  23 Spaniard  24 All Other Spanish/Hispanic/Latino |
| activity\_pattern\_id | 0 Home  1 Non-Mandatory  2 Mandatory |
| ie\_choice | Internal external choice result |
| version | PopSyn run version |

Table 5.6a: ESRI Highway Network Node Input - hwycov.e00

|  |  |
| --- | --- |
| Column Name | Description |
| ARC# | ESRI-assigned ID |
| HWYCOV# | ESRI-assigned link ID ( for shape files this field is: HWYCOV\_ ) |
| HWYCOV-ID | SANDAG-assigned link ID ( for shape files this field is: HWYCOV\_ID ) |
| XNM1 | First cross street name |
| XNM2 | Second cross street name |
| TEMP | Temporary field |
| X-COORD | Coordinate value of the node in the X direction (east-west) |
| Y-COORD | Coordinate value of the node in the Y direction (north-south) |
| Z-COORD | Coordinate value of the node in the Z direction (elevation) |
| IUCNT | Program-assigned initial/upgrade control code for plotting |
| SPHERE | Jurisdiction sphere of influence |
| HNODE | Node number that corresponds to link AN and BN fields |
| IYR | The year the node opened to traffic |
| IJUR | Initial intersection control jurisdiction where:  1 = State facilities  2 = Congestion Management Plan (CMP)  3 = Regional Arterial System (RAS)  4 = Regionally Significant Arterials (RSA)  5 = Local facilities |
| ICNT | Intersection control type where:  0 = No Control  1 = Traffic Signal  2 = All-Way Stop Sign  3 = Two-Way Stop Sign  4 = Ramp Meter  5 = Ramp Meter with HOV lane meter  6 = Light Rail Crossing  7 = Toll Booth  9 = Prevent Control |

Table 5.6b: ESRI Highway Network Link Input - hwycov.e00

| Column Name | Description |
| --- | --- |
| FNODE# | ESRI-assigned FROM node number |
| TNODE# | ESRI-assigned TO node number |
| LPOLY# | ESRI-assigned left polygon number |
| RPOLY# | ESRI-assigned right polygon number |
| LENGTH | Length of link in feet |
| HWYCOV# | ESRI-assigned link ID ( for shape files this field is: HWYCOV\_ ) |
| HWYCOV-ID | SANDAG-assigned link ID ( for shape files this field is: HWYCOV\_ID ) |
| QID | Queue backup (bottleneck) ID: QID > 0 = the bottleneck |
| CCSTYLE | TransCAD functional classification |
| UVOL | Unadjusted 24-hour forecasted volume |
| AVOL | Adjusted 24-hour forecasted volume |
| TMP1 | Temporary field |
| TMP2 | Temporary field |
| PLOT | Scalable freeway plotting code |
| SPHERE | Jurisdiction sphere of influence, combination of city code and community planning area code: 1438, 14 for City of San Diego, 38 for College Area) |
| RTNO | Program assigned route number |
| LKNO | Program assigned sequential link number |
| NM | Street name |
| FXNM | Cross street name at the FROM end of the link |
| TXNM | Cross street name at the TO end of the link |
| AN | A node number |
| BN | B node number |
| COJUR | Count jurisdiction code  Sphere and count code jurisdictions where:  1 = Carlsbad  2 = Chula Vista  3 = Coronado  4 = Del Mar  5 = El Cajon  6 = Encinitas  7 = Escondido  8 = Imperial Beach  9 = La Mesa  10 = Lemon Grove  11 = National City  12 = Oceanside  13 = Poway  14 = San Diego City  15 = San Marcos  16 = Santee  17 = Solana Beach  18 = Vista  19 = San Diego County  20 = Caltrans |
| COSTAT | Count station number |
| COLOC | Count locations  Count location code where:  0 = The count was taken on another link but is being applied to this link  1 = The count was taken on this link |
| RLOOP | Freeway Count Station Number where:  1 – 999 = Traffic census stations  5000 – 5999 = Ramp meter freeway stations |
| ADTLK | Link number for ADT use |
| ADTVL | Observed base year ground count (in hundreds) |
| PKPCT | Peak hour percentage |
| TRPCT | Truck percentage |
| SECNO | Section number for level of service analysis |
| DIR | Link direction where:  1 = Northbound  2 = Westbound  3 = Southbound  4 = Eastbound |
| FFC | Federal functional class |
| CLASS | It stores the zone number where the TO node is in |
| ASPD | Adjusted (during calibration) link speed (miles/hour) |
| IYR | The year the link opened to traffic |
| IPROJ | Project number for use with hwyproj.xls |
| IJUR | Link jurisdiction type where:  1 = State facilities  2 = Congestion Management Plan (CMP)  3 = Regional Arterial System (RAS)  4 = Regionally Significant Arterials (RSA)  5 = Local facilities |
| IFC | Initial functional classification where:  1 = Freeway  2 = Prime arterial  3 = Major arterial  4 = Collector  5 = Local collector  6 = Rural collector  7 = Local (Non-Circulation Element) road  8 = Freeway connector ramps  9 = Local ramps  10 = Zone connectors |
| IHOV | Link operation type where:  1 = General purpose  2 = 2+ HOV (Managed lanes if lanes > 1)  3 = 3+ HOV (Managed lanes if lanes > 1)  4 = Toll lanes |
| ITRUCK | Truck restriction code (ITRUCK) where:  1 = All Vehicle Classes  2 = HHDT Excluded  3 = MHDT & HHDT Excluded  4 = LHDT & MHDT & HHDT Excluded (All Trucks Excluded)  5 = HHDT Only  6 = MHDT & HHDT Only  7 = LHDT & MHDT & HHDT Only (Truck Only) |
| ISPD | Posted speed limit |
| ITSPD | Not currently in use |
| IWAY | One or two way operations |
| IMED | Median type where:  1 = No median  2 = Raised or fixed median  3 = Continuous left turn center lane |
| COST | Link auto operating cost |
| ITOLLO | Off-Peak toll cost (cent)  Link toll costs with a value range of 1-200 where:  1 = $0.01 per mile  200 = $2.00 per mile |
| ITOLLA | AM Peak toll cost (cent)  Link toll costs with a value range of 1-200 where:  1 = $0.01 per mile  200 = $2.00 per mile |
| ITOLLP | PM Peak toll cost (cent)  Link toll costs with a value range of 1-200 where:  1 = $0.01 per mile  200 = $2.00 per mile |
| ABLNO \* | Off-Peak number of lanes in the FROM-TO direction |
| ABLNA \* | AM Peak number of lanes in the FROM-TO direction |
| ABLNP \* | PM Peak number of lanes in the FROM-TO direction |
| ABAU \* | Number of auxiliary lanes in the FROM-TO direction |
| ABPCT \* | Directional split in the FROM-TO direction |
| ABPHF \* | Peak hour factor in the FROM-TO direction |
| ABCNT \* | Intersection control type at the TO end of the link:  0 = No Control  1 = Traffic Signal  2 = All-Way Stop Sign  3 = Two-Way Stop Sign  4 = Ramp Meter  5 = Ramp Meter with HOV lane meter  6 = Light Rail Crossing  7 = Toll Booth  9 = Prevent Control |
| ABTL \* | Intersection approach through lanes at the TO end of the link:  0~4: number of through lanes  7: Free  8: Prohibited  9:No dedicated lane for the movement |
| ABRL \* | Intersection approach right-turn lanes at the TO end of the link  0~2: number of through lanes  7: Free  8: Prohibited  9:No dedicated lane for the movement |
| ABLL \* | Intersection approach left-turn lanes at the TO end of the link  0~2: number of through lanes  7: Free  8: Prohibited  9:No dedicated lane for the movement |
| ABTLB \* | Link ID (hwycov#) of through-connected link |
| ABRLB \* | Link ID (hwycov#) of right turn-connected link |
| ABLLB \* | Link ID (hwycov#) of left turn-connected link |
| ABGC \* | Intersection green-to-cycle ratio at the TO end of the link (%) |
| ABPLC \* | Per-lane capacity per hour |
| ABCPO \* | Off-Peak period mid-link capacity (18 hours) |
| ABCPA \* | AM Peak period mid-link capacity (3 hours) |
| ABCPP \* | PM Peak period mid-link capacity (3 hours) |
| ABCXO \* | Off-Peak period intersection-approach capacity (18 hours) |
| ABCXA \* | AM Peak period intersection-approach capacity (3 hours) |
| ABCXP \* | PM Peak period intersection-approach capacity (3 hours) |
| ABCHO \* | Off-Peak hourly mid-link capacity |
| ABCHA \* | AM Peak hourly mid-link capacity |
| ABCHP \* | PM Peak hourly mid-link capacity |
| ABTMO \* | Off-Peak link time in minutes in the FROM-TO direction  A standard calculation is speed (mph) using time and length:  Speed(mph) = [length(ft) \* 1(mi) / 5280(ft)] / [abtmo(min) \* 1(hr) / 60(min)] |
| ABTMA \* | AM Peak link time in minutes in the FROM-TO direction  A standard calculation is speed (mph) using time and length:  Speed(mph) = [length(ft) \* 1(mi) / 5280(ft)] / [abtmo(min) \* 1(hr) / 60(min)] |
| ABTMP \* | PM Peak link time in minutes in the FROM-TO direction  A standard calculation is speed (mph) using time and length:  Speed(mph) = [length(ft) \* 1(mi) / 5280(ft)] / [abtmo(min) \* 1(hr) / 60(min)] |
| ABTXO \* | Off-Peak intersection delay time |
| ABTXA \* | AM Peak intersection delay time |
| ABTXP \* | PM Peak intersection delay time |
| ABCST \* | Total link cost, generalized cost (in cents) of 19cents/mile + 35cents/minute |
| ABVLA \* | Adjusted AM Peak hour volume in the FROM-TO direction |
| ABVLP \* | Adjusted PM Peak hour volume in the FROM-TO direction |
| ABLOS \* | Directional daily Level of service (LOS) where:  1 = LOS A  2 = LOS B  3 = LOS C  4 = LOS D  5 = LOS E  6 = LOS F  7 = LOS F for 1 hour  8 = LOS F for 2 hours, etc. |
| LNMI | Lane Miles for 2-ways |

**\***Each of these fields are duplicated with the prefix "BA" for the opposite (TO-FROM) direction

\*Turn link arrows on to reveal directionality:

\*A (FROM) -----------------------------> B (TO)

Table 5.7: Highway Network Turns file – turns.csv

|  |  |
| --- | --- |
| Column Name | Description |
| from\_id | The link id where to prohibit the turn from |
| to\_id | The link id where to prohibit the turn to |
| penalty | The additional time (in minutes) added to the turn. The value "null" means no turn allowed. |

Table 5.8: Highway Network Link Type Turns table – LINKTYPETURNS.DBF

|  |  |
| --- | --- |
| Column Name | Description |
| FROM | from link class of 1 or 9 |
| TO | to link class of 9 or 1 |
| LEFT | additional time added to left turn movement (in mins) |
| RIGHT | additional time added to right turn movement (in mins) |
| STRAIGHT | additional time added to straight turn movement (in mins) |
| UTURN | additional time added to uturn movement (in mins) |

Table 5.9: Highway Network Link Type Turns Cost table – LINKTYPETURNSCST.DBF

|  |  |
| --- | --- |
| Column Name | Description |
| FROM | from link class of 1 or 9 |
| TO | to link class of 9 or 1 |
| LEFT | additional cost added to left turn movement (in cents) |
| RIGHT | additional cost added to right turn movement (in cents) |
| STRAIGHT | additional cost added to straight turn movement (in cents) |
| UTURN | additional cost added to uturn movement (in cents) |

Table 5.10a: ESRI Transit Network Arc Attributes Input - trcov.e00

| Column Name | Description |
| --- | --- |
| FNODE# | Arc/Info assigned node number at "from" end of arc. |
| TNODE# | Arc/Info assigned node number at "to" end of arc. |
| LPOLY# | Arc/Info assigned left polygon number. |
| RPOLY# | Arc/Info assigned right polygon number. |
| LENGTH | Arc/Info computed length of arc (feet). |
| TRCOV# | Arc/Info assigned unique, sequential ID number. |
| TRCOV-ID | User assigned unique, fixed ID number. |
| VOL1 | Forecasted Daily Ridership (Whole Numbers) |
| VOL2 | Program assigned volume. |
| FX | Arc/Info assigned x-coordinate at FNODE#. |
| FY | Arc/Info assigned y-coordinate at FNODE#. |
| TX | Arc/Info assigned x-coordinate at TNODE#. |
| TY | Arc/Info assigned y-coordinate at TNODE#. |
| TMP1 | Temporary variable. |
| TMP2 | Temporary variable. |
| RTNO | Program assigned route number. |
| LKNO | Program assigned sequential link number. |
| NM | Road name. |
| FXNM | Program assigned cross street name at "from" end of arc. |
| TXNM | Program assigned cross street name at "to" end of arc. |
| AN | Tranplan highway node number at "from" end. |
| BN | Tranplan highway node number at "to" end. |
| DIR | Link direction, where:  1 = Southbound,  2 = Eastbound,  3 = Northbound,  4 = Westbound. |
| OSPD | Observed speed. |
| IYR | Initial year that the arc is first opened to traffic. |
| IJUR | Initial jurisdiction controlling arc, where:  1 = State facility,  2 = Non-state Congestion Management Program (CMP) route,  3 = Regional Arterial System,  4 = Other Major roads,  5 = Local road. |
| IFC | Initial circulation element functional classification, where:  1 = Freeway,  2 = Prime Arterial,  3 = Major Arterial,  4 = Collector,  5 = Local Collector,  6 = Rural Collector,  7 = Local Street,  8 = Freeway to Freeway Ramp,  9 = Ramp,  10 = Zone Connector,  11 = Rail Line,  12 = Bus Street,  13 = ADT Link. |
| IHOV | HOV indicator where:  1 = Non-HOV facility  2 = HOV facility |
| ISPD | Initial posted speed (miles per hour). |
| IWAY | Initial one or two way operation, where:  1 = One way,  2 = Two way. |
| IMED | Initial median condition, where:  1 = No Median,  2 = Raised Median,  3 = Center Left Turn Lane. |
| FWYLEN | Length of the segment the route travels on freeway (in miles) |
| ABLNO | Initial mid-block lanes in "from-to" direction for the off-peak hours. |
| ABLNA | Initial mid-block lanes in "from-to" direction for the AM peak. |
| ABLNP | Initial mid-block lanes in "from-to" direction for the PM peak. |
| ABAU | Initial auxiliary lanes in "from-to" direction. |
| ABCNT | Initial intersection control type at "to" end, where:  0 = No Control,  1 = Traffic Signal,  2 = All-way Stop Sign,  3 = Two-way Stop Sign,  4 = Ramp Meter,  5 = Ramp Meter with HOV Bypass,  6 = LRT Crossing,  7 = Toll Booth,  8 = Prevent control. |
| ABTL | Initial intersection approach through lanes at "to" end. |
| ABRL | Initial intersection approach right turn lanes at "to" end. |
| ABLL | Initial intersection approach left turn lanes at "to" end. |
| ABTMO | Overall arc offpeak travel time in "from-to" direction. |
| ABTMA | Overall arc AM peak travel time in "from-to" direction. |
| ABTMP | Overall arc PM peak travel time in "from-to" direction. |
| ABSTP | Transit stop restriction indicator where:  0 = no restriction  2 = restricted transit stop in “from-to” direction |
| BALNO ... BASTP | Data in "to-from" direction. |
| SRT1 ... SRT20 | Transit Routes on arc, sorted on route number. |
| MINMODE | transit type where:  4 = Coaster Rail Line  5 = Light Rail Transit (LRT) Line  6 = Yellow Car Bus Rapid Transit (BRT)  7 = Red Car Bus Rapid Transit (BRT)  8 = Limited Express Bus  9 = Express Bus  10 = Local Bus |
| LRTZONE | LRT fare zone, used for zone-based fare alternatives |
| CRZONE | Commuter Rail fare zone, used for zone-based alternatives |

