

# **Metropolitan Washington Council of Governments**

## **COG/TPB Travel Forecasting Model**

**Version 2.1 D Draft #50**

**User's Guide**

**DRAFT**

**September 17, 2004**

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<b>Agency</b> The Metropolitan Washington Council of Governments (COG) and the National Capital Region Transportation Planning Board (TPB).  COG serves as the regional planning organization for the Washington metropolitan area. COG works toward solutions to regional problems, especially those related to regional growth, transportation, housing, human services, and the environment. The TPB is the designated Metropolitan Planning Organization (MPO) for transportation for the Washington region. Members of the TPB include representatives of local governments; state transportation agencies; the Maryland and Virginia General Assemblies; the Washington Metropolitan Area Transit Authority; and non-voting members from the Metropolitan Washington Airports Authority and federal agencies.	
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<b>Abstract:</b> This report describes the application process of a travel-forecasting tool for the Washington, D.C. region known as the Version 2.1 D Draft #50 model. This work represents a continuation of a multi-year models development plan that was formulated in FY-93 by the Travel Forecasting Subcommittee (TFS), a subcommittee of the TPB's Technical Committee. TPB staff has been developing the model during the past six months under the review of the TFS. The model contains a number of modeling improvements to the TPB's prior application model, Version 2.1/TP+/Release C model. The improvements were based on recommendations suggested by a recent expert panel review of the TPB's travel forecasting practice.	
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## **Chapter 1. Model Overview**

This report describes the application of the COG/TPB Travel Forecasting Model, Version 2.1 D Draft #50. The model is executed on microcomputer based and using the TP+ transportation planning software package (Version 3.2). The model has been in development over the past six months as part of a continuing multi-year models development program established to improve travel forecasting practice for the Washington, D.C. region. The models development program at COG is overseen by the Travel Forecasting Subcommittee (TFS) of the Transportation Planning Board's (TPB) Technical Committee.

The Version 2.1 D Draft #50 model is essentially a four-step planning tool consisting of trip generation, trip distribution, mode choice, and traffic assignment procedures. The model has been designed to operate on a 6,800-square-mile study area referred to as the "expanded cordon" region. The modeled area is comprised of 2,191 Traffic Analysis Zones<sup>1</sup> (or TAZs). The area encompasses 22 of the region's major jurisdictions spanning the District of Columbia, Northern Virginia, suburban Maryland, and one county in West Virginia.

An overview of the Draft #50 model structure and key improvements are discussed in this chapter. The implemented improvements were a direct result of recommendations made by a recent expert review panel of the TPB's current application model, Version 2.1/TP+/Release C. This chapter also presents the general procedure for applying the Draft #50 model. Chapters 2 through 12 describe individual program steps in greater detail. The program steps currently exist as either TP+ scripts and/or compiled Microsoft FORTRAN (Version 5.1 and PowerStation) routines. The report also includes three appendices containing relevant listings. Appendix A contains a listing of TP+ scripts that are utilized in the model application. Appendix B contains listings of control files that are called in conjunction with FORTRAN procedures. Finally, Appendix C contains a listing of batch files that are used to invoke each step of the model chain.

The Version 2.1 D Draft #50 model evolved from a series of models that began as the MINUTP-based Version 2 model (January 2000), and later as the Version 2.1/TP+ Release C model (December 2002). The model shares most of the structural characteristics of its predecessor models. The model employs demographic submodels to allocate the total number of households in a given zone among 64 cross-classes, defined as 4 income levels by 4 household size groupings by 4 vehicle availability groups. The trip generation and distribution models simulate daily person trips corresponding to four trip purposes: HBW, HBS, HBO, and NHB. The mode choice model apportions person trips for each of the four purposes among highway and transit modes. A time-of-day model is used to allocate daily vehicle trips among three time periods, a three-hour AM peak period, a three-hour PM peak period, and the remaining off-peak hours. The traffic assignment executions occur for each of the three time periods. Restrained speeds resulting from the AM peak and off-peak traffic assignments are recycled back to the generation

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<sup>1</sup> Although the expanded cordon zone system is numbered from 1 to 2,191, the modeled area is presently comprised of 2,019 zones, including external stations. A number of 'unused' TAZ number ranges have been reserved to support future subzone work. For further details, consult the network documentation, "FY-2002 Network Documentation: Highway and Transit Network Development for Version 1 and 2.1/TP+ Models," October 4, 2002.

and distribution steps. The model versions prior to the Draft #50 model, the speed feedback process did not influence mode choice.

The elements that distinguish the Draft #50 model from prior travel models pertain to an assortment of parameter updates and procedural modifications. The updates are summarized below:

- The Volume-Delay Function (VDF) used in the traffic assignment process has been adjusted for freeways. Free-flow speeds and capacities expressed as a function of facility type and area type have also been updated. The equilibrium assignment process has also been changed from a *maximum* of 10 iterations (subject to default stopping criteria in the TP+ ) to a *fixed number* of 20 iterations. A great deal of testing was explored in the traffic assignment area testing various conical functional forms, altering the number of iterations in the equilibrium assignment, and examining various closure characteristics. This particular area is one that will continue to be refined with respect to research findings and improved software capabilities.
- A toll modeling capability has been added to the model so that monetary values are considered in the trip distribution and traffic assignment steps. The network link file now contains a toll value variable (TOLL) and a toll facility type variable (TOLLGRP) whereby tolls can be specified as a fixed fee or per-mile rate. Three parameter files, TOLL.ESC, TOLL.INC and TOLL.SKM, are to be used to specify various toll policies. The capability involves converting monetary toll values to an equivalent time that is, in turn, added to the normal highway time and therefore affects highway pathbuilding. The added toll capability is a first step towards making the model sensitive to highway pricing policies.
- All cost components in the model previously developed in constant 1980 dollars are now developed in 1994 dollars. 1994 is the base year of the model calibration. These components include parking costs, highway tolls, and transit fares. All deflation factors in the model (i.e., in the highway building and transit fare building steps) are used to convert current-year costs into base-year 1994 costs.
- Zonal area type designations normally developed as a function of land activity density may now be optionally assigned an override value at the user's option. An override area type value may be deemed appropriate if special information about a zone's development is inconsistent with the automated code assigned on the basis of land use density (e.g., an aerial photograph of the zone). The override is specified in a zonal file used in network building.
- The model is now applied as a series of six iterations, i.e., the trip generation-to-traffic assignment 'loop' is executed six times so that reasonable equilibrium of the input speeds driving trip distribution and the output highway speeds resulting from the highway assignment process is attained. Moreover, the speed feedback process affects *both* trip distribution and *mode choice*. The rerunning of the mode choice model as a part of the speed feedback process had not been undertaken in previous TPB models.



- The NHB F-factors have been updated to account for a presumed under-estimation of commercial vehicle travel in the previous application model. The adjustment results in slightly larger NHB trip lengths than those developed previously.
- A parameter in the transit network build program (PATHSTYLE) has been revised from a value of '1' to a value of '0' to allow for more rigorous development of transit paths. The traditional specification of '1' is more computationally efficient but has recently been determined, in some cases, to produce inconsistent or illogical transit paths between closely competing alternatives. These types of problems have been largely reduced using the updated PATHSTYLE value. Transit pathbuilding has also been affected with an updated walk access link development process. The update was determined to be necessary based on a rigorous analysis of transit paths as a part of regional planning work. The WLKLNKTP program has been updated to more accurately reflect Metrorail station-to-bus-stop connections, particularly in the downtown area. Subsequent to these two transit pathbuilding updates, the mode choice model was re-estimated. The re-estimation also took into account recent FTA guidelines on ranges and characteristics of various mode choice coefficients.
- A methodology for reflecting the degradation of local bus speeds over time has been added to the model. The method involves reducing bus speeds on a service type and time-period basis in direct proportion to the expected reduction in arterial highway speeds. This type of modeling improvement had not been considered in previous TPB models.
- The number and magnitude of K-factors used in the trip distribution model have been reduced. Much of the reduction has been due to the implementation of the above technical improvements, such as the revised VDF function. Moreover, staff is comfortable that the remaining K-factors are justified and necessary to account for the fact that substantial regional travel patterns in the Washington region are not adequately captured using a traditional gravity model. In addition, aggregate adjustment factors used in the mode choice model have also been reduced.

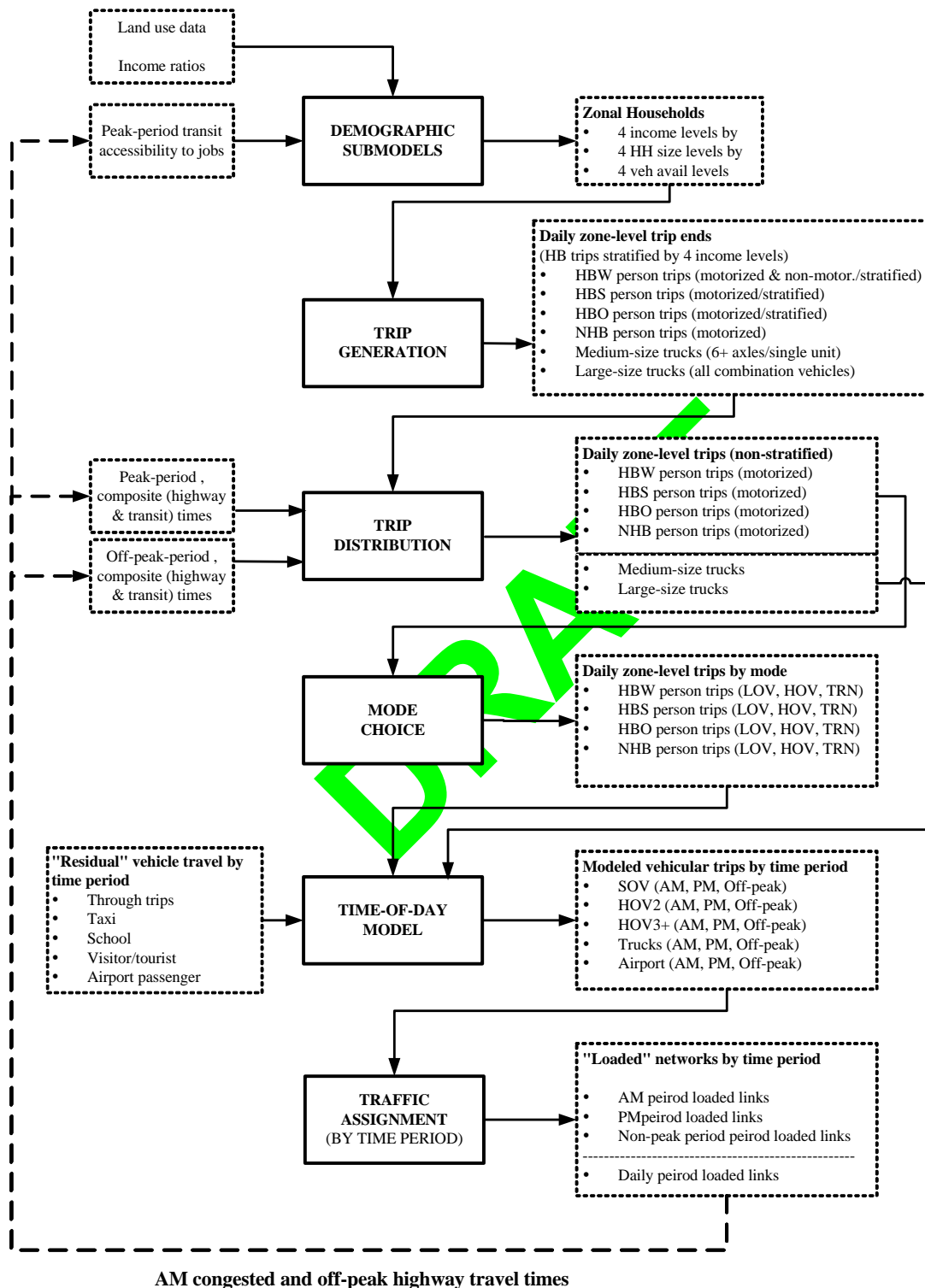
Further discussion on the model structure is provided in the next section.

### **1.1 Model Structure and Application**

Exhibit 1-1 is a somewhat more detailed graphic depiction of the structure of the Version 2.1 D Draft #50 modeling process. The exhibit indicates the elements that are generated from one step to the next. A more detailed discussion of the model structure follows.

The model requires three highway networks representing weekday operations occurring in the AM peak period (6:00-9:00 AM), the PM peak period (4:00-7:00 PM), and the off-peak period (comprised of the remaining 18 hours). Highway network coding reflects operational differences between the three periods. Examples of operational differences may include directionality changes (alternating one-way/two way operations), lane configuration changes, or vehicle prohibitions change (for example, facilities that are dedicated for HOV facilities during

Exhibit 1-1 Version 2.1 D Draft #50 Travel Model Structure



peak periods, but revert to general use operations during non-peak hours). The model also requires peak and off-peak transit networks. Transit networks are currently built 'over' highway network links and are designed to represent service conditions during two time periods, the AM peak-hour defined as 8:00-9:00 AM, and the off-peak defined as 10:00 AM-3:00 PM. Path-based transit fares are also developed for both time periods. Transit paths are categorized into two access markets: walk-access and drive access markets.

Land use inputs to the model are obtained through COG's Cooperative Land Use Forecasting process. The process results in traffic analysis zone (TAZ) level households, population, group quarters population, and employment by 4 categories (office, retail, industrial and other). The demographic models are first applied to allocate the total number of households among 64 cross-classes: 4 household income groups<sup>2</sup> by 4 household size groups (1, 2, 3, 4+) by 4 vehicle availability groups (0, 1, 2, and 3+ vehicles available). The apportionment is made at the TAZ level.

Exhibit 1-1 indicates that AM peak-hour transit accessibility measures are used as part of the demographic (vehicle availability) submodels.

The modeled trip purposes are defined as home-based work (HBW), home-based shop (HBS), home-based other (HBO), and non-home based (NHB). Two truck types are modeled: medium size trucks (single unit, 6+ axles) and heavy trucks (all combination vehicles). The trip generation process involves the application of daily trip rates corresponding to households in each of the 64 cross-classes. The HBW trip rates reflect *both* motorized (e.g., transit, automobile) and non-motorized (e.g., bicycle, walk) person travel, while the trip rates for the remaining purposes reflect motorized travel only. The non-motorized component of HBW trip-ends generated at the trip generation step is subsequently extracted from the total trip-ends prior to trip distribution. Trip attractions are computed as a function of gross land use categories. External (X/I and I/X) productions and attractions are entered as an exogenous input, by purpose, into the trip generation process and are unaltered. External home-based and NHB travel relates to auto person travel only, i.e. transit travel is not represented in MWCOG's external trip tables. The trip generation process yields productions and attractions that are stratified by the 4 income levels for the home-based purposes.

The trip distribution model utilizes the standard gravity model formulation. The measure of impedance used in the gravity model is a composite time function, which represents a blending of transit and highway travel times. AM peak service levels are used to formulate the HBW impedance, while off-peak service levels are used for the non-work models. The distribution step involves separate gravity model runs for 25 travel markets, given that home-based purposes are income stratified, and external automobile travel is modeled separately and is distinguished by interstate travel and non-interstate travel (See p. 5-1 of the calibration report for more details). However, the trip distribution process ultimately produces six daily trip tables corresponding to six person/truck purposes mentioned above.

The mode choice process is used to apportion total motorized person trips among auto driver, auto passenger, and transit modes. There are four separate models corresponding to each of the

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<sup>2</sup> The income levels used approximate household income quartiles.

modeled purposes. The HBW model also distinguishes HOV auto trips that utilize special preferential facilities that have been explicitly coded into the highway network. Subsequent to the mode choice step, the time-of-day model apportions daily auto driver trips among the three modeled time periods. The model applies temporal factors to the modeled trips on the basis of purpose, mode (SOV, carpool), and trip orientation (the home-to-non-home or the non-home-to-home direction). This step also includes provisions for apportioning daily residual travel<sup>3</sup> and truck travel among the three time periods. The time-of-day process ultimately produces three trip table files corresponding to the three time periods. Each file contains five vehicle trip files representing Single Occupant Vehicles (SOVs), 2-occupant vehicles (HOV2), 3 or more occupant vehicles (HOV3+), trucks, and airport passenger vehicles. The traffic assignment process involves separate executions for each of the three time periods. Each of the three runs employ fixed 20-iteration equilibrium assignment algorithm.

Exhibit 1-2 shows the application steps of the model. The exhibit indicates that an initial (or pump-prime) iteration occurs where a first pass of the four-step process occurs using initial AM and off-peak highway speeds, and initial mode choice percentages. The highway network is built with initial speeds and restrained AM and off-peak highway network times are then developed from the highway network. The 'skimmed' highway times are used to develop zone-to-PNR lot links as part of the transit network. With the development of the transit network, trip generation and distribution is executed. The resulting person trips are converted to vehicle trips on the basis of default mode choice percentages, which are then assigned to the highway network.

The next series of iterations (1 through 6) involve the execution the complete four step model with recycled traffic assignment based speeds as input. The AM and Off-peak restrained highway times are next used to update the zone-to-PNR link speeds, the transit network must therefore be re-built to update transit Level-of-Service matrices. The highway and transit time skims are used as inputs to the mode choice model. The auto driver trips produced from the mode choice model are processed through the time-of-day model the next highway assignment step is executed. This four-step loop occurs for a full six iterations.

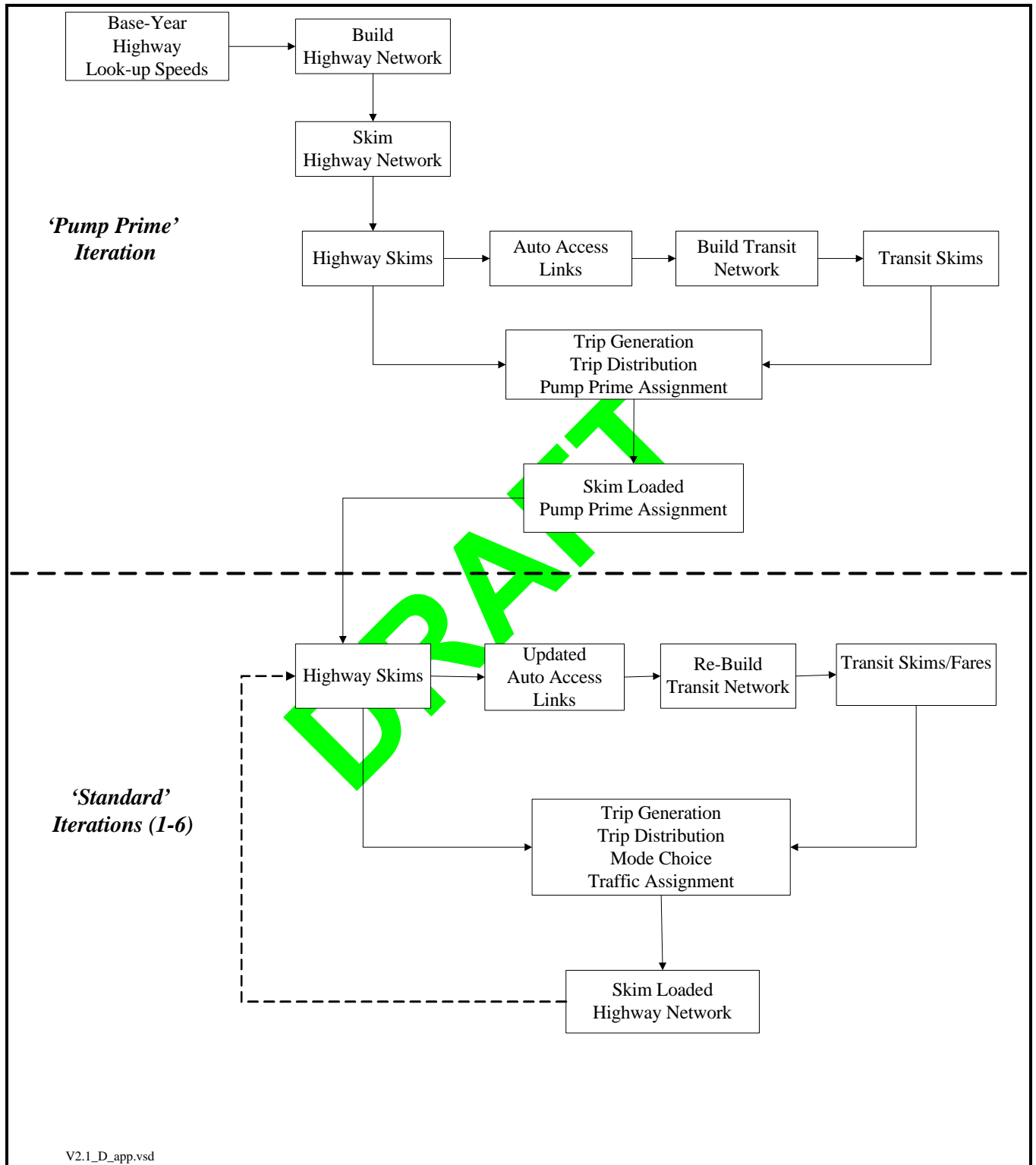
The Draft #50 model uses a successive volume averaging process to force convergence of link volumes, and hence, link highway speeds. The averaging occurs individually for each of the three time periods at the link level, as follows:

- The 'final' first iteration link volumes are equal to the 'raw' assigned link volumes.
- The 'final' second iteration link volume equals the  $\frac{1}{2}$  of the first iteration link volume plus  $\frac{1}{2}$  of the second iteration assigned link volume.
- The 'final' third iteration link volume equals  $\frac{2}{3}$  of the 'final' second iteration link volume plus  $\frac{1}{3}$  of the third iteration assigned volume.
- :
- The 'final' sixth iteration link volume equals  $\frac{5}{6}$  of the 'final' fifth iteration link volume plus  $\frac{1}{6}$  of the sixth iteration assigned volume.

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<sup>3</sup> Residual travel, also referred to as 'miscellaneous' travel, represents special travel markets that are typically not well represented in home interview surveys; it is comprised of taxi, school, visitor/tourist, and airport passenger auto driver travel.

Exhibit 1-2 Version 2.1 D Draft #50 Forecast Application Process



## 1.2 Computer Hardware, Software, and Execution

The Version 2.1 D Draft #50 model functions in a PC/Windows environment. An Intel-based (or compatible) microcomputer with a minimum 3.0 GHz processing speed, and a minimum 60 GB of hard disk storage capacity is recommended. MWCOG has developed the Draft #50 model on PCs running the Microsoft Windows 2000 operating system. On a 3.0 GHz Pentium 4 PC, the travel model takes about 15 to 17 hours to run. For example, the 2000 model run took about 15 hours and 45 minutes. By contrast, the 2030 model run took over 17 hours to run, since it uses an additional transit constraint procedure (for transit trips going through the regional core) that is not used for runs prior to 2005.

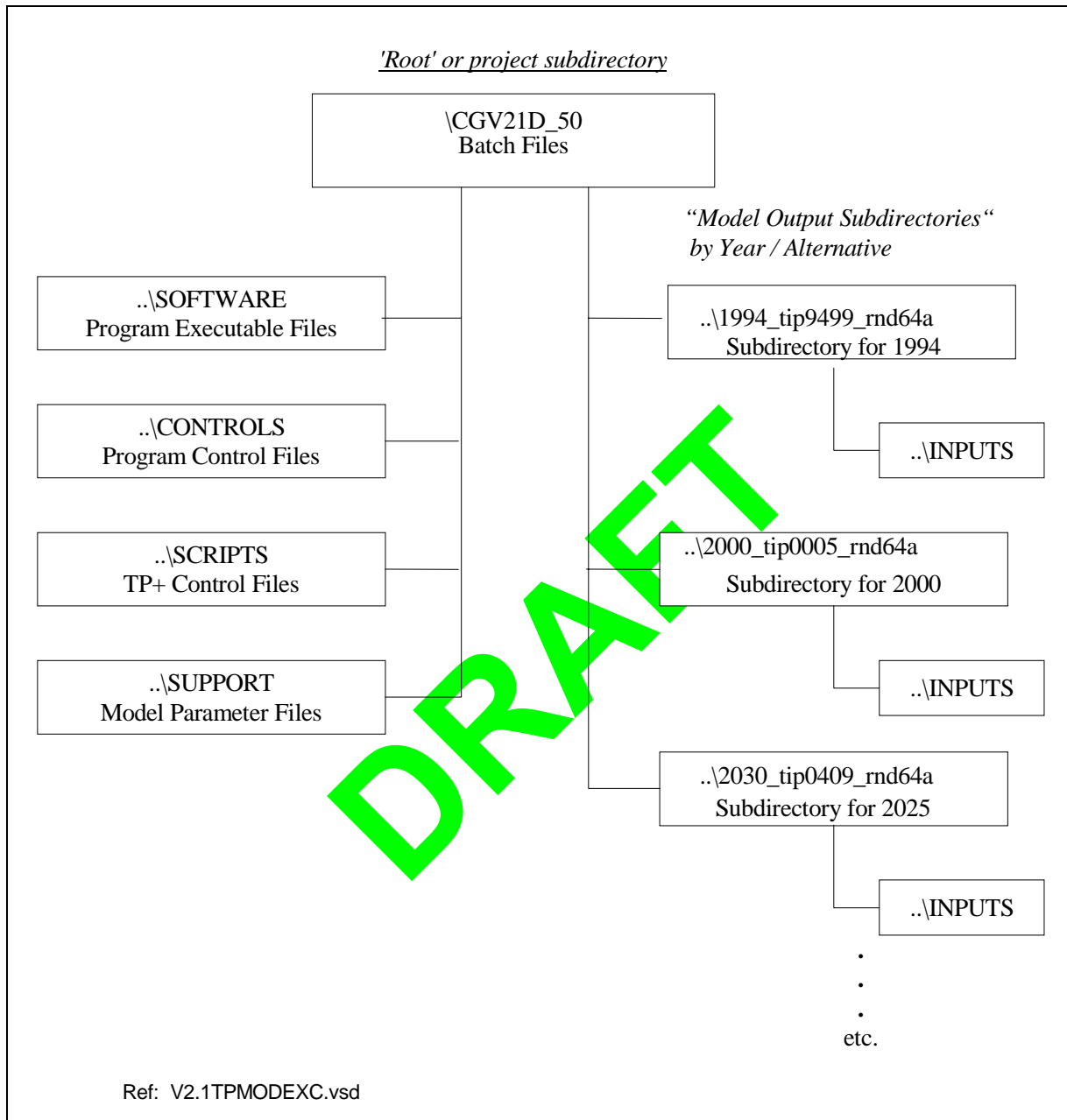
COG has designed the Version 2.1 D Draft #50 application as a series of standardized batch files that are executed from a command prompt window, as opposed to a 'point-and-click' program. The application relies on the use of: 1) a special subdirectory structure, 2) standardized batch files, and 3) a generic file naming system of input filenames, which are referenced in pre-established TP+ scripts and control files.

An example subdirectory structure is shown graphically in Exhibit 1-3. The exhibit indicates that designated subdirectories are established for software files (*\SOFTWARE*), control files (*\CONTROLS*), TP+ scripts (*\SCRIPTS*), and general parameter files (*\SUPPORT*). Parameter files are those that do not change by alternative, such as K-factors, F-factors, and the like. Furthermore, subdirectories are established for model inputs and outputs associated with specific years/alternatives. As indicated on the exhibit, each scenario has its own scenario subdirectory, where specific outputs and reports are written. Below each scenario subdirectory is an *\INPUTS* subdirectory where all necessary model inputs are kept (e.g., land use file, network files, etc.).

The batch files reside in the top-level subdirectory, known as the "root" (e.g., *\cgv21d\_50* on Exhibit 1-3). The batch files function to execute basic modeling steps (reading and writing files from appropriate subdirectories), making extensive use of "command line arguments" and "Windows environment variables." The batch files call TP+ programs or customized Fortran programs shown in Exhibit 1-4. The batch files may be executed one at a time, or alternatively, may be executed as a group (e.g., *RUNALL\_1994.BAT*). The batch files also create standardized listings resulting from the various program steps (shown on Exhibit 1-5). Listing files are assigned \*.RPT or \*.TAB naming extensions. The former refers to TP+ listings while the latter refers to files containing trip table totals or jurisdictional summaries. Listings of the batch files developed thus far are shown in Appendix C. All batch files must be executed from the top-level subdirectory.

All of the files in the *\INPUTS* subdirectory are assigned generic filenames. Consequently it is the subdirectory name, rather than the filename itself, that identifies the year / alternative associated with a specific file. Accordingly, it is incumbent on the analyst to make certain that the appropriate files are placed in the correct subdirectory. The advantage of using generic names is that the input and output filenames referenced in each TP+ script and control file do not need to be updated. A listing of the generic filenames used for modeling inputs are shown on Exhibit 1-6. Like modeling inputs, support files (residing in the *\SUPPORT* subdirectory) are assigned generic names. These are listed on Exhibit 1-7.

Exhibit 1-3 Version 2.1 D Draft #50 subdirectory structure for model execution



**Exhibit 1-4 Summary of Version 2.1 D Draft #50 Fortran Executables**

**(Required in addition to TP+ software)**

Program Name	Size	Date
ATYPETP.EXE	106,880	12/3/2002
CGTGV2TP.EXE	397,968	12/3/2002
CNTCONN2.EXE	129,024	9/27/2002
COGMC.EXE	561,486	4/6/2001
COGMCA1.EXE	232,468	6/2/2004
EXTRTAB.EXE	24,663	7/26/2001
GIS_PROC.EXE	48,258	12/6/2002
HHSIZINC.EXE	54,894	6/19/2000
MFARE1.EXE	59,748	6/28/1992
MFARE1OP.EXE	55,176	1/22/1999
MFARE2TP.EXE	355,882	4/6/2001
MTXIJTP.EXE	74,561	12/4/2002
NETSW2.EXE	109,568	4/16/2001
NODESTB.EXE	105,472	4/9/2001
PREFARTP.EXE	40,704	11/26/2002
SORTLINE.EXE	45,056	11/9/2001
STAPROTP.EXE	64,652	12/4/2002
TGCHK.EXE	27,012	4/12/2001
VEHAVTP.EXE	66,402	12/4/2002
WLKLNKTP.EXE	122,864	5/24/2004

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**Exhibit 1-5 Summary of Version 2.1 D Draft #50 Model Steps and Associated Report Names**

Iteration	Batch File Step	Model Step	Output	TP+ Script(s) / Executable programs(s)	Report File	Tab File
<b>Pump-Prime</b>	Set_Factors.bat	Preparation step	K-Factor / time penalty establishment	Set_Factors.s	Set_Factors.rpt	
	PP_Highway_Build.bat	Hwy. Network development	Highway network building	Highway_build.s Closestp.exe Atypetp.exe Arealktp.exe Staprotp.exe	PP_Highway_Build.rpt staprotp.rpt	
	PP_Highway_PNR.bat	Transit network development	Auto access skims	pump_prime_skims.s	Pump_prime_skims.rpt	
	PP_Transit_Prep.bat/CLRP_plu s_pp_transit_prep.bat	Transit network development	Transit support link files	NETSW2.exe NODESTB.exe SORTLINE.exe CNTCONN2.exe GIS_PROC.exe WLKLNKTP.exe PREFARTP.exe	pp_nt_am.rpt pp_nt_op.rpt pp_ct2_am.rpt pp_ct2_op.rpt pp_gis_proc.rpt pp_walk_am.rpt pp_walk_op.rpt Update_Wklinks.rpt pp_prefartp.rpt	
	PP_Transit_Skim.bat	Transit network skimming	Transit Level-of-Service skimming files using initial auto access skims	Transit_Skims.s	pp_TRANSIT_SKIMS.RPT	
	PP_Trip_Generation.bat	Demographic models/Trip Generation	Zonal HHs by socio-economic group and trip productions/attractions	HHSIZINC.exe VEHAVTP.exe CGTGV2TP.exe COGMCA1.exe	pp_hhsizinc.rpt pp_vehavtp.rpt pp_hbw_tg.rpt pp_hbs_tg.rpt pp_hbo_tg.rpt pp_nhb_tg.rpt pp_mtk_tg.rpt pp_htk_tg.rpt pp_cogmca1.rpt	
	PP_Trip_Distribution.bat	Trip Distribution	Person trip and truck trip matrices by purpose	Trip_Distribution.s	pp_TrpDst.rpt	pp_TrpDst.tab

**Summary of Version 2.1 D Draft #50 Model Steps and Associated Report Names -Continued**

Iteration	Batch File Step	Model Step	Output	TP+ Script(s) / Executable programs(s)	Report File	Tab File
<b>Pump-Prime</b>	PP_Auto_Drivers.bat	'Initial' auto driver trip development	Auto driver trips by occupant level	PP_Auto_Drivers.s	pp_Auto_Drivers.rpt	PP_Auto_Drivers.tab
	Misc_Time-of-Day.bat	Non-modeled time of day	Non-modeled vehicle trips apportioned by time of day	Misc_Time-of-Day.s	Misc_Time-of-Day.rpt	Misc_Time-of-Day.tab
	PP_Time-of-Day.bat	Time of Day	Modeled vehicle trips by time of day	Time-of-Day.s	PP_Time-of-Day.rpt	PP_Time-of-Day.tab
	PP_Highway_Assignment.bat	Traffic assignment	Assign initial vehicle trips to the highway network by time period	Highway_Assignment.s	PP_Highway_Assignment.rpt	PP_Highway_Assignment.tab
	PP_Highway_Skims.bat	Highway network skimming	Highway skims, based on highway assignment loads	Pump_Prime_Highway_Skims.s	PP_Highway_Skims.rpt	
<b>Iterations 1-6</b>	Highway_PNR.bat	Transit network re-development	Auto-access skims based on previous iteration highway skims	Auto_Access.s	<Iter> Auto_Access.rpt	
	Transit_Skim.bat	Transit network skimming	Transit Level-of-Service skims using current iteration auto access skims	Transit_Skims.s	<Iter> Transit_Skims.rpt	
	Transit_Fare.bat	Transit Fares	Zone-to-zone transit fares based on skimmed transit path	Metrorail_Skims.s Export_Fares.s	<Iter> _metrorail_skims.rpt <Iter> _mf1_am.rpt <Iter> _mf1_op.rpt <Iter> _mf_am_wk.rpt <Iter> _mf_am_dr.rpt <Iter> _mf_op_wk.rpt <Iter> _mf_op_dr.rpt <Iter> _export_fares.rpt	

Summary of Version 2.1 D Draft #50 Model Steps and Associated Report Names -Continued

Iteration	Batch File Step	Model Step	Output	TP+ Script(s) / Executable programs(s)	Report File	Tab File
<b>Iterations 1-6</b>	Trip_Generation.bat	Demographic models/Trip Generation	Zonal HHs by socio-economic group and trip productions/attractions		<Iter>_hhsizinc.rpt <Iter>_vehavtp.rpt <Iter>_hbw_tg.rpt <Iter>_hbs_tg.rpt <Iter>_hbo_tg.rpt <Iter>_nhb_tg.rpt <Iter>_mtk_tg.rpt <Iter>_htk_tg.rpt <Iter>_cogmcal.rpt	
	Trip_Distribution.bat	Trip Distribution	Person trip and truck trip matrices by purpose	Trip_Distribution.s	<Iter>_TrpDst.rpt	<Iter>_TrpDst.tab
	Mode_Choice.bat/Mode_choice_TC.bat	Mode Choice Model	Develop person trips by purpose and mode	MC_Summary.s	<Iter>_mc_summary.rpt <Iter>_mc_constraint.rpt <Iter>_mc_consumsummary.rpt	<Iter>_mc_summary.tab <Iter>_mc_constraint.tab <Iter>_mc_consumsummary.tab
	Auto_Driver.bat	Auto driver trip development	Auto driver trips by occupant level	Auto_Drivers.s	<Iter>_mc_Auto_Drivers.rpt	<Iter>_mc_Auto_Drivers.tab
	Time-of-Day.bat	Time of Day	Modeled vehicle trips by time of day	Time-of-Day.s	<Iter>_Time-of-Day.rpt	<Iter>_Time-of-Day.tab
	Highway_Assignment.bat	Traffic assignment	Assign initial vehicle trips to the highway network by time period	Highway_Assignment.s	<Iter>_Highway_Assignment.rpt	<Iter>_Highway_Assignment.tab
	Highway_Skims.bat	Highway network skimming	Highway skims, based on highway assignment loads	Highway_Skims.s	<Iter>_Highway_Skims.rpt	

Note: <Iter> refers to Iteration Code that is specified as "I1" to "I6"

**Exhibit 1-6 List of 'Standard' Version 2.1 D Draft #50 Input Filenames**

	Filename	Description
1	AEXT .ASC	Zonal External Attractions
2	PEXT .ASC	Zonal External Productions
3	BUSFARAM .ASC	MFARE2 AM Bus Fare Zone Matrix
4	BUSFAROP .ASC	MFARE2 Off-Peak Fare Zone Matrix
5	GISWKAAM .ASC	GIS AM Zonal Transit Access File
6	GISWKAOP .ASC	GIS Off-Peak Zonal Transit Access File
7	GISWKLAM .ASC	GIS AM Walk Link File
8	GISWKLOP .ASC	GIS Off-Peak Walk Link File
9	HBOMC .OLD	Initial HBO Mode Choice Trips
10	HBSMC .OLD	Initial HBS Mode Choice Trips
11	HBWMC .OLD	Initial HBW Mode Choice Trips
12	NHBMC .OLD	Initial NHB Mode Choice Trips
13	LINK .ASC	Highway Links
14	NODE .ASC	Highway Node File
15	AREAOVER .ASC	Zone Area Type Override File
16	AMSPD .LKP	AM Facility/Area Type Speed Look-up
17	OPSPD .LKP	Off-Peak Facility/Area Type Speed Look-up
18	TAZAMSPDLKP	AM TAZ/Facility Type Speed Look-up
19	TAZOPSPDLKP	Off-Peak TAZ/Facility Type Speed Look-up
20	ZONE .ASC	Zonal Land Use
21	LBUS_TIMFTRS .ASC	Local Bus Time Degradation Factors
22	MFARE1 .A1A	MFARE1 A1 Deck
23	MODE1AM .TP	AM Mode 1 Transit Lines
24	MODE1OP .TP	Off-Pk Mode 1 Transit Lines
25	MODE2AM .TP	AM Mode 2 Transit Lines
26	MODE2OP .TP	Off-Pk Mode 2 Transit Lines
27	MODE3AM .TP	AM Mode 3 Transit Lines
28	MODE3OP .TP	Off-Pk Mode 3 Transit Lines
29	MODE4AM .TP	AM Mode 4 Transit Lines
30	MODE4OP .TP	Off-Pk Mode 4 Transit Lines
31	MODE6AM .TP	AM Mode 6 Transit Lines
32	MODE6OP .TP	Off-Pk Mode 6 Transit Lines
33	MODE7AM .TP	AM Mode 7 Transit Lines
34	MODE7OP .TP	Off-Pk Mode 7 Transit Lines
35	MODE8AM .TP	AM Mode 8 Transit Lines
36	MODE8OP .TP	Off-Pk Mode 8 Transit Lines
37	MODE9AM .TP	AM Mode 9 Transit Lines
38	MODE9OP .TP	Off-Pk Mode 9 Transit Lines
39	RAIL_LNK .BSE	Rail Links
40	RIVERSTP .BNA	River Coordinate File
41	AIRPAX .ADR	Air Passenger Auto Dr. Trips
42	SCHL .ADR	School Auto Dr. Trips
43	TAXI .ADR	Taxi Auto Dr. Trips
44	VISI .ADR	Visitor/Tourist Auto Dr. Trips
45	STA_TPP .BSE	Rail Station/PNR File
46	TAZFRZN .ASC	TAZ/Bus Fare Zone Equivalency
47	TRNPEN .DAT	Metrorail Station Network Turn Penalty File

**List of 'Standard' Version 2.1 D Draft #50 Input Filenames Continued**

	<b>Filename</b>	<b>Description</b>
48	TOLL.ESC	Highway Toll Value / Deflator File
49	TOLL.INC	Highway Toll /Time Equivalent by Income Grp.
50	TOLL.SKM	Highway Toll/Time Equivalent by Veh. Type
51	WALK_AM.OLD	Previously developed AM Walk Link File – <i>Optional</i>
52	WALK_OP.OLD	Previously developed Off-Pk Walk Link File – <i>Optional</i>
53	XXAUT.VTT	Through Auto Drivers
54	XXTRK.VTT	Through Trucks

**DRAFT**

**Exhibit 1-7 Version 2.1 D Draft #50 Support File List**

	Filename	Description
1	ADJZPAF7.UPW	Trip Generation Zonal Adjustment Files
2	ADJZPAF7.UPS	
3	ADJZPAF7.UPO	
4	ADJZPAF7.UPN	
5	ADJZPAF7.HTK	
6	ADJZPAF7.MTK	
7	HBWK.DAT	Binary K-Factors Files
8	HBSK.DAT	
9	HBOK.DAT	
10	NHBK.DAT	
11	MTKK.DAT	
12	HTKK.DAT	
13	HBWPEN.03	Superdistrict ASCII Time Penalty Files
14	HBSPEN.03	
15	HBOPEN.03	
16	NHBPEN.03	
17	HBWPEN.DAT	Zonal Binary Time Penalty Files
18	HBSPEN.DAT	
19	HBOPEN.DAT	
20	NHBPEN.DAT	
21	HBWV2.FFS	Friction Factor Files
22	HBSV2.FFS	
23	HBOV2.FFS	
24	N_TV2.FFS	
25	JURISV21.EQV	Superdistrict/Zone Equivalency File
26	MCCF_HBW.ASC	Mode Choice Car Occ. Superdistrict Adjustment Files
27	MCCF_HBS.ASC	
28	MCCF_HBO.ASC	
29	MCCF_NHB.ASC	
30	MCTF_HBW.ASC	Mode Choice Transit Pct. Superdistrict Adjustment Files
31	MCTF_HBS.ASC	
32	MCTF_HBO.ASC	
33	MCTF_NHB.ASC	
34	MC_FAC.ASC	
35	V2TODTPP.PAR	Time-of-Day Model Specifications

### 1.3 Launching a Model Run

The model is normally launched from a command window or command prompt (prior to Windows 2000, this was known as a DOS window). The command window should be opened to the root directory (e.g., c:\user\cgv21d\_50). This may be done expeditiously by opening Windows Explorer, navigating to the root directory, selecting the root subdirectory, and right-clicking the mouse, choosing “Command Prompt Here” in Windows 2000.<sup>4</sup> The command prompt should show something like this:

```
C:\user\cgv21d_50>
```

The basic syntax for running the model is

<runall batch file name> <name of the scenario specific subdirectory>

For example:

```
C:\user\cgv21d_50> runall_1994.bat 1994_tip9499_rnd64a
```

will run the “runall\_1994.bat” batch file using the “1994\_tip9499\_rnd64a” subdirectory as the scenario subdirectory. While the model is running, it sends information to the screen (in the command window). For example, here is the beginning of the information sent for a year-2000 model run:

```
C:\user\cgv21d_50>set _year_=2000
C:\user\cgv21d_50>set _alt_=Base
C:\user\cgv21d_50>rem ===== Pump Prime Iteration =====
C:\user\cgv21d_50>set _iter_=pp
C:\user\cgv21d_50>set _prev_=pp
C:\user\cgv21d_50>call Set_Factors.bat 2000_tip0005_rnd64a
C:\user\cgv21d_50>cd support
C:\user\cgv21d_50\support>del tppl*.*
C:\user\cgv21d_50\support>del set_factors.rpt
C:\user\cgv21d_50\support>start /w TPPLUS.EXE ..\scripts\Set_Factors.s /start -Ptppl -S..\support
C:\user\cgv21d_50\support>if errorlevel 1 goto error
C:\user\cgv21d_50\support>copy tppl*.prn set_factors.rpt
tppl0001.PRN
1 file(s) copied.
```

---

<sup>4</sup> In Windows XP, the “command prompt here” option is not available, unless you install the Windows XP Power Toy, Command Here application (<http://www.microsoft.com/windowsxp/downloads/powertoys/xppowertoys.mspx>).

This information includes both “standard output” and “standard error.” “Standard error” includes any error messages that may be generated during the running of a model. For example, if a batch file tries to delete a file that does not exist, it will generate the error message “File not found,” and this is sent to the screen, since standard error is sent to the screen by default. Standard output includes any non-error messages, such as “1 file copied.”

Typically, due to the long run times, a model run is launched in the evening and is ready the next morning. When we launch a model run, we typically re-direct the standard error to a file. This allows us to review the file the next morning to make sure that there were no error messages (or at least, no critical error messages). Otherwise, the error messages would be simply sent to the screen, which has a limited number of lines it will store (The screen buffer may be controlled by the user. It is typically around 300 to 700 lines). The following command will launch a model run and re-direct standard error to a file:

```
C:\user\cgv21d_50> cmd /c runall_1994.bat 1994_tip9499_rnd64a 2> errs1994.txt
```

The “cmd /c” starts a new instance of the Windows 2000 command interpreter in the current command window. The “2>” ensures that only standard error, not standard output, is sent to the file.

A further enhancement on the run command is to use the “timethis.exe” utility from the Windows 2000 Resource Kit. This file is freely available on the Web. This utility will report the run time for a given command. Thus,

```
C:\user\cgv21d_50> timethis "cmd /c runall_1994.bat 1994_tip9499_rnd64a 2> errs1994.txt"
```

will result in the following report on the screen at the end of the model run:

```
TimeThis : Command Line : cmd /c runall_2000.bat 2000_tip0005_rnd64a 2> errs2000.txt
TimeThis : Start Time : Wed Sep 08 16:54:43 2004
TimeThis : End Time : Thu Sep 09 08:39:32 2004
TimeThis : Elapsed Time : 15:44:48.772
```

The quotes around the command are necessary when re-direction is used.

The final enhancement is to re-direct the standard output to a file. In the past, if you redirected the standard output to a file, you would see nothing on the screen till the model run was done. Now, we use a free utility called “tee.exe” that splits the standard output into two copies, sending one to a file and one to the screen.<sup>5</sup> Thus, the final command is:

```
timethis "cmd /c runall_1994.bat 1994_tip9499_rnd64a 2> errs1994.txt" | tee scr_outp1994.txt
```

---

<sup>5</sup> <http://www.csc.calpoly.edu/~bfriesen/software/console.shtml>.



## Chapter 2. Highway Network Building

### **Input(s):**

1. Land Use File	(ASCII)
2. Node Coordinate File	(ASCII)
3. Link File	(ASCII)
4. Station/PNR lot File	(ASCII)
5. Metrorail/Commuter Rail Link File	(ASCII)
6. Initial Speed Lookup Files	(ASCII)
7. Area Type Override file	(ASCII)
8. Zonal Land Use File	(ASCII)
9. Toll Deflation File	(ASCII)

### **Output(s):**

Unloaded Links File	(ASCII)
Highway Link File	(ASCII)
Freeway Link File	(ASCII)
AM, PM, Off-Peak Highway Network File	(Binary)
Highway Link File	(ASCII)
Freeway Link File	(ASCII)

TRNBUILD Station Node/Link Files	(ASCII)
Walk Link File, TRNBUILD Format	(ASCII)
TRNBUILD PNR Node/Link Files	(ASCII)
TRNBUILD Bus/Station Connect Link Files	(ASCII)
TRNBUILD PNR/Station Connect Link Files	(ASCII)
TRNBUILD Walk Network Link File	(ASCII)
MFARE1 A1 Deck File	(ASCII)

TAZ/PNR Equivalence table	(ASCII)
Highway and Transit Coordinate (XY) File	(ASCII)
Zonal Highway Terminal Time File	(ASCII)

### **Program File(s):**

STAPROTP.EXE  
TP+

### **Control/Support File(s):**

STAPROTP.CTL (Control files for the STAPROTP Program)  
HIGHWAY\_BUILD\_TOLL.S (TP+ script file for network building)

**Application Details:**

The purpose of the highway network building process is to establish a single binary highway network containing link attributes corresponding to AM peak, PM peak, and off-peak time periods. The process requires a highway link file and a nodes file and several supporting files. The nodes file contains the x/y coordinate units of each highway node, based on the NAD83 system in whole feet. HIGHWAY\_BUILD\_TOLL.S is the TP+ script that is used. The script first determines the nearest zone centroid associated with each link in the highway network.<sup>1</sup> It then determines the area type of each zone in the region based on land activity density. The density measure is defined jointly by population and employment densities for a one-mile ‘floating’ radius about each zone as shown on Exhibit 2-1 :

**Exhibit 2-1 Version 2 Highway Network Area Type Definitions**

**Relationship of Area Type Codes to Land Use Density**

One-Mile ‘Floating’ Pop. Density (Pop/Sq mi.)	One-Mile ‘Floating’ Employment Density (Emp / Sq mi)						
	0-100	101-500	501-1,500	1,501-5,000	5,001-15,000	15,001-35,000	35,001+
0-100	7	7	5	5	2	2	2
101-350	7	5	5	5	2	2	2
351-1,500	6	6	5	5	2	2	2
1,501-3,500	6	6	4	3	2	2	2
3,501-6,500	4	4	3	3	2	2	1
6,501-10,000	4	3	3	3	2	2	1
10,0001+	3	3	3	2	2	2	1

The highway network building process is used to build ASCII link records into a binary network file. The script also performs other functions. It creates transit walk network links which are used in the transit network building process. The script also builds zonal highway terminal times. Highway terminal times vary from 2 to 8 minutes as a function of employment density.

The STAPROTP program is used to create transit link and node files in TRNBUILD format, on the basis of two user-prepared files. Exhibit 2-4 describes the control cards that are required for the program. One input file, called a ‘station’ file, contains attributes associated with all base and future transit stations and PNR lots. The second file is a “rail link” file, which contains distances and speeds of all fixed guideway links pertaining to Metrorail and commuter rail systems. The program also creates a TAZ-PNR equivalence file that is used in the building of drive access links. Finally, the program also creates three files that support the fare (MFARE) development process, a Metrorail link and node file, and the zonal data file (the “A1 deck”) for the MFARE1 and MFARE1OP programs.

<sup>1</sup> Each link is associated with one zone, but there is no guarantee that each zone is associated with a link.

Exhibits 2-5 through 2-9 show the input file format descriptions for the HIGHWAY\_BUILD\_TOLL.S and STAPROTP programs.

**Exhibit 2-2 STAPROTP Control Parameters**

<i>Type</i>	<i>Name</i>	<i>Description</i>
&files	Statf	Station file input
	Rlnkf	Rail link file input
	Metlnkm1	Metrorail Link file for MFARE1 process
	Metlnkf	Metrorail Link file in TRNBUILD format
	Comlnkf	Comm.Rail Link file in TRNBUILD format
	Metnodm1	Metrorail Node file for MFARE1 program
	Metnodf	Metrorail Node file in TRNBUILD format
	Comnodf	Comm. Rail Node file in TRNBUILD format
	Metpnrf	Metrorail PNR Node file in TRNBUILD format
	Compnrnf	Comm. Rail PNR Node file in TRNBUILD format
	Buspnf	Bus PNR node file in TRNBUILD format
	Mpnlf	Metrorail/PNR Connect link file in TRNBUILD format
	Cpnrlf	Comm. Rail /PNR Connect link file in TRNBUILD format
	Bpnlf	Bus /PNR connect link file in TRNBUILD format
	Metblf	Metrorail/Bus connect link file in TRNBUILD format
	Comblf	Comm.Rail/Bus connect link file in TRNBUILD format
	Mf1a1	A1 deck for the MFARE1 program
Tazpnrf	TAZ / PNR equivalence in MATRIX-ready format	
S_pxyf	Station/PNR XYZ file	

**Input File Descriptions and Formats:**

1. Land Use File

**Exhibit 2-3 Land Use File Format Description**

<i>Columns</i>	<i>Format</i>	<i>Field Description</i>
1- 4	I4	TAZ (1-2,191)
8- 15	I8	Households
16- 23	I8	Household Population
24- 31	I8	Group Quarters Population
32- 39	I8	Total Population
40- 47	I8	Total Employment
48- 55	I8	Industrial Employment
56- 63	I8	Retail Employment
64- 71	I8	Office Employment
72- 79	I8	Other Employment
80- 81	I2	Jurisdiction Code (0-23) 0/dc, 1/mtg, 2/pg, 3/alr/, 4/alx,5, ffx, 6/ldn, 7/ pw, 8/(unused), 9/ frd, 10/how, 11/aa, 12/chs, 13/(unused), 14/car, 15/cal, 16/stm, 17/kg, 18/jbg, 19/stf, 20/spts, 21/fau, 22/clk, 23/jef
83- 92	F10.4	Gross Land Area (in sq. miles)
94- 95	I2	Ratio of zonal HH median income to regional median HH income in tenths (i.e. 10 = 1.0), per 1990 CTPP.
97- 98	I2	Airline distance to the nearest external station in whole miles.