Table 5.10.b: ESRI Transit Network Node Attributes Input - trcov.e00

| Column Name | Description |
| --- | --- |
| ARC# | Arc/Info assigned TRCOV# of an arc at the node. |
| TRCOV# | Arc/Info assigned unique, sequential node identification number. |
| TRCOV-ID | User assigned unique node identification number. |
| XNM1 | Program assigned cross street name. |
| XNM2 | Program assigned cross street name. |
| TEMP | Temporary variable. |
| X-COORD | X coordinate in California State Plane coordinate system (in feet). |
| Y-COORD | Y coordinate in California State Plane coordinate system (in feet). |
| Z-COORD | Z coordinate – elevation (in feet). |
| IUCNT | Program assigned initial/upgrade control code for plotting. |
| SPHERE | Sphere number, where:  100 = Carlsbad,  200 = Chula Vista,  300 = Coronado,  400 = Del Mar,  500 = El Cajon,  600 = Encinitas,  700 = Escondido,  800 = Imperial Beach,  900 = La Mesa,  1000 = Lemon Grove,  1100 = National City,  1200 = Oceanside,  1300 = Poway,  1400-1499 = City of San Diego Planning Areas,  1500 = San Marcos,  1600 = Santee,  1700 = Solona Beach,  1800 = Vista,  1900-1999 = County of San Diego Planning Areas. |
| HNODE | Unique node number for Tranplan highway models. |
| IYR | Initial year that the node first exists. |
| IJUR | Initial jurisdiction controlling intersection, where:  1 = State facility,  2 = Non-state Congestion Management Program (CMP) route,  3 = Regional Arterial System,  4 = Other Major roads,  5 = Local road. |
| ICNT | Initial intersection control at node, where:  0 = No Control,  1 = Traffic Signal,  2 = All-way Stop Sign,  3 = Two-way Stop Sign,  4 = Ramp Meter,  5 = Ramp Meter with HOV Bypass,  6 = LRT Crossing,  7 = Toll Booth,  8 = Prevent control. |
| TAP | Transit Access Point, where:  0 = Not a transit access point,  1-2500 = Transit access point. |
| TNODE | Unique node number for Tranplan transit models. |
| FZONE4 | Fare zone for commuter rail. |
| FZONE6 | Fare zone for limited bus. |
| FZONE7 | Fare zone for express bus. |
| ISTOP | Initial stop type, where:  0,1 = No Stop,  4 = Commuter Rail,  5 = Light Rail,  6 = Yellow Car BRT,  7 = Red Car BRT,  8 = Limited Express,  9 = Express,  10 = Local. |
| IPARK | NO LONGER VALID. |
| ITT | Initial timed-transfer conditions, where:  0 = Routes not timed,  1 = Routes timed,  7 = San Ysidro Border. |
| USTOP | Upgrade stop type. |
| UPARK | NO LONGER VALID. |
| WVOL | Walk Access On/Offs; not used in input; |
| AVOL | Auto Access On/Offs; not used in input; |
| XVOL | Transfer Access On/Offs; not used in input; |
| TVOL | Total Access On/Offs; not used in input; |

Table 5.11: Transit Binary link file – trlink.bin

|  |  |
| --- | --- |
| Column Name | Description |
| Route\_id: | Sequential route number |
| Link\_id | Link id associated with route |
| Direction | + or - |

Table 5.12: Transit Binary Route Table – trrt.bin

|  |  |
| --- | --- |
| Column Name | Description |
| Route\_id | Sequential route number |
| Route\_name | Route name and configuration |
| Mode | Line Haul Mode of route  4 coaster  5 sprinter/trolley  8 prem express  9 regular express  10 local bus |
| AM\_Headway | AM Period Headway |
| PM\_Headway | PM Period Headway |
| OP\_headway | Off-peak period headway |
| Config | Same as route\_name |
| Fare | Route fare |

Table 5.13: Transit Binary Stop Table – trstop.bin

|  |  |
| --- | --- |
| Column Name | Description |
| Stop\_id | Unique stop ID |
| Route\_id | Sequential route number |
| Link\_id | Link id associated with route |
| Pass\_count | Number of times the route passes this stop. Most of value is one, some value is 2 |
| Milepost | Stop mile post |
| Longitude | Stop Longitude |
| Latitude | Stop Latitude |
| NearNode | Node number that stop is nearest to |
| FareZone | Zones defined in Fare System |
| StopName | Name of Stop |

Table 5.14: Transit Mode Parameters – mode5tod.dbf

| Column Name | Description |
| --- | --- |
| MODE\_NAME | Line haul mode name:  Transfer  Center City Walk  Walk Access  Commuter Rail  Light Rail  Regional BRT (Yellow)  Regional BRT (Red)  Limited Express  Express  Local |
| MODE\_ID | Mode ID  1 = Transfer  2 = Center City Walk  3 = Walk Access  4 = Commuter Rail  5 = Light Rail  6 = Regional BRT (Yellow)  7 = Regional BRT (Red)  8 = Limited Express  9 = Express  10 = Local |
| PREMODE | Premium Transit mode?  0=No  1-Yes |
| EXPBSMODE | Express bus mode?  0 = No  1 = Yes |
| LOCMODE | Local bus mode?  0 = No  1 = Yes |
| OP\_TRNTIME | Off peak transcad matrix used by mode:  \*oploctime  \*oppretime |
| AM\_TRNTIME | AM peak transcad matrix used by mode:  \*amloctime  \*ampretime |
| PM\_TRNTIME | PM peak transcad matrix used by mode:  \*pmloctime  \*pmpretime |
| MODE\_ACCES | Mode of access (1) |
| MODE\_EGRES | Mode of egress (1) |
| WT\_IVTPK | Weight for peak in-vehicle time: 1, 1.5, or 1.8 |
| WT\_FWTPK | Weight for peak first wait time: 1, 1.5 |
| WT\_XWTPK | Weight for peak transfer wait time: 1, 3 |
| WT\_FAREPK | Weight for peak fare: 0.46, 0.60, 0.63, 0.67, 1 |
| WT\_IVTOP | Weight for off-peak in-vehicle time: 1, 1.5, or 1.6 |
| WT\_FWTOP | Weight for off-peak first wait time: 1, 1.5 |
| WT\_XWTOP | Weight for off-peak transfer wait time: 1, 3 |
| WT\_FAREOP | Weight for off-peak fare: 0.23, 0.51, 0.52, 0.54, 0.58, 1 |
| FARE | Transit fare: $0, $1.25, $1.50, $2.50, $3.00, $3.50 |
| DWELLTIME | Dwell time: 0, 0.3, 0.5 |
| FARETYPE | Fare type:  1 = Bus  2 = Rail |
| FAREFIELD | Fare Field:  coaster fare  lightrail fare |
| CRMODE | Boolean if Commuter rail available |
| LRMODE | Boolean if light rail available |
| XFERPENTM | Transfer Penalty time: 5 minutes |
| WTXFERTM | Transfer Wait time: 1 minute |
| TRNTIME\_EA | Early AM transit time impedance |
| TRNTIME\_AM | AM transit time impedance |
| TRNTIME\_MD | Midday transit time impedance |
| TRNTIME\_PM | PM transit time impedance |
| TRNTIME\_EV | Evening transit time impedance |

Table 5.15: Transit Mode Transfer Prohibitions – modexfer.dbf

|  |  |
| --- | --- |
| Column Name | Description |
| FROM | From mode code:  1 = Transfer  2 = Center City Walk  3 = Walk Access  4 = Commuter Rail  5 = Light Rail  6 = Regional BRT (Yellow)  7 = Regional BRT (Red)  8 = Limited Express  9 = Express  10 = Local |
| TO | To mode code:  1 = Transfer  2 = Center City Walk  3 = Walk Access  4 = Commuter Rail  5 = Light Rail  6 = Regional BRT (Yellow)  7 = Regional BRT (Red)  8 = Limited Express  9 = Express  10 = Local |
| STOP | ? |
| PROHIBITIO | Prohibit transfer:  0=No  1=Yes |
| XFER\_PENAL | Transfer Penalty |
| FARE | Fare |
| WAIT\_TIME | Wait time |

Table 5.16: Transit Timed Transfers between Routes –timexfer.bin

|  |  |
| --- | --- |
| Column Name | Description |
| FROM\_LINE | From Route Number |
| TO\_LINE | To Route Number |
| BOARD\_STOP | The stop where the transfer happen from line to line. |
| WAIT\_TIME | Wait time |

Table 5.17: Transit Fares –fare.mtx

Transit fares between TAP pairs

|  |
| --- |
| Table Name |
| Coaster fare |
| Lightrail fare |

Table 5.18: Bike Network Link Field List – SANDAG\_Bike\_Net.DBF

|  |  |
| --- | --- |
| Column Name | Description |
| Roadsegid | Road Segment ID |
| Rd20full | Road Name |
| A | Foreign key of first node |
| B | Foreign key of second node |
| Distance | Arc length of link (ft) |
| AB\_Gain | Cumulative non-negative increase in elevation from A to B nodes (ft) |
| BA\_Gain | Cumulative non-negative increase in elevation from B to A nodes (ft) |
| ABBikeClas | Type of Bike Facility in AB direction |
| BABikeClas | Type of Bike Facility in BA direction |
| AB\_Lanes | Presence of vehicle Lanes in AB direction |
| BA\_Lanes | Presence of vehicle Lanes in BA direction |
| Func\_Class | Type of Road Facility |
| Bike2Sep | Physically-separated on-street bike lane |
| Bike3Blvd | Bicycle boulevards |
| SPEED | bike speeds in miles/hour |
| Scenicldx | Scenic index represents the closeness to the ocean and parks |
| Path | Null |
| Shape\_Leng | length of the link (ft) |

Table 5.19: Bike Network Node Field List – SANDAG\_Bike\_Node.DBF

|  |  |
| --- | --- |
| Column Name | Description |
| NodeLev\_ID | Node Unique Identifier |
| MGRA | MGRA ID for Centroids |
| TAZ | TAZ ID for Centroids |
| TAP | TAP ID |
| XCOORD | X Coordinate of Node in NAD 1983 State Plane California Region VI FIPS: 0406 (ft) |
| YCOORD | Y Coordinate of Node in NAD 1983 State Plane California Region VI FIPS: 0406(ft) |
| ZCOORD | Elevation (ft) |
| Signal | Traffic Signal Presence:1: Presence; 0: Absence |

Table 5.20: Transit Drive Access TAPS for AM period –accessam.csv

The file is organized into two sections for each TAZ. The first section is a TAZ and the number of TAPs with PNR lots that are auto accessible from the TAZ. The second section is the TAP, travel time (min) \*100 and distance (mile) \*100.

|  |  |
| --- | --- |
| Column Name | Description |
| TAZ | TAZ |
| TAP | Transit access point |
| Time | Minutes in hundreds |
| Distance | Miles in hundreds |
| Mode | 4 = Commuter Rail  5 = LRT  6 = Freeway Rapid  7 = Arterial Rapid  8 = Premium Express  9 = Express  10 = Local |

Table 5.21: Transit TAP PTYPE –tap.ptype

|  |  |
| --- | --- |
| Column Name | Description |
| TAP | Transit access point |
| Lot\_id | Parking lot id |
| ptype | Parking type  1 = formal parking  2 = other parking  3 = other light rail trolley parking  4 or 5 = non-formal parking area based on the on-board survey |
| TAZ | TAZ where the P&R lot is located |
| capacity | Number of stalls in the parking lot |
| distance | Distance from lot to TAP (feet) |
| mode | Mode ID |

Table 5.2: Zone Terminal Time –zone.term

|  |  |
| --- | --- |
| Column Name | Description |
| Zone | TAZ number |
| Terminal time | Terminal time (3, 4, 5, 7, 10 minutes) |

Table 5.3: Accessibilities – accessibilities.csv

| No. | Description | Model utilization | Attraction size variable | Travel cost | Dispersion coefficient |
| --- | --- | --- | --- | --- | --- |
| 1 | Access to non-mandatory attractions by SOV in off-peak | Car ownership | Total weighted employment for all purposes | Generalized SOV time including tolls | -0.05 |
| 2 | Access to non-mandatory attractions by transit in off peak | Car ownership | Total weighted employment for all purposes | Generalized best path walk-to-transit time including fares | -0.05 |
| 3 | Access to non-mandatory attractions by walk | Car ownership | Total weighted employment for all purposes | SOV off-peak distance  (set to 999 if >3) | -1.00 |
| 4-6 | Access to non-mandatory attractions by all modes except HOV | CDAP | Total weighted employment for all purposes | Off-peak mode choice logsums (SOV skims for ipersons) segmented by 3 car-availability groups | +1.00 |
| 7-9 | Access to non-mandatory attractions by all modes except SOV | CDAP | Total weighted employment for all purposes | Off-peak mode choice logsums (HOV skims for interaction) segmented by 3 car-availability groups | +1.00 |
| 10-12 | Access to shopping attractions by all modes except SOV | Joint tour frequency | Weighted employment for shopping | Off-peak mode choice logsum (HOV skims) segmented by 3 HH adult car-availability groups | +1.00 |
| 13-15 | Access to maintenance attractions by all modes except SOV | Joint tour frequency | Weighted employment for maintenance | Off-peak mode choice logsum (HOV skims) segmented by 3 adult car-availability groups | +1.00 |
| 16-18 | Access to eating-out attractions by all modes except SOV | Joint tour frequency | Weighted employment for eating out | Off-peak mode choice logsum (HOV skims) segmented by 3 adult HH car-availability groups | +1.00 |
| 19-21 | Access to visiting attractions by all modes except SOV | Joint tour frequency | Total households | Off-peak mode choice logsum (HOV skims) segmented by 3 adult car-availability groups | +1.00 |
| 22-24 | Access to discretionary attractions by all modes except SOV | Joint tour frequency | Weighted employment for discretionary | Off-peak mode choice logsum (HOV skims) segmented by 3 adult car-availability groups | +1.00 |
| 25-27 | Access to escorting attractions by all modes except SOV | Allocated tour frequency | Total households | AM mode choice logsum (HOV skims) segmented by 3 adult car-availability groups | +1.00 |
| 28-30 | Access to shopping attractions by all modes except HOV | Allocated tour frequency | Weighted employment for shopping | Off-peak mode choice logsum (SOV skims) segmented by 3 adult car-availability groups | +1.00 |
| 31-33 | Access to maintenance attractions by all modes except HOV | Allocated tour frequency | Weighted employment for maintenance | Off-peak mode choice logsum (SOV skims) segmented by 3 adult car-availability groups | +1.00 |
| 34-36 | Access to eating-out attractions by all modes except HOV | Individual tour frequency | Weighted employment for eating out | Off-peak mode choice logsum (SOV skims) segmented by 3 car-availability groups | +1.00 |
| 36-39 | Access to visiting attractions by all modes except HOV | Individual tour frequency | Total households | Off-peak mode choice logsum (SOV skims) segmented by 3 car-availability groups | +1.00 |
| 40-41 | Access to discretionary attractions by all modes except HOV | Individual tour frequency | Weighted employment for discretionary | Off-peak mode choice logsum (SOV skims) segmented by 3 car-availability groups | +1.00 |
| 43-44 | Access to at-work attractions by all modes except HOV | Individual sub-tour frequency | Weighted employment for at work | Off-peak mode choice logsum (SOV skims) segmented by adult 2 car-availability groups (0 cars and cars equal or graeter than workers) | +1.00 |
| 45 | Access to all attractions by all modes of transport in the peak | Work location, CDAP | Total weighted employment for all purposes | Peak mode choice logsums | +1.00 |
| 46 | Access to at-work attractions by walk | Individual sub-tour frequency | Weighted employment for at work | SOV off-peak distance  (set to 999 if >3) | +1.00 |
| 47 | Access to all households by all modes of transport in the peak | Not currently used | Total weighted households for all purposes | Generalized best path walk-to-transit time including fares | +1.00 |

Table 5.24: Bike Taz Logsum – bikeTazLogsum.csv

|  |  |
| --- | --- |
| Column Name | Description |
| i | Origin TAZ |
| j | Destination TAZ |
| Logsum | Logsum - a measure of the closeness of the origin and the destination of the trip |
| time | Time (In minutes) |

Table 5.25: Bike Mgra Logsum – bikeMgraLogsum.csv

|  |  |
| --- | --- |
| Column Name | Description |
| i | Origin of MGRA |
| j | Destination of MGRA |
| Logsum | Logsum - a measure of the closeness of the origin and the destination of the trip |
| time | Time (in minutes) |