2. Node Coordinate File

**Exhibit 2-4 Node Coordinate File Format Description**

<i>Columns</i>	<i>Format</i>	<i>Field Description</i>
1- 6	I6	Highway Node Number
7- 14	I8	X-Coordinate (NAD83-based in whole feet)
15- 22	I8	Y-Coordinate (NAD83-based in whole feet)

### 3. Base Highway Link File

**Exhibit 2-5 Base Highway Link File Format Description**

<i>Columns</i>	<i>Format</i>	<i>Field Description</i>
1-5	I5	A node
6-10	I5	B node
13-17	F5.2	Link Distance (in whole miles with explicit decimal)
23-24	I2	Speed Class (unused, place marker field)
26-27	I2	Capacity Class (unused place marker field)
30-33	I4	Daily Ground Count in thousands
39-40	I2	Jurisdiction Code (0-23) <i>0/dc, 1/mtg, 2/pg, 3/alr/, 4/alx, 5, ffx, 6/ldn, 7/ pw, 8/(unused), 9/ frd, 10/how, 11/aa, 12/chs, 13/(unused), 14/car, 15/cal, 16/stm, 17/ kg, 18/fbg, 19/stf, 20/spts, 21/fau, 22/clk, 23/jef</i>
51-52	I2	Screenline Code
54-55	I2	Link Facility Type Code (0-6) <i>0/centroids, 1/Freeways, 2/Major Art., 3/Minor Art, 4/ Collector, 5/ Expressway, 6/ Ramp (future use)</i>
61-64	I4	Toll Value in current year dollars
67-67	I1	Toll Group Code (1-9)
81-82	I2	AM Peak No. of Lanes
84-85	I2	AM Peak Limit Code (0-9)
87-88	I2	PM Peak No. of Lanes
90-91	I2	PM Peak Limit Code (0-9)
93-94	I2	Off-Peak No. of Lanes
96-97	I2	Off-Peak Limit Code (0-9)
107-116	A/N	Project ID

*Notes:*

- *The mode choice model requires that all costs be in 1980 dollars.*
- *Limit Codes are 0,1 = General Use, 2 = HOV2,3+ only, 3 = HOV 3+ Only, 4 = Truck Prohibited, 5 = Non-Airport Vehicles Prohibited, 6-8 = (unused), 9 = 'Transit Only' link (links used to more accurately depict coded transit routes, but are below the grain of the zone system; these links are not included in the highway assignment process).*

4. Consolidated Station / PNR lot file

**Exhibit 2-6 Consolidated Station / PNR Lot File Format Description**

<i>Columns</i>	<i>Format</i>	<i>Field Description</i>
1-5	I5	Sequence Number
10	A1	Mode Code (M/Metrorail, C/Commuter rail, B/Bus)
15	A1	Parking Available? (Y/N)
18	A1	Station Active? (Y/N)
21-44	A24	Station Name/PNR lot name
45-50	I6	Network Centroid (2251-2500)
51-55	I5	TAZ location of Station/PNR lot (1-2191)
56-60	I5	Rail Station Node (7301-7399, 7600-7733)
61-65	I5	Parking lot node
66-70	I5	1 <sup>st</sup> Bus Node
71-75	I5	2 <sup>nd</sup> Bus Node
76-80	I5	3rd Bus Node
81-85	I5	4th Bus Node
91-100	I10	X Coord.of Station / PNR lot (NAD83-based in ft.)
101-110	I10	Y Coord.of Station / PNR lot (NAD83-based in ft.)
111-140		(Unused)
141-145	I5	Year of Station/PNR lot Opening (unused)

5. Rail Link File

**Exhibit 2-7 Rail Link File Format Description**

<i>Columns</i>	<i>Format</i>	<i>Field Description</i>
1-5	I5	A Node
6-10	I5	B Node
15-19	I5	Distance in 1/100 <sup>th</sup> s of miles
21-25	F5.2	Speed (mph)
37-37	I1	Rail Mode Number (3-5)

## Chapter 3. Auto Access Link Development

### **Input(s):**

Built Highway Network File	(Binary)
TAZ, PNR Equivalency file	(ASCII)
Restrained Highway Skims	(Binary)
Time / Toll Value Equivalent File	

### **Output(s):**

AM Peak/Off-Peak Auto Connect Link File, TRNBUILD Format	(ASCII)
---	---------

### **Program File(s):**

TP+

### **Control/Support File(s):**

PUMP\_PRIME\_SKIMS.S  
AUTO\_ACCESS.S

### **Application Details:**

The highway skim and PNR access link development process is used to create peak and off-peak drive access links, used later for transit network building, directly from skimmed highway times, by time period. Two TP+ scripts are used to accomplish this. PUMP\_PRIME\_SKIMS.S establishes initial highway skims by first building peak and off-peak highway skims on the basis of default, congested highway speeds. The program also utilizes a TAZ-PNR equivalence file and writes a text file containing link information for all zones origins to zone destinations which are representative of PNR lots, subject to the following conditions:

- 1) The airline distance from the zone to the PNR lot must be within 4.0 miles for DC, Arlington County, and Alexandria; within 5 miles for Montgomery, Fairfax, and Prince George's counties; and within 8 miles for all remaining jurisdictions.
- 2) Zone to PNR connections will not cross the Potomac River except for origin zones in Loudoun County and Jefferson County since the MARC system in Maryland does serve commuters from those jurisdictions.

The AUTO\_ACCESS.S builds auto access links in a similar manner as the PUMP\_PRIME.S script, except that the zone-to-PNR link speeds are updated based on the AM and Off-peak highway skims resulting from the initial (or 'pump prime') assignment.

**DRAFT**



## Chapter 4. Pre-Transit Network Processing

### **Input(s):**

1. Freeway Link File (ASCII)
2. Rivers location file (ASCII)
3. Peak & Off-Pk Transit line files, MINUTP/TRNPTH Format (ASCII)
4. Peak/Off-Peak Transit Walk Area Files (GIS developed) (ASCII)
5. Peak/Off-Peak Transit Walk Link Files GIS developed) (ASCII)
  
6. Highway Link File (ASCII)
7. XY File (ASCII)
8. TAZ / Bus Fare zone Equivalency File (ASCII)

### **Output(s):**

- Off-Peak Walk Link File, TRNBUILD Format (ASCII)
- Peak and Off-Peak Transit line files, TRNBUILD Format (ASCII)
- A2 Deck for MFARE Process (ASCII)

### **Program File(s):**

CNTCONN2.EXE  
NETSW2.EXE  
NODESTB.EXE  
GIS\_PROC.EXE  
WLKLNKTP.EXE  
PREFARTP.EXE  
TP+

### **Control/Support File(s):**

CNTCONN2 Control (CTL) files, NODESTB Control Files, NETSW2 Control (CTL) file,  
WLKLNKTP Control (CTL) files, PREFARTP Control (CTL File),  
UPDATE\_WKLINKS.S (TP+ script)

### **Application Details:**

The pre-transit skimming process involves a number of utility programs that create transit line files and transit walk access files used in AM-peak and off-peak transit network building, specifically the walk access links and transit line files. The process also creates a zonal file that is used in the MFARE2 process. The current procedure requires transit line files be provided in TRNPTH format. Two GIS-generated zone files are also needed: one which contains a measure of the area in long/short walk-to-transit areas, and another which relates each TAZ centroid to the nearest transit stop nodes within one mile.

Walk links are generally developed as follows. The NODESTP program is applied to write out all stop nodes associated with each transit line in a relatively 'neat' ASCII format. The CNTCONN2 program then uses the stop nodes file, a freeway node file, and a file containing the coordinates of water body alignments to generate zone-to-transit-stop links. The GIS\_PROC program, next, reads the GIS walk area file, which contains a measure of the area in each zone that is in a 'short' and/or a 'long' walk shed to transit service. The program simply converts the area-based information into short and long walk area percentages. The sum of the short walk and long walk zonal percentages will always range from 0 to 100. If a zone contains, for example, 100% short walk area, by definition, the long walk area and the no-walk area of that zone must be 0%. The GIS walk percent file also contains the average short and long walk distances to transit service and the closest bus node and rail node to each zone, based purely on the zone's spatial disposition to the transit network. Finally, the WLKLNKTP program reads the GIS walk link file and the CNTCONN2 and GIS\_PROC output files to construct the final walk access link file. Specifically, the program undertakes the following steps:

- 1) Walk access links to bus stops are extracted from the CNTCONN2 output file;
- 2) Walk access links to rail stations are extracted from the GIS walk link file;
- 3) Uniform walk access distances are computed for each TAZ based on the average short/long walk distances (weighted by the short/long walk area percents). Walk access links are uniformly assigned an average speed of 3 mph.

Two additional programs are used in the batch process. PREFARTP uses a zone file containing bus fare zone equivalents and inserts Metrorail walk percents from the GIS transit walk area file, thus creating the 'A2' zone file used in the fare development process. Secondly, the transit line files are converted from TRNPTH format to TRNBUILD format using a utility program named NETSW2.

If desired, the analyst may invoke a capability in the development of walk links to consider previously developed walk links from another alternative to be merged with those generated for the current working alternative. This capability was developed to better address walk access consistency between years/alternatives. The user must copy the pre-existing walk links file into the 'INPUTS' subdirectory of the current alternative and assign it the name WALK\_?.OLD, where ?? refers to 'AM' or 'OP'. If these files are installed in the \INPUTS subdirectory then the UPDATE\_WKLINKS.S script will be executed. The program performs the merging function.

Exhibits 4-1 through 4-5 are the control file descriptions used with the pre-transit network programs. Exhibits 4-6 through 4-8 show the file format descriptions of the input files used.

**Exhibit 4-1 CNTCONN2 Control Parameters**

<i>Type</i>	<i>Name</i>	<i>Description</i>
&files	Node_file	Highway and Transit XY file
	Lnk_file	Transit line/stop node file
	Xnod_file	Freeway node file
	Scr_file	River location file
	Out_file	Output walk link file
	Rpt_file	Output report file
&specs	Miles	Number of coordinate units per mile
	Max_zone	Maximum zone number
	Max_node	Maximum node number
	Max_walk	Maximum walk distance criterion
	Dev_fac	Directional Node Search adjustment
	Max_conn	Maximum number of walk links generated
	Mod_type	(set to 1)
	Nodesfmt	(set to T)
	Modes	Mode number for Walk Access Connection
	Tmespd	Walk Speed Assumption
	Dumdst	(set to F)
	Trnpth	(T/F) to generate TRNPTH walk file output
	Trnbl	(T/F) to generate TRNBUILD walk file output

**Exhibit 4-2 NODESTB Control Parameters**

<i>Type</i>	<i>Name</i>	<i>Description</i>
&files	Fline(1)	TRNPTH Line File 1
	Fline(2)	TRNPTH Line File 2
	Fline(3)	TRNPTH Line File 3
	Fline(4)	TRNPTH Line File 4
	Fline(5)	TRNPTH Line File 5
	Fline(6)	TRNPTH Line File 6
	Fline(7)	TRNPTH Line File 7
	Fline(8)	TRNPTH Line File 8
	Fnodes	Nodes output file name
	Frpt	Nodes report listing
&params	Period	(set to 0)
&options	STONLY	(Set to T)
	Plain	(Set to T)
&facils	(unused)	(unused)

**Exhibit 4-3 NETSW2 Control Parameters**

<i>Type</i>	<i>Name</i>	<i>Description</i>
N/A	1 <sup>st</sup> Record	(No. of files to be converted)
	2 <sup>nd</sup> Record	(1st TRNPTH Line input file)
	.	
	.	
	10 <sup>th</sup> Record	(9 <sup>th</sup> TRNPTH Line input file)

**Exhibit 4-4 WLKLNKTP Control Parameters**

<i>Type</i>	<i>Name</i>	<i>Description</i>
&FILES	gisslf	GIS-Short Walk, Long Walk File
	Cntconnf	CNTCONN2 Output file
	Gisconnf	GIS-TAZ to Transit stop node file
	Fwlpctf	'final' walk access link file (TRNBUILD fmt.)
	Finwlkf	Final Walk Access link output file
&PARAMS	Railnr11	Minimum rail (Metrorail, Commuter rail) node number
	Railnr12	Maximum rail (Metrorail, Commuter rail) node number

**Exhibit 4-5 PREFARTP Control Parameters**

<i>Type</i>	<i>Name</i>	<i>Description</i>
&files	Gismetf	Transit walk area input file
	fwpctf	'final' walk percentage file
	Bfarezf	TAZ/Bus fare zone input file
	A2deckf	Output A2 deck output file (for MFARE2)

**Input File Descriptions and Formats:**

Exhibit 4-6 'Raw' GIS-Based Transit Walk Area File Format Description (giswka???.asc)

<i>Columns</i>	<i>Format</i>	<i>Field Description</i>
4-8	I5	TAZ Number
9-17	I9	Total Land Area
24-30	I7	'short' walk area to rail (metrorail, commuter rail)
36-42	I7	'long' walk area to rail metrorail, commuter rail
49-55	I7	'short' walk area to non-rail transit
61-67	I7	'long' walk area to non-rail transit
73-81	I9	Non-walking area to ANY transit
85-91	I7	Avg 'Short' Walk Distance to Metrorail (in miles)
95-101	I7	Avg 'Long' Walk Distance to Metrorail (in miles)
106-112	I7	Avg 'Short' Walk Distance to Commuter Rail (in miles)
116-122	I7	Avg 'Long' Walk Distance to Commuter Rail (in miles)
127-133	I7	Avg 'Short' Walk Distance to Bus (in miles)
137-143	I7	Avg 'Long' Walk Distance to Bus (in miles)
149-155	I7	Avg 'Short' Walk Distance to ANY Transit (in miles)
161-167	I7	Avg 'Long' Walk Distance to ANY Transit (in miles)
170-174	I5	Nearest Rail Station (Metrorail or Commuter Rail) w/in 1.0 mi
176-180	I5	Nearest Bus Stop Node w/in 1.0 mi

*Note: area measurements are in square miles and do not include major bodies of water; 'short' references below are defined as within 1/3 mile; 'long' walk areas are those beyond 1/3 of a mile and within 1.0 mile*

**Exhibit 4-7 GIS-Walk Link File Format Description (giswkl???.asc)**

<i>Columns</i>	<i>Format</i>	<i>Field Description</i>
1-5	I5	TAZ Number
6-10	I5	Transit Stop nodes within 1.0 mile
11-15	F5.2	Distance from TAZ centroid to stop node in miles

**Exhibit 4-8 TAZ / Bus Fare Zone Equivalency File Format Description (tazfrzn.asc)**

<i>Columns</i>	<i>Format</i>	<i>Field Description</i>
<i>Zonal data</i>		
1-4	I4	TAZ Number (or Station No.)
5-8	I4	Bus fare zone, 1 <sup>st</sup> zone, 1 <sup>st</sup> digit
9-12	I4	Bus fare zone, 1 <sup>st</sup> zone, 2 <sup>nd</sup> digit
13-16	I4	Bus fare zone, 2 <sup>nd</sup> zone, 1 <sup>st</sup> digit
17-20	I4	Bus fare zone, 2 <sup>nd</sup> zone, 2 <sup>nd</sup> digit
45-48	I4	Special transit service fare (cents)
49-50	I2	Jurisdiction code (0/DC, 1/MD, 2/VA Area 1 (Fairfax Co.), 3/VA Area 2 (non-Fairfax Co.))
<i>Station data</i>		
29-32	I4	Station Bus Fare Code 1 <sup>st</sup> zone, 1 <sup>st</sup> digit
33-36	I4	Station Bus Fare Code 1 <sup>st</sup> zone, 2 <sup>nd</sup> digit
37-40	I4	Station Bus Fare Code 2 <sup>nd</sup> zone, 1 <sup>st</sup> digit
41-44	I4	Station Bus Fare Code 2 <sup>nd</sup> zone, 2 <sup>nd</sup> digit

## Chapter 5. Transit Skim File Development

### **Input(s):**

1. Peak, Off-Peak Highway Networks (Binary)
2. Peak, Off-Peak Transit Line Files, TRNBUILD Format (ASCII)
3. Peak and Off-Peak Walk Access Links, TRNBUILD Format (ASCII)
4. Peak/Off-Peak Drive Access Links, TRNBUILD Format (ASCII)
5. Walk Connect Links, TRNBUILD Format (ASCII)
6. Rail Links File, TRNBUILD Format (ASCII)
7. Rail Node File, TRNBUILD Format (ASCII)
8. PNR/Bus, Station connect links, TRNBUILD Format (ASCII)
9. Station/Bus Fare connect links, TRNBUILD Format (ASCII)
10. Local Bus Time Factors (ASCII)

### **Output(s):**

- Peak/Off-Peak Walk Access Skims (Binary)
- Peak/Off-Peak Drive Access Skims (Binary)
- Peak/Off-Peak Walk Access Station-to-Station tables (Binary)
- Peak/Off-Peak Drive Access Station-to-Station tables (Binary)
- Transit Access file (ASCII)

### **Program File(s):**

TP+

### **Control/Support File(s):**

TRANSIT\_SKIMS.S

### **Application Details:**

The transit skimming process is used to create transit level-of-service files to serve the mode choice model and to provide for the development of accessibility variables for the vehicle availability model. It also provides Metrorail on/off station information used in the creation of transit fares. Four TRNBUILD procedures are executed to produce walk-access and drive access skims for the AM-peak and off-peak periods. Each procedure requires several input files: a binary highway network, rail network links, transit line files, zone access links, walking links, and a variety of connection links.

There are 16 values used to represent the various travel modes in the TRNBUILD module, as shown below:

Mode number	Description
1 - 10	<b>Transit Modes:</b> 1/Local Metrobus, 2/Express Metrobus, 3/Metrorail, 4/Commuter rail, 5/Unused, 6/ Non-Metrobus Primary Local bus, 7 Non-Metrorail Primary Express Bus, 8/ Secondary Local Bus, 9/ Secondary Express Bus
	<b>Non-Transit Modes:</b>
11	Drive access
12	Bus/rail walk connect
13	'Downtown' walk link
14	Unused
15	PNR/rail walk connect
16	Zonal walk access/egress link

Peak and off-peak transit bus line files are normally prepared by mode. They are coded directly over the highway networks. Transit service in the AM peak period is represented by the headways and run times in effect from 7-8 AM,<sup>1</sup> and transit service in the off-peak period is represented by the headways and run times in effect from 10 AM - 3 PM. Although the off-peak period covers 5 hours, the maximum headway coded on the transit line files is 60 minutes. Transit in-vehicle times are controlled by the RUNTIME parameter coded on each transit line. This means that bus running times are not computed on the basis of highway link-coded speeds over which lines are coded, but rather, are based on actual bus schedule times.

In transit pathbuilding, out-of-vehicle time is weighted at 2.5 times the in-vehicle time. The first two transfers are assigned perceived time penalties of 6 minutes; the third transfer is effectively disallowed as it is assigned a perceived time of 60.0 minutes. For cases where a given interchange is served by multiple bus lines, headways are combined for all lines that are within 5 minutes of the minimum time available.

Each skimming process results in three types of zonal skim files: the mode choice model skim file (SKM), the Metrorail on/off station file (STA), and the total transit time file (TTT). The mode choice skim file contains six tables:

- 1) Walk transfer time
- 2) Drive access time
- 3) Initial wait time
- 4) Transfer wait time
- 5) Non-Metrorail In-Vehicle time
- 6) Metrorail In-Vehicle Time

Note that the walk time does not include zonal walk access/egress time, as that component is

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<sup>1</sup> This peak period definition is relaxed, however, to reflect earlier hourly periods for some express services that originate in the outer fringes of the study area.



entered to the mode choice model as a zone variable. The Metrorail station file contains two files:

- 1) Metrorail Boarding Station No. (1-150)
- 2) Metrorail Alighting Station No. (1-150)

The third file contains a single table containing the total transit time, including zone walk access and egress time. The script also creates a file reflecting access to employment opportunities within 40 minutes via AM peak transit service. This measure is a variable that is used later in the vehicle availability model.

The transit skimming script also reads a file containing local bus factors used to degrade local bus times skims to incorporate the effect of growing highway congestion.

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## Chapter 6. Transit Fare Development

### **Input(s):**

1. Metro Station Link File (ASCII)
2. Metro Station XY File (ASCII)
3. MFARE1 A1 (Coordinate) File (ASCII)
4. Peak/Off-Peak Station-to-Station Tables (Binary)
5. Peak / Off-Peak MFARE2 Bus Fare Matrix (ASCII)
6. Peak /Off-Peak MFARE2 A2 File (ASCII)

### **Output(s):**

Peak/Off-Peak Transit Fare Files (Binary)

### **Program File(s):**

MFARE1.EXE, MFARE1OP.EXE, MFARE2TP.EXE, MTXIJTP.EXE, TP+

### **Control/Support File(s):**

METRORAIL\_SKIMS.S, MFARE1 Control Files, MFARE2 Control files, EXPORT\_FARES.S

### **Application Details:**

The MWCOG transit fare computation process, sometimes referred to as the *MFARE1/2* process, serves to compute transit fares used in the mode choice process. The process ultimately produces four total fare files representing walk/drive-access transit fares for the AM peak period, and walk/drive-access transit fares for the off-peak period.

The METRORAIL\_SKIMS.S script is used to create Metrorail station-to-station distance skims. The skims are, then, entered to the MFARE1 and MFARE1OP programs, which calculate peak and off-peak Metrorail fares between station pairs. The peak and off-peak Metrorail fares are next entered to the MFARE2TP program which is used to calculate zone-to-zone transit fares. Exhibit 6-1 shows the control card parameters for the MFARE1/MFARE1OP programs. MTXIJTP is a utility program which may be run after the MFARE1 process to neatly format the computed station-to-station fares. The MTXIJTP program makes use of an ASCII file named 'MFARE1.A1' (created previously by the STAPROTP program) and does not require control cards.

The MFARE2TP program is executed four times. In addition to a file containing station-to-station fares, it requires a bus fare matrix indicating fares between large pre-defined superdistricts, a zone file containing bus fare zone equivalents (and Metrorail station-to-bus fare zone equivalents), and the zonal boarding/alighting file produced previously. The control card description of the MFARE2TP program is shown as Exhibit 6-2. The EXPORT\_FARES.S script is used to format some selected interchanges for checking, and to write out the final four fare files. Each file contains a single table (total fare).

Input file format descriptions used in the MFARE1/2 processes are shown as Exhibits 6-3 through 6-6. Note that in the TAZ/ bus fare zone input file (see Exhibit 6-6), the walk percentages are inserted into the input file during the course of network building. The user should verify 1) that the walk percentages have, in fact, been properly inserted and 2) that the base fare zones corresponding to Metrorail stations are properly specified.

A more rigorous description of the MFARE2 fare computation is presented in Appendix E of this report (staff memorandum to the project file).

**Exhibit 6-1 MFARE1 and MFARE1OP Control Parameters**

<i>Type</i>	<i>Name</i>	<i>Description (MFARE1)</i>	<i>Description (MFARE1OP)</i>
&files	J1	Sta-Sta Distance Skim File	Sta-Sta Distance Skim File
	A1	Station Coordinate (XY) File	Station Coordinate (XY) File
	J2	Sta-Sta Fare Output File	Sta-Sta Fare Output File
	LIST	Report Output File	Report Output File
&param	ZONES	Number of Stations in System	Number of Stations in System
	UPARMS(1)	Boarding Fare in Cents	Boarding Fare in Cents
	UPARMS(2)	Secondary Fare Rate (cents/mi)	Secondary Fare increment; Amount added to base fare beyond the boarding distance (cents)
	UPARMS(3)	Maximum Fare in Cents	Maximum Fare in Cents
	UPARMS(4)	Speed for calculating rail distance	Speed for calculating rail distance
	UPARMS(5)	Distance type (see below)	Distance type (see below)
	UPARMS(7)	Boarding distance in miles	Boarding distance in miles
	UPARMS(8)	Secondary distance in miles	Secondary distance in miles
	UPARMS(9)	Fare rate (cents/mi) beyond the Secondary distance increment.	Amount added to base and secondary fare, beyond the secondary distance increment (cents).
	UPARMS(11)	Fare Discount for Station 1 (cents)	Fare Discount for Station 1 (cents)
	...	...	...
	UPARMS(160)	Fare Discount for Station 150 (cents)	Fare Discount for Station 150 (cents)

*UPARMS (4 ) is an assumed speed value used to estimate rail distances for cases where the time (not distance) values are used in the J1 file. A value of 60 should be used if distance values (in whole miles) are used in the J1 file. Recent applications of this program have used distance values in 100ths of miles, and UPARMS(4) has been set to 0.60.*

*UPARMS(5) is set to 0 if a composite distance calculation is desired; a value of 1.0 indicates over the rail distances are used in the fare calculation.*

**Exhibit 6-2 MFARE2TP Control Parameters**

<i>Type</i>	<i>Name</i>	<i>Description (MFARE2TP)</i>
&files	A1	Sta-Sta Fare Output Input File (From MFARE1)
	A2	TAZ / Bus Fare Equivalence Input File
	A3	Bus Fare Zone-to-Zone Matrix
	J1	Zone-to-Zone Metrorail Station Boarding/Alighting Matrices
	J2	Zonal Transit Fare Matrix Output
	LIST	MFARE2 Report file
&param	ZONES	Maximum Number of Zones
	UPARMS(1)	Number of Metrorail Stations
	UPARMS(2)	Fare Deflation Factor
	UPARMS(3)	(not used)
	UPARMS(4)	DC rail-to-bus discount
	UPARMS(5)	MD rail-to-bus discount
	UPARMS(6)	VA Area 1 rail-to-bus discount
	UPARMS(7)	VA Area 2 rail-to-bus discount
	UPARMS(8)	1.0 if component fares (bus only, rail, bus access, bus egress) fares are desired in the output (J2) file. A value of 0.0 will prompt the program to write the total fare only.

**Input File Descriptions and Formats**

**Exhibit 6-3 Metrorail Station Link File Format Description**

<i>Columns</i>	<i>Format</i>	<i>Field Description</i>
12-16	I5	Station A-node (either dummy station centroid connector or station-to-station link)
18-22	I5	Station B-node (either dummy station centroid connector or station-to-station link)
32-41	I4	Distance in miles
58-62	I5	Speed (mph)

**Exhibit 6-4 Metrorail Station XY File Format Description**

<i>Columns</i>	<i>Format</i>	<i>Field Description</i>
9-13	I5	Station Number (1-150)
19-26	I8	Station X Coordinate
32-39	I8	Station Y Coordinate

**Exhibit 6-5 Bus Fare Matrix File Format Description**

<i>Columns</i>	<i>Format</i>	<i>Field Description</i>
1-4	I4	Origin Bus Fare zone, 1 <sup>st</sup> zone, 1 <sup>st</sup> digit
5-8	I4	Origin Bus Fare zone, 1 <sup>st</sup> zone, 2 <sup>nd</sup> digit
9-12	I4	Destination Bus Fare zone, 1 <sup>st</sup> zone, 1 <sup>st</sup> digit
13-16	I4	Bus Fare from Origin Bus Fare Zone 11 to Destination zone, 11
17-20	I4	Bus Fare from Origin Bus Fare Zone 11 to Destination Zone 12
...	...	...
37-40	I4	Bus Fare from Origin Bus Fare Zone 11 to Destination Zone 17

**Exhibit 6-6 TAZ / Bus Fare Zone Equivalency File Format Description**

<i>Columns</i>	<i>Format</i>	<i>Field Description</i>
<i>Zonal data</i>		
1-4	I4	TAZ Number (or Station No.)
5-8	I4	Bus fare zone, 1 <sup>st</sup> zone, 1 <sup>st</sup> digit
9-12	I4	Bus fare zone, 1 <sup>st</sup> zone, 2 <sup>nd</sup> digit
13-16	I4	Bus fare zone, 2 <sup>nd</sup> zone, 1 <sup>st</sup> digit
17-20	I4	Bus fare zone, 2 <sup>nd</sup> zone, 2 <sup>nd</sup> digit
21-24	I4	Percent Walk (Households) to Rail Station in 1/10s (e.g. '1000' indicates 100%)
25-28	I4	Percent Walk (Employment) to Rail Station in 1/10s (e.g. '1000' indicates 100%)
45-48	I4	Special transit service fare (cents)
49-50	I2	Jurisdiction code (0/DC, 1/MD, 2/VA Area 1 (Fairfax Co.), 3/VA Area 2 (non-Fairfax Co.))
<i>Station data</i>		
29-32	I4	Station Bus Fare Code 1 <sup>st</sup> zone, 1 <sup>st</sup> digit
33-36	I4	Station Bus Fare Code 1 <sup>st</sup> zone, 2 <sup>nd</sup> digit
37-40	I4	Station Bus Fare Code 2 <sup>nd</sup> zone, 1 <sup>st</sup> digit
41-44	I4	Station Bus Fare Code 2 <sup>nd</sup> zone, 2 <sup>nd</sup> digit

## Chapter 7. Demographic Submodels

### **Input(s):**

- |  |          |
|--|----------|
| 1. Land Use File                               | (ASCII)  |
| 2. Zonal Area Type File                        | (ASCII)  |
| 3. Peak and Off-Peak Transit Walk Percent File | (ASCII)  |
| 4. Peak, Walk and Drive Access Transit Skims   | (Binary) |

### **Output(s):**

- |   |         |
|---|---------|
| Zonal HHs of Income Level 1, Stratified by Size and Vehicle Avail. Levels | (ASCII) |
| Zonal HHs of Income Level 2, Stratified by Size and Vehicle Avail. Levels | (ASCII) |
| Zonal HHs of Income Level 3, Stratified by Size and Vehicle Avail. Levels | (ASCII) |
| Zonal HHs of Income Level 4, Stratified by Size and Vehicle Avail. Levels | (ASCII) |
| HBW Zonal A1 Deck (for the Mode Choice Model)                             | (ASCII) |
| HBS Zonal A1 Deck (for the Mode Choice Model)                             | (ASCII) |
| HBO Zonal A1 Deck (for the Mode Choice Model)                             | (ASCII) |
| NHB Zonal A1 Deck (for the Mode Choice Model)                             | (ASCII) |

### **Program File(s):**

HHSIZINC.EXE  
VEHAVTP.EXE  
COGMCA1.EXE

### **Control/Support File(s):**

VEHAVTP.CTL (Control file for VEHAVTP Program),  
COGMCA1.CTL (Control file for COGMCA1 Program)

### **Application Details:**

The demographic models are applied using two FORTRAN programs named HHSIZINC and VEHAVTP. They function in sequence to create four zonal household files, one for each of the four income groups, which are utilized in the trip generation model. Each file contains households stratified by 4 size groups by 4 vehicle availability groups.

The HHSIZINC program functions to apportion total households among 16 cross classes (4 size groups by 4 income groups) using CTPP-based distributions. Next, the VEHAVTP program uses the HHSIZINC output file and further apportions households in each of the 16 cross classes among 4 vehicle availability groups. Four income-based text files containing households by size and vehicle availability classes are created. The VEHAVTP program also writes a zonal file containing households by 3 vehicle availability groups (0,1, and 2+). The file is used by the COGMCA1 program, which is subsequently applied to automatically generate the zonal data file, known as the "A1 deck," used in the mode choice model. The COGMCA1 program generates four A1 files – one for each purpose – containing the household vehicle availability distributions, the zonal area, hard coded terminal times and parking costs, and a zonal 'land use

mix' variable.

Control card descriptions of the VEHAVTP and COGMCA1 programs are shown as Exhibits 7-1 and 7-2, respectively. Input file format descriptions for the above programs are shown in Exhibits 7-3 and 7-4.

**Exhibit 7-1 VEHAVTP Control Parameters**

<i>Type</i>	<i>Name</i>	<i>Description</i>
&param	<i>(coefficients values for the Vehicle Availability Model)</i>	
&files	<i>Input files</i>	
	Hhsizinc	Zonal HH stratified by size and income level (file output of HHSIZINC program)
	Zon_dat	Zonal area type file (file output of ATYPE program)
	Trn_acc	Transit Accessibility File / Access. To Emp. Within 40 minutes by AM peak transit service (file output of TRANSIT_SKIMS.S program)
	<i>Output files</i>	
	Hhi1_sv	Zonal Inc. 1 HH file (HH stratified by size, veh. availability Levels)
	Hhi2_sv	Zonal Inc. 2 HH file (HH stratified by size, veh. availability Levels)
	Hhi3_sv	Zonal Inc. 3 HH file (HH stratified by size, veh. availability Levels)
	Hhi4_sv	Zonal Inc. 4 HH file (HH stratified by size, veh. availability Levels)
	HH_va	Zonal File for Total HH by Veh Avail Levels (0, 1, 2+)

**Exhibit 7-2 COGMCA1 Control Parameters**

<i>Type</i>	<i>Name</i>	<i>Description (MFARE1)</i>
&files	<i>Input files</i>	
	Landusef	Land Use File
	Amshlgf	Peak transit walk area file (Output file from GIS_PROC program)
	Opshlgf	Off-Peak transit walk area file (Output file from GIS_PROC program)
	Carownf	Zonal File for Total HH by Veh Avail Levels (0, 1, 2+) (Output file from VEHAV program)
	<i>Ouput files</i>	
	Hbwa1v2	HBW Zonal A1 Deck for the Mode Choice Program
	Hbsa1v2	HBS Zonal A1 Deck for the Mode Choice Program
	Hboalv2	HBO Zonal A1 Deck for the Mode Choice Program
	Nhba1v2	NHB Zonal A1 Deck for the Mode Choice Program



## Input File Descriptions and Formats

1. Land Use File (See Chapter 2)

2. Zonal Area Type File

**Exhibit 7-3 Zonal Area Type File Format Description**

<i>Columns</i>	<i>Format</i>	<i>Field Description</i>
1-5	I5	TAZ
7-14	I8	X Coordinate of TAZ
15-22	I8	Y Coordinate of TAZ
23-28	F6.0	Total Population of TAZ
29-34	F6.0	Total Employment of TAZ
35-42	F8.4	Total Land Area of TAZ
43-49	F7.0	One-mile 'Floating' Population Density of TAZ
50-56	F7.0	One-mile 'Floating' Employment Density of TAZ
59-59	I1	Area Type Code (1-7)

3. Transit Walk Area Percentage File

**Exhibit 7-4 Transit Walk Area Percentage File Format Description**

<i>Columns</i>	<i>Format</i>	<i>Field Description</i>
1-5	I5	TAZ
6-10	I5	Percentage of TAZ in Short-Walk Transit Service Area
11-15	I5	Percentage of TAZ in Long-Walk Transit Service Area
16-20	I5	Percentage of TAZ in Short and Long Transit Service Area
23-27	F5.2	Avg. short walk distance to Transit (in mi) / (ranging from 0 – 0.33)
28-32	F5.2	Avg. long walk distance to Transit (in mi) / (ranging from 0.34 – 1.00)
34-37	F4.1	Avg. short walk time to Transit (in min.) / (ranging from 0 – 6.66)
39-42	F4.1	Avg. long walk time to Transit (in min.) / (ranging from 6.67 – 20.00)
45-49	I5	Nearest (GIS-based) Metrorail Station Node
50-54	I5	Nearest (GIS-based) Bus Node
60-69	F10.5	Land Area of TAZ

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## Chapter 8. Trip Generation

### **Input(s):**

1. Land Use File (ASCII)
2. Zonal HHs of Income Level 1, Stratified by Size and Vehicle Avail. Levels (ASCII)
3. Zonal HHs of Income Level 2, Stratified by Size and Vehicle Avail. Levels (ASCII)
4. Zonal HHs of Income Level 3, Stratified by Size and Vehicle Avail. Levels (ASCII)
5. Zonal HHs of Income Level 4, Stratified by Size and Vehicle Avail. Levels (ASCII)
6. Zonal Adjustment File (Purpose-Specific) (ASCII)
7. External Production File (ASCII)
8. External Attraction File (ASCII)
9. Zonal Area Type File (ASCII)

### **Output(s):**

- Trip – End (P/A) Files (ASCII / TP+ Format)  
HBW Non-Motorized Trip-Ends (ASCII)

### **Program File(s):**

CGTGV2TP.EXE

### **Control/Support File(s):**

Purpose-Specific Control files for CGTGV2TP Program  
HBW\_TG.CTL, HBS\_TG.CTL, HBO\_TG.CTL, NHB\_TG.CTL, MTK\_TG.CTL,  
HTK\_TG.CTL

### **Application Details:**

The trip generation process functions to generate trip-end (production and attraction) files corresponding to six purposes. The home-based trip-end files are stratified by income level. The program also writes non-stratified trip-end files for the home-based purposes as well. The trip generation process is applied separately for each of the six modeled purposes. The user identifies the specific purpose in a given run using the &Tpurp parameter.

The program reads a general land use file and four (income-based) files which are generated by the demographic modeling process. The program also reads a file containing the area type of each zone and zonal file containing aggregate adjustment factors. Finally, an external production file and an external attraction file containing external productions and attractions by purpose are required.

The trip generation procedure processes one purpose at a time. The computation procedure is comprised of the following steps:

- 1) Initial internal zonal attractions are computed, based on the modeled rates. Total attractions are accumulated. If the purpose is NHB, Medium Truck, or Heavy Truck, then the internal productions are set equal to the computed attractions.
- 2) Internal trip productions are computed based on the modeled trip rates, and if used, adjustment factors. The I-X residential trip productions are computed and extracted from the total productions. The HBW non-motorized trip productions are computed and removed from the total productions. Total internal productions (and non-motorized productions for the HBW purpose) are accumulated.
- 3) Non-motorized HBW attractions are computed, and scaled to match the non-motorized production total from above.
- 4) External productions and attractions are read in at the external station level.
- 5) A scaling factor for internal attractions is computed, as follows:

$$SFIA = ((IP + EP) - EA) / IA$$

Where:

SFIA = Scaling factor applied to internal attractions  
IP = Total Internal Productions  
EP = Total External Productions  
EA = Total External Attractions  
IA = Total Internal Attractions

- 6) The scaling factor is applied to internal attractions.
- 7) Total Home-based attractions are disaggregated by income level.
- 8) Final trip-ends (Ps and As) are written out. For the home based purposes, income stratified trip-ends (internal Ps, As only) and total trip-ends (internal and external Ps and As) are written. Only total trip-ends (internal and external Ps and As) are written for the NHB and truck purposes.

The control file description of the CGTGV2TP program is shown as Exhibit 8-1. File format descriptions are shown as Exhibits 8-2-through 8-4.

Exhibit 8-1 CGTGV2TP Control Parameters

<i>Type</i>	<i>Name</i>	<i>Description</i>
&tpurp	Purp	Trip Purpose Indicator (HBW/HBS/HBO/NHB/MTK/HTK)
&param	Zones	Highest TAZ number
	Lastizn	Highest internal TAZ number
	Dcclo	Lowest TAZ number for DC 'Core'
	Dcchi	Highest TAZ number for DC 'Core'
	Dcnlo	Lowest TAZ number for DC non-'Core'
	Dcnhi	Highest TAZ number for DC non-'Core'
	Vaclo	Lowest TAZ number for VA 'Core'
	Vachi	Highest TAZ number for VA 'Core'
	Va10lo	Lowest TAZ number for VA non-'Core'
	Va10hi	Highest TAZ number for VA non-'Core'
&files	Input files	
	Zhhi1sv	Income Group 1 HH file
	Zhhi2sv	Income Group 2 HH file
	Zhhi3sv	Income Group 3 HH file
	Zhhi4sv	Income Group 4 HH file
	Zonelu	Zonal Land Use File
	Ext_ps	External Production file
	Ext_as	External Attraction file
	Basezn	Zonal Area Type file
	Znmod	Zone-Income Production/Attraction Adjustment factor file
	Output files	
	Outf1	Income Group 1 Production/Attraction file
	Outf2	Income Group 2 Production/Attraction file
	Outf3	Income Group 3 Production/Attraction file
	Outf4	Income Group 4 Production/Attraction file
Outf5	Non-Stratified (Total) Production/Attraction file	
&prates	Production Rates - 4 Income groups (across) by HH Size, Veh. Av. Groups (down)	
&arates	Residential Attraction Rates – 10 Land Use groups (across) by 7 Area groups (down)	
	Truck Attraction Rates – 5 Land Use groups (across) by 4 Location groups (down)	
&juradj	Jurisdictional adjustment factors	
&puradj	Global Production Adjustment factor	

### **Input File Descriptions and Formats**

1. Land Use File (See Chapter 2)
2. Zonal HH File, Income Stratified

**Exhibit 8-2 Zonal HH File Format Description**

<i>Columns</i>	<i>Format</i>	<i>Field Description</i>
1-4	I4	TAZ
5-10	F6.0	HH in Size group 1, Veh. Availability. Group 1
11-16	F6.0	HH in Size group 1, Veh. Availability. Group 2
17-22	F6.0	HH in Size group 1, Veh. Availability. Group 3
23-28	F6.0	HH in Size group 1, Veh. Availability. Group 4
29-34	F6.0	HH in Size group 2, Veh. Availability. Group 1
35-40	F6.0	HH in Size group 2, Veh. Availability. Group 2
...	...	...
95-100	F6.0	HH in Size group 4, Veh. Availability. Group 4

3. Zonal Adjustment File (Purpose-Specific)

**Exhibit 8-3 Zonal Adjustment File Format Description**

<i>Columns</i>	<i>Format</i>	<i>Field Description</i>
1-5	I5	TAZ
6-10	F5.2	Income group 1 production adjustment factor
11-15	F5.2	Income group 2 production adjustment factor
16-20	F5.2	Income group 3 production adjustment factor
21-25	F5.2	Income group 4 production adjustment factor
26-30	F5.2	Income group 1 attraction adjustment factor
31-35	F5.2	Income group 2 attraction adjustment factor
36-40	F5.2	Income group 3 attraction adjustment factor
41-45	F5.2	Income group 4 attraction adjustment factor
46-80		(unused)

4. External Production / Attraction File

Exhibit 8-4 External Production / Attraction File

<i>Columns</i>	<i>Format</i>	<i>Field Description</i>
1-4	I4	TAZ
6-12	I7	HBW Daily External Auto Person Trip Ps/As
14-20	I7	HBS Daily External Auto Person Trip Ps/As
22-28	I7	HBO Daily External Auto Person Trip Ps/As
30-36	I7	NHB Daily External Auto Person Trip Ps/As
38-44	I7	Daily External Medium Truck Trips Ps/As
46-52	I7	Daily External Heavy Truck Trips Ps/As

5. Zonal Area Type File (See Chapter 7)

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## Chapter 9. Trip Distribution

### **Input(s):**

- |  |          |
|--|----------|
| 1. Trip-end (P/A) Files                    | (ASCII)  |
| 2. SOV Peak, Off-Peak Highway Skims        | (Binary) |
| 3. Peak Transit Walk Access Skims          | (Binary) |
| 4. Off-Peak Transit Walk Access Skims      | (Binary) |
| 5. Peak Transit Drive Access Skims         | (Binary) |
| 6. Off-Peak Transit Drive Access Skims     | (Binary) |
| 7. Land Use File                           | (ASCII)  |
| 8. Highway Terminal Time File              | (ASCII)  |
| 9. F-Factor Files                          | (ASCII)  |
| 10. K-Factor Files                         | (Binary) |
| 11. Time penalty Files                     | (Binary) |
| 12. Income level Toll/Time Equivalent File | (ASCII)  |

### **Output(s):**

- |  |          |
|--|----------|
| 6 Trip Tables (HBW, HBS, HBO, NHB, Med Truck, Heavy Truck) | (Binary) |
|--|----------|

### **Program File(s):**

TP+, EXTRTAB.EXE

### **Control/Support File(s):**

TRIP\_DISTRIBUTION.S

### **Application Details:**

The trip distribution process is a TP+ script used to apply the trip distribution process for all iterations. The following procedure is used:

1. Terminal times are added to the highway network times (both peak and off-peak).
2. Composite impedances are developed by purpose.
3. Trip distribution models are run for 25 markets. The three HB purposes use separate models for 4 internal income strata, and two external models for interstate, arterial facilities. The NHB purpose involves a single internal model and two external models as before. Finally the two truck purposes each use separate internal and external models.

The script writes out total HBW, HBS, HBO, and NHB person trips to separate files, in MINUTP format. This is a requirement for running the mode choice model. It also contains a

summary routine in which person trips are summarized at jurisdiction level. The trip distribution process also includes a utility program, EXTRTAB.EXE. This is a commonly used program throughout the Version 2.1/TP+ process where MATRIX scripts are used. The program is used to read a TP+ report listing, and to extract out portions of the listing where special summaries exist. This saves time that would ordinarily be spent searching through the report file for key sections. In many cases the TP+ report files are quite voluminous.

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## Chapter 10. Mode Choice

### **Input(s):**

- |  |                 |
|--|-----------------|
| 1. Daily Person Trip Table                 | (MINUTP Binary) |
| 2. Walk Access Transit Skims               | (MINUTP Binary) |
| 3. Drive Access Transit Skims              | (MINUTP Binary) |
| 4. Walk Access Transit Fares               | (MINUTP Binary) |
| 5. Drive Access Transit Fares              | (MINUTP Binary) |
| 6. SOV Highway Skims                       | (MINUTP Binary) |
| 7. HOV2 Highway Skims                      | (MINUTP Binary) |
| 8. HOV 3+ Highway Skims                    | (MINUTP Binary) |
| 9. Zonal (A1) File                         | (ASCII)         |
| 10. Transit Percentage Adjustment File     | (ASCII)         |
| 11. Car Occupancy Adjustment Files         | (ASCII)         |
| 12. Non-work Transit Factors File (unused) | (ASCII)         |

### **Output(s):**

LOV Auto Driver, LOV Auto Person, Walk Access Transit Trips,  
Drive Access Transit Trips, HOV Auto Driver Trips,  
HOV Auto Person Trips (MINUTP Binary)

### **Program File(s):**

COGMC.EXE, EXTRTAB.EXE

### **Control/Support File(s):**

Control Files: HBWMC.SET, HBSMC.SET, HBOMC.SET, NHBMC.SET  
Jurisdiction-level factor files: MCTF\_HBW.ASC, MCTF\_HBS.ASC, MCTF\_HBO.ASC,  
MCTF\_NHB.ASC, MCCF\_HBW.ASC, MCCF\_HBS.ASC, MCCF\_HBO.ASC,  
MCCF\_NHB.ASC, MC\_FAC.ASC  
Scripts: MC\_SUMMARY.S, MC\_CONSTRAINT.S, MC\_CONSUMMARY.S,  
ADR\_UPDATE.S

### **Application Details:**

The mode choice model is run separately for each purpose. Each run requires:

- LOV and HOV highway skims;
- Walk access and drive access transit skims;
- Walk access and drive access transit fares;
- A zone file containing short/long walk area percentages, parking costs, and households by vehicle availability levels

- Transit and car occupancy adjustment factors, at the jurisdiction interchange level

The program generally writes out binary files containing trip tables by mode. The files include LOV auto driver trips, LOV auto person trips, walk access transit trips, drive access transit trips, HOV auto drivers and HOV auto persons. At present HOV trips are generated for the HBW purpose only. It is important to point out that the HOV trips generated by the mode choice model *are only those that utilize HOV-dedicated lanes for a substantial portion of the trip*. The model allocates the remaining carpool traffic in the LOV trips. The ADR\_UPDATE.S script is used after the mode choice process to disaggregate LOV trips among 1, 2, and 3+ occupant levels

The current mode choice program version requires that the user specify all parameters explicitly in the control cards. The calibrated model parameters, for each purpose, are listed below.

It has been noted that some non-work intrazonal person trip interchanges resulting from the trip distribution process have been found to exceed 32,767. This value is larger than what the current mode choice program can currently accommodate. These cases represent a small number of interchanges and do not impact transit estimation at all. The summary program MC\_SUMMARY addresses this potential problem and updates the mode choice output files. The program sets these person trips to LOV persons and auto drivers (using an assumed average occupancy), in such a manner that no person trips are lost. The summary program MC\_CONSUMMARY is used to produce summaries for when the mode choice constraint through the regional core is applied (typically for runs after 2005).

Input file format descriptions for the mode choice model are shown as Exhibits 10-1 and 10-2. A summary of user-defined parameters (UPARMS) is shown as Exhibits 10-3 and 10-4.

### **Transit Constraint**

Recent travel modeling at COG/TPB has added processing steps, generally referred to as the “transit constraint.” The constraint was implemented to reflect the assumption that the core capacity of the transit system will not support expected passenger demand *beyond* projected 2005 levels. The transit constraint was therefore applied to impose a transit trip maximum on forecasted transit trips, as established by 2005 transit trip flows, for those trips destined *to or through* the regional core. The resulting *displaced* transit trips resulting from the constraining process were subsequently allocated among automobile modes. The transit constraint process is implemented with a special batch file (which takes the place of Mode\_Choice.Bat) and two scripts:

- |                       |   |
|-----------------------|---|
| 1) MC_Constraint.S    | (TP+ script file residing in the ..\SCRIPTS subdirectory)     |
| 2) MC_ConSummary.S    | (TP+ script file residing in the ..\SCRIPTS subdirectory)     |
| 3) Mode_Choice_TC.bat | (application batch file residing in the ‘route’ subdirectory) |

Detailed information on each file is provided below.

**MC\_Constraint.S**

The MC\_Constraint.S script is used to work through the necessary matrix manipulations for applying Version 2.1 transit constraint process, specifically:

- 1) The program reads the constrained (2005) and forecasted/unconstrained zone level transit trips resulting from the mode choice model and calculates peak transit trips for both years;
- 2) Both sets of zone-level transit trips are compressed to determine the aggregate trip flows *to and through* the regional core, and aggregate factors are computed for constraining the forecasted transit trips;
- 3) The aggregate transit constraint factors are applied to the zone-level forecasted transit trips and automobile trips are adjusted to incorporate the displaced transit trips.

The above constraint process varies slightly from the Version 1 approach in that it includes a step to extract peak period trips from daily trips. Since Version 1 model produced HBW transit trips only, the transit constraint approach included the simplifying assumption that *all* such trips occur during the peak period. Therefore, the forecasted *daily* transit trips moving to or through the regional core were adjusted to match the constraining 2005 *daily* totals. Given that the Version 2.1/TP+ model now produces *both* work and non-work transit trips, a more detailed method to extract peak period transit trips from the daily travel was deemed necessary. Unlike work trips, the majority of non-work transit trips occurs outside of the peak period and is therefore irrelevant to system capacity issues. Exhibit 10-1 specifies temporal transit trip distributions (percentages) summarized on the basis of purpose and orientation. The distributions were developed previously from the COG/TPB 1994 Household Travel Survey and deemed reasonable for developing peak transit travel estimates more precisely. It is currently assumed that the temporal distributions will remain *constant* through time, as there is currently no observed basis for determining how hourly travel distributions will change.

**Exhibit 10-1 Temporal Distribution (%) for Transit Trips by Orientation, Time Period, and Purpose**

Trip Orientation	Time Period	Purpose			
		<i>HBW</i>	<i>HBS</i>	<i>HBO</i>	<i>NHB</i>
Home to Work	<i>AM (6:00-9:00 AM)</i>	70	24	38	14
	<i>PM (4:00-7:00 PM)</i>	5	15	13	31
	<i>Off-Peak Hours</i>	25	61	49	55
	Subtotal	100	100	100	100
Work to Home	<i>AM (6:00-9:00 AM)</i>	1	2	2	14
	<i>PM (4:00-7:00 PM)</i>	72	35	35	31
	<i>Off-Peak Hours</i>	27	63	63	55
	Subtotal	100	100	100	100

Source: 1994 COG HTS

Equation (1) shows the general form by which the temporal factors are applied to the 2005 and forecasted daily zonal transit trips to arrive at trip estimates for a specific time period (in step1).

$$(1) \quad \text{PrdTrips}_{ij} = [\text{HWF} * \text{DayTrips}_{ij} / 2.0] + [\text{WHF} * \text{DayTrips}_{ji} / 2.0]$$

Where:

PrdTrips<sub>ij</sub> = estimated trips in a specific time period between zones i & j

HWF = Home-to-Work factor for period

WHF = Work-to-Home factor for period

DayTrips<sub>ij</sub> = Daily transit trips (P/A format) between zones i & j

DayTrips<sub>ji</sub> = Daily transit trips (P/A format) between zones j & i

Four files are written corresponding to each modeled purpose. Each file contains three zonal trip tables: 1) total peak period transit trips (*both* AM & PM, 2) off-peak transit trips, and 3) daily transit trips. A concise summary of the transit trip totals by time period is provided on an ASCII file named MC\_Constraint.tab (see example listing in Attachment 1).

2005 and unconstrained peak period transit trips are each compressed from zone level to '3 by 3' superdistrict trip tables, by purpose, to allow for a computation of adjustment factors that will subsequently be applied to the unconstrained zonal transit trips (step 2). The 3 superdistricts are defined as: 1) Virginia, Non-Regional Core (including W. Virginia), 2) Virginia & DC Regional Core, and 3) Maryland & DC Non-Regional Core<sup>1</sup>. Adjustment factors representing the ratio of constrained to unconstrained transit trips are computed for interchanges representing trips to or through the regional core (1/2, 1/3, 3/1, and 3/2). Factors associated with all other interchanges are initialized to a value of 1.00. Daily constrained forecasted transit trips are computed by purpose and are defined as shown in equation (2):

$$(2) \quad \text{DConFTrn}_{ij} = \text{DUncFTrn}_{ij} - \text{PUncFTrn}_{ij} + \text{P05Trn}_{ij}$$

Where:

DConFTrn<sub>ij</sub> = Daily Constrained Forecasted transit trips from superdistrict i to j

DUncFTrn<sub>ij</sub> = Daily Unconstrained Forecasted transit trips from superdistrict i to j

PUncFTrn<sub>ij</sub> = Peak period Unconstrained Forecasted transit trips from superdistrict i to j

P05Trn<sub>ij</sub> = Peak period 2005 transit trips from superdistrict i to j

The equation simply indicates that the resulting constrained forecasted transit trips are comprised of unconstrained off-peak trips plus 2005 peak period transit trips. Four small (9-record) ASCII files are written out for each purpose. The files are named TCONFTR.HBW, TCONFTR.HBS, TCONFTR.HBO, and TCONFTR.NHB. Each file contains interchange level totals at the 3 by 3 interchange level, for the interchanges of interest.

- Interchange as a two-digit number, eg '11' refers to origin 1, destination 1, etc.
- Constrained (2005) peak transit trips
- Constrained (2005) daily transit trips

---

<sup>1</sup> External stations intentionally not considered in the matrix compression.

- Unconstrained (forecasted) peak transit trips
- Unconstrained (forecasted) daily transit trips
- Final/constrained forecasted daily transit trips
- Adjustment factor (constrained / unconstrained forecasted daily transit trips)

The ASCII files containing the transit adjustment factors are read into the third and final step of the script (as lookup tables). Logically, the resulting adjustment factors *should* always be greater than zero and less than 1.00. The final (constrained) regional transit totals computed at the 3 by 3 level are also carried forward (via the TP+ LOG command) so that they can be checked against the zone level transit totals computed at the third step. During step 3, the unconstrained zone-level trip file resulting from the mode choice model is modified on an *interchange* basis to reflect the transit constraint. The standard set of tables on the file are shown below:

- 1) LOV Auto Drivers (including HOVs on general use facilities)
- 2) LOV Auto Persons (including HOV persons on general use facilities)
- 3) Walk Access Transit
- 4) Drive Access Transit
- 5) HOV 2-Occ Auto Drivers (on Priority Facilities/HBW only)
- 6) HOV Auto Person (on Priority Facilities/HBW only)
- 7) HOV3+-Occ. Auto Drivers (on Priority Facilities/HBW only)

The constraint factors are first applied uniformly to both walk-access and drive-access transit trips. Next, the transit residual is computed as the difference between unconstrained and constrained transit trips. If HOV persons (t6) exist, the transit residual is apportioned and added to the existing LOV and HOV persons based upon the existing proportion, otherwise the transit residual is added to the LOV persons (t2). Finally, the residual LOV/HOV auto drivers are computed and added to the existing auto driver tables (t1,t7) from the associated residual auto persons based on the existing auto driver percentage in the cell. For cases where displaced transit trips exist but no auto persons exist, a default auto driver percentage is used. The default percentages are based on the 1994 HTS and are shown below:

**Default Auto Driver Percentages**

<b>Purpose</b>	<b>Default Value</b>	<b>Implied Car Occupancy</b>
<b>HBW</b>	90.09%	1.11
<b>HBS</b>	81.30%	1.23
<b>HBO</b>	68.97%	1.45
<b>NHB</b>	80.00%	1.25

A concise summary of the constrained and unconstrained transit trip totals by mode is provided on an ASCII file named MC\_Constraint.tab. This file should be reviewed for reasonability. Note that regional input and output person trip totals will not match perfectly because the TP+ 'bucket-rounding' function is invoked after the calculations are made for all interchanges.