Table 5.26: walkMgraEquivMinutes – walkMgraEquivMinutes.csv

|  |  |
| --- | --- |
| Column Name | Description |
| i | Origin (MGRA) |
| j | Destination (MGRA) |
| percieved | Percieved time to walk |
| actual | Actual time to walk (minutes) |
| gain | Gain in elevation |

Table 5.27: walkMgraTapEquivMinutes – walkMgraTapEquivMinutes.csv

|  |  |
| --- | --- |
| Column Name | Description |
| mgra | Origin (MGRA) |
| TAP | Transit access point |
| boardingPerceived | Boarding TAP perceived time |
| boardingActual | Boarding TAP actual time |
| alightingPerceived | Alighting TAP perceived time |
| alightingActual | Alighting TAP actual time |
| boardingGain | Boarding gain in elevation |
| alightingGain | Alighting gain in elevation |

Table 5.28: Airport Trip Purpose Distribution – airport\_purpose.csv

|  |  |
| --- | --- |
| Column Name | Description |
| Purpose | Trip Purpose  0 = Resident Business  1 = Resident Personal  2 = Visitor Business  3 = Visitor Personal  4= External |
| Percent | Distribution of Trips in trip purpose |

Table 5.29: Airport Party Size by Purpose Distribution – airport\_party.csv

|  |  |
| --- | --- |
| Column Name | Description |
| Party | Party size (0 through 5+) |
| purp0\_perc | Distribution for Resident Business purpose |
| purp1\_perc | Distribution for Resident Personal purpose |
| purp2\_perc | Distribution for Visitor Business purpose |
| purp3\_perc | Distribution for Visitor Personal purpose |
| purp4\_perc | Distribution for External purpose |

Table 5.30: Airport Number of Nights by Purpose Distribution – airport\_nights.csv

|  |  |
| --- | --- |
| Column Name | Description |
| Nights | Number of Nights stayed (0 through 14+) |
| purp1\_perc | Distribution for Resident Personal purpose |
| purp2\_perc | Distribution for Visitor Business purpose |
| purp3\_perc | Distribution for Visitor Personal purpose |
| purp4\_perc | Distribution for External purpose |

Table 5.31: Airport Income by Purpose Distribution – airport\_income.csv

|  |  |
| --- | --- |
| Column Name | Description |
| Income group | Household income:  0=Less than $25K  1=$25K – $50K  2=$50K – $75K  3=$75K – $100K  4=$100K – $125K  5=$125K – $150K  6=$150K – $200K  7=$200K plus |
| purp1\_perc | Distribution for Resident Personal purpose |
| purp2\_perc | Distribution for Visitor Business purpose |
| purp3\_perc | Distribution for Visitor Personal purpose |
| purp4\_perc | Distribution for External purpose |

Table 5.32: Airport Departure Time by Purpose Distribution – airport\_departure.csv

|  |  |
| --- | --- |
| Column Name | Description |
| Period | Departure Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| purp1\_perc | Distribution for Resident Personal purpose |
| purp2\_perc | Distribution for Visitor Business purpose |
| purp3\_perc | Distribution for Visitor Personal purpose |
| purp4\_perc | Distribution for External purpose |

Table 5.33: Airport Arrival Time by Purpose Distribution – airport\_arrival.csv

|  |  |
| --- | --- |
| Column Name | Description |
| Period | Arrival Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| purp1\_perc | Distribution for Resident Personal purpose |
| purp2\_perc | Distribution for Visitor Business purpose |
| purp3\_perc | Distribution for Visitor Personal purpose |
| purp4\_perc | Distribution for External purpose |

Table 5.34: Commercial Vehicle Friction Factors Lookup Table –commvehFF.csv

|  |  |
| --- | --- |
| Column Name | Description |
| Time | Travel time between TAZs in minutes |
| FF | Friction factors used in gravity model |

Table 5.35: Cross Border Model Tour Purpose Distribution for Non-Sentri Users – crossBorder\_tourPurpose\_nonSENTRI.csv

|  |  |
| --- | --- |
| Column Name | Description |
| Purpose | Tour Purpose:  0 = Work  1 = School  2 = Cargo  3 = Shop  4 = Visit  5 = Other |
| Percent | Distribution of Tours by tour purpose for non-sentri users |

Table 5.36: Cross Border Model Tour Purpose Distribution for Sentri Users – crossBorder\_tourPurpose\_SENTRI.csv

|  |  |
| --- | --- |
| Column Name | Description |
| Purpose | Tour Purpose:  0 = Work  1 = School  2 = Cargo  3 = Shop  4 = Visit  5 = Other |
| Percent | Distribution of Tours by tour purpose for sentri users |

Table 5.37: Cross Border Model Tour Entry and Return Distribution – crossBorder\_tourEntryAndReturn.csv

|  |  |
| --- | --- |
| Column Name | Description |
| Purpose | Tour Purpose:  0 = Work  1 = School  2 = Cargo  3 = Shop  4 = Visit  5 = Other |
| EntryPeriod | Entry Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| ReturnPeriod | Return Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| Percent | Distribution of tours in entry and return period time slots |

Table 5.38: Cross Border Model Supercolonia – crossBorder\_supercolonia.csv

|  |  |
| --- | --- |
| Column Name | Description |
| Supercolonia\_ID | Super colonia ID |
| Population | Population of the super colonia |
| Distance\_poe0 | Distance from colonia to point of entry 0 (San Ysidro) |
| Distance\_poe1 | Distance from colonia to point of entry 1 (Otay Mesa) |
| Distance\_poe2 | Distance from colonia to point of entry 2 (Tecate) |

Table 5.39: Cross Border Model Point of Entry Wait Time – crossBorder\_pointOfEntryWaitTime.csv

|  |  |
| --- | --- |
| Column Name | Description |
| poe | Point of Entry number (0, 1, or 2) |
| StartHour | Start Hour (1 through 12) |
| EndHour | End Hour (1 through 12) |
| StartPeriod | Start Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| EndPeriod | End Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| StandardWait | Standard wait time |
| SENTRIWait | SENTRI users wait time |
| PedestrianWait | Pedestrian wait time |

Table 5.40: Cross Border Model Stop Frequency – crossBorder\_stopFrequency.csv

|  |  |
| --- | --- |
| Column Name | Description |
| Purpose | Tour Purpose:  0 = Work  1 = School  2 = Cargo  3 = Shop  4 = Visit  5 = Other |
| DurationLo | Lower bound of tour duration |
| DurationHi | Upper bound of tour duration |
| Outbound | Number of stops on the outbound (0, 1, 2, 3+) |
| Inbound | Number of stops on the inbound (0, 1, 2, 3+) |
| Percent | Distribution of tours by purpose, duration, number of outbound/inbound stops |

Table 5.41: Cross Border Model Stop Purpose Distribution – crossBorder\_stopPurpose.csv

|  |  |
| --- | --- |
| Column Name | Description |
| TourPurp | Tour Purpose:  0 = Work  1 = School  2 = Cargo  3 = Shop  4 = Visit  5 = Other |
| Inbound | Boolean for whether stop is inbound (0=No, 1=Yes) |
| StopNum | Stop number on tour |
| Multiple | Boolean for whether there are multiple stops on tour (0=No, 1=Yes) |
| StopPurp0 | Distribution of Work stops |
| StopPurp1 | Distribution of School stops |
| StopPurp2 | Distribution of Cargo stops |
| StopPurp3 | Distribution of Shopping stops |
| StopPurp4 | Distribution of Visiting stops |
| StopPurp5 | Distribution of Other stops |

Table 5.42: Cross Border Model Outbound Stop Duration Distribution – crossBorder\_outboundStopDuration.csv

|  |  |
| --- | --- |
| Column Name | Description |
| RemainingLow | Lower bound of remaining half hour periods after last scheduled trip:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| RemainingHigh | Upper bound of remaining half hour periods after last scheduled trip:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| Stop | Stop number on tour |
| 0 | Probability that stop departure is in same period as last outbound trip |
| 1 | Probability that stop departure is in last outbound trip period + 1 |
| 2 | Probability that stop departure is in last outbound trip period + 2 |
| 3 | Probability that stop departure is in last outbound trip period + 3 |
| 4 | Probability that stop departure is in last outbound trip period + 4 |
| 5 | Probability that stop departure is in last outbound trip period + 5 |
| 6 | Probability that stop departure is in last outbound trip period + 6 |
| 7 | Probability that stop departure is in last outbound trip period + 7 |
| 8 | Probability that stop departure is in last outbound trip period + 8 |
| 9 | Probability that stop departure is in last outbound trip period + 9 |
| 10 | Probability that stop departure is in last outbound trip period + 10 |
| 11 | Probability that stop departure is in last outbound trip period + 11 |

Table 5.43: Cross Border Model Inbound Stop Duration Distribution – crossBorder\_inboundStopDuration.csv

|  |  |
| --- | --- |
| Column Name | Description |
| RemainingLow | Lower bound of remaining half hour periods after last scheduled trip:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| RemainingHigh | Upper bound of remaining half hour periods after last scheduled trip:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| Stop | Stop number on tour |
| 0 | Probability that stop departure period is same as tour arrival period |
| -1 | Probability that stop departure period is tour arrival period - 1 |
| -2 | Probability that stop departure period is tour arrival period – 2 |
| -3 | Probability that stop departure period is tour arrival period – 3 |
| -4 | Probability that stop departure period is tour arrival period – 4 |
| -5 | Probability that stop departure period is tour arrival period – 5 |
| -6 | Probability that stop departure period is tour arrival period – 6 |
| -7 | Probability that stop departure period is tour arrival period - 7 |

Table 5.44: External Trip Table – externalExternalTrips.csv

|  |  |
| --- | --- |
| Column Name | Description |
| originTAZ | External origin TAZ |
| destinationTAZ | External destination TAZ |
| Trips | Number of trips between external TAZs |

Table 5.45: External Internal Control Totals – externalInternalControlTotals.csv

|  |  |
| --- | --- |
| Column Name | Description |
| Taz | External TAZ station |
| Work | Number of work vehicle trips |
| Nonwork | Number of non-work vehicle trips |

Table 5.46: Internal External Tours Time of Day Distribution – internalExternal\_tourTOD.csv

|  |  |
| --- | --- |
| Column Name | Description |
| Purpose | Tour Purpose:  0 = All Purposes |
| EntryPeriod | Entry Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| ReturnPeriod | Return Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| Percent | Distribution of tours by entry and return periods |

Table 5.47: Special Event Information Data – specialEvent\_eventData.csv

|  |  |
| --- | --- |
| Column Name | Description |
| EventNumber | Sequential number of Event |
| MGRA | MGRA event held in |
| Attendance | Attendance of event |
| EventType | Type of event (Sporting, concert, etc.) |
| StartPeriod | Start time period of event (one day = 48 time periods) |
| EndPeriod | End time period of event (one day = 48 time periods) |
| ParkingCost | Parking cost at event (in cents) |
| ParkingTime | Time to part at event (in hours) |

Table 5.48: Special Event Party Size Distribution– specialEvent\_partySize.csv

|  |  |
| --- | --- |
| Column Name | Description |
| Party size | Party size (1 through 8) |
| Sporting | Distribution of party size for sporting events |
| Other | Distribution of Party size for all other events |

Table 5.49: Special events model income distribution – specialEvent\_income.csv

|  |  |
| --- | --- |
| Column Name | Description |
| Income | Household Income category:  1: <$30k  2: $30-60k  3: $60-100k  4: $100-150k  5: $150k+ |
| Sporting | Distribution of income for sporting events |
| Other | Distribution of income for all other events |

Table 5.50: Visitor Business Frequency Distribution – visitor\_businessFrequency.csv

|  |  |
| --- | --- |
| Column Name | Description |
| WorkTours | Number of work tours (0, 1, 2+) |
| RecreationTours | Number of recreation tours (0, 1, 2+) |
| DiningTours | Number of dining tours (0, 1+) |
| TotalTours | Total number of tours |
| Percent | Distribution of tours by purpose frequency |

Table 5.51: Visitor Personal Frequency Distribution – visitor\_personalFrequency.csv

|  |  |
| --- | --- |
| Column Name | Description |
| WorkTours | Number of work tours (0, 1+) |
| RecreationTours | Number of recreation tours (0, 1, 2+) |
| DiningTours | Number of dining tours (0, 1, 2+) |
| TotalTours | Total number of tours |
| Percent | Distribution of tours by purpose frequency |

Table 5.52: Visitor Party Size Distribution – visitor\_partySize.csv

|  |  |
| --- | --- |
| Column Name | Description |
| Party Size | Party Size (1 through 10+) |
| work | Distribution of visitor work tours by party size |
| recreate | Distribution of visitor recreation tours by party size |
| dining | Distribution of visitor dining tours by party size |

Table 5.53: Visitor Auto Availability – visitor\_autoAvailable.csv

|  |  |
| --- | --- |
| Column Name | Description |
| autoAvailable | Is auto available for visitor tour? |
| Work | Percentage of visitor work tours where auto is available |
| recreate | Percentage of visitor recreation tours where auto is available |
| dining | Percentage of visitor dining out tours where auto is available |

Table 5.54: Visitor Income Distribution – visitor\_income.csv

|  |  |
| --- | --- |
| Column Name | Description |
| Income | Visitor income:  0 = < $30K  1 = $30K-$60K  2 = $60K-100K  3 = $100K-$150K  4 = $150K+ |
| Work | Distribution of visitor work tours by income |
| recreate | Distribution of visitor recreation tours by income |
| dining | Distribution of visitor dining tours by income |

Table 5.55: Visitor Tour Time of Day Distribution – visitor\_tourTOD.csv

|  |  |
| --- | --- |
| Column Name | Description |
| Purpose | Visitor tour purpose:  0 = Work  1 = Recreation  2 = Dining Out |
| EntryPeriod | Entry Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| ReturnPeriod | Return Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| Percent | Distribution of visitor tours by time of day |

Table 5.56: Visitor Stop Frequency Distribution – visitor\_stopFrequency.csv

|  |  |
| --- | --- |
| Column Name | Description |
| Purpose | Visitor tour purpose:  0 = Work  1 = Recreation  2 = Dining Out |
| DurationLo | Lower bound of tour duration |
| DurationHi | Upper bound of tour duration |
| Outbound | Number of stops on the outbound (0, 1+) |
| Inbound | Number of stops on the inbound (0, 1, 2, 3+) |
| Percent | Distribution of tours by purpose, duration, number of outbound/inbound stops |

Table 5.57: Visitor Stop Purpose Distribution – visitor\_stopPurpose.csv

|  |  |
| --- | --- |
| Column Name | Description |
| Purpose | Visitor tour purpose:  0 = Work  1 = Recreation  2 = Dining Out |
| Inbound | Boolean for whether stop is inbound (0=No, 1=Yes) |
| StopNum | Stop number on tour |
| Multiple | Boolean for whether there are multiple stops on tour (0=No, 1=Yes) |
| StopPurp0 | Distribution of Work stops |
| StopPurp1 | Distribution of School stops |
| StopPurp2 | Distribution of Cargo stops |

Table 5.58: Visitor Outbound Stop Duration Distribution – visitor\_outboundStopDuration.csv

|  |  |
| --- | --- |
| Column Name | Description |
| RemainingLow | Lower bound of remaining half hour periods after last scheduled trip:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| RemainingHigh | Upper bound of remaining half hour periods after last scheduled trip:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| Stop | Stop number on tour |
| 0 | Probability that stop departure is in same period as last outbound trip |
| 1 | Probability that stop departure is in last outbound trip period + 1 |
| 2 | Probability that stop departure is in last outbound trip period + 2 |
| 3 | Probability that stop departure is in last outbound trip period + 3 |
| 4 | Probability that stop departure is in last outbound trip period + 4 |
| 5 | Probability that stop departure is in last outbound trip period + 5 |
| 6 | Probability that stop departure is in last outbound trip period + 6 |
| 7 | Probability that stop departure is in last outbound trip period + 7 |
| 8 | Probability that stop departure is in last outbound trip period + 8 |
| 9 | Probability that stop departure is in last outbound trip period + 9 |
| 10 | Probability that stop departure is in last outbound trip period + 10 |
| 11 | Probability that stop departure is in last outbound trip period + 11 |

Table 5.59: Visitor Inbound Stop Duration Distribution – visitor\_inboundStopDuration.csv

|  |  |
| --- | --- |
| Column Name | Description |
| RemainingLow | Lower bound of remaining half hour periods after last scheduled trip:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| RemainingHigh | Upper bound of remaining half hour periods after last scheduled trip:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| Stop | Stop number on tour |
| 0 | Probability that stop departure period is same as tour arrival period |
| -1 | Probability that stop departure period is tour arrival period - 1 |
| -2 | Probability that stop departure period is tour arrival period – 2 |
| -3 | Probability that stop departure period is tour arrival period – 3 |
| -4 | Probability that stop departure period is tour arrival period – 4 |
| -5 | Probability that stop departure period is tour arrival period – 5 |
| -6 | Probability that stop departure period is tour arrival period – 6 |
| -7 | Probability that stop departure period is tour arrival period - 7 |
| -8 | Probability that stop departure period is tour arrival period - 8 |
| -9 | Probability that stop departure period is tour arrival period - 9 |

Table 5.60: Truck Trip Rate Table– TruckTripRates.csv

|  |  |
| --- | --- |
| Column Name | Description |
| RegionType | Region (1 through 8) |
| <<PA>>\_<<Truck Type>>\_Households | Truck Productions/Attractions (P/A) for Truck type (L, M, or H) for Households |
| <<PA>>\_<<Truck Type>>\_Ag/Min/Constr | Truck Productions/Attractions (P/A) for Truck type (L, M, or H) for Agriculture, Mining, and Construction |
| <<PA>>\_<<Truck Type>>\_Retail | Truck Productions/Attractions (P/A) for Truck type (L, M, or H) for Retail |
| <<PA>>\_<<Truck Type>>\_Government | Truck Productions/Attractions (P/A) for Truck type (L, M, or H) for Government |
| <<PA>>\_<<Truck Type>>\_Manufacturing | Truck Productions/Attractions (P/A) for Truck type (L, M, or H) for Manufacturing |
| <<PA>>\_<<Truck Type>>\_Transp/Utilities | Truck Productions/Attractions (P/A) for Truck type (L, M, or H) for Transportation Utilities |
| <<PA>>\_<<Truck Type>>\_Wholesale | Truck Productions/Attractions (P/A) for Truck type (L, M, or H) for Wholesale |
| <<PA>>\_<<Truck Type>>\_Other | Truck Productions/Attractions (P/A) for Truck type (L, M, or H) for Other |

Note: <<PA>> TG = Truck Productions, TA = Truck Attractions; <<Truck Type>> L = Light Heavy Duty,   
M =Medium Heavy Duty, H = Heavy Heavy Duty

Table 5.61: Truck Model Regional External to Internal Trips by Year– regionalEItrips<year>.csv

|  |  |
| --- | --- |
| Column Name | Description |
| fromZone | Zone trucks coming from |
| EITrucks | Number of External to Internal Truck Trips |

Note: <year>; designates the year for data file

Table 5.62: Truck Model Regional Internal to External Trips by Year– regionalIEtrips<year>.csv

|  |  |
| --- | --- |
| Column Name | Description |
| toZone | Zone trucks going to |
| IETrucks | Number of Internal to External Truck Trips |

Note: <year>; designates the year for data file

Table 5.63: Truck Model Regional External to External Trips by Year– regionalEEtrips<year>.csv

|  |  |
| --- | --- |
| Column Name | Description |
| fromZone | Zone trucks coming from |
| toZone | Zone trucks going to |
| EETrucks | Number of External to External Truck Trips |

Note: <year>; designates the year for data file

Table 5.64: Special Generator data– specialGenerators.csv

|  |  |
| --- | --- |
| Column Name | Description |
| TAZ | Zone |
| Type | Type of special generator (Military employees, Daily air mail tons, daily cruise ships) |
| Y<<year>> | Number of trips for <<year>>, year is between 2000 and 2050  Year - columns correspond to the type |
| trkProduction | Rate |
| trkAttraction | Rate |
| lhdShare | Light heavy duty share truck trips |
| mhdShare | Medium heavy duty share truck trips |
| hhdShare | Heavy heavy duty share truck trips |

Table 5.65: Temporary Static Transponder Model Input – temporaryStaticInput.csv

|  |  |
| --- | --- |
| Column Name | Description |
| TAZ | TAZ ID |
| AVGTTS | Average travel time saving in minutes |
| DIST | Distance to facility in miles |
| PCTDETOUR |  |

Table 5.66:– Mapping table between LUZ and TAZ- LuztoTAZseries13.xls

|  |  |
| --- | --- |
| Column Name | Description |
| luz\_id | Land Use Zone ID |
| taz | Traffic Analysis Zone (TAZ), which is the representative TAZ of the LUZ where it is located for purpose to create the LUZ skim using the TAZ skim |

# Appendix 2: Output Files Data Dictionary

The table below contains brief descriptions of the output files produced by the SANDAG travel model. See Appendix –

## Table 8.1: Transcad output highway network – Hwy.dbd

|  |  |
| --- | --- |
| Column Name | Description |
| ABSCST | Drive-alone non-toll cost for link A-->B direction |
| ABH2CST | Shared 2 Cost for link A-->B direction |
| ABH3CST | Shared 3 Cost for link A-->B direction |
| ABSTM | AB SOV Time for link A-->B direction |
| ABHTM | AB HOV Time for link A-->B direction |
| ABPRELOAD\_XX | Preload Volumes for link A-->B direction |
| ABCP\_XX | Capacity for midlink A-->B direction, for time period XX |
| ABCX\_XX | Capacity for intersection A-->B Approach, for time period XX |
| ABLN\_XX | Number of lanes for link A-->B direction, for time period XX |
| ABTM\_XX | Free flow time in minutes for link A-->B direction, for time period XX |
| ABTX\_XX | Free flow intersection delay time in minutes, for time period XX |
| ITOLL2\_XX | link toll cost in cents |
| ITOLL3\_XX | link toll cost plus auto operating cost |
| ITOLL4\_XX | link toll cost plus 1.03\*auto operating cost applies to lhd and mhd trucks only |
| ITOLL5\_XX | link toll cost plus 2.33\*auto operating cost applies to hhd trucks only |
| ITOLL\_XX | toll + 10000\*[0 or 1] if toll facility (ihov = 4) |
| AB\_GCRatio\_XX | the ratio of green time to cycle length |
| AB\_Cycle\_XX | Cycle length (in minutes) for the intersection from approached from A to B |
| AB\_PF\_XX | parameter P used in Tucson Formula to calculate the intersection delay |
| ALPHA1\_XX | parameter α1 used in Tucson Formula to calculate the midlink delay |
| BETA1\_XX | parameter β1 used in Tucson Formula to calculate the midlink delay |
| ALPHA2\_XX | parameter α2 used in Tucson Formula to calculate the intersection delay |
| BETA2\_XX | parameter β2 used in Tucson Formula to calculate the intersection delay |
| relifac | RELIABILITY OF FACILITY (TOLL) field: if hwy and toll lanes then 0.65 else 1 |

*Notes: Most of fields in hwy.dbd are same with the fields in the Hwy.e00 files, so only those new added fields are listed in this table.*

*XX=time period, including EA, AM, MD, PM, EV*

## Table 8.2: Transit.dbd - Transcad output transit network – nes added fields

|  |  |
| --- | --- |
| Column Name | Description |
| SPHERE | Jurisdiction sphere of influence, where  100 = Carlsbad,  200 = Chula Vista,  300 = Coronado,  400 = Del Mar,  500 = El Cajon,  600 = Encinitas,  700 = Escondido,  800 = Imperial Beach,  900 = La Mesa,  1000 = Lemon Grove,  1100 = National City,  1200 = Oceanside,  1300 = Poway,  1400-1499 = City of San Diego Planning Areas,  1500 = San Marcos,  1600 = Santee,  1700 = Solona Beach,  1800 = Vista,  1900-1999 = County of San Diego Planning Areas. |
| ABPRELOAD\_XX | Preloaded buses volume for time period XX |
| ABPRETIME\_XX | New attributes added when building the network, no value assigned |
| ABLOCTIME\_XX | New attributes added when building the network, no value assigned |

*Notes: Most of fields in transit.dbd are same with the fields in the transit.e00 files, so only those new added fields are listed in this table.*

*XX=time period, including EA, AM, MD, PM, EV*

## Table 8.3: Impedance Drive Alone Non-Toll Skim by time period (EA = early AM, AM = AM peak, MD = Midday, PM = PM peak, EV = Evening) – impdan\_<time period>.mtx

|  |  |
| --- | --- |
| Table Name | Description |
| \*SCTM\_<time period> | SOV generalized cost time |
| Length (Skim) | Distance |
| \*STM\_<time period> (Skim) | SOV time |

## Table 8.4: Impedance Drive Alone Toll Skim by time period (EA = early AM, AM = AM peak, MD = Midday, PM = PM peak, EV = Evening) – impdat\_<time period>.mtx

|  |  |
| --- | --- |
| Table Name | Description |
| \*SCTM\_<time period> | SOV generalized cost time |
| Length (Skim) | Distance |
| \*STM\_<time period> (Skim) | SOV time |
| dat\_<time period>\_itoll\_<time period> | SOV toll time |
| datdst\_<time period>\_length | SOV toll distance |

## Table 8.5: Impedance Shared Ride 2-Person Non-Toll Skim by time period (EA = early AM, AM = AM peak, MD = Midday, PM = PM peak, EV = Evening) – imps2nh\_<time period>.mtx

|  |  |
| --- | --- |
| Table Name | Description |
| \*H2CST\_<time period> | HOV 2 generalized cost time |
| Length (Skim) | Distance |
| \*HTM\_<time period> (Skim) | HOV 2 time |

## Table 8.6: Impedance Shared Ride 2-Person Toll Skim by time period (EA = early AM, AM = AM peak, MD = Midday, PM = PM peak, EV = Evening) – imps2th\_<time period>.mtx

|  |  |
| --- | --- |
| Table Name | Description |
| \*H2CST\_<time period> | HOV2 generalized cost time |
| Length (Skim) | Distance |
| \*HTM\_<time period> (Skim) | HOV 2 time |
| s2t\_<time period>\_itoll\_<time period> | HOV 2 toll time |
| s2tdst\_<time period>\_length | HOV 2 toll distance |

## Table 8.7: Impedance Shared Ride 3+-Person Non-Toll Skim by time period (EA = early AM, AM = AM peak, MD = Midday, PM = PM peak, EV = Evening) – imps3nh\_<time period>.mtx

|  |  |
| --- | --- |
| Table Name | Description |
| \*H3CST\_<time period> | HOV 3 generalized cost time |
| Length (Skim) | Distance |
| \*HTM\_<time period> (Skim) | HOV 3 time |

## Table 8.8: Impedance Shared Ride 3-Person Toll Skim by time period (EA = early AM, AM = AM peak, MD = Midday, PM = PM peak, EV = Evening) – imps3th\_<time period>.mtx

|  |  |
| --- | --- |
| Table Name | Description |
| \*H3CST\_<time period> | HOV3 generalized cost time |
| Length (Skim) | Distance |
| \*HTM\_<time period> (Skim) | HOV 3 time |
| s3t\_<time period>\_itoll\_<time period> | HOV 3 toll time |
| s3tdst\_<time period>\_length | HOV 3 toll distance |

## Table 8.9: Impedance Local Bus Transit Skim by time period (EA = early AM, AM = AM peak, MD = Midday, PM = PM peak, EV = Evening) – implocl\_<time period>.mtx

|  |  |
| --- | --- |
| Table Name | Description |
| Fare | Fare in cents ($2006) |
| In-vehicle time | In-vehicle time in minutes |
| Initial Wait time | Wait time at first boarding in minutes |
| Transfer wait time | Transfer wait time in minutes |
| Transfer Walk time | Transfer walk time in minutes (platform time) |
| Access walk time | Access walk time in minutes |
| Egress walk time | Egress walk time in minutes |
| Dwelling time | Dwelling time in minutes (added to in-vehicle time in output matrices) |
| Number of Transfers | Number of transfers |

## Table 8.10: Impedance Local Bus Transit Skim (Condensed) by time period (EA = early AM, AM = AM peak, MD = Midday, PM = PM peak, EV = Evening) – implocl\_<time period>o.mtx

|  |  |
| --- | --- |
| Table Name | Description |
| Fare | Fare |
| Total IV Time(2) | In-vehicle time + dwelling time |
| Initial Wait Time(3) | Initial wait time |
| Transfer Wait Time(4) | Transfer wait time |
| Walk Time(5) | Transfer walk time + Access Walk time + Egress Walk time |
| Number of Transfers(6) | Number of Transfers |

## Table 8.11: Impedance Premium Bus Transit Skim by time period (EA = early AM, AM = AM peak, MD = Midday, PM = PM peak, EV = Evening) – impprem\_<time period>.mtx

|  |  |
| --- | --- |
| Table Name | Description |
| Fare | Transit fare |
| Initial Wait Time | Initial wait time |
| Transfer wait time | Transfer wait time |
| Transfer Walk time | Transfer walk time |
| Access walk time | Access walk time |
| Egress walk time | Egress walk time |
| Dwelling time | Dwelling time |
| Number of Transfers | Number of transfers |
| Length (Commuter Rail) | Distance on commuter rail |
| Length (Light Rail) | Distance on light rail |
| Length (Regional BRT (Yellow)) | Distance on regional BRT (yellow line) |
| Length (Regional BRT (Red)) | Distance on regional BRT (red line) |
| Length (Limited Express) | Distance on limited express |
| Length (Express) | Distance on regular express |
| Length (Local) | Distance on local |
| \*TM (Commuter Rail) | In-vehicle time on commuter rail |
| \*TM (Light Rail) | In-vehicle time on light rail |
| \*TM (Regional BRT (Yellow)) | In-vehicle time on regional BRT (yellow line) |
| \*TM (Regional BRT (Red)) | In-vehicle time on regional BRT (red line) |
| \*TM (Limited Express) | In-vehicle time on limited express |
| \*TM (Express) | In-vehicle time on regular express |
| \*TM (Local) | In-vehicle time on local |

## Table 8.12: Impedance Premium Bus Transit Skim (Condensed) by time period (EA = early AM, AM = AM peak, MD = Midday, PM = PM peak, EV = Evening) – impprem\_<time period>o.mtx

|  |  |
| --- | --- |
| Table Name | Description |
| Fare | Transit fare |
| Initial Wait Time | Initial wait time |
| Transfer wait time | Transfer wait time |
| Walk time | Transfer Walk Time + Access Walk Time + Egress Walk Time |
| Number of Transfers | Number of transfers |
| Length: CR | Distance on commuter rail |
| Length: LR | Distance on light rail |
| Length: BRT | Distance on BRT (yellow and red line) |
| Length: Express | Distance on express (regular express, and limited express) |
| Length: Local | Distance on local |
| IVT: CR | In-vehicle time on commuter rail |
| IVT: LR | In-vehicle time on light rail |
| IVT: BRT | In-vehicle time on regional BRT (yellow and red line) |
| IVT: Express | In-vehicle time on express (regular express, and limited express) |
| IVT: Local | In-vehicle time on local |
| IVT: SUM | Total in-vehicle time all line haul modes |
| IVT: main mode | Main mode for transit skims |

## Table 8.13: Commercial Vehicle Skims by VehicleClass for Non-toll by Time Period – imp\*hdn-XX\*hdn = lhdn,mhdn,hhdn,and time period XX = EA, AM, MD, PM, EV

|  |  |
| --- | --- |
| Table Name | Description |
| \*SCST\_XX | Free flow time for time period XX |
| Length (skim) | Distance |
| \*STM\_XX | Congested time for time period XX |

## Table 8.14: Commercial Vehicle Skims by Classes for Toll, by Time Period – imp\*hdt\_XX.mtx, where \*hdt = lhdt,mhdt,hhdt, and XX=EA,AM,MD,PM,EV

|  |  |
| --- | --- |
| Table Name | Description |
| \*SCST\_XX | Free flow time for time period XX |
| Length (skim) | Distance |
| \*STM\_XX | Congested time for time period XX |
| \*hdt – ITOLL2\_XX | Toll time for time period XX |