## **MC ConSummary.S**

This script is used to generate jurisdictional trip summaries of the modified mode choice output file. An ASCII listing file named MC\_ConSummary.tab is ultimately generated. This file may be compared to MC\_Summary.tab which contains a jurisdictional summary of the unconstrained trips which is normally generated after the mode choice model is executed.

## **Mode Choice TC.bat**

The Mode\_Choice\_TC.bat file *replaces* the standard batch file used to execute the mode choice model (Mode\_Choice.bat). The file resides in the top-level subdirectory along with the pre-existing application batch files. Prior to running batch file, 2005 transit trip tables *must* exist on the machine of execution. The user also *must* specify the path of the pre-existing 2005 transit trip tables produced by the mode choice model. The path of the 2005 mode choice files is normally defined in the 'RUNALL' batch file as an environment variable near the top of the batch file, as shown on the example line below:

```
set _path05_=\cgv2tp\cg2005\
```

A section of the "runall" batch file checks that the 'standard' mode choice output files do, in fact, exist in the user-specified path. If the files are not detected the batch operation will exit to a 'pause' statement, thus halting the process execution. Beyond defining the \_path05\_ variable, the user will normally apply the batch file as is.

Irrespective of whether the constrained batch file (Mode\_Choice\_TC.bat) or the unconstrained batch file (Mode\_Choice.bat) is used, the resultant mode choice output files produced will be named, MC\_HBW.FIN, MC\_HBS.FIN, MC\_HBO.FIN, and MC\_NHB.FIN.



**Input File Descriptions and Formats**

**Exhibit 10-2 Zonal File, or “A1 Deck,” Format Description (<scenario subdir>\???v2.a1f)**

<i>Columns</i>	<i>Format</i>	<i>Field Description</i>
1-5	I5	TAZ number
6-11	I6	Households with 0 Vehicles Available
12-17	I6	Households with 1 Vehicle Available
18-23	I6	Households with 2+ Vehicles Available
24-27	I4	Percent Short (0.00-0.33 mi) Walk to Transit
28-31	I4	Percent Long (0.34-1.00 mi) Walk to Transit
32-38	I7	Total Employment (normally unspecified for Version 2 application)
39-46	F8.4	Land Area in Sq. Miles
47-51	I5	Daily / Hourly Parking Cost in 1994 cents
52-54	I3	Attraction Zone Highway Terminal Time in minutes
55-58	I4	Average Short Walk Access Time in minutes
59-62	I4	Average Long Walk Access Time in minutes
63-69	I7	Land Use ‘Mix’ Measure, defined as: $(HHPD * NEMPD) / (HHPD + NEMPD)$ Where: HHPD = HH Population density (pop/sq mi) NEMPD = Employment density, where employment has been Normalized to HH Population.

**Exhibit 10-3 Transit and Car Occupancy Adjustment Factor File Format Description (support\mc?f\_???.asc)**

<i>Columns</i>	<i>Format</i>	<i>Field Description</i>
1-5	I5	Origin District Code (1-20)
6-12	F7.4	Factor for Destination District 1
13-19	F7.4	Factor for Destination District 2
20-26	F7.4	Factor for Destination District 3
...	...	...
139-145	F7.4	Factor for Destination District 20

**Exhibit 10-4 Mode Choice Parameter Listing, Values which may be changed by user**

COG/TPB Model, Version 2.1D, #50

Keyword	Type	Purpose				Description
		HBW	HBS	HBO	NHB	
ZONES	I	2191	2191	2191	2191	Highest zone number for matrices
UPARMS(1)	I	2	0	0	0	Carpool occupancy criterion A. 0 or 1 means that no special HOV roadways are available. Otherwise, value must lie between 2 and 4 inclusive.
UPARMS(2)	R	0	0	0	0	Proportion of intrazonal trips which use transit
UPARMS(3)	R	1	1	1	1	Proportion of intrazonal trips which are auto drivers
UPARMS(4)	R	0	0	0	0	Proportion of internal/external trips which use transit
UPARMS(5)	R	0.87	0.61	0.62	0.78	Proportion of internal/external auto person trips that are auto driver
UPARMS(6)	I	3	0	0	0	Carpool occupancy criterion B. 0 or 1 means that there is no second type of HOV roadway. Otherwise, value must lie between 2 and 4 inclusive and must exceed UPARMS(1)
UPARMS(10)	R	1	1	1	1	Factor to scale input highway and HOV travel times to whole minutes
UPARMS(11)	R	0.1	0.1	0.1	0.1	Factor to scale input highway and HOV distances to whole minutes
UPARMS(12)	R	9.1	9.1	9.1	9.1	Auto operating cost in cents per mile (1994 dollars)
UPARMS(13)	R	82.5	82.5	82.5	82.5	Consumer price index (CPI-U), all items, urban consumers, for June 1980 (base: 1982-84 = 100) <b>NOT USED</b>
UPARMS(14)	R	82.5	82.5	82.5	82.5	Forecast year consumer price index (CPI-U) <b>NOT USED</b>
UPARMS(16)	I	2	2	2	2	Apply sub-model to estimate daily parking cost? (1=yes, 2=no)
UPARMS(17)	I	2	2	2	2	Apply sub-model to estimate highway terminal times? (1=yes, 2=no)
UPARMS(18)	I	7	7	7	7	Mode choice model application option: 5 = Apply work and non-work models, non-work input is person trips; 6 = Apply work and non-work models, non-work input is vehicle trips; 7 = Apply work and non-work models, non-work input is vehicle trips
UPARMS(19)	I	2	2	2	2	Print input zonal data report? (1=yes, 2=no)
UPARMS(20)	I	1	1	1	1	Print transformed zonal data report? (1=yes, 2=no)
UPARMS(21)	I	1	1	1	1	"Dry run" option: 1 = Full program run 2 = Read and print parameters only 3 = Read/print parameters and read/print zonal data only (MODAS & MODBS)
UPARMS(22)	R	0.9	0.27	0.75	1	Average daily work person trips per household for 0-auto households

Keyword	Type	Purpose				Description
		HBW	HBS	HBO	NHB	
UPARMS(23)	R	1.25	0.72	1.81	0	Average daily work person trips per household for 1-auto households (value not used for NHB model)
UPARMS(24)	R	2.15	1.11	3.71	0	Average daily work person trips per household for 2+auto households (value not used for NHB model)
UPARMS(26)	R	2.845	2.845	2.845	2.845	Average daily non-work person trips per household for 0-auto households
UPARMS(27)	R	3.703	3.703	3.703	0	Average daily non-work person trips per household for 1-auto households (value not used for NHB model)
UPARMS(28)	R	4.732	4.732	4.732	0	Average daily non-work person trips per household for 2+auto households (value not used for NHB model)
UPARMS(30)	I	1	1	1	1	Print system variable frequency average variable value, and trips by access area reports? (1=yes, 2=no)

Ref: mcUparmsV21d19.xls

Type: I = integers; R = decimal value; L = logical (true or false)

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**Exhibit 10-5 Mode Choice Parameter Listing, Values which should not be changed by user**

COG/TPB Model, Version 2.1D, #50

Keyword	Type	Purpose				Description
		HBW	HBS	HBO	NHB	
UPARMS(15)	R	4.55	4.36	4.36	4.38	Average auto occupancy for the 4+person-per-automobile integer occupancy mode
UPARMS(31)	R	0.075	0.02432	0.04991	0.06695	Coefficient on transit walk time
UPARMS(32)	R	0.075	0.02432	0.04991	0.06695	Coefficient on transit initial wait time ("wait 1")
UPARMS(33)	R	0.075	0.02432	0.04991	0.06695	Coefficient on transfer time ("wait 2")
UPARMS(34)	R	0.03	0.00912	0.01902	0.03242	Coefficient on transit non-Metrorail IVTT
UPARMS(35)	R	0.03	0.00912	0.01902	0.03242	Coefficient on transit Metrorail IVTT
UPARMS(36)	R	0	-2.627E-05	-2.585E-05	-1.369E-05	Drive alone coefficient on land-use mix index variable at production zone
UPARMS(37)	R	2.518E-05	-2.438E-05	-2.171E-05	-1.300E-05	Drive alone coefficient on land-use mix index variable at attraction zone
UPARMS(38)	R	0	0	0	0	Group ride coefficient on land-use mix index variable at production zone
UPARMS(39)	R	0	0	0	0	Group ride coefficient on land-use mix index variable at attraction zone
UPARMS(40)	R	0.00425	0.00416	0	0	Coefficient on transit fare
UPARMS(41)	R	0	0	0	0	Natural log of highway cost for CP2, CP3, and CP4+ in the carpool occupancy model
UPARMS(42)	R	0.03	0.00912	0.01902	0.03242	Coefficient on transit auto-connect time
UPARMS(43)	R	2.0499	2.9	2.9	1.4	Transit auto-connect bias coefficient for 0-auto households
UPARMS(44)	R	0.5876	0	1.1	0	Transit auto-connect bias coefficient for 1-auto households
UPARMS(45)	R	0.3571	-2	0.65	0	Transit auto-connect bias coefficient for 2+auto households
UPARMS(46)	R	-4.449E-05	0	-5.194E-05	0	Transit coefficient on land-use mix index variable at production zone
UPARMS(47)	R	0.03	0.00912	0.01902	0.03242	Coefficient on drive alone highway terminal (excess) time
UPARMS(48)	R	0.03	0.00912	0.01902	0.03242	Coefficient on drive alone highway IVTT
UPARMS(49)	R	0.00425	0.00416	0	0	Coefficient on drive alone highway operating cost

Keyword	Type	Purpose				Description
		HBW	HBS	HBO	NHB	
UPARMS(50)	R	0.00425	0.00416	0	0	Coefficient on drive alone highway parking cost
UPARMS(51)	R	0.00425	0.00416	0	0	Coefficient on drive alone highway toll
UPARMS(52)	R	0	0	0	0	Coefficient on drive alone highway distance
UPARMS(53)	R	4.831	3.037	4.3573	-0.8541	Drive alone bias coefficient for 0-auto households
UPARMS(54)	R	0.8546	-2.272	-0.0047	0	Drive alone bias coefficient for 1-auto households
UPARMS(55)	R	-0.0824	-3.751	-0.3111	0	Drive alone bias coefficient for 2+ auto households
UPARMS(56)	R	0	-4.869E-05	-2.307E-05	-1.659E-05	Transit coefficient on land-use mix index variable at attraction zone
UPARMS(57)	R	0.03	0.00912	0.01902	0.03242	Coefficient on group ride highway terminal (excess) time
UPARMS(58)	R	0.03	0.00912	0.01902	0.03242	Coefficient on group ride highway IVTT
UPARMS(59)	R	0.00425	0.00416	0	0	Coefficient on group ride highway operating cost
UPARMS(60)	R	0.00425	0.00416	0	0	Coefficient on group ride highway parking cost
UPARMS(61)	R	0.00425	0.00416	0	0	Coefficient on group ride highway toll
UPARMS(62)	R	0	0	0	0	Coefficient on group ride highway distance
UPARMS(63)	R	4.6175	0.888	3.1938	0.076	Group ride bias coefficient for 0-auto households
UPARMS(64)	R	2.4071	-1.929	0.5041	0	Group ride bias coefficient for 1-auto households
UPARMS(65)	R	1.8979	-3.507	-0.0499	0	Group ride bias coefficient for 2+ auto households
UPARMS(66)	R	0	0	0.78384	0.86043	Natural log of highway cost for drive alone and group ride in the mode choice model
UPARMS(67)	R	0	0.45633	0.6853	0.00709	Coefficient on 2 persons: Auto highway terminal (excess) time
UPARMS(68)	R	0	0.45633	0.6853	0.00709	Coefficient on 2 persons: Auto highway IVTT
UPARMS(69)	R	0.01124	0	0	0	Coefficient on 2 persons: Auto highway operating cost
UPARMS(70)	R	0.02318	0	0	0	Coefficient on 2 persons: Auto parking cost
UPARMS(71)	R	0.05077	0	0	0	Coefficient on 2 persons: Auto highway toll
UPARMS(72)	R	0	0	0	0.00187	Coefficient on 2 persons: Auto highway distance
UPARMS(73)	R	0	0.45633	0.6853	0.00709	Coefficient on 3 persons: Auto highway terminal (excess) time

Keyword	Type	Purpose				Description
		HBW	HBS	HBO	NHB	
UPARMS(74)	R	0	0.45633	0.6853	0.00709	Coefficient on 3 persons: Auto highway IVTT
UPARMS(75)	R	0.01124	0	0	0	Coefficient on 3 persons: Auto highway operating cost
UPARMS(76)	R	0.02318	0	0	0	Coefficient on 3 persons: Auto parking cost
UPARMS(77)	R	0.05077	0	0	0	Coefficient on 3 persons: Auto highway toll
UPARMS(78)	R	0	0	0	0.00187	Coefficient on 3 persons: Auto highway distance
UPARMS(79)	R	0	0	0	0.92477	3-person auto bias coefficient for 0-auto households
UPARMS(80)	R	1.47162	0.92201	0.31756	0	3-person auto bias coefficient for 1-auto households
UPARMS(81)	R	1.88085	0.48966	0.15151	0	3-person auto bias coefficient for 2+ auto households
UPARMS(82)	R	0	0	0.78384	0.86043	Natural log of transit fare for transit mode in the mode choice model
UPARMS(83)	R	0	0.45633	0.6853	0.00709	Coefficient on 4+ persons: Auto highway terminal (excess) time
UPARMS(84)	R	0	0.45633	0.6853	0.00709	Coefficient on 4+ persons: Auto highway IVTT
UPARMS(85)	R	0.01124	0	0	0	Coefficient on 4+ persons: Auto highway operating cost
UPARMS(86)	R	0.02318	0	0	0	Coefficient on 4+ persons: Auto parking cost
UPARMS(87)	R	0.05077	0	0	0	Coefficient on 4+ persons: Auto highway toll
UPARMS(88)	R	0	0	0	0	Coefficient on 4+ persons: Auto highway distance
UPARMS(89)	R	0	0	0	1.41003	4+person auto bias coefficient for 0-auto households
UPARMS(90)	R	3.04973	1.51854	0	0	4+person auto bias coefficient for 1-auto households
UPARMS(91)	R	2.54494	0.84071	-0.21854	0	4+person auto bias coefficient for 2+ auto households
UPARMS(92)	R	0	0	-0.41346	-0.76998	Transit bias coefficient for short walk to short (or single) walk access market
UPARMS(93)	R	0	0	0	0	Transit bias coefficient for short (or single) walk to long walk access market
UPARMS(94)	R	0	0	0	0	Transit bias coefficient for long walk to short (or single) walk access market
UPARMS(95)	I	3	3	3	1	Number of socio-economic stratifications in the model
UPARMS(96)	R	0	0	0	0	Transit bias coefficient for long walk to long walk access market

Keyword	Type	Purpose				Description
		HBW	HBS	HBO	NHB	
UPARMS(97)	R	0	0	0	0	Transit bias coefficient for drive access to short (or single) walk access market
UPARMS(98)	R	-0.03611	0	0	0	Coefficient on HOV highway time savings (compared to normal highway network) for 3- & 4+occ.
UPARMS(99)	R	0	-0.84404	-0.69708	-1.47447	Metrorail bias coefficient (applies if Metrorail is more than 25% of total transit run time)
UPARMS(100)	R	0	0	0	0	Transit bias coefficient for drive access to long walk access market
OrigSLWalk	L	t	t	t	t	If True, apply short/long walk methodology at the production (origin) end, else apply single walk methodology.
DestSLWalk	L	t	t	t	f	If True, apply short/long walk methodology at the attraction (destination) end, else apply single walk methodology.
UseShort	L	t	t	t	t	If True, use the short walk percentages and walk times as the "single" walk values, else use the long walk percentages and walk times.

Ref: mcUparmsV21d19.xls

Type: I = integers; R = decimal value; L = logical (true or false)

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## Chapter 11. Time-of-Day Processing

### **Input(s):**

1. Daily Auto Driver trips, by Occupancy levels (Binary)
2. Daily Miscellaneous and Truck Trips (Binary)
3. Time of Day Percent File by purpose, mode, and direction (ASCII/TP+ script)

### **Output(s):**

- Trip Tables by Time Period (Binary)
- Auto Driver Trips by Purpose and Occupancy level (Binary)

### **Program File(s):**

TP+, EXTRTAB.EXE

### **Control/Support File(s):**

TIME-OF-DAY.S, MISC\_TIME-OF-DAY.S, V2TODTPP.PAR

### **Application Details:**

The TIME-OF-DAY and MISC\_TIME-OF-DAY scripts are used to apportion modeled auto driver trips and non-modeled vehicle trips among the three time periods. Each program applies the percentages to each trip table on the basis of purpose, occupancy level, and direction. The time of day factors exist on a parameter file that is 'called' into the TP+ scripts. The parameter file is named V2TODTPP.PAR. A listing of the parameter file is shown below:



```

OPNDAHNP = '64.65' ; NON Pk Prd NHB Drive Alone H -> NH
AMNDANHP = ' 9.41' ; AM Pk Prd NHB Drive Alone NH -> H
PMNDANHP = '25.94' ; PM Pk Prd NHB Drive Alone NH -> H
OPNDANHP = '64.65' ; NON Pk Prd NHB Drive Alone NH -> H
;
AMNCPHNP = ' 7.04' ; AM Pk Prd NHB CarPool Psn H -> NH
PMNCPHNP = '28.15' ; PM Pk Prd NHB CarPool Psn H -> NH
OPNCPHNP = '64.81' ; NON Pk Prd NHB CarPool Psn H -> NH
;
AMNCPNHP = ' 7.04' ; AM Pk Prd NHB CarPool Psn NH -> H
PMNCPNHP = '28.15' ; PM Pk Prd NHB CarPool Psn NH -> H
OPNCPNHP = '64.81' ; NON Pk Prd NHB CarPool Psn NH -> H
; End of NHB
;
; Start of Through, Internal Trucks and Through Auto Driver
AMXXTRKP = '23.00' ; AM Pk Prd XX Trucks
PMXXTRKP = '11.00' ; PM Pk Prd XX Trucks
OPXXTRKP = '66.00' ; NON Pk Prd XX Trucks
;
AMIIMTKP = '19.50' ; AM Pk Prd II Med. Trucks
PMIIMTKP = '15.20' ; PM Pk Prd II Med. Trucks
OPIIMTKP = '63.30' ; NON Pk Prd II Med. Trucks
;
AMIIHTKP = '15.40' ; AM Pk Prd II Hvy. Trucks
PMIIHTKP = '13.00' ; PM Pk Prd II Hvy. Trucks
OPIIHTKP = '71.60' ; NON Pk Prd II Hvy. Trucks
;
AMXXADRP = '18.00' ; AM Pk Prd XX Auto Driver
PMXXADRP = '22.00' ; PM Pk Prd XX Auto Driver
OPXXADRP = '60.00' ; NON Pk Prd XX Auto Driver
; End of Through, Internal Trucks and Through Auto Driver
;
; Start of Misc. Auto Driver Trips (Taxi, Visitor, School)
AMTAXISP = ' 9.00' ; AM Pk Prd Taxi Auto Driver
PMTAXISP = '27.00' ; PM Pk Prd Taxi Auto Driver
OPTAXISP = '64.00' ; NON Pk Prd Taxi Auto Driver
;
AMVISITP = '33.00' ; AM Pk Prd Visitor Auto Driver
PMVISITP = '33.00' ; PM Pk Prd Visitor Auto Driver
OPVISITP = '34.00' ; NON Pk Prd Visitor Auto Driver
;
AMSCHOOP = '33.00' ; AM Pk Prd School Auto Driver
PMSCHOOP = '33.00' ; PM Pk Prd School Auto Driver
OPSCHOOP = '34.00' ; NON Pk Prd School Auto Driver
;
AMAIRPXP = '10.00' ; AM Pk Prd Air Pax, Auto Dr.
PMAIRPXP = '10.00' ; PM Pk Prd Air Pax, Auto Dr.
OPAIRPXP = '80.00' ; NON Pk Prd Air Pax, Auto Dr.
; End of Misc. Auto Driver Trips (Taxi, Visitor, School)

```

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## Chapter 12. Traffic Assignment

### **Input(s):**

1. Modeled vehicle trip tables by occupant level and time period (Binary)
2. Non-modeled vehicle and truck trip tables by time period (Binary)
3. Network file (Binary)

### **Output(s):**

Loaded Links Files by Time period (Binary)

### **Program File(s):**

TP+

### **Control/Support File(s):**

HIGHWAY\_ASSIGNMENT.S,

### **Application Details:**

The traffic assignment process involves running three individual loadings for the three time periods (AM, PM, and off-peak periods). The traffic assignment process is executed four times in the pump prime, base, first, and second iterations. Each assignment run utilizes an equilibrium algorithm that is run for 10 iterations.

The assignment process is executed with TP+ script named HIGHWAY\_ASSIGNMENT.S. The script reads six trip files:

- AM modeled trips
- PM modeled trips
- Off-peak modeled trips
- AM truck and non-modeled trips
- PM truck and non-modeled trips
- Off-peak truck and non-modeled trips

The modeled trip files contain 3 trip tables corresponding to SOV, 2 occupant HOVs, and 3+occupant HOVs. The non-modeled files each contain 7 trip tables corresponding to through trucks, through auto drivers, taxi auto drivers, visitor auto drivers, school auto drivers, medium size trucks, and heavy trucks. The program first collapses the six files into three files (AM, PM and Off-peak) containing five tables: 1) 1-occupant auto drivers, 2) 2-occupant auto drivers, 3) 3+occupant auto drivers, 4) trucks (medium and heavy), and 5) airport passenger vehicle trips.

The assignment process is executed for each time period. After the three assignments a summary routine follows to compute daily statistics.

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## Appendix A. Version 2.1 D Draft #50 Scripts

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## Adr\_Update.s

```

; =====
; Adr_Update.s
; This program used to develop 1-occ, 2-occ, and 3+occ auto driver
; trip tables directly from a the Mode Choice Model Output file.
;
; 'off-the-shelf' disaggregation curves to arrive at auto driver
; trips in occupant categories.
; The program is applied in four 'loops'
; -- one for each purpose (HBW, HBS, HBO, and NHB)
; =====
; Environment Variable: %_iter% iteration (i1/i2)
;
; //////////////////////////////////////
;
; First, establish Input/Output filenames:
LOOP PURP=1,4 ; We'll Loop 4 times, for each purpose
                ; Note default auto driver shares and occupant
                ; shares to be used in case no seed shares exist

IF (PURP=1) ; HBW Loop
MCFILE = 'mc_hbw%_iter%.fin' ; HBW Mode Choice file (Input)
AD123OCC = 'HBW%_iter%.ADR' ; HBW auto driver trips- 1,2,3+ Occ. (Output)
PURPOSE = 'HBW' ;

ELSEIF (PURP=2) ; HBS Loop
MCFILE = 'mc_hbs%_iter%.fin' ; HBS Mode Choice file (Input)
AD123OCC = 'HBS%_iter%.ADR' ; HBS auto driver trips- 1,2,3+ Occ. (Output)
PURPOSE = 'HBS' ;

ELSEIF (PURP=3) ; HBO Loop
MCFILE = 'mc_hbo%_iter%.fin' ; HBO Mode Choice file (Input)
AD123OCC = 'HBO%_iter%.ADR' ; HBO auto driver trips- 1,2,3+ Occ. (Output)
PURPOSE = 'HBO' ;

ELSEIF (PURP=4) ; NHB Loop
MCFILE = 'mc_nhb%_iter%.fin' ; NHB Mode Choice file (Input)
AD123OCC = 'NHB%_iter%.ADR' ; NHB auto driver trips- 1,2,3+ Occ. (Output)
PURPOSE = 'NHB' ;

ENDIF
;
; //////////////////////////////////////
;
RUN PGM=MATRIX
MATI[1]=@MCFILE@ ; MC model ouput

; Put Mode Choice Mats 1-7, respectively, The tables are:
; 1/LOVADR 2/LOVAPSNs 3/Trn_Wk 4/Trn_Dr 5/HOV2ADR 6/HOVPSNs 7/HOV3+ADR
; HOV trips refer to carpool trips on special priority facilities.
; Carpools not on special facilities are subsumed in the LOV group.

FILLMW MW[1] = MI.1.1,2,3,4,5,6,7
MW[8] = MW[1] + MW[5] + MW[7] ; Total input ADR in work mat 8

JLOOP
IF (MW[1] = 0) ; COMPUTE AVG LOV Auto Occupancy
MW[10] = 0 ; in Work Mat 10
ELSE ;
MW[10] = MW[2]/MW[1] ;
ENDIF
; Determine LOV Vehicles in 1,2,3&4+ occupant groups using model
; COG's disaggregation model.