## Table 8.15: Truck Skims by Time Period – imptrk\_XX.mtx, where XX=EA,AM,MD,PM,EV

|  |  |
| --- | --- |
| Table Name | Description |
| \*SCST\_<<time period>> | Free flow time |
| Length (skim) | Distance |
| \*STM\_<<time period>> | Congested time |
| Trk Toll\_XX – itoll\_XX | Toll time for time period XX |

## Table 8.16: Autoownership Output – aoresults\_pre.csv and aoresults.csv

|  |  |
| --- | --- |
| Column Name | Description |
| HHID | Unique Household ID |
| AO | Auto ownership category  0 = 0 autos  1 = 1 auto  2 = 2 autos  3 = 3 autos  4 = 4+ autos |

## Table 8.17: Work and School Location Output – wslocresults\_<<iteration>>.csv

|  |  |
| --- | --- |
| Column Name | Description |
| HHID | Unique Household ID |
| homeMGRA | Home MGRA zone |
| income | Household income |
| perid | Unique person ID |
| personNum | Person number in household |
| personType | Person type:  1 = Full-time worker  2 = Part-time worker  3 = University student  4 = Non-working adult  5 = Non-working senior  6 = Driving age student  7 = Pre-driving student  8 = Pre-school |
| personAge | Age of person |
| employmentCategory | Employment category:  1 = Working Full Time worker  2 = Working Part Time workers, university student workers, and driving age student workers  3 = Non-working university students, non-workers, and driving age student workers  4 = Non-working pre-driving and preschool students |
| studentCategory | Student category:  1 = Preschool and K-12  2 = University/College  3 = Workers/Non-workers/Preschool |
| workSegment | Work segment = work district:  -1 through 5, and  99999 = non-workers |
| schoolSegment | School Segment = school district:  -1 through 56, 88888 = non-school students |
| workLocation | Work location MGRA |
| workLocationDistance | Distance from home to work location |
| workLocationLogsum | Work location logsum |
| schoolLocation | School Location MGRA |
| schoolLocationDistance | Distance from home to school location |
| schoolLocationLogsum | School location logsum |

## Table 8.18: Household Data Output – householddata\_<<iteration>>.csv

|  |  |
| --- | --- |
| Column Name | Description |
| hhid | Unique Household ID |
| home\_mgra | Home MGRA zone |
| income | Household income |
| autos | Household Auto ownership:  0 = 0 autos  1 = 1 auto  2 = 2 autos  3 = 3 autos  4 = 4+ auto |
| transponder | Boolean for owning a transponder:  0=No  1=Yes |
| cdap\_pattern | Coordinated daily activity pattern. See model specification document for the different patterns |
| jtf\_choice | Joint Tour frequency choice (150 choices with 5 purposes on first tour, 5 purposes on 2nd tour (with possible no 2nd tours for some people), 3 party types (adult only, children only, adult/children combined) on first tour, and 3 party types on second tour |

## Table 8.19: Person Data Output – personData\_<<iteration>>.csv

|  |  |
| --- | --- |
| Column Name | Description |
| hhid | Unique Household ID |
| perid | Unique Person ID |
| person\_num | Person number in household |
| age | Age of person |
| gender | Gender of person: f = female, m = male |
| type | Person type:  Child too young for school  Full-time worker  Non-worker  Part-time worker  Retired  Student of driving age  Student of non-driving age  University student |
| value\_of\_time | Value of time: set to 0 for now |
| activity\_pattern | Activity pattern:  H = Home  M = Mandatory  N = Non-mandatory |
| imf\_choice | Individual mandatory tour frequency choice:  0 = No mandatory tours  1 = 1 work tour  2 = 2+ work tours  3 = 1 school tour  4 = 2+ school tours  5 = 1 work, 1 school tour |
| inmf\_choice | Individual non-mandatory tour frequency choice:  0 = NO non-mandatory tours  1 through 197 = number of non-mandatory tours by different non-mandatory tour frequency combinations: see individualnonmandatorytourfrequencyalternatives.csv in the UEC folder |
| fp\_choice | Free Parking choice:  -1 = no parking  1 = Free parking  2 = Paid parking  3 = Reimbursed parking |
| reimb\_pct | Percentage of parking reimbursed |

## Table 8.20: Individual Tour Data Output – indivtourdata\_<<iteration>>.csv

| Column Name | Description |
| --- | --- |
| hhid | Unique Household ID |
| perid | Unique Person ID |
| person\_num | Person number in household |
| person\_type | Person type:  1 = full time worker  2 = part time worker  3 = university student  4 = non-working adult  5 = retiree  6 = driving age school children  7 = pre-driving age school children  8 = pre-school children |
| tour\_id | Tour ID for household and person |
| tour\_category | Tour category:  AT\_WORK  INDIVIDUAL\_NON\_MANDATORY  INDIVIDUAL\_MANDATORY |
| tour\_purpose | Tour purpose: Discretionary  Eating Out  Escort  Maintenance  School  Shop  University  Visiting  Work  Work-Based |
| orig\_mgra | Original MGRA of tour |
| dest\_mgra | Destination MGRA of tour |
| start\_period | Start Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| end\_period | End Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| tour\_mode | Tour Mode:  1 = Drive Alone Free  2 = Drive Alone Pay  3 = Shared Ride 2 General Purpose  4 = Shared Ride 2 HOV  5 = Shared Ride 2 Pay  6 = Shared Ride 3 General Purpose  7 = Shared Ride 3 HOV  8 = Shared Ride 3 Pay  9 = Walk  10 = Bike  11 = Walk to Local  12 = Walk to Express  13 = Walk to BRT  14 = Walk to Light Rail  15 = Walk to Commuter Rail  16 = Park Ride Local  17 = Park Ride Express  18 = Park Ride BRT  19 = Park Ride Light Rail  20 = Park Ride Commuter Rail  21 = Kiss Ride Local  22 = Kiss Ride Express  23 = Kiss Ride BRT  24 = Kiss Ride Light Rail  25 = Kiss Ride Commuter Rail  26 = School Bus |
| tour\_distance | Tour distance |
| atwork\_freq | At-work sub tour frequency:  0 = Not on a work tour  1 = On a work tour with no sub tours  2 = On a work tour with one eat out sub-tour  3 = On a work tour with one business sub tour  4 = On a work tour with one other sub tour  5 = On a work tour with two business sub tours  6 = On a work tour with two other sub tours  7 = On a work tour with a combination of business/eat-out/other sub tours |
| num\_ob\_stops | Number of outbound stops (0, 1, 2, 3+) |
| num\_ib\_stops | Number of inbound stops (0, 1, 2, 3+) |
| util\_1 through util\_26 | Utility for each tour mode (see tour mode for codes) |

## Table 8.21: Joint Tour Data Output – jointTourData\_<<iteration>>.csv

| Column Name | Description |
| --- | --- |
| hhid | Unique Household ID |
| tour\_id | Tour ID for household and person |
| tour\_category | Tour category:  AT\_WORK  INDIVIDUAL\_NON\_MANDATORY  INDIVIDUAL\_MANDATORY |
| tour\_purpose | Tour purpose: Discretionary  Eating Out  Escort  Maintenance  School  Shop  University  Visiting  Work  Work-Based |
| tour\_composition | Tour composition:  1 = Adults only  2 = Children only  3 = Adults and children |
| tour\_participants | Listing of person numbers participating on the joint tour |
| orig\_mgra | Original MGRA of tour |
| dest\_mgra | Destination MGRA of tour |
| start\_period | Start Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| end\_period | End Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| tour\_mode | Tour Mode:  1 = Drive Alone Free  2 = Drive Alone Pay  3 = Shared Ride 2 General Purpose  4 = Shared Ride 2 HOV  5 = Shared Ride 2 Pay  6 = Shared Ride 3 General Purpose  7 = Shared Ride 3 HOV  8 = Shared Ride 3 Pay  9 = Walk  10 = Bike  11 = Walk to Local  12 = Walk to Express  13 = Walk to BRT  14 = Walk to Light Rail  15 = Walk to Commuter Rail  16 = Park Ride Local  17 = Park Ride Express  18 = Park Ride BRT  19 = Park Ride Light Rail  20 = Park Ride Commuter Rail  21 = Kiss Ride Local  22 = Kiss Ride Express  23 = Kiss Ride BRT  24 = Kiss Ride Light Rail  25 = Kiss Ride Commuter Rail  26 = School Bus |
| tour\_distance | Tour distance |
| num\_ob\_stops | Number of outbound stops (0, 1, 2, 3+) |
| num\_ib\_stops | Number of inbound stops (0, 1, 2, 3+) |
| util\_1 through util\_26 | Utility for each tour mode (see tour mode for codes) |
| prob\_1 through prob\_26 | Probability for each tour mode (see tour mode for codes) |

## Table 8.22: Individual Trip Data Output – indivTripData\_<<iteration>>.csv

| Column Name | Description |
| --- | --- |
| hhid | Unique Household ID |
| Person\_id | Unique Person ID |
| person\_num | Person number in household |
| tour\_id | Tour ID for household and person |
| stop\_id | Stop ID on tour |
| inbound | Boolean for whether stop is inbound:  0 = No  1 = Yes |
| tour\_purpose | Tour purpose: Discretionary  Eating Out  Escort  Maintenance  School  Shop  University  Visiting  Work  Work-Based |
| orig\_purpose | Origin Trip Purpose: Discretionary  Eating Out  Escort  Home  Maintenance  School  Shop  University  Visiting  Work  Work-Based  Work related |
| dest\_purpose | Destination Trip Purpose: Discretionary  Eating Out  Escort  Home  Maintenance  School  Shop  University  Visiting  Work  Work-Based  Work related |
| orig\_mgra | Original MGRA of trip |
| dest\_mgra | Destination MGRA of trip |
| parking\_mgra | Parking MGRA of trip |
| stop\_period | Stop Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| trip\_mode | Tour Mode:  1 = Drive Alone Free  2 = Drive Alone Pay  3 = Shared Ride 2 General Purpose  4 = Shared Ride 2 HOV  5 = Shared Ride 2 Pay  6 = Shared Ride 3 General Purpose  7 = Shared Ride 3 HOV  8 = Shared Ride 3 Pay  9 = Walk  10 = Bike  11 = Walk to Local  12 = Walk to Express  13 = Walk to BRT  14 = Walk to Light Rail  15 = Walk to Commuter Rail  16 = Park Ride Local  17 = Park Ride Express  18 = Park Ride BRT  19 = Park Ride Light Rail  20 = Park Ride Commuter Rail  21 = Kiss Ride Local  22 = Kiss Ride Express  23 = Kiss Ride BRT  24 = Kiss Ride Light Rail  25 = Kiss Ride Commuter Rail  26 = School Bus |
| trip\_board\_tap | Trip boarding Transit Access Point |
| trip\_alight\_tap | Trip alighting Transit Access Point |
| tour\_mode | Tour Mode:  1 = Drive Alone Free  2 = Drive Alone Pay  3 = Shared Ride 2 General Purpose  4 = Shared Ride 2 HOV  5 = Shared Ride 2 Pay  6 = Shared Ride 3 General Purpose  7 = Shared Ride 3 HOV  8 = Shared Ride 3 Pay  9 = Walk  10 = Bike  11 = Walk to Local  12 = Walk to Express  13 = Walk to BRT  14 = Walk to Light Rail  15 = Walk to Commuter Rail  16 = Park Ride Local  17 = Park Ride Express  18 = Park Ride BRT  19 = Park Ride Light Rail  20 = Park Ride Commuter Rail  21 = Kiss Ride Local  22 = Kiss Ride Express  23 = Kiss Ride BRT  24 = Kiss Ride Light Rail  25 = Kiss Ride Commuter Rail  26 = School Bus |

## Table 8.23: Joint Trip Data Output – jointTripData\_<<iteration>>.csv

| Column Name | Description |
| --- | --- |
| hhid | Unique Household ID |
| tour\_id | Tour ID for household and person |
| stop\_id | Stop ID on tour |
| inbound | Boolean for whether stop is inbound:  0 = No  1 = Yes |
| tour\_purpose | Tour purpose: Discretionary  Eating Out  Escort  Maintenance  School  Shop  University  Visiting  Work  Work-Based |
| orig\_purpose | Origin Trip Purpose: Discretionary  Eating Out  Escort  Home  Maintenance  School  Shop  University  Visiting  Work  Work-Based  Work related |
| dest\_purpose | Destination Trip Purpose: Discretionary  Eating Out  Escort  Home  Maintenance  School  Shop  University  Visiting  Work  Work-Based  Work related |
| orig\_mgra | Original MGRA of trip |
| dest\_mgra | Destination MGRA of trip |
| parking\_mgra | Parking MGRA of trip |
| stop\_period | Stop Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| trip\_mode | Tour Mode:  1 = Drive Alone Free  2 = Drive Alone Pay  3 = Shared Ride 2 General Purpose  4 = Shared Ride 2 HOV  5 = Shared Ride 2 Pay  6 = Shared Ride 3 General Purpose  7 = Shared Ride 3 HOV  8 = Shared Ride 3 Pay  9 = Walk  10 = Bike  11 = Walk to Local  12 = Walk to Express  13 = Walk to BRT  14 = Walk to Light Rail  15 = Walk to Commuter Rail  16 = Park Ride Local  17 = Park Ride Express  18 = Park Ride BRT  19 = Park Ride Light Rail  20 = Park Ride Commuter Rail  21 = Kiss Ride Local  22 = Kiss Ride Express  23 = Kiss Ride BRT  24 = Kiss Ride Light Rail  25 = Kiss Ride Commuter Rail  26 = School Bus |
| num\_participants | Number of participants on joint trip |
| trip\_board\_tap | Trip boarding Transit Access Point |
| trip\_alight\_tap | Trip alighting Transit Access Point |
| tour\_mode | Tour Mode:  1 = Drive Alone Free  2 = Drive Alone Pay  3 = Shared Ride 2 General Purpose  4 = Shared Ride 2 HOV  5 = Shared Ride 2 Pay  6 = Shared Ride 3 General Purpose  7 = Shared Ride 3 HOV  8 = Shared Ride 3 Pay  9 = Walk  10 = Bike  11 = Walk to Local  12 = Walk to Express  13 = Walk to BRT  14 = Walk to Light Rail  15 = Walk to Commuter Rail  16 = Park Ride Local  17 = Park Ride Express  18 = Park Ride BRT  19 = Park Ride Light Rail  20 = Park Ride Commuter Rail  21 = Kiss Ride Local  22 = Kiss Ride Express  23 = Kiss Ride BRT  24 = Kiss Ride Light Rail  25 = Kiss Ride Commuter Rail  26 = School Bus |

## Table 8.24: Residential Auto Trips Matrix – autoTrips\_<<time period>>.mtx (Time Period = EA, AM, MD, PM, EV)

|  |  |
| --- | --- |
| Table Name | Description |
| SOV\_GP\_<<time period>> | Drive Alone Free for <<time period>> |
| SOV\_PAY\_<<time period>> | Drive Alone Toll for <<time period>> |
| SR2\_GP\_<<time period>> | Shared Ride 2 Free for <<time period>> |
| SR2\_HOV\_<<time period>> | Shared Ride 2 HOV for <<time period>> |
| SR2\_PAY\_<<time period>> | Shared Ride 2 Toll for <<time period>> |
| SR3\_GP\_<<time period>> | Shared Ride 3 Free for <<time period>> |
| SR3\_HOV\_<<time period>> | Shared Ride 3 HOV for <<time period>> |
| SR3\_PAY\_<<time period>> | Shared Ride 3 Toll for <<time period>> |

## Table 8.25: Residential Transit Trips Matrix – tranTrips\_<<time period>>.mtx (Time Period = EA, AM, MD, PM, EV)

|  |  |
| --- | --- |
| Table Name | Description |
| WLK\_LOC\_<<time period>> | Walk to Local for <<time period>> |
| WLK\_EXP\_<<time period>> | Walk to Express for <<time period>> |
| WLK\_BRT\_<<time period>> | Walk to BRT for <<time period>> |
| WLK\_LRT\_<<time period>> | Walk to Light Rail for <<time period>> |
| WLK\_CMR\_<<time period>> | Walk to Commuter Rail for <<time period>> |
| PNR\_LOC\_<<time period>> | Park Ride to Local for <<time period>> |
| PNR \_EXP\_<<time period>> | Park Ride to Express for <<time period>> |
| PNR \_BRT\_<<time period>> | Park Ride to BRT for <<time period>> |
| PNR \_LRT\_<<time period>> | Park Ride to Light Rail for <<time period>> |
| PNR \_CMR\_<<time period>> | Park Ride to Commuter Rail for <<time period>> |
| KNR\_LOC\_<<time period>> | Kiss Ride to Local for <<time period>> |
| KNR \_EXP\_<<time period>> | Kiss Ride to Express for <<time period>> |
| KNR \_BRT\_<<time period>> | Kiss Ride to BRT for <<time period>> |
| KNR \_LRT\_<<time period>> | Kiss Ride to Light Rail for <<time period>> |
| KNR \_CMR\_<<time period>> | Kiss Ride to Commuter Rail for <<time period>> |

## Table 8.26: Residential Non-motorized Trips Matrix – nmotTrips\_<<time period>>.mtx (Time Period = EA, AM, MD, PM, EV)

|  |  |
| --- | --- |
| Table Name | Description |
| WALK\_<<time period>> | Walk for <<time period>> |
| BIKE\_<<time period>> | Bike for <<time period>> |

## Table 8.27: Residential Other Trips Matrix – othrTrips\_<<time period>>.mtx (Time Period = EA, AM, MD, PM, EV)

|  |  |
| --- | --- |
| Table Name | Description |
| SCHLBUS\_<<time period>> | School Bus for <<time period>> |

## Table 8.28: Airport Data Output – airport\_out\_.csv

| Column Name | Description |
| --- | --- |
| id | Unique ID of airport trip |
| direction | Direction of trip:  0 if origin is Airport MGRA  1 if destination is Airport MGRA |
| purpose | Trip Purpose  0 = Resident Business  1 = Resident Personal  2 = Visitor Business  3 = Visitor Personal  4= External |
| size | Party size (1, 2, 3, 4, 5+) |
| income | Household income:  0=Less than $25K  1=$25K – $50K  2=$50K – $75K  3=$75K – $100K  4=$100K – $125K  5=$125K – $150K  6=$150K – $200K  7=$200K plus |
| nights | Number of Nights stayed (0 through 14+) |
| departtime | Departure Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| originmgra | Origin MGRA of trip |
| destinationmgra | Destination MGRA of trip |
| tripmode | Trip Mode:  -99 = Unknown  1 = Drive Alone Free  2 = Drive Alone Pay  3 = Shared Ride 2 General Purpose  4 = Shared Ride 2 HOV  5 = Shared Ride 2 Pay  6 = Shared Ride 3 General Purpose  7 = Shared Ride 3 HOV  8 = Shared Ride 3 Pay  9 = Walk  10 = Bike  11 = Walk to Local  12 = Walk to Express  13 = Walk to BRT  14 = Walk to Light Rail  15 = Walk to Commuter Rail  16 = Park Ride Local  17 = Park Ride Express  18 = Park Ride BRT  19 = Park Ride Light Rail  20 = Park Ride Commuter Rail  21 = Kiss Ride Local  22 = Kiss Ride Express  23 = Kiss Ride BRT  24 = Kiss Ride Light Rail  25 = Kiss Ride Commuter Rail |
| arrivalmode | Arrival mode:  1 = Parking lot terminal  2 = Parking lot off-site San Diego Airport area  3 = Parking lot off-site private  4 = Pickup/Drop-off escort  5 = Pickup/Drop=off curbside  6 = Rental car  7 = Taxi  8 = Shuttle/Van/Courtesy Vehicle  9 = Transit |
| boardingtap | Boarding Transit Access Point |
| alightingtap | Alighting Transit Access Point |

## Table 8.29: Airport Auto Trips Matrix – autoAirportTrips\_<<time period>>.mtx (Time Period = EA, AM, MD, PM, EV)

|  |  |
| --- | --- |
| Table Name | Description |
| SOV\_GP\_<<time period>> | Drive Alone Free for <<time period>> |
| SOV\_PAY\_<<time period>> | Drive Alone Toll for <<time period>> |
| SR2\_GP\_<<time period>> | Shared Ride 2 Free for <<time period>> |
| SR2\_HOV\_<<time period>> | Shared Ride 2 HOV for <<time period>> |
| SR2\_PAY\_<<time period>> | Shared Ride 2 Toll for <<time period>> |
| SR3\_GP\_<<time period>> | Shared Ride 3 Free for <<time period>> |
| SR3\_HOV\_<<time period>> | Shared Ride 3 HOV for <<time period>> |
| SR3\_PAY\_<<time period>> | Shared Ride 3 Toll for <<time period>> |

## Table 8.30: Airport Transit Trips Matrix – tranAirportTrips\_<<time period>>.mtx (Time Period = EA, AM, MD, PM, EV)

|  |  |
| --- | --- |
| Table Name | Description |
| WLK\_LOC\_<<time period>> | Walk to Local for <<time period>> |
| WLK\_EXP\_<<time period>> | Walk to Express for <<time period>> |
| WLK\_BRT\_<<time period>> | Walk to BRT for <<time period>> |
| WLK\_LRT\_<<time period>> | Walk to Light Rail for <<time period>> |
| WLK\_CMR\_<<time period>> | Walk to Commuter Rail for <<time period>> |
| PNR\_LOC\_<<time period>> | Park Ride to Local for <<time period>> |
| PNR \_EXP\_<<time period>> | Park Ride to Express for <<time period>> |
| PNR \_BRT\_<<time period>> | Park Ride to BRT for <<time period>> |
| PNR \_LRT\_<<time period>> | Park Ride to Light Rail for <<time period>> |
| PNR \_CMR\_<<time period>> | Park Ride to Commuter Rail for <<time period>> |
| KNR\_LOC\_<<time period>> | Kiss Ride to Local for <<time period>> |
| KNR \_EXP\_<<time period>> | Kiss Ride to Express for <<time period>> |
| KNR \_BRT\_<<time period>> | Kiss Ride to BRT for <<time period>> |
| KNR \_LRT\_<<time period>> | Kiss Ride to Light Rail for <<time period>> |
| KNR \_CMR\_<<time period>> | Kiss Ride to Commuter Rail for <<time period>> |

## Table 8.31: Airport Non-motorized Trips Matrix – nmotAirportTrips\_<<time period>>.mtx (Time Period = EA, AM, MD, PM, EV)

|  |  |
| --- | --- |
| Table Name | Description |
| WALK\_<<time period>> | Walk for <<time period>> |
| BIKE\_<<time period>> | Bike for <<time period>> |

## *Table 8.32: Airport Other Trips Matrix – othrAirportTrips\_<<time period>>.mtx (Time Period = EA, AM, MD, PM, EV)*

|  |  |
| --- | --- |
| Table Name | Description |
| SCHLBUS\_<<time period>> | School Bus for <<time period>> |

## Table 8.33: Cross Border Tour Data – crossBorderTours.csv

| Column Name | Description |
| --- | --- |
| id | Unique ID of Cross border tour |
| purpose | Tour Purpose:  0 = Work  1 = School  2 = Shop  3 = Cargo  4 = Visit  5 = Other |
| sentri | Boolean for sentri user:  False  True |
| poe | Point of Entry:  0 = San Ysidro  1 = Otay Mesa  2 = Tecate |
| departtime | Departure Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| arrivetime | Arrival Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| originmgra | Origin MGRA of tour |
| Destinationmgra | Destination MGRA of tour |
| origintaz | Origin TAZ of tour |
| destinationtaz | Destination TAZ of tour |
| tourmode | Tour Mode:  1 = Drive Alone  2 = Shared Ride 2  3 = Shared Ride 3+  4 = Walk |

## Table 8.34: Cross Border Trip Data – crossBorderTrips.csv

| Column Name | Description |
| --- | --- |
| tourid | Unique ID of Cross border tour |
| tripid | Unique ID of Cross border trip |
| originpurp | Origin Trip Purpose:  -1 = Unknown  0 = Work  1 = School  2 = Shop  3 = Cargo  4 = Visit  5 = Other |
| destpurp | Destination Trip Purpose:  -1 = Unknown  0 = Work  1 = School  2 = Shop  3 = Cargo  4 = Visit  5 = Other |
| originmgra | Origin MGRA of trip |
| Destinationmgra | Destination MGRA of trip |
| origintaz | Origin TAZ of trip |
| destinationtaz | Destination TAZ of trip |
| inbound | Boolean for whether trip is inbound:  False  True |
| originIsTourDestination | Boolean for whether trip origin is tour destination:  False  True |
| destinationIsTourDestination | Boolean for whether trip destination is tour destination:  False  True |
| period | Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| tripMode | Trip Mode:  1 = Drive Alone Free  2 = Drive Alone Pay  3 = Shared Ride 2 General Purpose  4 = Shared Ride 2 HOV  5 = Shared Ride 2 Pay  6 = Shared Ride 3 General Purpose  7 = Shared Ride 3 HOV  8 = Shared Ride 3 Pay  9 = Walk  10 = Bike  11 = Walk to Local  12 = Walk to Express  13 = Walk to BRT  14 = Walk to Light Rail  15 = Walk to Commuter Rail |
| boardingTap | Boarding Transit Access Point |
| alightingTap | Alighting Transit Access Point |

## Table 8.35: Cross Border Auto Trips Matrix – autoCrossBorderTrips\_<<time period>>.mtx (Time Period = EA, AM, MD, PM, EV)

|  |  |
| --- | --- |
| Table Name | Description |
| SOV\_GP\_<<time period>> | Drive Alone Free for <<time period>> |
| SOV\_PAY\_<<time period>> | Drive Alone Toll for <<time period>> |
| SR2\_GP\_<<time period>> | Shared Ride 2 Free for <<time period>> |
| SR2\_HOV\_<<time period>> | Shared Ride 2 HOV for <<time period>> |
| SR2\_PAY\_<<time period>> | Shared Ride 2 Toll for <<time period>> |
| SR3\_GP\_<<time period>> | Shared Ride 3 Free for <<time period>> |
| SR3\_HOV\_<<time period>> | Shared Ride 3 HOV for <<time period>> |
| SR3\_PAY\_<<time period>> | Shared Ride 3 Toll for <<time period>> |

## Table 8.36: Cross Border Transit Trips Matrix – tranCrossBorderTrips\_<<time period>>.mtx (Time Period = EA, AM, MD, PM, EV)

|  |  |
| --- | --- |
| Table Name | Description |
| WLK\_LOC\_<<time period>> | Walk to Local for <<time period>> |
| WLK\_EXP\_<<time period>> | Walk to Express for <<time period>> |
| WLK\_BRT\_<<time period>> | Walk to BRT for <<time period>> |
| WLK\_LRT\_<<time period>> | Walk to Light Rail for <<time period>> |
| WLK\_CMR\_<<time period>> | Walk to Commuter Rail for <<time period>> |
| PNR\_LOC\_<<time period>> | Park Ride to Local for <<time period>> |
| PNR \_EXP\_<<time period>> | Park Ride to Express for <<time period>> |
| PNR \_BRT\_<<time period>> | Park Ride to BRT for <<time period>> |
| PNR \_LRT\_<<time period>> | Park Ride to Light Rail for <<time period>> |
| PNR \_CMR\_<<time period>> | Park Ride to Commuter Rail for <<time period>> |
| KNR\_LOC\_<<time period>> | Kiss Ride to Local for <<time period>> |
| KNR \_EXP\_<<time period>> | Kiss Ride to Express for <<time period>> |
| KNR \_BRT\_<<time period>> | Kiss Ride to BRT for <<time period>> |
| KNR \_LRT\_<<time period>> | Kiss Ride to Light Rail for <<time period>> |
| KNR \_CMR\_<<time period>> | Kiss Ride to Commuter Rail for <<time period>> |

## Table 8.37: Cross Border Non-motorized Trips Matrix – nmotCrossBorderTrips\_<<time period>>.mtx (Time Period = EA, AM, MD, PM, EV)

|  |  |
| --- | --- |
| Table Name | Description |
| WALK\_<<time period>> | Walk for <<time period>> |
| BIKE\_<<time period>> | Bike for <<time period>> |

## Table 8.38: Cross Border Other Trips Matrix – othrCrossBorderTrips\_<<time period>>.mtx (Time Period = EA, AM, MD, PM, EV)

|  |  |
| --- | --- |
| Table Name | Description |
| SCHLBUS\_<<time period>> | School Bus for <<time period>> |

## Table 8.39: Visitor Tour Data – visitorTours.csv

| Column Name | Description |
| --- | --- |
| id | Unique ID of Visitor tour |
| segment | Visitor Segment:  0 = Business  1 = Personal |
| purpose | Visitor Tour Purpose:  0 = Work  1 = Recreation  2 = Dining |
| autoavailable | Boolean for Auto available:  0 = No  1 = Yes |
| partysize | Party size (1 through 10+) |
| income | Visitor income:  0 = < $30K  1 = $30K-$60K  2 = $60K-100K  3 = $100K-$150K  4 = $150K+ |
| departtime | Depart time:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| arrivetime | Arrive time:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| originmgra | Origin MGRA of tour |
| destinationmgra | Destination MGRA of tour |
| tourmode | Tour Mode:  1 = Drive Alone Free  2 = Drive Alone Pay  3 = Shared Ride 2 General Purpose  4 = Shared Ride 2 HOV  5 = Shared Ride 2 Pay  6 = Shared Ride 3 General Purpose  7 = Shared Ride 3 HOV  8 = Shared Ride 3 Pay  9 = Walk  10 = Bike  11 = Walk to Local  12 = Walk to Express  13 = Walk to BRT  14 = Walk to Light Rail  15 = Walk to Commuter Rail  16 = Park Ride Local  17 = Park Ride Express  18 = Park Ride BRT  19 = Park Ride Light Rail  20 = Park Ride Commuter Rail  21 = Kiss Ride Local  22 = Kiss Ride Express  23 = Kiss Ride BRT  24 = Kiss Ride Light Rail  25 = Kiss Ride Commuter Rail  26 = School Bus  27 = Taxi |
| outboundstops | Number of outbound stops |
| inboundstops | Number of inbound stops |

## *Table 8.40: Visitor Trip Data – visitorTRips.csv*

| Column Name | Description |
| --- | --- |
| tourid | Unique ID of Visitor tour |
| tripid | Unique ID of Visitor trip |
| originpurp | Origin Trip Purpose:  -1 = Unknown  0 = Work  1 = Recreation  2 = Dining |
| destpurp | Destination Trip Purpose:  -1 = Unknown  0 = Work  1 = Recreation  2 = Dining |
| originmgra | Origin MGRA of trip |
| Destinationmgra | Destination MGRA of trip |
| origintaz | Origin TAZ of trip |
| destinationtaz | Destination TAZ of trip |
| inbound | Boolean for whether trip is inbound:  False  True |
| originIsTourDestination | Boolean for whether trip origin is tour destination:  False  True |
| destinationIsTourDestination | Boolean for whether trip destination is tour destination:  False  True |
| period | Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| tripMode | Trip Mode:  1 = Drive Alone Free  2 = Drive Alone Pay  3 = Shared Ride 2 General Purpose  4 = Shared Ride 2 HOV  5 = Shared Ride 2 Pay  6 = Shared Ride 3 General Purpose  7 = Shared Ride 3 HOV  8 = Shared Ride 3 Pay  9 = Walk  10 = Bike  11 = Walk to Local  12 = Walk to Express  13 = Walk to BRT  14 = Walk to Light Rail  15 = Walk to Commuter Rail  16 = Park Ride Local  17 = Park Ride Express  18 = Park Ride BRT  19 = Park Ride Light Rail  20 = Park Ride Commuter Rail  21 = Kiss Ride Local  22 = Kiss Ride Express  23 = Kiss Ride BRT  24 = Kiss Ride Light Rail  25 = Kiss Ride Commuter Rail  26 = School Bus  27 = Taxi |
| boardingTap | Boarding Transit Access Point |
| alightingTap | Alighting Transit Access Point |