```

```

IF (MW[10] < 1.0050) ; Make sure the computed Car Occ.
MW[10] = 1.0050 ; is between 1.005 and 2.500
ELSEIF (MW[10] > 2.5000) ; -- if not establish boundary
MW[10] = 2.5000 ; conditions
ENDIF

;
; Apply Car Occ. Pct Model-Computes Pct Vehs.in Occ groups as function
; of avg auto occ.

IF (MW[10] = 1.0050 - 1.1199999)
MW[21] = 2.00264 - (0.9989 * MW[10]) ; Shr of 1-Occ Vehs
MW[22] = -1.00050 + (0.9952 * MW[10]) ; Shr of 2-Occ Vehs
MW[23] = -0.00158 + (0.0029 * MW[10]) ; Shr of 3-Occ Vehs
MW[24] = -0.00056 + (0.0008 * MW[10]) ; Shr of 4-Occ Vehs
ELSEIF (MW[10] = 1.1200 - 2.5000)
MW[21] = 1.59600 - (0.6357 * MW[10]) ; Shr of 1-Occ Vehs
MW[22] = -0.31143 + (0.3800 * MW[10]) ; Shr of 2-Occ Vehs
MW[23] = -0.17082 + (0.1540 * MW[10]) ; Shr of 3-Occ Vehs
MW[24] = -0.11375 + (0.1017 * MW[10]) ; Shr of 4-Occ Vehs
ENDIF

;
; if we're working with an intrazonal
; situation, make all auto drivers are SOV.
; Override modeled shares here
IF (157) ;
MW[21] = 1.00 ; Pct of 1-Occ Vehs
MW[22] = 0.00 ; Pct of 2-Occ Vehs
MW[23] = 0.00 ; Pct of 3-Occ Vehs
MW[24] = 0.00 ; Pct of 4-Occ Vehs
ENDIF

; Apply Modeled Shares to the Auto Drivers
MW[31] =(MW[21] * MW[1]) ; Estimated LOV 1 occ vehicles
MW[32] =(MW[22] * MW[1]) ; Estimated LOV 2 occ vehicles
MW[33] =(MW[23] * MW[1]) ; Estimated LOV 3 occ vehicles
MW[34] =(MW[24] * MW[1]) ; Estimated LOV 4+occ vehicles

; compute add HOV2 & HOV3 trips from MC file to LOV dissagg. trips,
; also combine 3 & 4+ occ. auto driver trips into one group.

MW[41] = MW[31] ; Total 1-Occ Auto Drivers
MW[42] = MW[32] + MW[5] ; 2-occ(lov+carpool)
MW[43] = MW[33] + MW[34] + MW[7] ; 3-occ(lov+carpool)

;
; endjloop

DUMMY = ROWFIX(41) ; make resultant trips integers
DUMMY = ROWFIX(42) ;
DUMMY = ROWFIX(43) ;

MW[44] = MW[41] + MW[42] + MW[43] ; total output auto drivers

JLOOP

; Lets sum up the above to get neat total summaries

INPLADR = INPLADR + MW[1] ; Input LOV Auto Driver Accumulation
INPHAADR = INPHAADR + MW[5] ; Input HOV/2 CP ADR Accumulation
INPHBADR = INPHBADR + MW[7] ; Input HOV/3 CP ADR Accumulation
INPADR = INPADR + MW[8] ; Input Auto Driver Accumulation
OUT1ADR = OUT1ADR + MW[41] ; Output 1 occ Auto Dr Accumulation
OUT2ADR = OUT2ADR + MW[42] ; Output 2 occ Auto Dr Accumulation
OUT3ADR = OUT3ADR + MW[43] ; Output 3 occ Auto Dr Accumulation

```

## Appendix A. Version 2.1 D Draft #50 Scripts

---

```
OUTADR = OUTADR + MW[44] ; Output 4 occ Auto Dr Accumulation
endjloop
IF (I == ZONES)
;
; Compute Regional Occ. distributions
;
IF (OUTADR = 0)
OUTAD1SH = 0
OUTAD2SH = 0
OUTAD3SH = 0
ELSE
OUTAD1SH = OUT1ADR/OUTADR *100 ; 1-occ adr SHARE
OUTAD2SH = OUT2ADR/OUTADR *100 ; 2-occ adr SHARE
OUTAD3SH = OUT3ADR/OUTADR *100 ; 3+occ adr SHARE
OUTADSH = OUTADR /OUTADR *100 ; TOTAL SHARE /1.000
ENDIF

LIST='/bt
LIST='Summary of ', '@PURPOSE@', ' %_iter_%-ITERATION AUTO Dr Trips'
LIST='
LIST='
List=' Summary of Input/Output Shares'
List='Input Auto LOV Auto Drivers: ', inpladr(8)
List='Input Auto HOV2 CP Auto Drivers: ', inphaadr(8)
List='Input Auto HOV3 CP Auto Drivers: ', inphbadr(8)
List='-----'
List='Input Total Auto Drivers: ', inpadr(8)
LIST='
List='Output 1-Occ Auto Drivers: ', outladr(8),outad1sh(6.1),'%'
List='Output 2-Occ Auto Drivers: ', out2adr(8),outad2sh(6.1),'%'
List='Output 3+Occ Auto Drivers: ', out3adr(8),outad3sh(6.1),'%'
List='-----'
List='Output Total Auto Drivers: ', outadr(8),outadsh(6.1),'%'
LIST='/et
ENDIF

MATO=@AD123OCC@,MO=41,42,43 ; output file designation

ENDRUN
ENDLOOP
```

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## Auto\_Access.s

```

-----
;Auto_Access.s
;MwCOG VERSION 2 MODEL
;
;
; Develop Auto Access Taz to PNR Links from the Prime Prime Auto Skims
;
; Environment variables:  _prev_ Previous iteration (PP,i1...i6)
;
; Input files  - SOVppam.skm (AM, SOV Skims from the Pump Prime Assignment)
;               SOVppop.skm (AM, SOV Skims from the Pump Prime Assignment)
;               3 tables in each skim file:
;               1- time      (min),
;               2- distance(1/10th mi)
;               3- tolls    (1980 cents)
;               tazpnr.lkp   (TAZ pnr equivalency file)
; Output files - pnr_am.tb , pnr_op.tb (will overwrite the files from the
;               earlier Pump_Prime_skims file.
;
; LOOP PERIOD=1,2      ; loop through two time periods-- AM, Off-Peak
;
; IF (PERIOD=1)
;   PRD = 'AM'
;   IDS = 'AM Final Auto Access Skims'
; ELSE
;   PRD = 'OP'
;   IDS = 'OP Final Auto Access Skims'
; ENDIF
;
;-----
; Step 1: Park-&-Ride Access Data
;-----
; Next write out TAZ-to-PNR links based on skim times/distances
; for each time period
;
; RUN PGM=MATRIX
; MATI[1]=SOV%_prev_%@PRD@.SKM
;
; LOOKUP NAME=TAZPNRLK,
; LOOKUP[1] = 1, RESULT=2,; pnr node 1
; LOOKUP[2] = 1, RESULT=3,; pnr node 2 (if any)
; LOOKUP[3] = 1, RESULT=4,; pnr node 3 (if any)
; LOOKUP[4] = 1, RESULT=5,; pnr node 4 (if any)
; INTERPOLATE=N, FAIL=0,0,0, FILE=TAZPNR.LKP
;
; ZDATI[1]=BASEZON.DAT,Z=1-5,XCRD = 7-14,YCRD= 15-22
;
; MW[1] = mi.1.1      ; Time      (min)
; MW[2] = mi.1.2*10  ; Distance (1/100ths mi)
;
; calculate the i/j airline distance in miles MW[3] and
;
; JLOOP
; IF (XCRD[I] = 0 || XCRD[J] = 0)
;   MW[3] = 0
; ELSE
;   XCHGFT = XCRD[I] - XCRD[J]
;   YCHGFT = YCRD[I] - YCRD[J]
;   MW[3] = (SQRT((XCHGFT**2) + (YCHGFT**2)))/ 5280.0
; ENDIF
; ENDJLOOP
; Insert 50% of lowest time/distance value into intrazonal cells

```

```

; JLOOP
; IF (J == I)
;   MW[1]=(0.50 * LOWEST(1,1,0.0001,99999.9))
;   MW[2]=(0.50 * LOWEST(2,1,0.0001,99999.9))
;   MW[3]=(0.50 * LOWEST(3,1,0.0001,99999.9))
; ENDIF
; ENDJLOOP
;
; JLOOP
; pnr = tazpnrnk(1,j)
; IF (pnr > 0 & ;---- Park-&-Ride Station ----
;   ((i = 1 -1229 & j = 1 -1229) | ;---- DC/Maryland Internals ----
;    (i = 1230-2141 & j = 1230-2141) | ;---- Virginia Internals ----
;    (i = 1780-1919 & j = 1 -1229) | ;---- Loudoun to DC/Maryland ----
;    (i = 2135-2141 & j = 1 -1229)) ;---- Jefferson to DC/Maryland ---
;   ; set default airline distance tolerances here:
;   dtol = 8.0 ; default distance limit to pnr stations is 9mi
;           ; limit is shorter for more developed juris.
;   if (i=1-319,1230-1329,1330-1399) dtol=4.00; 4mi/dc,arl/alg
;   if (i=320-639,640-1029,1400-1779) dtol=5.00; 7mi/mtg,pg,ffx
;
; IF (MW[1] > 0 & MW[3] > 0.0001 & MW[3] <= dtol) ;
;   _SPEED = ROUND (MW[2] / MW[1] * 0.60)
;   _dis00 = MW[2]
;   PRINT LIST='SUPPORT N=',i(4),'-',pnr(5),
;   ' DIST=',_dis00(5),' ONEWAY=Y MODES=11 SPEED=',
;   _SPEED(3),' ; jtaz/pnr(1)= ',j(5),
;   ' Airln Dist(mi): ',MW[3],
;   FILE=PNR_@PRD@.TB
;
;   if (tazpnrnk(2,j) > 0)
;     pnr2 = tazpnrnk(2,j)
;     PRINT LIST='SUPPORT N=',i(4),'-',pnr2(5),
;     ' DIST=',_dis00(5),' ONEWAY=Y MODES=11 SPEED=',
;     _SPEED(3),' ; jtaz/pnr(2)= ',j(5),
;     ' Airln Dist(mi): ',MW[3],
;     FILE=PNR_@PRD@.TB
;   endif
;   if (tazpnrnk(3,j) > 0)
;     pnr3 = tazpnrnk(3,j)
;     PRINT LIST='SUPPORT N=',i(4),'-',pnr3(5),
;     ' DIST=',_dis00(5),' ONEWAY=Y MODES=11 SPEED=',
;     _SPEED(3),' ; jtaz/pnr(3)= ',j(5),
;     ' Airln Dist(mi): ',MW[3],
;     FILE=PNR_@PRD@.TB
;   endif
;   if (tazpnrnk(4,j) > 0)
;     pnr4 = tazpnrnk(4,j)
;     PRINT LIST='SUPPORT N=',i(4),'-',pnr4(5),
;     ' DIST=',_dis00(5),' ONEWAY=Y MODES=11 SPEED=',
;     _SPEED(3),' ; jtaz/pnr(4)= ',j(5),
;     ' Airln Dist(mi): ',MW[3],
;     FILE=PNR_@PRD@.TB
;   endif
; ENDIF
; ENDJLOOP
; ENDRUN
; ENDLOOP ;

```

DRAFT

## Export\_Fares.s

```

;-----
; Export_Fares.s
; MWCOG Version 2 Model.
;
; Export Fare Data on Selected Interchanges
;
; Global Variable: _iter_ (= pp,il,-i6)
;
;
; Input Files:
; Fare Matrix Files = MF_pp_mm.SKM (pp=AM/OP, MM=WK/DR)
; Output Files:
; Selected Fare Data = %_iter_%_PP_MM.ASC
; MINUTP Fare Matrix = %_iter_%_pp.mm.FAR
;
;-----
;
COMP ID = 'MWCOG Version 2 Model -- Export Fare Matrix'
;
;-----
; Step 1: Export Fare Matrix Files
;-----
;
RUN PGM=MATRIX
MATI[1]=MF_AM_WK.SKM
MATI[2]=MF_AM_DR.SKM
MATI[3]=MF_OP_WK.SKM
MATI[4]=MF_OP_DR.SKM
MATO[1] = %_iter_%_AM_WK.FAR, MO=1, FORMAT=MINUTP
MATO[2] = %_iter_%_AM_DR.FAR, MO=2, FORMAT=MINUTP
MATO[3] = %_iter_%_OP_WK.FAR, MO=3, FORMAT=MINUTP
MATO[4] = %_iter_%_OP_DR.FAR, MO=4, FORMAT=MINUTP

FILLMW MW[1]=MI.1.1, MI.2.1, MI.3.1, MI.4.1

JLOOP
; check for negative fare values- stop if any found

IF (MI.1.1 < 0 || MI.1.2 < 0 || MI.1.3 < 0 || MI.1.4 < 0 || MI.1.5 < 0)
LIST = 'Negative Fares 1 or more tables in MF_AM_WK.SKM, aborted run'
ABORT
ENDIF

IF (MI.2.1 < 0 || MI.2.2 < 0 || MI.2.3 < 0 || MI.2.4 < 0 || MI.2.5 < 0)
LIST = 'Negative Fares 1 or more tables in MF_AM_DR.SKM, aborted run'
ABORT
ENDIF

IF (MI.3.1 < 0 || MI.3.2 < 0 || MI.3.3 < 0 || MI.3.4 < 0 || MI.3.5 < 0)
LIST = 'Negative Fares 1 or more tables in MF_OP_WK.SKM, aborted run'
ABORT
ENDIF

IF (MI.4.1 < 0 || MI.4.2 < 0 || MI.4.3 < 0 || MI.4.4 < 0 || MI.4.5 < 0)
LIST = 'Negative Fares 1 or more tables in MF_OP_DR.SKM, aborted run'
ABORT
ENDIF

;-----
; Format out Fare information from MFARE2 output for selected i/js -
;-----

IF (i = 8, 64, 345, 362, 464, 578, 829, 927, 1043, 1231, 1236, 1337,
1537, 1554, 1619, 1698, 1716, 1842, 1942, 1967 &
j = 8, 64, 345, 362, 1231, 1236, 1337, 1537)

```

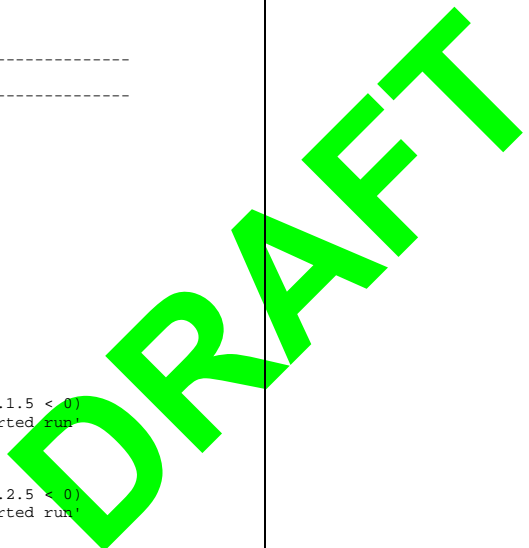
```

PRINT FILE=MF_AM_WK.ASC FORM=5, LIST=I(4), J, ' 1', MI.1.1, MI.1.2, MI.1.3,
MI.1.4, MI.1.5
PRINT FILE=MF_AM_DR.ASC FORM=5, LIST=I(4), J, ' 1', MI.2.1, MI.2.2, MI.2.3,
MI.2.4, MI.2.5
PRINT FILE=MF_OP_WK.ASC FORM=5, LIST=I(4), J, ' 1', MI.3.1, MI.3.2, MI.3.3,
MI.3.4, MI.3.5
PRINT FILE=MF_OP_DR.ASC FORM=5, LIST=I(4), J, ' 1', MI.4.1, MI.4.2, MI.4.3,
MI.4.4, MI.4.5

ENDIF

ENDJLOOP
ENDRUN

```



### Highway\_Assignment.s

```

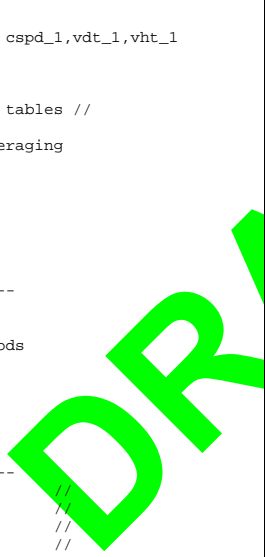
; =====
; $
; Highway_Assignment.S - Version 2.1/C Assignment with ICC changes(JPark) and
; - improved toll modeling. Toll Model changes in '$' blocks
; - Toll-related Scripting in the assignment revised per Citilabs
; comments 6/8/04
; $ - No. of iterations in assignment changed from 10 to 20
; MWCOCG Version 2.1D Model
; Note: Freeway VDF's updated 9/04/02 rjm
; Note: Freeway Freeflow Speed Table Updated 9/14/02 rjm
; Note: Bridge Penalties removed 9/17/02 rjm
; Note: Upper limit of freeway VDF value corrected 11/05/02 rjm
; Note: Freeway Ramp's FTYPE added 12/12/02 jcpark/RM
; Note (6/15/04) MAXITERS set to 20 and GAP,AAD,RMSE, & RAAD set to zero to
; MAXITERS iterations are fully executed.
; Note (8/12/04) Successive averaging updated. rm
; 09/01/04 msm Exclude= statement updated to have 3 new vars: cspd_1,vdt_1,vht_1
;
; 3 Steps:
; Step 1 - Consolidate current modeled and nonmodeled trip tables //
; for the highway assignment process.
; Step 2 - Execute traffic assignment and compute speed averaging
; for three time periods.
; Step 3 - Summarize daily VMT.
;
; Environment Variables:
; _iter_ (Iteration indicator = 'pp','il' - 'i6')
;
; -----
; Step 1 - Modeled & Non-Modeled Trip Table Consolidation
; for the Highway Assignment
; - 3 Trip files built for AM,PM,Off-Peak Time Periods
; - Each file has 5 Trip tables:
; 1) 1-occ adrs
; 2) 2-occ adrs
; 3) 3-occ adrs
; 4) Trucks
; 5) Airport Pax Adrs
; -----
; I/P Auto Dr. Pct. tables:
ADRAM = 'AM%_iter%.ADR' ; AM Modeled Total Auto Drivers //
ADRPM = 'PM%_iter%.ADR' ; PM Modeled Total Auto Drivers //
ADROP = 'OP%_iter%.ADR' ; Off-Pk Modeled Total Auto Drivers //
;
; I/P MISC Auto Dr. Tables:
MISCAM = 'MISCAM.TT' ; AM Non-Modeled Trips //
MISCPM = 'MISCPM.TT' ; PM Non-Modeled Trips //
MISCOP = 'MISCOP.TT' ; Off-Pk Non-Modeled Trips //
;
; O/P Vehicle Trips:
AM_VT = '%_iter%AM.VTT' ; AM VEH TRIPS FOR ASSIGNMENT //
PM_VT = '%_iter%PM.VTT' ; PM VEH TRIPS FOR ASSIGNMENT //
OP_VT = '%_iter%OP.VTT' ; OP VEH TRIPS FOR ASSIGNMENT //
;
; ; based on 1994 auto ext svy / //
; ; avg xx auto occ. is 1.72 -basis for: //
XXAD1OCC = 0.5021 ; ASSUMED SHARE OF THRU ADRS W/ 1-OCC //
XXAD2OCC = 0.3426 ; ASSUMED SHARE OF THRU ADRS W/ 2-OCCS //
XXAD3OCC = 0.1553 ; ASSUMED SHARE OF THRU ADRS W/ 3+OCCS //
;
; =====

```

```

RUN PGM=MATRIX
MATI[1]=@ADRAM@ ;
MATI[2]=@ADRPM@ ;
MATI[3]=@ADROP@ ;
;
MATI[4]=@MISCAM@ ;
MATI[5]=@MISCPM@ ;
MATI[6]=@MISCOP@ ;
;
MW[1]= MI.1.1 ; AM 1-Occ adrs
MW[2]= MI.1.2 ; AM 2-Occ adrs
MW[3]= MI.1.3 ; AM 3+Occ adrs
;
MW[4]= MI.2.1 ; PM 1-Occ adrs
MW[5]= MI.2.2 ; PM 2-Occ adrs
MW[6]= MI.2.3 ; PM 3+Occ adrs
;
MW[7]= MI.3.1 ; OP 1-Occ adrs
MW[8]= MI.3.2 ; OP 2-Occ adrs
MW[9]= MI.3.3 ; OP 3+Occ adrs
;
; AM Peak Period MISC Trips
;
MW[11]= MI.4.1 ; AM Thru Truck
MW[12]= MI.4.2*@XXAD1OCC@ ; AM Thru Auto Driver-1 OCC
MW[13]= MI.4.2*@XXAD2OCC@ ; AM Thru Auto Driver-2 OCC
MW[14]= MI.4.2*@XXAD3OCC@ ; AM Thru Auto Driver-3+OCC
MW[15]= MI.4.3 ; AM Taxi Auto Driver
MW[16]= MI.4.4 ; AM Visitor Auto Driver
MW[17]= MI.4.5 ; AM School Auto Driver
MW[18]= MI.4.6 ; AM I-I,I-E,E-I Medium Truck
MW[19]= MI.4.7 ; AM I-I,I-E,E-I Heavy Truck
;
DUMMY = ROWFIX(12) ; Bucket Rnd XX AUTO 1-OCC TRIPS
DUMMY = ROWFIX(13) ; AUTO 2 OCC TRIPS
DUMMY = ROWFIX(14) ; AUTO 3+OCC TRIPS
;
; PM Peak Period MISC Trips
;
MW[21]= MI.5.1 ; PM Thru Truck
MW[22]= MI.5.2*@XXAD1OCC@ ; PM Thru Auto Driver-1 OCC
MW[23]= MI.5.2*@XXAD2OCC@ ; PM Thru Auto Driver-2 OCC
MW[24]= MI.5.2*@XXAD3OCC@ ; PM Thru Auto Driver-3+OCC
MW[25]= MI.5.3 ; PM Taxi Auto Driver
MW[26]= MI.5.4 ; PM Visitor Auto Driver
MW[27]= MI.5.5 ; PM School Auto Driver
MW[28]= MI.5.6 ; PM I-I,I-E,E-I Medium Truck
MW[29]= MI.5.7 ; PM I-I,I-E,E-I Heavy Truck
;
DUMMY = ROWFIX(22) ; Bucket Rnd XX AUTO 1-OCC TRIPS
DUMMY = ROWFIX(23) ; AUTO 2 OCC TRIPS
DUMMY = ROWFIX(24) ; AUTO 3+OCC TRIPS
;
; OFF PK Peak Period MISC Trips
;
MW[31]= MI.6.1 ; PM Thru Truck
MW[32]= MI.6.2*@XXAD1OCC@ ; PM Thru Auto Driver-1 OCC
MW[33]= MI.6.2*@XXAD2OCC@ ; PM Thru Auto Driver-2 OCC
MW[34]= MI.6.2*@XXAD3OCC@ ; PM Thru Auto Driver-3+OCC
MW[35]= MI.6.3 ; PM Taxi Auto Driver
MW[36]= MI.6.4 ; PM Visitor Auto Driver
MW[37]= MI.6.5 ; PM School Auto Driver
MW[38]= MI.6.6 ; PM I-I,I-E,E-I Medium Truck
MW[39]= MI.6.7 ; PM I-I,I-E,E-I Heavy Truck
;
DUMMY = ROWFIX(32) ; Bucket Rnd XX AUTO 1-OCC TRIPS
DUMMY = ROWFIX(33) ; AUTO 2 OCC TRIPS

```



# Appendix A. Version 2.1 D Draft #50 Scripts

```

DUMMY = ROWFIX(34) ;          AUTO 3+OCC TRIPS

; Add up vehicle tables into the appropriate categories
; AM
MW[40] = MW[1] + MW[12] + MW[17] ; AM SOV Vehicle Trips
MW[41] = MW[2] + MW[13] + MW[15] + MW[16] ; AM HOV2 Vehicle Trips
MW[42] = MW[3] + MW[14] ; AM HOV3+ Vehicle Trips
MW[43] = MW[11] + MW[18] + MW[19] ; AM Truck Trips
MW[44] = MI.4.8 ; AM Airport Pax Adr Trips

; PM
MW[50] = MW[4] + MW[22] + MW[27] ; PM SOV Vehicle Trips
MW[51] = MW[5] + MW[23] + MW[25] + MW[26] ; PM HOV2 Vehicle Trips
MW[52] = MW[6] + MW[24] ; PM HOV3+ Vehicle Trips
MW[53] = MW[21] + MW[28] + MW[29] ; PM Truck Trips
MW[54] = MI.5.8 ; PM Airport Pax Adr Trips

; Off-Peak
MW[60] = MW[7] + MW[32] + MW[37] ; OP SOV Vehicle Trips
MW[61] = MW[8] + MW[33] + MW[35] + MW[36] ; OP HOV2 Vehicle Trips
MW[62] = MW[9] + MW[34] ; OP HOV3+ Vehicle Trips
MW[63] = MW[31] + MW[38] + MW[39] ; OP Truck Trips
MW[64] = MI.6.8 ; OP Airport Pax Adr Trips

;
;
; Now let's accumulate totals for neat regional summaries
jloop
vehs = vehs + (MW[40]+MW[41]+MW[42]+MW[43]+MW[44]) + ; daily vehs
(MW[50]+MW[51]+MW[52]+MW[53]+MW[54]) + ;
(MW[60]+MW[61]+MW[62]+MW[63]+MW[64]) ;

;AM group
amvehs = amvehs + MW[40]+MW[41]+MW[42]+MW[43]+MW[44] ; all am vehs
amlocc = amlocc + MW[40] ; am 1-occveh's
am2occ = am2occ + MW[41] ; am 2-occveh's
am3occ = am3occ + MW[42] ; am 3-occveh's
amtrks = amtrks + MW[43] ; am trucks
amapax = amapax + MW[44] ; am airpax adrs
amloccad = amloccad + MW[1] ; am locc adr
am2occad = am2occad + MW[2] ; am 2occ adr
am3occad = am3occad + MW[3] ; am 3+occ adr
amadr = amadr + MW[1] + MW[2] + MW[3] ; am total adr(modeled)
amxtrk = amxtrk + MW[11] ; am Thru Truck
amxxad1 = amxxad1 + MW[12] ; am Thru locc Adr
amxxad2 = amxxad2 + MW[13] ; am Thru 2occ Adr
amxxad3 = amxxad3 + MW[14] ; am Thru 3+occAdr
amxxadr = amxxadr + MW[12]+MW[13]+MW[14] ; am total xx adr
amtaxi = amtaxi + MI.4.3 ; am Taxi Adr
amvisi = amvisi + MI.4.4 ; am visitor Adr
amscho = amscho + MI.4.5 ; am School Adr
ammtrk = ammtrk + MW[18] ; am int,ext MedTk
amhtrk = amhtrk + MW[19] ; am int,ext HvyTk

;PM group
pmvehs = pmvehs + MW[50]+MW[51]+MW[52]+MW[53]+MW[54] ; all pm vehs
pmlocc = pmlocc + MW[50] ; pm 1-occveh's
pm2occ = pm2occ + MW[51] ; pm 2-occveh's
pm3occ = pm3occ + MW[52] ; pm 3-occveh's
pmtrks = pmtrks + MW[53] ; pm trucks
pmapax = pmapax + MW[54] ; pm airpax adrs
pmloccad = pmloccad + MW[4] ; pm locc adr
pm2occad = pm2occad + MW[5] ; pm 2occ adr
pm3occad = pm3occad + MW[6] ; pm 3+occ adr
pmadr = pmadr + MW[4] + MW[5] + MW[6] ; pm total adr(modeled)
pmxtrk = pmxtrk + MW[21] ; pm Thru Truck
pmxxad1 = pmxxad1 + MW[22] ; pm Thru locc Adr
pmxxad2 = pmxxad2 + MW[23] ; pm Thru 2occ Adr
pmxxad3 = pmxxad3 + MW[24] ; pm Thru 3+occAdr

```

```

pmxxadr = pmxxadr + MW[22]+MW[23]+MW[24] ; pm total xx adr
pmtaxi = pmtaxi + MI.5.3 ; pm Taxi Adr
pmvisi = pmvisi + MI.5.4 ; pm visitor Adr
pmscho = pmscho + MI.5.5 ; pm School Adr
pmmtrk = pmmtrk + MW[28] ; pm int,ext MedTk
pmhtrk = pmhtrk + MW[29] ; pm int,ext HvyTk

;Off-Peak group
opvehs = opvehs + MW[60]+MW[61]+MW[62]+MW[63]+MW[64] ; all op vehs
oplocc = oplocc + MW[60] ; op 1-occveh's
op2occ = op2occ + MW[61] ; op 2-occveh's
op3occ = op3occ + MW[62] ; op 3-occveh's
optrks = optrks + MW[63] ; op trucks
opapax = opapax + MW[64] ; op airpax adrs
oploccad = oploccad + MW[7] ; op locc adr
op2occad = op2occad + MW[8] ; op 2occ adr
op3occad = op3occad + MW[9] ; op 3+occ adr
opadr = opadr + MW[7] + MW[8] + MW[9] ; op total adr(modeled)
opxtrk = opxtrk + MW[31] ; op Thru Truck
opxxad1 = opxxad1 + MW[32] ; op Thru locc Adr
opxxad2 = opxxad2 + MW[33] ; op Thru 2occ Adr
opxxad3 = opxxad3 + MW[34] ; op Thru 3+occAdr
opxxadr = opxxadr + MW[32]+MW[33]+MW[34] ; op total xx adr
optaxi = optaxi + MI.6.3 ; op Taxi Adr
opvisi = opvisi + MI.6.4 ; op visitor Adr
opscho = opscho + MI.6.5 ; op School Adr
opmtrk = opmtrk + MW[38] ; op int,ext MedTk
ophtrk = ophtrk + MW[39] ; op int,ext HvyTk

endloop

if (i=zones) ; print out results
list = /ht
list = % Iter_% Iter. Pre-Traffic Assignment Trip Table Preparation Report'
list = '
list = 'Total Vehs: ',vehs(9.0),' AM,PM,OPk Vehs: ',
amvehs(8.0),' ,pmvehs(8.0),' ,opvehs(8.0)
list = '
list = ' , ' AM 1,2,3+Occ Vehs, Trucks, Air Pax Adrs',
amlocc(8.0),' ,am2occ(8.0),' ,am3occ(8.0),' ,amtrks(8.0),' ,amapax(8.0)
list = ' , ' PM 1,2,3+Occ Vehs, Trucks, Air Pax Adrs',
pmlocc(8.0),' ,pm2occ(8.0),' ,pm3occ(8.0),' ,pmtrks(8.0),' ,pmapax(8.0)
list = ' , ' OP 1,2,3+Occ Vehs, Trucks, Air Pax Adrs',
oplocc(8.0),' ,op2occ(8.0),' ,op3occ(8.0),' ,optrks(8.0),' ,opapax(8.0)
list = '
list = ' , ' AM,PM,OPk Auto Drivers (modeled) ',
amadr(8.0),' ,pmadr(8.0),' ,opadr(8.0)
list = ' , ' AM 1,2,3+Occ Auto Drs ',
amloccad(8.0),' ,am2occad(8.0),' ,am3occad(8.0)
list = ' , ' PM 1,2,3+Occ Auto Drs ',
pmloccad(8.0),' ,pm2occad(8.0),' ,pm3occad(8.0)
list = ' , ' OP 1,2,3+Occ Auto Drs ',
oploccad(8.0),' ,op2occad(8.0),' ,op3occad(8.0)
list = '
list = ' , ' AM Med, Hvy, XX Trk: ',
amxtrk(8.0),' ,amhtrk(8.0),' ,amxtrk(8.0)
list = ' , ' PM Med, Hvy, XX Trk: ',
pmxtrk(8.0),' ,pmhtrk(8.0),' ,pmxtrk(8.0)
list = ' , ' OP Med, Hvy, XX Trk: ',
opxtrk(8.0),' ,ophtrk(8.0),' ,opxtrk(8.0)
list = '
list = ' , ' AM 1,2,3+Occ,TotlXX Adr',
amxxad1(8.0),' ,amxxad2(8.0),' ,amxxad3(8.0),' ,amxxadr(9.0)
list = ' , ' PM 1,2,3+Occ,TotlXX Adr',
pmxxad1(8.0),' ,pmxxad2(8.0),' ,pmxxad3(8.0),' ,pmxxadr(9.0)
list = ' , ' OP 1,2,3+Occ,TotlXX Adr',
opxxad1(8.0),' ,opxxad2(8.0),' ,opxxad3(8.0),' ,opxxadr(9.0)
list = '
list = ' , ' AM Taxi,Visitr,Schl Adr, Air Pax Adr',