## Table 8.41: Visitor Auto Trips Matrix – autoVisitorTrips\_<<time period>>.mtx (Time Period = EA, AM, MD, PM, EV)

|  |  |
| --- | --- |
| Table Name | Description |
| SOV\_GP\_<<time period>> | Drive Alone Free for <<time period>> |
| SOV\_PAY\_<<time period>> | Drive Alone Toll for <<time period>> |
| SR2\_GP\_<<time period>> | Shared Ride 2 Free for <<time period>> |
| SR2\_HOV\_<<time period>> | Shared Ride 2 HOV for <<time period>> |
| SR2\_PAY\_<<time period>> | Shared Ride 2 Toll for <<time period>> |
| SR3\_GP\_<<time period>> | Shared Ride 3 Free for <<time period>> |
| SR3\_HOV\_<<time period>> | Shared Ride 3 HOV for <<time period>> |
| SR3\_PAY\_<<time period>> | Shared Ride 3 Toll for <<time period>> |

## Table 8.42: Visitor Transit Trips Matrix – tranVisitorTrips\_<<time period>>.mtx (Time Period = EA, AM, MD, PM, EV)

|  |  |
| --- | --- |
| Table Name | Description |
| WLK\_LOC\_<<time period>> | Walk to Local for <<time period>> |
| WLK\_EXP\_<<time period>> | Walk to Express for <<time period>> |
| WLK\_BRT\_<<time period>> | Walk to BRT for <<time period>> |
| WLK\_LRT\_<<time period>> | Walk to Light Rail for <<time period>> |
| WLK\_CMR\_<<time period>> | Walk to Commuter Rail for <<time period>> |
| PNR\_LOC\_<<time period>> | Park Ride to Local for <<time period>> |
| PNR \_EXP\_<<time period>> | Park Ride to Express for <<time period>> |
| PNR \_BRT\_<<time period>> | Park Ride to BRT for <<time period>> |
| PNR \_LRT\_<<time period>> | Park Ride to Light Rail for <<time period>> |
| PNR \_CMR\_<<time period>> | Park Ride to Commuter Rail for <<time period>> |
| KNR\_LOC\_<<time period>> | Kiss Ride to Local for <<time period>> |
| KNR \_EXP\_<<time period>> | Kiss Ride to Express for <<time period>> |
| KNR \_BRT\_<<time period>> | Kiss Ride to BRT for <<time period>> |
| KNR \_LRT\_<<time period>> | Kiss Ride to Light Rail for <<time period>> |
| KNR \_CMR\_<<time period>> | Kiss Ride to Commuter Rail for <<time period>> |

## Table 8.43: Visitor Non-motorized Trips Matrix – nmotVisitorTrips\_<<time period>>.mtx (Time Period = EA, AM, MD, PM, EV)

|  |  |
| --- | --- |
| Table Name | Description |
| WALK\_<<time period>> | Walk for <<time period>> |
| BIKE\_<<time period>> | Bike for <<time period>> |

## Table 8.44: Visitor Other Trips Matrix – othrVisitorTrips\_<<time period>>.mtx (Time Period = EA, AM, MD, PM, EV)

|  |  |
| --- | --- |
| Table Name | Description |
| SCHLBUS\_<<time period>> | School Bus for <<time period>> |

## Table 8.45: Internal External Trip Data – internalExternalTrips.csv

|  |  |
| --- | --- |
| Column Name | Description |
| hhID | Household ID |
| personID | PersonID |
| tourID | Internaal external tour ID |
| originmgra | Origin MGRA of trip |
| Destinationmgra | Destination MGRA of trip |
| origintaz | Origin TAZ of trip |
| destinationtaz | Destination TAZ of trip |
| inbound | Boolean for whether trip is inbound:  False  True |
| originIsTourDestination | Boolean for whether trip origin is tour destination:  False  True |
| destinationIsTourDestination | Boolean for whether trip destination is tour destination:  False  True |
| period | Period:  1=Before 5:00AM,  2=5:00AM-5:30AM,  3 through 39 is every half hour time slots  40 = After 12:00AM |
| tripMode | Trip Mode:  1 = Drive Alone Free  2 = Drive Alone Pay  3 = Shared Ride 2 General Purpose  4 = Shared Ride 2 HOV  5 = Shared Ride 2 Pay  6 = Shared Ride 3 General Purpose  7 = Shared Ride 3 HOV  8 = Shared Ride 3 Pay  9 = Walk  10 = Bike  11 = Walk to Local  12 = Walk to Express  13 = Walk to BRT  14 = Walk to Light Rail  15 = Walk to Commuter Rail |
| boardingTap | Boarding Transit Access Point |
| alightingTap | Alighting Transit Access Point |

## Table 8.46: Internal External Auto Trips Matrix – autoInternalExternalTrips\_<<time period>>.mtx (Time Period = EA, AM, MD, PM, EV)

|  |  |
| --- | --- |
| Table Name | Description |
| SOV\_GP\_<<time period>> | Drive Alone Free for <<time period>> |
| SOV\_PAY\_<<time period>> | Drive Alone Toll for <<time period>> |
| SR2\_GP\_<<time period>> | Shared Ride 2 Free for <<time period>> |
| SR2\_HOV\_<<time period>> | Shared Ride 2 HOV for <<time period>> |
| SR2\_PAY\_<<time period>> | Shared Ride 2 Toll for <<time period>> |
| SR3\_GP\_<<time period>> | Shared Ride 3 Free for <<time period>> |
| SR3\_HOV\_<<time period>> | Shared Ride 3 HOV for <<time period>> |
| SR3\_PAY\_<<time period>> | Shared Ride 3 Toll for <<time period>> |

## Table 8.47: Internal External Transit Trips Matrix – tranInternalExternalTrips\_<<time period>>.mtx (Time Period = EA, AM, MD, PM, EV)

|  |  |
| --- | --- |
| Table Name | Description |
| WLK\_LOC\_<<time period>> | Walk to Local for <<time period>> |
| WLK\_EXP\_<<time period>> | Walk to Express for <<time period>> |
| WLK\_BRT\_<<time period>> | Walk to BRT for <<time period>> |
| WLK\_LRT\_<<time period>> | Walk to Light Rail for <<time period>> |
| WLK\_CMR\_<<time period>> | Walk to Commuter Rail for <<time period>> |
| PNR\_LOC\_<<time period>> | Park Ride to Local for <<time period>> |
| PNR \_EXP\_<<time period>> | Park Ride to Express for <<time period>> |
| PNR \_BRT\_<<time period>> | Park Ride to BRT for <<time period>> |
| PNR \_LRT\_<<time period>> | Park Ride to Light Rail for <<time period>> |
| PNR \_CMR\_<<time period>> | Park Ride to Commuter Rail for <<time period>> |
| KNR\_LOC\_<<time period>> | Kiss Ride to Local for <<time period>> |
| KNR \_EXP\_<<time period>> | Kiss Ride to Express for <<time period>> |
| KNR \_BRT\_<<time period>> | Kiss Ride to BRT for <<time period>> |
| KNR \_LRT\_<<time period>> | Kiss Ride to Light Rail for <<time period>> |
| KNR \_CMR\_<<time period>> | Kiss Ride to Commuter Rail for <<time period>> |

## *Table 8.48: Internal External Non-motorized Trips Matrix – nmotInternalExternalTrips\_<<time period>>.mtx (Time Period = EA, AM, MD, PM, EV)*

|  |  |
| --- | --- |
| Table Name | Description |
| WALK\_<<time period>> | Walk for <<time period>> |
| BIKE\_<<time period>> | Bike for <<time period>> |

## Table 8.49: Internal External Other Trips Matrix – othrInternalExternalTrips\_<<time period>>.mtx (Time Period = EA, AM, MD, PM, EV)

|  |  |
| --- | --- |
| Table Name | Description |
| SCHLBUS\_<<time period>> | School Bus for <<time period>> |

## Table 8.50: Commercial Vehicle Trip Generation Table – tazCommVeh.csv

|  |  |
| --- | --- |
| Column Name | Description |
| TAZ | Zone |
| Prod | Commercial vehicle trip productions |
| Attr | Commercial vehicle trip attractions |

## *Table 8.51: Commercial Vehicle Trip Distribution (Production to Attraction) Matrix – commVehTrips.mtx*

|  |  |
| --- | --- |
| Table Name | Description |
| Commveh | Commercial Vehicle Trip table (Production TAZ to Attraction TAZ) |

## Table 8.52: Commercial Vehicle Trip Distribution Time of Day Matrix – commVehTripsTOD.mtx

|  |  |
| --- | --- |
| Table Name | Description |
| Commveh | Commercial Vehicle Trip table (Production TAZ to Attraction TAZ) |
| OD Trips | Commercial Vehicle Trip table (Origin TAZ to Destination TAZ) |
| EA Trips | Early AM Commercial Vehicle trip table |
| AM Trips | AM Peak Commercial Vehicle trip table |
| MD Trips | Midday Commercial Vehicle trip table |
| PM Trips | PM Peak Commercial Vehicle trip table |
| EV Trips | Evening Commercial Vehicle trip table |

## Table 8.53: External Internal Production to Attraction Trip Matrix – usSD<<purpose>>PA.mtx where purpose = work or Non

|  |  |
| --- | --- |
| Table Name | Description |
| Trips | External Internal Trip table (Production TAZ to Attraction TAZ) |

## Table 8.54: External Internal Origin to Destination Trip Matrix – usSD<<purpose>>daily.mtx where purpose = work or Non

|  |  |
| --- | --- |
| Table Name | Description |
| Trips | External Internal Trip table (Origin TAZ to Destination TAZ) |

## Table 8.55: External Internal Origin to Destination Trips by Auto Mode Matrix – usSD<<purpose>>\_<<time period>>.mtx where purpose = work or Non and time period = EA, AM, MD, PM, EV

|  |  |
| --- | --- |
| Table Name | Description |
| DAN | Drive alone free trips |
| S2N | Shared ride 2 free trips |
| S3N | Shared ride 3 free trips |
| DAT | Drive alone toll trips |
| S2T | Shared ride 2 toll trips |
| S3T | Shared ride 3 toll trips |

## Table 8.56: Truck External External Trip Matrix – regionalEETrips.csv

|  |  |
| --- | --- |
| Field Name | Description |
| fromZone | From TAZ |
| toZone | To TAZ |
| EETrucks | External to External Trips |

## Table 8.57: Truck External External Trip Matrix – regionalEETrips.mtx

|  |  |
| --- | --- |
| Table Name | Description |
| EETrucks | External to External Truck Trips |

## Table 8.58: Truck Distribution Trip Matrix by Type with Internal - External Truck Trip Tables – distributionMatricesTruck.mtx

|  |  |
| --- | --- |
| Table Name | Description |
| Lhd | Light Heavy Duty Daily Truck Trips |
| Mhd | Medium Heavy Duty Daily Truck Trips |
| Hhd | Heavy Heavy Duty Daily Truck Trips |
| IE | Internal External Truck Trips |
| EI | External Internal Truck Trips |

## Table 8.59: Truck Distribution Trip Matrix by Type – dailyDistributionMatricesTruckAll.mtx

|  |  |
| --- | --- |
| Table Name | Description |
| Lhd | Light Heavy Duty Daily Truck Trips |
| mhd | Medium Heavy Duty Daily Truck Trips |
| hhd | Heavy Heavy Duty Daily Truck Trips |

## Table 8.60: Truck Distribution Trip Matrix by Time of Day – dailyDistributionMatricesTruck<<time period>>.mtx where time period = EA, AM, MD, PM, EV

|  |  |
| --- | --- |
| Table Name | Description |
| lhd | Light Heavy Duty Truck Trips |
| mhd | Medium Heavy Duty Truck Trips |
| hhd | Heavy Heavy Duty Truck Trips |
| lhdt | Light Heavy Duty Toll Truck Trips |
| lhdn | Light Heavy Duty Non-Toll Truck Trips |
| mhdt | Medium Heavy Duty Toll Truck Trips |
| mhdn | Medium Heavy Duty Non-Toll Truck Trips |
| hhdt | Heavy Heavy Duty Toll Truck Trips |
| hhdn | Heavy Heavy Duty Non-Toll Truck Trips |

## *Table 8.61: External External Trip Matrix – externalExternal.mtx*

|  |  |
| --- | --- |
| Table Name | Description |
| trips | External External trips |

## Table 8.62: Total Vehicle Trips to assigned to the highway network by Time of Day – Trips\_<<time period>>.mtx where time period = EA, AM, MD, PM, EV

|  |  |
| --- | --- |
| Table Name | Description |
| SOV\_GP | Drive Alone Free |
| SOV\_PAY | Drive Alone Toll |
| SR2\_GP | Shared Ride 2 Free |
| SR2\_HOV | Shared Ride 2 HOV |
| SR2\_PAY | Shared Ride 2 Toll |
| SR3\_GP | Shared Ride 3 Free |
| SR3\_HOV | Shared Ride 3 HOV |
| SR3\_PAY | Shared Ride 3 Toll |
| lhdn | Light Heavy Duty Non-Toll Trucks |
| mhdn | Medium Heavy Duty Non-Toll Trucks |
| hhdn | Heavy Heavy Duty Non-Toll Trucks |
| lhdt | Light Heavy Duty Toll Trucks |
| mhdt | Medium Heavy Duty Toll Trucks |
| hhdt | Heavy Heavy Duty Toll Trucks |

## Table 8.63: Total transit trip tables to assign to the transit network by Time of Day – tranTotalTrips\_XX.mtx, where XX = EA, AM, MD, PM, EV

|  |  |
| --- | --- |
| Table Name | Description |
| WLK\_LOC | Walk to Local |
| WLK\_EXP | Walk to Express |
| WLK\_BRT | Walk to BRT |
| WLK\_LRT | Walk to Light Rail |
| WLK\_CMR | Walk to Commuter Rail |
| PNR\_LOC | Park Ride to Local |
| PNR\_EXP | Park Ride to Express |
| PNR\_BRT | Park Ride to BRT |
| PNR\_LRT | Park Ride to Light Rail |
| PNR\_CMR | Park Ride to Commuter Rail |
| KNR\_LOC | Kiss Ride to Local |
| KNR\_EXP | Kiss Ride to Express |
| KNR\_BRT | Kiss Ride to BRT |
| KNR\_LRT | Kiss Ride to Light Rail |
| KNR\_CMR | Kiss Ride to Commuter Rail |

## Table 8.64: Highway Flow File by Time period – hwyload\_<<time period>>.mtx where time period = EA, AM, MD, PM, EV

| Column Name | Description |
| --- | --- |
| ID1 | Unique link ID |
| AB\_Flow\_PCE | A-B Direction Flow Passenger Car Equivalents |
| BA\_Flow\_PCE | B-A Direction Flow Passenger Car Equivalents |
| Tot\_Flow\_PCE | Total Flow Passenger Car Equivalents |
| AB\_Time | A-B Direction Loaded Travel Time |
| BA\_Time | B-A Direction Loaded Travel Time |
| Max\_Time | Max Time of both directions |
| AB\_VOC | A-B Direction Volume to Capacity |
| BA\_VOC | B-A Direction Volume to Capacity |
| Max\_VOC | Max VOC of both direction |
| AB\_V\_Dist\_T | A-B Direction Vehicle miles of Travel |
| BA\_V\_Dist\_T | B-A Direction Vehicle miles of Travel |
| Tot\_V\_Dist\_T | Total Vehicle miles of Travel |
| AB\_VHT | A-B Direction Vehicle hours of Travel |
| BA\_VHT | B-A Direction Vehicle hours of Travel |
| Tot\_VHT | Total Vehicle hours of Travel |
| AB\_Speed | A-B Direction Loaded Speed |
| BA\_Speed | B-A Direction Loaded Speed |
| AB\_VDF | A-B Direction Volume delay function |
| BA\_VDF | B-A Direction Volume delay function |
| Max\_VDF | Max volume delay function of both direction |
| AB\_MSA\_Flow | A-B Direction Average of iterations Flow |
| BA\_MSA\_Flow | B-A Direction Average of iterations Flow |
| AB\_MSA\_Cost | A-B Direction Average of iterations Generalized cost |
| BA\_MSA\_Cost | B-A Direction Average of iterations Generalized cost |
| AB\_MSA\_Time | A-B Direction Average of iterations Loaded Travel time |
| BA\_MSA\_Time | B-A Direction Average of iterations Loaded Travel time |
| AB\_Flow\_SOV\_GP | A-B Direction Flow for Drive Alone Free |
| BA\_Flow\_SOV\_GP | B-A Direction Flow for Drive Alone Free |
| AB\_Flow\_SOV\_PAY | A-B Direction Flow for Drive Alone Toll |
| BA\_Flow\_SOV\_PAY | B-A Direction Flow for Drive Alone Toll |
| AB\_Flow\_SR2\_GP | A-B Direction Flow for Shared Ride 2 Free |
| BA\_Flow\_SR2\_GP | B-A Direction Flow for Shared Ride 2 Free |
| AB\_Flow\_SR2\_HOV | A-B Direction Flow for Shared Ride 2 HOV |
| BA\_Flow\_SR2\_HOV | B-A Direction Flow for Shared Ride 2 HOV |
| AB\_Flow\_SR2\_PAY | A-B Direction Flow for Shared Ride 2 Toll |
| BA\_Flow\_SR2\_PAY | B-A Direction Flow for Shared Ride 2 Toll |
| AB\_Flow\_SR3\_GP | A-B Direction Flow for Shared Ride 3 Free |
| BA\_Flow\_SR3\_GP | B-A Direction Flow for Shared Ride 3 Free |
| AB\_Flow\_SR3\_HOV | A-B Direction Flow for Shared Ride 3 HOV |
| BA\_Flow\_SR3\_HOV | B-A Direction Flow for Shared Ride 3 HOV |
| AB\_Flow\_SR3\_PAY | A-B Direction Flow for Shared Ride 3 Toll |
| BA\_Flow\_SR3\_PAY | B-A Direction Flow for Shared Ride 3 Toll |
| AB\_Flow\_lhdn | A-B Direction Flow for Light Heavy Duty Non-toll |
| BA\_Flow\_lhdn | B-A Direction Flow for Light Heavy Duty Non-toll |
| AB\_Flow\_mhdn | A-B Direction Flow for Medium Heavy Duty Non-toll |
| BA\_Flow\_mhdn | B-A Direction Flow for Medium Heavy Duty Non-toll |
| AB\_Flow\_hhdn | A-B Direction Flow for Heavy Heavy Duty Non-toll |
| BA\_Flow\_hhdn | B-A Direction Flow for Heavy Heavy Duty Non-toll |
| AB\_Flow\_lhdt | A-B Direction Flow for Light Heavy Duty toll |
| BA\_Flow\_lhdt | B-A Direction Flow for Light Heavy Duty toll |
| AB\_Flow\_mhdt | A-B Direction Flow for Medium Heavy Duty toll |
| BA\_Flow\_mhdt | B-A Direction Flow for Medium Heavy Duty toll |
| AB\_Flow\_hhdt | A-B Direction Flow for Heavy Heavy Duty toll |
| BA\_Flow\_hhdt | B-A Direction Flow for Heavy Heavy Duty toll |
| AB\_Flow | A-B Direction Total Flow |
| BA\_Flow | B-A direction Total Flow |
| Tot\_Flow | Total Flow both directions |

## Table 8.65: On and Off Transit File by Access Mode, Line Haul Mode and Time period – ono<<access mode>>\_<<line haul mode>>\_<<time period>>.mtx where access mode = WLK, PNR, KNR, line haul mode = LOC, EXP, LRT, BRT, CMR, time period = EA, AM, MD, PM, EV

|  |  |
| --- | --- |
| Column Name | Description |
| STOP | Stop ID |
| ROUTE | Sequential Route Number |
| On | Number of boardings |
| Off | Number of alightings |
| WalkAccessOn | Number of walk access boardings |
| DirectTransferOn | Number of transfer boardings |
| WalkTransferOn | Number of walk transfer boardings |
| DirectTransferOff | Number of transfer alightings |
| WalkTransferOff | Number of walk transfer alightings |
| EgressOff | Number of walk egress alightings |

## Table 8.66: Walk Flow Table by Access Mode, Line Haul Mode and Time period – ntl<<access mode>>\_<<line haul mode>>\_<<time period>>.mtx where access mode = WLK, PNR, KNR, line haul mode = LOC, EXP, LRT, BRT, CMR time period = EA, AM, MD, PM, EV

|  |  |
| --- | --- |
| Column Name | Description |
| ID1 | Link ID |
| AB\_WalkFlow | A-B Direction Walk Flow |
| BA\_WalkFlow | B-A Direction Walk Flow |
| TOT\_WalkFlow | Total Walk Flow |
| AB\_Access\_Walk\_Flow | A-B Direction Access Walk Flow |
| BA\_Access\_Walk\_Flow | B-A Direction Access Walk Flow |
| TOT\_Access\_Walk\_Flow | Total Access Walk Flow |
| AB\_Xfer\_Walk\_Flow | A-B Direction Transfer Walk Flow |
| BA\_Xfer\_Walk\_Flow | B-A Direction Transfer Walk Flow |
| TOT\_Xfer\_Walk\_Flow | Total Transfer Walk Flow |
| AB\_Egress\_Walk\_Flow | A-B Direction Egress Walk Flow |
| BA\_Egress\_Walk\_Flow | B-A Direction Egress Walk Flow |
| TOT\_Egress\_Walk\_Flow | Total Egress Walk Flow |

## Table 8.67: Flow Table by Access Mode, Line Haul Mode and Time period – flow<<access mode>>\_<<line haul mode>>\_<<time period>>.mtx where access mode = WLK, PNR, KNR, line haul mode = LOC, EXP, LRT, BRT, CMR time period = EA, AM, MD, PM, EV

|  |  |
| --- | --- |
| Column Name | Description |
| Route | Sequential Route Number |
| From\_Stop | From Stop ID |
| To\_Stop | To Stop ID |
| Centroid | Centroid |
| From\_MP | From MP |
| To\_MP | To MP |
| TransitFlow | Transit flow |
| BaseIVTT | Base in-vehicle time |
| Cost | Cost |
| VOC | Volume to Capacity |

## Table 8.68: Aggregated Flow Table by Access Mode, Line Haul Mode and Time period – ntl<<access mode>>\_<<line haul mode>>\_<<time period>>.mtx where access mode = WLK, PNR, KNR, line haul mode = LOC, EXP, LRT, BRT, CMR time period = EA, AM, MD, PM, EV

|  |  |
| --- | --- |
| Column Name | Description |
| ID1 | Link ID |
| AB\_TransitFlow | A-B Direction Transit Flow |
| BA\_TransitFlow | B-A Direction Transit Flow |
| AB\_Non Transit | A-B Direction Non Transit Flow |
| BA\_Non Transit | B-A Direction Non Transit Flow |
| AB\_TotalFlow | A-B Direction Total Flow |
| BA\_TotalFlow | B-A Direction Total Flow |
| AB\_Access\_Walk\_Flow | A-B Direction Access Walk Flow |
| BA\_Access\_Walk\_Flow | B-A Direction Access Walk Flow |
| AB\_Xfer\_Walk\_Flow | A-B Direction Transfer Walk Flow |
| BA\_Xfer\_Walk\_Flow | B-A Direction Transfer Walk Flow |
| AB\_Egress\_Walk\_Flow | A-B Direction Egress Walk Flow |
| BA\_Egress\_Walk\_Flow | B-A Direction Egress Walk Flow |

## Table 8.69: On and Off Transit File by Access Mode, Line Haul Mode and Time period Collapsed – ono<<access mode>>\_<<line haul mode>>\_<<time period>>\_COLL.mtx and csv where access mode = WLK, PNR, KNR, line haul mode = LOC, EXP, LRT, BRT, CMR time period = EA, AM, MD, PM, EV

|  |  |
| --- | --- |
| Column Name | Description |
| ROUTE | Sequential Route Number |
| On | Number of boardings |
| Off | Number of alightings |
| WalkAccessOn | Number of walk access boardings |
| DirectTransferOn | Number of transfer boardings |
| WalkTransferOn | Number of walk transfer boardings |
| DirectTransferOff | Number of transfer alightings |
| WalkTransferOff | Number of walk transfer alightings |
| EgressOff | Number of walk egress alightings |

## Table 8.70: On and Off Transit File by Access Mode, Line Haul Mode and Time period Collapsed Joined with Route Information – ono<<access mode>>\_<<line haul mode>>\_<<time period>>\_COLL\_JOIN.mtx and csv where access mode = WLK, PNR, KNR, line haul mode = LOC, EXP, LRT, BRT, CMR time period = EA, AM, MD, PM, EV

|  |  |
| --- | --- |
| Column Name | Description |
| ROUTE | Sequential Route Number |
| On | Number of boardings |
| Off | Number of alightings |
| WalkAccessOn | Number of walk access boardings |
| DirectTransferOn | Number of transfer boardings |
| WalkTransferOn | Number of walk transfer boardings |
| DirectTransferOff | Number of transfer alightings |
| WalkTransferOff | Number of walk transfer alightings |
| EgressOff | Number of walk egress alightings |
| Route\_ID | Sequential Route Number |
| Route\_Name | Route name and configuration |
| Mode | Line Haul Mode of route  4 coaster  5 sprinter/trolley  8 prem express  9 regular express  10 local bus |
| AM\_Headway | AM Period Headway |
| PM\_Headway | PM Period Headway |
| OP\_Headway | Off-peak period headway |
| Config | Same as route\_name |
| Fare | Route fare |

## Table 8.71: Mode Choice Logsums derived by Simple or Logit Averaging - luLogsums\_simple.csv and luLogsums\_logit.csv

|  |  |
| --- | --- |
| Column Name | Description |
| OrigLuz | Origin LUZ |
| DestLuz | Destination LUZ |
| AM\_LS0 | AM Peak mode choice logsums with 0-auto |
| AM\_LS1 | AM Peak mode choice logsums with autos<adults |
| AM\_LS2 | AM Peak mode choice logsums for autos>=adults |
| MD\_LS0 | MD Peak mode choice logsums for 0-auto |
| MD\_LS1 | MD Peak mode choice logsums for autos<adults |
| MD\_LS2 | MD Peak mode choice logsums for autos>=adults |

## Table 8.72: Total Accessibility of LUZ derived by Simple or Logit Average method - luAccessibilities\_simple.csv and luAccessibilities\_logit.csv

|  |  |
| --- | --- |
| Column Name | Description |
| LUZ | Land Use Zone |
| AM\_WORK\_1 | Accessibility to Management Business Science and Arts employment, using AM peak skims and All households constants |
| AM\_WORK\_2 | Accessibility to Services employment, using AM peak skims and All households constants |
| AM\_WORK\_3 | Accessibility to Sales and Office employment, using AM peak skims and All households constants |
| AM\_WORK\_4 | Accessibility to Natural Resources Construction and Maintenance employment, using AM peak skims and All households constants |
| AM\_WORK\_5 | Accessibility to Production Transportation and Material Moving employment, using AM peak skims and All households constants |
| AM\_WORK\_6 | Accessibility to Military employment, using AM peak skims and All households constants |
| AM\_SCHOOL\_1 | Accessibility to Pre-school employment, using AM peak skims and All households constants |
| AM\_SCHOOL\_2 | Accessibility to K-8 enrollment, using AM peak skims and All households constants |
| AM\_SCHOOL\_3 | Accessibility to High school enrollment, using AM peak skims and All households constants |
| AM\_SCHOOL\_4 | Accessibility to Typical University enrollment, using AM peak skims and All households constants |
| AM\_SCHOOL\_5 | Accessibility to Non-typical (large) University enrollment, using AM peak skims and All households constants |
| MD\_NONMAN\_LS0 | Accessibility to Non-mandatory employment, using Midday skims and 0-auto constants |
| MD\_NONMAN\_LS1 | Accessibility to Non-mandatory employment, using Midday skims and autos<adults constants |
| MD\_NONMAN\_LS2 | Accessibility to Non-mandatory employment, using Midday skims and autos>=adults constants |

## Table 8.73: Number of Vehicles in CBD by MGRA, CBDByMGRA\_Vehicles

|  |  |
| --- | --- |
| Column Name | Description |
| MGRA | MGRA geography zone |
| EA | Early Morning |
| AM | Morning Peak |
| MD | Mid-Day |
| PM | Afternoon Peak |
| EV | Evening |
| Total | Total number of vehicles |

## Table 8.74: Number of Park and Ride Vehicles by TAP - PNRByTAP\_Vehicles.csv

|  |  |
| --- | --- |
| Column Name | Description |
| TAP | Transit Access Point |
| EA | Early Morning |
| AM | Morning Peak |
| MD | Mid-Day |
| PM | Afternoon Peak |
| EV | Evening |
| Total | Total number of Park and Ride vehicles |

## *Table 8.75: Parking Cost by MGRA - mgraParkingCost.csv*

|  |  |
| --- | --- |
| Column Name | Description |
| Mgra | MGRA geography zone |
| mgraParkArea | Category determining functionality of parking models  1: Trips with destinations in this MGRA may choose to park in a different MGRA, parking charges apply  2: Trips with destinations in parkarea 1 may choose to park in this MGRA, parking charges might apply  3: Only trips with destinations in this MGRA may park here, parking charges apply  4: Only trips with destinations in this MGRA may park here, parking charges do not apply |
| lsWgtAvgCostM | Logsum-Weighted monthly average cost |
| lsWgtAvgCostD | Logsum-Weighted daily average cost |
| lsWgtAvgCostH | Logsum-Weighted hourly average cost |

## Table 8.76: GHG emission results from EMFA2014 - EMFAC2014 – SG Output [YEAR]-.xlsx

|  |  |
| --- | --- |
| **Columns** | **Description** |
| Group |  |
| Area |  |
| Scenario |  |
| Sub-Area |  |
| Calendar Year |  |
| Season |  |
| Title |  |
| Veh. & Tech |  |
| EMFAC2007 Category |  |
| Vehicle Population |  |
| VMT |  |
| Trips |  |
| R-TOG Emissions |  |
| I-TOG Emissions |  |
| S-TOG Emissions |  |
| Total TOG EX Emissions |  |
| DIURN-TOG Emissions |  |
| HTSK-TOG Emissions |  |
| RUNL-TOG Emissions |  |
| RESTL-TOG Emissions |  |
| Total TOG Emissions |  |
| R-ROG Emissions |  |
| I-ROG Emissions |  |
| S-ROG Emissions |  |
| Total ROG EX Emissions |  |
| DIURN-ROG Emissions |  |
| HTSK-ROG Emissions |  |
| RUNL-ROG Emissions |  |
| RESTL-ROG Emissions |  |
| Total ROG Emissions |  |
| R-CO Emissions |  |
| I-CO Emissions |  |
| S-CO Emissions |  |
| Total CO Emissions |  |
| R-NOx Emissions |  |
| I-NOx Emissions |  |
| S-NOx Emissions |  |
| Total NOx Emissions |  |
| R-CO2 Emissions |  |
| I-CO2 Emissions |  |
| S-CO2 Emissions |  |
| Total CO2 Emissions |  |
| R-CO2 Emissions (Pavley I + LCFS) |  |
| I-CO2 Emissions (Pavley I + LCFS) |  |
| S-CO2 Emissions (Pavley I + LCFS) |  |
| Total CO2 Emissions (Pavley I + LCFS) |  |
| R-PM10 Emissions |  |
| I-PM10 Emissions |  |
| S-PM10 Emissions |  |
| Total PM10 EX Emissions |  |
| T-PM10 Emissions |  |
| B-PM10 Emissions |  |
| Total PM10 Emissions |  |
| R-PM2\_5 Emissions |  |
| I-PM2\_5 Emissions |  |
| S-PM2\_5 Emissions |  |
| Total PM2\_5 EX Emissions |  |
| T-PM2\_5 Emissions |  |
| B-PM2\_5 Emissions |  |
| Total PM2\_5 Emissions |  |
| R-SOx Emissions |  |
| I-SOx Emissions |  |
| S-SOx Emissions |  |
| Total SOx Emissions |  |
| Fuel GAS (1000 gal) |  |
| Fuel DSL (1000 gal) |  |

## Table 8.77: Temporary Static Inputs – visitor\_inboundStopDuration.csv

|  |  |
| --- | --- |
| Column Name | Description |
| TAZ | Zone |
| AVGTTS | Average Travel Time |
| DIST | Distance |
| PCTDETOUR | Percentage Detour |