```

# Appendix A. Version 2.1 D Draft #50 Scripts

```

    amtaxi(8.0),' ',amvisi(8.0),' ',amscho(8.0),' ',amapax(8.0)
list = '          ',' PM Taxi,Visitr,Schl Adr, Air Pax Adr',
pmtaxi(8.0),' ',pmvisi(8.0),' ',pmscho(8.0),' ',pmapax(8.0)
list = '          ',' OP Taxi,Visitr,Schl Adr, Air Pax Adr',
optaxi(8.0),' ',opvisi(8.0),' ',opscho(8.0),' ',opapax(8.0)
list = '/et

endif

; Write out the auto driver tables by time period
MATO[1] = @AM_VT@, MO=40-44 ; AM Veh Trips 1,2,3+occ,trucks,Air Pax Vehs
MATO[2] = @PM_VT@, MO=50-54 ; PM Veh Trips 1,2,3+occ,trucks,Air Pax Vehs
MATO[3] = @OP_VT@, MO=60-64 ; OP Veh Trips 1,2,3+occ,trucks,Air Pax Vehs

ENDRUN

;-----
; Step 2 - Highway Assignment
;
;
;-----

itr = '%_iter_%'
; The Input Network Depends on the previous Iteration network

IF      (itr      = 'pp')
  INPNET = 'ZONEHWY.NET'
ELSE
  INPNET = '%_prev_%HWY.NET'
ENDIF

LOOP Period=1,3; Three assignment loops: 1/AM, 2/PM, 3/Off-Pk

IF      (Period=1)      ; AM Peak Period
  PRD    = 'AM'          ;
  PCTADT = 40 ; %_AMPF_% AM Pk Ftr (% of traffic occurring in pk hr)
ELSEIF  (Period=2)      ; PM Peak Period
  PRD    = 'PM'          ;
  PCTADT = 37 ; %_PMPF_% PM Pk Ftr (% of traffic occurring in pk hr)
ELSE
  PRD    = 'OP'          ; Off-Peak Period
  PCTADT = 12 ; %_OPPF_% OP Pk Ftr (% of traffic occurring in pk hr)
ENDIF

CAPFAC=1/(PCTADT/100) ; Capacity Factor = 1/(PCTADT/100)

;$
in_tskm = 'inputs\toll.skm' ; read in toll param file
;$

RUN PGM=HWYLOAD
NETI=@INPNET@ ; TP+ Network
;
; The input trip table has 5 Vehicle Tables:
; 1 - 1-Occ Auto Drivers
; 2 - 2-Occ Auto Drivers
; 3 - 3+Occ Auto Drivers
; 4 - Trucks
; 5 - Airport Pass. Auto Driver Trips

MATI=%_iter_%@prd@.VTT ;

```

```

;
NETO=temp.net ; Output loaded network of current iter/time prd.
;
;-----
; CAP & SPEED CLASS 71 ADJUSTED FOR I-270 FROM I-370 & SPUR
; JCPARK 5/2/03
; CAP REVISED JCPARK 5/20/03 TO 1500
; CAPACITY & SPEED OF MAJOR & MINOR ARTERIAL REVISED
; SPEED OF COLLECTOR REVISED JCPARK 6/17/03
; CAPACITY OF I-95 ADJUSTED: 1900 -> 1800 VPHPL
; I-270 & I-95 OVERRIDES REMOVED 6/23/03 JCPARK
; THE OVERRIDES ACTIVATED 6/25/03 JCPARK
; START ----->
;-----
;***** Capacities and Freeflow Speeds Assumptions: **
;*****
;
; areatp > 1 2 3 4 5 6 7 fac type
;
SPDCAP CAPACITY[01]=3150 3150 3150 3150 3150 3150 3150 ; cen
SPDCAP CAPACITY[11]=1500 1600 1800 1800 2000 2000 2100 ; fwy REVISED 7/20/03
SPDCAP CAPACITY[21]= 800 800 960 960 1260 1260 1260 ; maj REVISED 6/19/03
SPDCAP CAPACITY[31]= 500 600 700 840 1000 1000 1000 ; min REVISED 6/30/03
SPDCAP CAPACITY[41]= 300 400 500 700 700 700 800 ; col
SPDCAP CAPACITY[51]= 900 1000 1000 1200 1500 1500 1500 ; xwy
SPDCAP CAPACITY[61]=1500 1600 1800 1800 2000 2000 2100 ; rmp (fwy)
SPDCAP CAPACITY[71]=1600 1800 1800 ; JCPARK I-270 CAP 7/20/03 ICC CAP 11/18/03
SPDCAP CAPACITY[91]=2400 2100 ; JCPARK 7/24/03 I-495 CAP
;
; initial speed values :
;
; areatp > 1 2 3 4 5 6 7 fac type
;
SPDCAP SPEED[01]= 15 15 20 25 30 30 35 ; cen
SPDCAP SPEED[11]= 55 55 60 60 67 67 67 ; fwy
SPDCAP SPEED[21]= 25 25 35 35 40 45 45 ; maj REVISED 6/18/03
SPDCAP SPEED[31]= 20 20 30 30 35 40 40 ; min REVISED 6/18/03
SPDCAP SPEED[41]= 15 15 20 20 25 30 30 ; col REVISED 6/18/03
SPDCAP SPEED[51]= 45 45 50 50 50 55 55 ; xwy
SPDCAP SPEED[61]= 55 55 60 60 67 67 67 ; Rmp (fwy)
SPDCAP SPEED[71]= 55 60 50 ; JCPARK I-270 SPD 7/20/03 ICC SPD 10/30/03

;$
;-----$
; Read in Toll Parameters:
;$
;-----$
READ FILE = @in_tskm@

;$ ;

;-----
; CAP & SPEED CLASS 71 55mph ADJUSTED FOR I-270 FROM I-370 & SPUR
; JCPARK 5/5/03
; REMOVED 6/23/03 JCPARK
; ACTIVATED 6/25/03 JCPARK
; ALL THE OVERRIDES WERE REMOVED EXCEPT FOR I-495 7/20/03
; <----- END
;-----
;-----$
; VDF (Volume Delay Function) establishment:
;$
;-----$
; Note: Freeway curves updated 9/04/02 rjm based on obs. skycomp data
;centroids:
LOOKUP NAME=VCRV1,FAIL=1.00,1.00,INTERPOLATE=T,
R="1.00 1"
;

```

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```

; freeway VDF lookup curve: REVISED JCPARK 6/27/03
LOOKUP_NAME=VCRV2,FAIL=1.00,5.000,INTERPOLATE=T,
R="1.000 0.00",
  "1.001 0.10",
  "1.003 0.30",
  "1.007 0.50",
  "1.014 0.70",
  "1.040 0.80",
  "1.519 0.90",
  "1.998 1.00",
  "3.851 1.10",
  "5.000 1.17",
  "5.000 1.30",
  "5.000 1.50",
  "5.000 99.99"
;
; major arterial VDF lookup curve:
LOOKUP_NAME=VCRV3,FAIL=1.00,6.22,INTERPOLATE=T,
R="1.000 0.00",
  "1.020 0.10",
  "1.070 0.30",
  "1.150 0.50",
  "1.310 0.70",
  "1.490 0.80",
  "1.670 0.90",
  "2.255 1.00",
  "2.840 1.10",
  "3.394 1.17",
  "4.420 1.30",
  "6.220 1.50",
  "6.220 99.99"
;
; minor arterial VDF lookup curve:
LOOKUP_NAME=VCRV4,FAIL=1.00,6.35,INTERPOLATE=T,
R="1.000 0.00",
  "1.030 0.10",
  "1.090 0.30",
  "1.200 0.50",
  "1.390 0.70",
  "1.565 0.80",
  "1.740 0.90",
  "2.370 1.00",
  "3.000 1.10",
  "3.555 1.17",
  "4.580 1.30",
  "6.350 1.50",
  "6.350 99.99"
;
; collector VDF lookup curve:
LOOKUP_NAME=VCRV5,FAIL=1.00,2.30,INTERPOLATE=T,
R="1.000 0.00",
  "1.030 0.10",
  "1.040 0.30",
  "1.060 0.50",
  "1.100 0.70",
  "1.140 0.80",
  "1.180 0.90",
  "1.260 1.00",
  "1.340 1.10",
  "1.453 1.17",
  "1.660 1.30",
  "2.300 1.50",
  "2.300 99.99"
;
; expressway VDF lookup curve:
LOOKUP_NAME=VCRV6,FAIL=1.00,7.59,INTERPOLATE=T,
R="1.000 0.00",
  "1.010 0.10",

```

```

"1.040 0.30",
"1.090 0.50",
"1.190 0.70",
"1.360 0.80",
"1.530 0.90",
"2.180 1.00",
"2.830 1.10",
"3.630 1.17",
"5.090 1.30",
"7.590 1.50",
"7.590 99.99"

FUNCTION {
TC[1]= T0*VCRV1(VC) ; Congested Time (TC)specification:
TC[2]= T0*VCRV2(VC) ; TC(LINKCLASS) =
TC[3]= T0*VCRV3(VC) ; Uncongested Time(T0) *
TC[4]= T0*VCRV4(VC) ; Volume Delay Funtion(VDF)Value
TC[5]= T0*VCRV5(VC) ; VDF function is based on VC
TC[6]= T0*VCRV6(VC) ; Note: the LINKCLASS is defined
; during the LINKREAD phase below.
}
;
;
;
;
CAPFAC=@CAPFAC ;
; 10 iterations changed to 20 (RM) 3/09/04 / GAP,AAD, RMSE,&RAAD params set to
zero
; to ensure 'maxiters' iterations are completely executed (RM) 6/15/04 .
MAXITERS=20 ;
GAP = 0.0 ; ** To ensure Max iterations are fully executed **
AAD = 0.0 ; ** To ensure Max iterations are fully executed **
RMSE = 0.0 ; ** To ensure Max iterations are fully executed **
RAAD = 0.0 ; ** To ensure Max iterations are fully executed **

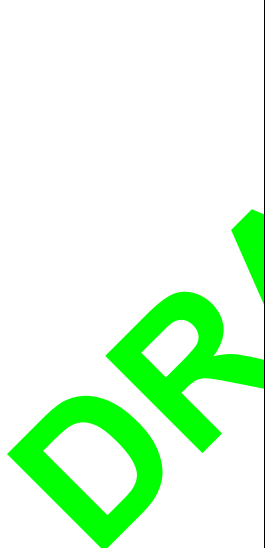
PHASE=LINKREAD
C = CAPACITYFOR(LI.@PRD@LANE,LI.CAPCLASS) * @CAPFAC
SPEED = SPEEDFOR(LI.@PRD@LANE,LI.SPDCLASS)
T0 = (LI.DISTANCE/SPEED)*60.0

IF (ITERATION = 0)
; Define AM /OP link level tolls by vehicle type here:
LW.SOV@PRD@TOLL = LI.@PRD@TOLL * @PRD@_TFAC(1,LI.TOLLGRP) ; SOV TOLLS
in 1980 cents
LW.HV2@PRD@TOLL = LI.@PRD@TOLL * @PRD@_TFAC(2,LI.TOLLGRP) ; HOV 2 occ TOLLS
in 1980 cents
LW.HV3@PRD@TOLL = LI.@PRD@TOLL * @PRD@_TFAC(3,LI.TOLLGRP) ; HOV 3+occ TOLLS
in 1980 cents
LW.TRK@PRD@TOLL = LI.@PRD@TOLL * @PRD@_TFAC(4,LI.TOLLGRP) ; Truck TOLLS
in 1980 cents
LW.APX@PRD@TOLL = LI.@PRD@TOLL * @PRD@_TFAC(5,LI.TOLLGRP) ; AP Pax TOLLS
in 1980 cents

; Initial Iteration LINK IMPEDANCE (HIGHWAY TIME + Equiv.Toll/Time) by vehicle
type here:
LW.SOV@PRD@IMP = T0 + (LW.SOV@PRD@TOLL/100.0)* SV@PRD@EQM ;SOV IMP
LW.HV2@PRD@IMP = T0 + (LW.HV2@PRD@TOLL/100.0)* H2@PRD@EQM ;HOV 2 IMP
LW.HV3@PRD@IMP = T0 + (LW.HV3@PRD@TOLL/100.0)* H3@PRD@EQM ;HOV 3+IMP
LW.TRK@PRD@IMP = T0 + (LW.TRK@PRD@TOLL/100.0)* TRK@PRD@EQM ;Truck IMP
LW.APX@PRD@IMP = T0 + (LW.APX@PRD@TOLL/100.0)* AP@PRD@EQM ;APAX IMP

IF (LI.@PRD@TOLL > 0)
PRINT LIST = 'iteration: ',iteration(3), ' A: ',A(7),' B: ',B(7),
'DISTANCE: ',LI.DISTANCE(6.2),
' LI.@PRD@TOLL: ', LI.@PRD@TOLL(5.2),
' FFSPPEED: ', SPEED(5.2),
' @PRD@_TFAC(1,LI.TOLLGRP): ',@PRD@_TFAC(1,LI.TOLLGRP)(5.1),
' SV@PRD@EQM: ', SV@PRD@EQM(5.1),

```





# Appendix A. Version 2.1 D Draft #50 Scripts

```

' LW.SOV@PRD@TOLL: ', LW.SOV@PRD@TOLL(5.2),
' T0: ', T0(5.2),
' LW.SOV@PRD@IMP', LW.SOV@PRD@IMP(5.2),
file = @prd@CHK.LKREAD
ENDIF

ENDIF

;$

;
; The highway network is coded with limit codes from 1 to 9
; Limit Code Definition
; -----
; 1 All vehicles accepted
; 2 Only HOV2 (or greater) vehicles accepted only
; 3 Only HOV3 vehicles accepted only
; 4 Med,Hvy Trks not accepted, all other traffic is accepted
; 5 Airport Passenger Veh. Trips
; 6-8 (Unused)
; 9 No vehicles are accepted at all
;
IF (LI.@PRD@LIMIT==1)
  ADDTOGROUP=1
ELSEIF (LI.@PRD@LIMIT==2)
  ADDTOGROUP=2
ELSEIF (LI.@PRD@LIMIT==3)
  ADDTOGROUP=3
ELSEIF (LI.@PRD@LIMIT==4)
  ADDTOGROUP=4
ELSEIF (LI.@PRD@LIMIT==5)
  ADDTOGROUP=5
ELSEIF (LI.@PRD@LIMIT==6-8)
  ADDTOGROUP=6
ELSEIF (LI.@PRD@LIMIT==9)
  ADDTOGROUP=7
ENDIF

IF (LI.FTYPE = 0);
  LINKCLASS = 1 ;
ELSEIF (LI.FTYPE = 1 || LI.FTYPE = 6) ; FTYPE = 6 ADDED
  LINKCLASS= 2 ;
ELSEIF (LI.FTYPE = 2) ;
  LINKCLASS= 3 ;
ELSEIF (LI.FTYPE = 3) ;
  LINKCLASS= 4 ;
ELSEIF (LI.FTYPE = 4) ;
  LINKCLASS= 5 ;
ELSEIF (LI.FTYPE = 5) ;
  LINKCLASS= 6 ;
ENDIF

ENDPHASE

PHASE=ILOOP

IF (I=1)
  LINKLOOP
  ; Initial Iteration LINK IMPEDANCE (HIGHWAY TIME + Equiv.Toll/Time) by
  vehicle type here:
  LW.SOV@PRD@IMP = TIME + (LW.SOV@PRD@TOLL/100.0)* SV@PRD@EQM ;SOV IMP
  LW.HV2@PRD@IMP = TIME + (LW.HV2@PRD@TOLL/100.0)* H2@PRD@EQM ;HOV 2 IMP
  LW.HV3@PRD@IMP = TIME + (LW.HV3@PRD@TOLL/100.0)* H3@PRD@EQM ;HOV 3+IMP
  LW.TRK@PRD@IMP = TIME + (LW.TRK@PRD@TOLL/100.0)* TK@PRD@EQM ;Truck IMP
  LW.APX@PRD@IMP = TIME + (LW.APX@PRD@TOLL/100.0)* AP@PRD@EQM ;APAX IMP

  IF (LI.@PRD@TOLL > 0)

```

```

PRINT LIST = 'iteration: ',iteration(3),' A: ',A(7),' B: ',B(7),
'DISTANCE: ',LI.DISTANCE(6.2),
' LI.@PRD@TOLL: ', LI.@PRD@TOLL(5.2),
' FFSPEED: ', SPEED(5.2),
' @PRD@_TFAC(1,LI.TOLLGRP): ',@PRD@_TFAC(1,LI.TOLLGRP)(5.1),
' SV@PRD@EQM: ', SV@PRD@EQM(5.1),
' LW.SOV@PRD@TOLL: ', LW.SOV@PRD@TOLL(5.2),
' T0: ', T0(5.2),
' TIME: ', TIME(5.2),
' LW.SOV@PRD@IMP', LW.SOV@PRD@IMP(5.2),
file = @prd@CHK.LKLOOP

ENDIF
ENDLINKLOOP

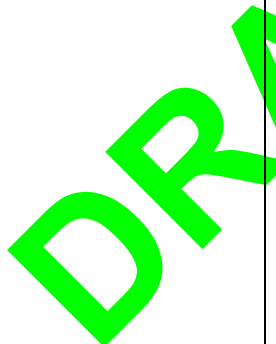
ENDIF

PATH=LW.SOV@PRD@IMP,
EXCLUDEGRP=2,3,5,6,7, ; prohibitions for free SOV veh
VOL[1]=MI.1.1
PATH=LW.HV2@PRD@IMP,
EXCLUDEGRP=3,5,6,7, ; prohibitions for HOV2 veh
VOL[2]=MI.1.2
PATH=LW.HV3@PRD@IMP,
EXCLUDEGRP=5,6,7, ; prohibitions for HOV3 veh
VOL[3]=MI.1.3
PATH=LW.TRK@PRD@IMP,
EXCLUDEGRP=2,3,4,5,6,7, ; prohibitions for trucks
VOL[4]=MI.1.4
PATH=LW.APX@PRD@IMP,
EXCLUDEGRP=6,7, ; prohibitions for Airport pass.veh trips
VOL[5]=MI.1.5

;$
ENDPHASE
PHASE = ADJUST
ENDPHASE
ENDRUN

;-----
;Step 3
;Calculate Restrained Speed/Perform MSA Volume/Speed Averaging
;
;-----
if (itr = 'pp' )
  itrno = 0
elseif (itr = 'i1')
  itrno = 1
elseif (itr = 'i2')
  itrno = 2
elseif (itr = 'i3')
  itrno = 3
elseif (itr = 'i4')
  itrno = 4
elseif (itr = 'i5')
  itrno = 5
elseif (itr = 'i6')
  itrno = 6
endif

```



# Appendix A. Version 2.1 D Draft #50 Scripts

```

RUN PGM=HWYNET
NETI=temp.net           ; input network from highway assignment
NETO=temp@prd.net,     ; output/@PRD@ network with updated speeds
EXCLUDE=V_1,TIME_1,VC_1,V1_1, V2_1, V3_1, V4_1,V5_1,
VT_1,V1T_1,V2T_1,V3T_1,V4T_1,V5T_1,
OLDSPD,NEWVOL,OLDVOL,FFSPD,HLKCAP,HLRNCAP,DCD,NEWSPD,ATYPE,
VMT,EVDF,WOSPD,WNSPD,WFSPD,SPDDIFF,COMP,%_iter_%@prd@VMT,
cpd_1,vdt_1,vht_1

_CNT=1                 ; link counter      (temporary variable)

OLDVOL = V_1           ;
NEWVOL = V_1           ;
OLDSPD = 0             ;
%_iter_%@prd@VOL = NEWVOL ;
IF (DISTANCE > 0)     ;
  OLDSPD=DISTANCE/@Prd@HTIME*60.0 ;
ENDIF

IF (@itrno@ = 2 )    ;
  OLDSPD = %_prev_%@prd@spd ;
  OLDVOL = %_prev_%@prd@VOL ;
  @itr@prd@VOL = ROUND((OLDVOL*1/2)+(NEWVOL*1/2)) ;
ELSEIF (@itrno@ = 3 ) ;
  OLDSPD = %_prev_%@prd@spd ;
  OLDVOL = %_prev_%@prd@VOL ;
  @itr@prd@VOL = ROUND((OLDVOL*2/3)+(NEWVOL*1/3)) ;
ELSEIF (@itrno@ = 4 ) ;
  OLDSPD = %_prev_%@prd@spd ;
  OLDVOL = %_prev_%@prd@VOL ;
  @itr@prd@VOL = ROUND((OLDVOL*3/4)+(NEWVOL*1/4)) ;
ELSEIF (@itrno@ = 5 ) ;
  OLDSPD = %_prev_%@prd@spd ;
  OLDVOL = %_prev_%@prd@VOL ;
  @itr@prd@VOL = ROUND((OLDVOL*4/5)+(NEWVOL*1/5)) ;
ELSEIF (@itrno@ = 6 ) ;
  OLDSPD = %_prev_%@prd@spd ;
  OLDVOL = %_prev_%@prd@VOL ;
  @itr@prd@VOL = ROUND((OLDVOL*5/6)+(NEWVOL*1/6)) ;
ENDIF

_VMT=0 ;
IF (FTYPE=1-6)
  _VMT=(V_1*DISTANCE)
ENDIF

FFSPD =SPEEDFOR(@prd@LANE,SPDCCLASS) ; freeflow speed
HLKCAP=CAPACITYFOR(@prd@LANE,CAPCLASS) ; hrlly LINK capacity
HLRNCAP=CAPACITYFOR(1,CAPCLASS) ; hrlly LANE capacity
DCD=1

IF (TIME_1 = 0) ; current (not averaged)
  NEWSPD = 0 ; assignment speed. Should be
ELSE ; same as pp@prd@spd & bs@prd@spd
  NEWSPD=(DISTANCE*60)/TIME_1 ;
ENDIF

; Tabulate VMT, _CNT by FTYPE and JUR
CROSSTAB VAR=_VMT, FORM=12cs, ROW=FTYPE, RANGE=0-6-1,0-6
CROSSTAB VAR=_VMT, FORM=12cs, ROW=JUR, RANGE=0-23-1,0-23
CROSSTAB VAR=_CNT, FORM=12cs, ROW=FTYPE, RANGE=0-6-1,0-6
CROSSTAB VAR=_CNT, FORM=12cs, ROW=JUR, RANGE=0-23-1,0-23

; LOOKUP Table relating the VC ratio to the VDF, by facility type
LOOKUP NAME=VDFA, ; VDFA(FTYPE,VC)

```

```

LOOKUP[1]=1, RESULT=2, ; FTYPE=1
LOOKUP[2]=1, RESULT=3, ; FTYPE=2
LOOKUP[3]=1, RESULT=4, ; FTYPE=3
LOOKUP[4]=1, RESULT=5, ; FTYPE=4
LOOKUP[5]=1, RESULT=6, ; FTYPE=5
LOOKUP[6]=1, RESULT=7, ; FTYPE=6
INTERPOLATE = Y,
LIST=T, ; ECHO TABLE IN PRINT FILE
; VDF is the ratio of the Freeflow Time to the Restrained Time
; -it is expressed as a function of the V/C ratio and Facility Type
; LOOKUP TABLE:
; VC VDF->(FT1) (FT2) (FT3) (FT4) (FT5) (FT6)
; | | | | | |
; | V | V | V | V | V | V |
R=" 0.00, 1.000, 1.000, 1.000, 1.000, 1.000, 1.000",
" 0.10, 1.001, 1.020, 1.030, 1.030, 1.010, 1.001",
" 0.30, 1.003, 1.070, 1.090, 1.040, 1.040, 1.003",
" 0.50, 1.007, 1.150, 1.200, 1.060, 1.090, 1.007",
" 0.70, 1.014, 1.310, 1.390, 1.100, 1.190, 1.014",
" 0.80, 1.040, 1.490, 1.565, 1.140, 1.360, 1.040",
" 0.90, 1.519, 1.670, 1.740, 1.180, 1.530, 1.519",
" 1.00, 1.998, 2.255, 2.370, 1.260, 2.180, 1.998",
" 1.10, 3.851, 2.840, 3.000, 1.340, 2.830, 3.851",
" 1.17, 5.000, 3.394, 3.555, 1.453, 3.630, 5.000",
" 1.30, 5.000, 4.420, 4.580, 1.660, 5.090, 5.000",
" 1.50, 5.000, 6.220, 6.350, 2.300, 7.590, 5.000",
"99.99, 5.000, 6.220, 6.350, 2.300, 7.590, 5.000"

; Obtain Area Type from 1st digit of SPDCCLASS
ATYPE=SPDCCLASS%10

; Compute the Final VMT based on final volume
; variable name: '<iteration><period>VMT'
%_iter_%@prd@VMT=ROUND(%_iter_%@prd@VOL*DISTANCE) ; Final VMT
VMT=ROUND(%_iter_%@prd@VOL*DISTANCE) ; Final VMT

; Compute the Final VC ratio based on final volume
; variable name: '<iteration><period>VC'
;
%_iter_%@prd@VC=(%_iter_%@prd@VOL*(@pctadt@/100.0)/HLKCAP)

; Compute the Final Volume Delay Function based on final volume
; variable name: '<iteration><period>VDF'
;
IF (FTYPE = 0)
  %_iter_%@prd@VDF=1.00
  ELSEIF (FTYPE= 1,6)
    %_iter_%@prd@VDF= VDFA(FTYPE,%_iter_%@prd@VC)
  ELSEIF (FTYPE= 2 )
    %_iter_%@prd@VDF= VDFA(FTYPE,%_iter_%@prd@VC)
  ELSEIF (FTYPE= 3 )
    %_iter_%@prd@VDF= VDFA(FTYPE,%_iter_%@prd@VC)
  ELSEIF (FTYPE= 4 )
    %_iter_%@prd@VDF= VDFA(FTYPE,%_iter_%@prd@VC)
  ELSEIF (FTYPE= 5 )
    %_iter_%@prd@VDF= VDFA(FTYPE,%_iter_%@prd@VC)
  endif

; Compute the Final Volume Delay Function based on final volume
; variable name: '<iteration><period>SPD'
;
IF (DISTANCE = 0)
  %_iter_%@prd@SPD = 0
ELSE
  %_iter_%@prd@SPD = ((FFSPD/%_iter_%@prd@VDF))

```



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```

ENDIF
; compute WEIGHTED OLD and Final SPEEDS for Aggregate summaries
WOSPD=ROUND(VMT * OLDSPD)
WNSPD=ROUND(VMT * %_iter_@pr@SPD)
WFSPD=ROUND(VMT * FFSPD)

; Compute current/previous Speed Differences at link level
; ADIFF = ROUND(ABS(%_iter_@pr@SPD - OLDSPD))
SPDDIFF= ROUND(%_iter_@pr@SPD - OLDSPD)

; Crosstab VMT,WOSPD,WNSPD, by FTYPE and JUR
CROSSTAB VAR=VMT,WOSPD,WNSPD,_CNT,FORM=12cs,
ROW=JUR, RANGE=0-23-1,,0-23,
COL=FTYPE, RANGE=1-6-1,1-6,
COMP=WOSPD/VMT, FORM=12.2cs, ; AVG INITIAL SPD
COMP=WNSPD/VMT, FORM=12.2cs, ; AVG FINAL SPD
COMP=((WNSPD/VMT)-(WOSPD/VMT)), FORM=12.2cs ; DIFF(NEW-OLD)

; Crosstab VMT,WOSPD,WNSPD,_CNT2 by ATYPE and FTYPE
CROSSTAB VAR=VMT,WOSPD,WNSPD,_CNT, FORM=12cs,
ROW=ATYPE, RANGE=1-7-1,,1-7,
COL=FTYPE, RANGE=1-6-1,1-6,
COMP=WOSPD/VMT, FORM=12.2cs, ; AVG INITIAL SPD
COMP=WNSPD/VMT, FORM=12.2cs, ; AVG FINAL SPD
COMP=((WNSPD/VMT)-(WOSPD/VMT)), FORM=12.2cs ; DIFF(NEW-OLD)

; Crosstab VMT,WOSPD,WNSPD,WFSPD,_CNT2 by EVC and FTYPE
CROSSTAB VAR=VMT,WOSPD,WNSPD,WFSPD,_CNT, FORM=12cs,
ROW=%_iter_@pr@VC, RANGE=0-2-0.1,,1-99,
COL=FTYPE, RANGE=1-6-1,1-6,
COMP=WOSPD/VMT, FORM=12.2cs, ; AVG INITIAL SPD
COMP=WNSPD/VMT, FORM=12.2cs, ; AVG FINAL SPD
COMP=WFSPD/VMT, FORM=12.2cs, ; Freeflow Speed
COMP=((WFSPD/VMT)/(WOSPD/VMT)), FORM=12.2cs, ; AVG FINAL SPD
COMP=((WFSPD/VMT)/(WNSPD/VMT)), FORM=12.2cs, ; AVG FINAL SPD
COMP=((WNSPD/VMT)-(WOSPD/VMT)), FORM=12.2cs ; DIFF(NEW-OLD)

; Tabulate _CNT by SPEED DIFF GROUP
CROSSTAB VAR=_CNT, FORM=12cs,
ROW=ADIFF, RANGE=0-2,3-5,6-8,9-11,12-14,15-17,18-100,0-100
ROW=SPDDIFF,
RANGE=-100--18,-17--15,-14--12,-11--9,-8--6,-5--3,-2-2,
3-5,6-8,9-11,12-14,15-17,18-100,,-100-100

; Tabulate _CNT2_PCT by SPEED DIFF GROUP
; CROSSTAB VAR=_CNT_PCT, FORM=12.1cs,
; ROW=ADIFF, RANGE=0-2,3-5,6-8,9-11,12-14,15-17,18-100,0-100

; PRINT to check
PRINT,
LIST=A(5),' ',B(5),DISTANCE(7.2),' ',@PCTADT(4.3),' ',@pr@LANE(2.0),' ',
HRLKCAP(5.0),' ',HRLNCAP(5.0),' ',
oldvol(8.2),' ',newvol(8.2),' ',%_iter_@pr@VOL(8.2),' ',
ffspd(5.1),' ',%_iter_@pr@VC(6.4),' ',%_iter_@pr@VDF(6.4),
' ',ftype(3.0),' ',ATYPE(3.0),
' ',vc_1(6.4),' ',NEWSPD(5.1),%_iter_@pr@SPD(5.1),
;
;
FILE=%_iter_@pr@LLNK.ASC

ENDRUN
ENDLOOP
;-----
; Step 4
; Summarize 24 hour VMT of current AM, PM, & Off-Peak Assignments

```

```

;-----
;
;
;
RUN PGM=HWYNET
NETI(1)=tempam.net
NETI(2)=temppm.net
NETI(3)=tempop.net
NETO =%_iter_@HWY.NET
;
;
_VOLAM = LI.1.%_iter_@amVOL
_VOLPM = LI.2.%_iter_@pmVOL
_VOLOP = LI.3.%_iter_@opVOL

; COMPUTE FINAL DAILY VOLUME ON ALL LINKS
%_iter_@24VOL = _VOLAM + _VOLOP + _VOLPM ; Total Daily Volume

; COMPUTE FINAL DAILY VMT ON ALL NON-CENTROID LINKS
IF (FTYPE = 0)
%_iter_@24VMT = 0
ELSE
%_iter_@24VMT = %_iter_@24VOL * DISTANCE ; Total Daily VMT
ENDIF

;
;
IF (FTYPE=1-6)
TVOL00=ROUND(((_VOLAM+_VOLPM+_VOLOP)/1000.0) ; total hwy vol in 000s
TVMT00=TVOL00*DISTANCE ; total hwy VMT in 000s
ELSE
TVOL00=0
TVMT00=0
ENDIF
;
IF (FTYPE=1-6 && COUNT > 0 || (AMLIMIT = 2-3 || PMLIMIT=2-3 || OPLIMIT=2-3))
TVolEST=TVol00 ; total hwy vol in 000s
TVolObs=count ; total hwy vol in 000s
TVMTTEST=TVMT00 ; total hwy vol in 000s
TVMTOBS=count*DISTANCE ; total hwy VMT in 000s
ELSE
Tvmtest=0
TvmTobs=0 ; total hwy VMT in 000s
ENDIF
;
comp atype=spdclass%10 ; area type code 1-7
; ; its the first digit of spdclass var

; Crosstab TVMTEST,TVMTOBS by ATYPE and FTYPE
CROSSTAB VAR=TVMTEST,TVMTOBS, FORM=8cs,
ROW=ATYPE, RANGE=1-7-1,,1-7,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=TVMTEST-TVMTOBS, FORM=8cs, ; Difference (est-obs)
COMP=TVMTEST/TVMTOBS, FORM=8.2cs ; Ratio (est/obs)

; Crosstab TVMTEST,TVMTOBS by Jurisdiction and FTYPE
CROSSTAB VAR=TVMTEST,TVMTOBS, FORM=8cs,
ROW=JUR, RANGE=0-23-1,,0-23,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=TVMTEST-TVMTOBS, FORM=8cs, ; Difference (est-obs)
COMP=TVMTEST/TVMTOBS, FORM=8.2cs ; Ratio (est/obs)

; Crosstab TVMTEST,TVMTOBS by Screenline and FTYPE
CROSSTAB VAR=TVolEST,TVolOBS, FORM=8cs,
ROW=SCREEN, RANGE=1-38-1,,1-38,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=TVolEST-TVoloBS, FORM=8cs, ; Difference (est-obs)
COMP=TVolEST/TVoloBS, FORM=8.2cs ; Ratio (est/obs)
;-----

```



```
-----  
; Crosstab Total VMT by Jurisdiction and FTYPE  
CROSSTAB VAR=%_iter_%24VMT, FORM=12cs,  
ROW=JUR, RANGE=0-23-1,,0-23,  
COL=FTYPE, RANGE=0-6-1,0-6
```

ENDRUN

**DRAFT**

## Highway\_Build\_Toll.s

```

=====
; HIGHWAY_BUILD_TOLL.S
; MWCOC Version 2.1D Model
; Highway Building
; This program includes the functions of the closestp, atypetp,
; and arealktp programs in Version 2.1/TP+ Release C.
; NOTE: Step 1.4 (Highway network build) updated on 3/28/04
;       to ensure TOLLGRP is coded with a value of '1' for
;       the condition: TOLL > 0 and TOLLGRP = 0.
;
;
; STEP 1.1 - 1.5 BUILD BASE HIGHWAY NETWORK
;   INPUT:  node.asc, link.asc, zone.asc, areaover.asc,
;           amspd.lkp, opspd.lkp, tazamspd.lkp,tazopspd.lkp,
;           atype.asc
;
;   OUTPUTS: zonehwy.net  --BUILT HIGHWAY NETWORK(AM,PM,Off-Pk)
;            wlknet.tb   --(Walk links, transit netwk)
;            trn_fwyn.asc --highway links,freeway nodes)
;
; STEP 2 - DEVELOP ZONAL HIGHWAY TERMINAL TIMES
;   INPUT:  ZONE.ASC      --Zonal land use file
;   OUTPUT: ZTERMTM.ASC  --Zonal Highway Terminal Time file
;
=====

;
; PARAMETERS / Files DEFINED in TP MAIN:
;
LINKSIZE = 30000           ; Max. Highway Node No.   (Param)
ZONESIZE = 2191           ; Max. TAZ No.   (Param)
LSTITAZ  = 2144           ; Last Internal Zone No. (Param)

NODEFILE = 'INPUTS\NODE.ASC' ; Node X/Y File       (I/P file)
LINKFILE = 'INPUTS\LINK.ASC' ; Node X/Y File       (I/P file)
ZONEFILE = 'INPUTS\ZONE.ASC' ; Zonal Land Use File (I/P file)

AT_OVR   = 'INPUTS\AREAOVER.ASC' ; Area Type Override file (I/P file)

AMSPD    = 'inputs\AMSPD.LKP' ; AM Speed lookup ATxFT (I/P file)
OPSPD    = 'inputs\OPSPD.LKP' ; OP Speed lookup ATxFT (I/P file)
AMSPDFT  = 'inputs\TAZAMSPD.LKP' ; AM Speed lookup TAZxFT (I/P file)
OPSPDFT  = 'inputs\TAZOPSPD.LKP' ; OP Speed lookup TAZxFT (I/P file)

IN_TESC  = 'INPUTS\TOLL.ESC' ; INPUT Toll Escalation Param file

TCRDFILE = 'TAZCRD.ASC' ; TAZ X/Y File         Temp. File
ATYPFILE = 'ATYPE.ASC' ; Zonal Area Type file (O/P file)
OU_BSNET = 'ZONEHWY.NET' ; OUTPUT BUILT network FILE

;
;-----
; STEP 1.1: Create TAZ Coordinate File from 'full' Network Node
;           Coordinate File. Put results in TAZCRD.ASC file
;-----

RUN PGM=MATRIX
ZONES=@LINKSIZE@
ARRAY TAZX=@ZONESIZE@,TAZY=@ZONESIZE@
ZDATI[1] = @NODEFILE@ ,z=1-6,XCRD= 7-14,YCRD= 15-22

```

```

; In this program 'zones' are really nodes, Begin node loop
;
; If current node is within the TAZ number range, store XYs in arrays
;
IF (I = 1- @ZONESIZE@)
  TAZX[I] = ZI.1.XCRD  TAZY[I]= ZI.1.YCRD
ENDIF

;
; If at the last node, write out TAZ XYs, that's it.
;
IF (I = ZONES)
  LOOP IDX = 1,@ZONESIZE@
  PRINT LIST=IDX(5),XCRD[IDX](10),YCRD[IDX](10),FILE=TAZCRD.ASC
  ENDLIST
ENDIF

ENDRUN

;-----
; STEP 1.2: Find the Closest TAZ to each Highway node in the system.
;           Put results in NODCRDZN.ASC file
;-----

RUN PGM=MATRIX
ZONES=@LINKSIZE@

; In this program 'zones' are really nodes, Begin node loop
;
; Read in the highway NODE XY file in Zfile...
;
ZDATI[1] = @NODEFILE@ ,z=1-6,XCRD= 7-14,YCRD= 15-22
;
; Read in TAZ XY file as a lookup...
;
LOOKUP NAME=TAZCRD,
LOOKUP[1] = 1, RESULT=2, ; X Crd of (TAZ)
LOOKUP[2] = 1, RESULT=3, ; Y Crd of (TAZ)
INTERPOLATE=N, FAIL= 0,0,0, FILE=TAZCRD.ASC

;
; If current node is a TAZ and XYs are non-zero then
; the closest TAZ is itself. Write it out.
;
IF (I <= @ZONESIZE@ && XCRD[I] > 0 && YCRD[I] > 0 )
  NODE_TAZ = I
  PRINT LIST=I(6),XCRD[I](8) ,YCRD[I](8),
  NODE_TAZ(8),MINDIST(8.2),FILE=NODCRDZN.ASC

;
; Else if current node is a non-TAZ and XYs are non-zero then
; loop through each TAZ, compute the node-TAZ distance and
; determine which TAZ is closest. Write it out.
;
ELSEIF (I > @ZONESIZE@ && XCRD[I] > 0 && YCRD[I] > 0 )
  MINDIST = 99999999. ; initialize minimum distance to large no.

  LOOP IDX=1,@ZONESIZE@

```

# Appendix A. Version 2.1 D Draft #50 Scripts

```

CURDIST= SQRT((XCRD[I] - TAZCRD(1,IDX))**2 +
              (YCRD[I] - TAZCRD(2,IDX))**2)/5280.

IF (CURDIST < MINDIST)
  MINDIST = CURDIST
  NODE_TAZ = IDX
ENDIF

ENDLOOP
PRINT LIST=I(6),XCRD[I](8), YCRD[I](8),
        NODE_TAZ(8),MINDIST(8.2),FILE=NODCRDZN.ASC

ENDIF

ENDRUN

;
;-----
; STEP 1.3: Determine the Area Type of each TAZ based on the 1-mile
; 'floating' pop and emp density. Put results in AREATP.ASC file.
;-----

RUN PGM=MATRIX
ZONES=@ZONESIZE@

; Keep zone arrays for the 'floating' pop, emp, area, pop. density,
; emp. density, pop den class, emp den class, 'standard' area type,
; & 'final' (override) areatype

ARRAY CUMPOP = @ZONESIZE@, CUMEMP = @ZONESIZE@, CUMAREA = @ZONESIZE@,
      POPDEN = @ZONESIZE@, EMPDEN = @ZONESIZE@, POPDCL = @ZONESIZE@,
      EMPDCL = @ZONESIZE@, AREATP = @ZONESIZE@, F_AREATP = @ZONESIZE@

;
; read land use file into lookup table
;
ZDATI[1] = @ZONEFILE@ ,Z      = 1- 4,
          HH              = 8-15,
          HHPOP           = 16-23,
          GQPOP           = 24-31,
          TOTPOP          = 32-39,
          TOTEMP          = 40-47,
          INDEMP          = 48-55,
          RETEMP          = 56-63,
          OFFEMP          = 64-71,
          OTHEMP          = 72-79,
          JURCODE         = 80-81,
          AREA            = 83-92

;
; read TAZ XY file into lookup table
;
ZDATI[2] = @TCRDFILE@ ,Z      = 1- 5,
          X                = 6-15,
          Y                = 16-25

;
; Define Area Type codes based on pop/emp classes in lookup table
;

LOOKUP NAME=ATL,
LOOKUP[1] = 1, RESULT=2,
LOOKUP[2] = 1, RESULT=3,
LOOKUP[3] = 1, RESULT=4,
LOOKUP[4] = 1, RESULT=5,

```

```

LOOKUP[5] = 1, RESULT=6,
LOOKUP[6] = 1, RESULT=7,
LOOKUP[7] = 1, RESULT=8,
INTERPOLATE=N, FAIL= 0,0,0,

;
; POP      Emp      Emp      Emp      Emp      Emp      Emp      Emp
; Density Den.      Den.      Den.      Den.      Den.      Den.      Den.
; Class   Class1 Class2 Class3 Class4 Class5 Class6 Class7
;-----
R=" 1, 7, 7, 5, 5, 2, 2, 2 ",
  " 2, 7, 5, 5, 5, 2, 2, 2 ",
  " 3, 6, 6, 5, 5, 2, 2, 2 ",
  " 4, 6, 6, 4, 3, 2, 2, 2 ",
  " 5, 4, 4, 3, 3, 2, 2, 1 ",
  " 6, 4, 3, 3, 3, 2, 2, 1 ",
  " 7, 3, 3, 3, 2, 2, 2, 1 "

;
; Zonal Area Type Overrides
;

LOOKUP NAME=ATOVR,
LOOKUP[1] = 1, RESULT=2, ; AREA TYPE (1-7) Override
INTERPOLATE=N, FAIL= 0,0,0, FILE=@AT_OVR@

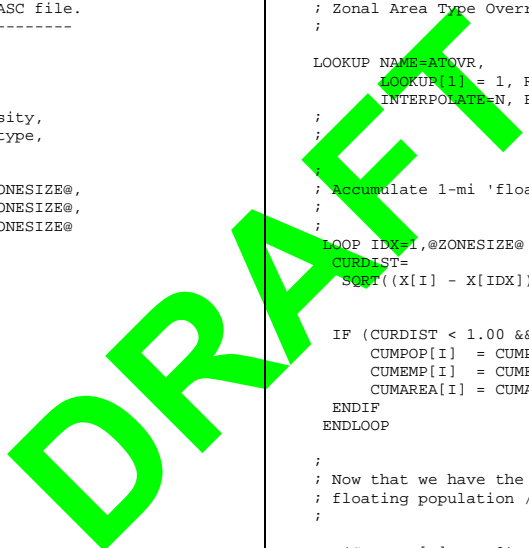
;
; Accumulate 1-mi 'floating' pop & emp & area here, for each TAZ
;
;
; LOOP IDX=1,@ZONESIZE@
CURDIST=
SQRT((X[I] - X[IDX])**2 + (Y[I]-Y[IDX])**2) / 5280.

IF (CURDIST < 1.00 && X[I] > 0 && X[IDX] > 0)
  CUMPOP[I] = CUMPOP[I] + TOTPOP[IDX]
  CUMEMP[I] = CUMEMP[I] + TOTEMP[IDX]
  CUMAREA[I] = CUMAREA[I] + AREA[IDX]
ENDIF
ENDLOOP

;
; Now that we have the floating pop & emp & area, compute the
; floating population / employment density
;
IF (CUMAREA[I] = 0)
  POPDEN[I] = 0
  EMPDEN[I] = 0
ELSE
  POPDEN[I] = CUMPOP[I] / CUMAREA[I]
  EMPDEN[I] = CUMEMP[I] / CUMAREA[I]
ENDIF

;
; Use the floating pop & emp density to determine the
; population density class, employment density class
-
;
IF (POPDEN[I] < 100. )
  POPDCL[I] = 1
ELSEIF (POPDEN[I] < 350. )
  POPDCL[I] = 2

```



# Appendix A. Version 2.1 D Draft #50 Scripts

```

ELSEIF (POPDEN[I] < 1500. )
  POPDCL[I] = 3
ELSEIF (POPDEN[I] < 3500. )
  POPDCL[I] = 4
ELSEIF (POPDEN[I] < 6500. )
  POPDCL[I] = 5
ELSEIF (POPDEN[I] < 10000. )
  POPDCL[I] = 6
ELSE
  POPDCL[I] = 7
ENDIF

IF (EMPDEN[I] < 100. )
  EMPDCL[I] = 1
ELSEIF (EMPDEN[I] < 500. )
  EMPDCL[I] = 2
ELSEIF (EMPDEN[I] < 1500. )
  EMPDCL[I] = 3
ELSEIF (EMPDEN[I] < 5000. )
  EMPDCL[I] = 4
ELSEIF (EMPDEN[I] < 15000. )
  EMPDCL[I] = 5
ELSEIF (EMPDEN[I] < 35000. )
  EMPDCL[I] = 6
ELSE
  EMPDCL[I] = 7
ENDIF

;
; The pop den class, emp den class are then used to determine
; the area type
;

AREATP[I] = ATL(EMPDCL[I],POPDCL[I])

;
; Impose null overrides for external zones
;

IF (I > @LSTITAZ@ )
  CUMPOP[I] = 0
  CUMEMP[I] = 0
  CUMAREA[I] = 0
  POPDEN[I] = 0
  EMPDEN[I] = 0
  POPDCL[I] = 1
  EMPDCL[I] = 1
  AREATP[I] = 7
ENDIF

;
; The Final area-type equals standard area type...
;
  F_AREATP[I] = AREATP[I] ; Final Area Type = 'Standard' AT

;
; ...unless a non-zero area-type override code exists
;
  IF (ATOVR(1,I) > 0) ;
    F_AREATP[I] = ATOVR(1,I)
  ENDIF

; all done
; -----

```

```

; -----
; If at the last zone, print out results and compute basic stats
;

LOOP IDX=1,@ZONESIZE@
  IF (I = @ZONESIZE@)
  ;
  ; Accumulate Final Area Type Frequencies for listing
  ;
  IF (F_AREATP[IDX] = 1)
    AT1_CNT = AT1_CNT + 1
    TPOP1=TPOP1+TOTPOP[IDX]
    TEMP1=TEMP1+TOTEMP[IDX]
  ENDIF
  IF (F_AREATP[IDX] = 2)
    AT2_CNT = AT2_CNT + 1
    TPOP2=TPOP2+TOTPOP[IDX]
    TEMP2=TEMP2+TOTEMP[IDX]
  ENDIF
  IF (F_AREATP[IDX] = 3)
    AT3_CNT = AT3_CNT + 1
    TPOP3=TPOP3+TOTPOP[IDX]
    TEMP3=TEMP3+TOTEMP[IDX]
  ENDIF
  IF (F_AREATP[IDX] = 4)
    AT4_CNT = AT4_CNT + 1
    TPOP4=TPOP4+TOTPOP[IDX]
    TEMP4=TEMP4+TOTEMP[IDX]
  ENDIF
  IF (F_AREATP[IDX] = 5)
    AT5_CNT = AT5_CNT + 1
    TPOP5=TPOP5+TOTPOP[IDX]
    TEMP5=TEMP5+TOTEMP[IDX]
  ENDIF
  IF (F_AREATP[IDX] = 6)
    AT6_CNT = AT6_CNT + 1
    TPOP6=TPOP6+TOTPOP[IDX]
    TEMP6=TEMP6+TOTEMP[IDX]
  ENDIF
  IF (F_AREATP[IDX] = 7)
    AT7_CNT = AT7_CNT + 1
    TPOP7=TPOP7+TOTPOP[IDX]
    TEMP7=TEMP7+TOTEMP[IDX]
  ENDIF

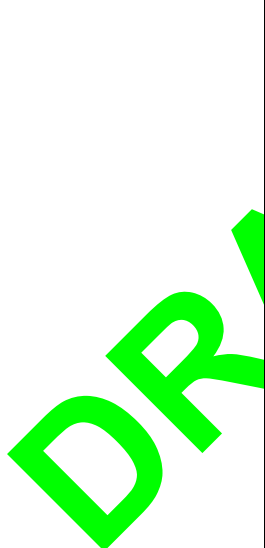
  IF (F_AREATP[IDX] < 1) ERR_CNT = ERR_CNT+1
  IF (F_AREATP[IDX] > 7) ERR_CNT = ERR_CNT+1

  TOT_CNT = TOT_CNT+1 TPOP =TPOP +TOTPOP[IDX] TEMP =TEMP +TOTEMP[IDX]

  IF (ATOVR(1,IDX) > 0 )
    PRINT LIST= IDX(5),TOTPOP[IDX](8),TOTEMP[IDX](8),AREA[IDX](8.2),
      CUMPOP[IDX](8),CUMEMP[IDX](8),CUMAREA[IDX](8.2),
      POPDCL[IDX](4),EMPDCL[IDX](4),AREATP[IDX](4),
      F_AREATP[IDX](4),' ; * (Override) ',
      FILE=ATYPE.ASC
    ELSE
    PRINT LIST= IDX(5),TOTPOP[IDX](8),TOTEMP[IDX](8),AREA[IDX](8.2),
      CUMPOP[IDX](8),CUMEMP[IDX](8),CUMAREA[IDX](8.2),
      POPDCL[IDX](4),EMPDCL[IDX](4),AREATP[IDX](4),
      F_AREATP[IDX](4),' ; ',
      FILE=ATYPE.ASC
  ENDIF

; PRINT VARIANT ZONAL FILE FOR PUMP_PRIME_SKIMS.S AND TRIP GEN PROGRAM
PRINT LIST= IDX(5),' ',X[IDX](8),Y[IDX](8),
TOTPOP[IDX](5),' ',TOTEMP[IDX](5),' ',AREA[IDX](8.4),
CUMPOP[IDX](6),' ',CUMEMP[IDX](6),' ',

```



# Appendix A. Version 2.1 D Draft #50 Scripts

```

F_AREATP[IDX](1),
FILE = BASEZON.DAT

ENDIF

ENDLOOP

;
; Compute Final Area Type Percentages for listing
;

IF (I = @ZONESIZE@)
  AT1_PCT= AT1_CNT / TOT_CNT * 100.
  AT2_PCT= AT2_CNT / TOT_CNT * 100.
  AT3_PCT= AT3_CNT / TOT_CNT * 100.
  AT4_PCT= AT4_CNT / TOT_CNT * 100.
  AT5_PCT= AT5_CNT / TOT_CNT * 100.
  AT6_PCT= AT6_CNT / TOT_CNT * 100.
  AT7_PCT= AT7_CNT / TOT_CNT * 100.
  TOT_PCT= TOT_CNT / TOT_CNT * 100.
  ERR_PCT= ERR_CNT / TOT_CNT * 100.

  TPOP1PT= TPOP1 / TPOP * 100.
  TPOP2PT= TPOP2 / TPOP * 100.
  TPOP3PT= TPOP3 / TPOP * 100.
  TPOP4PT= TPOP4 / TPOP * 100.
  TPOP5PT= TPOP5 / TPOP * 100.
  TPOP6PT= TPOP6 / TPOP * 100.
  TPOP7PT= TPOP7 / TPOP * 100.
  TPOP_PT= TPOP / TPOP * 100.

  TEMP1PT= TEMP1 / TEMP * 100.
  TEMP2PT= TEMP2 / TEMP * 100.
  TEMP3PT= TEMP3 / TEMP * 100.
  TEMP4PT= TEMP4 / TEMP * 100.
  TEMP5PT= TEMP5 / TEMP * 100.
  TEMP6PT= TEMP6 / TEMP * 100.
  TEMP7PT= TEMP7 / TEMP * 100.
  TEMP_PT= TEMP / TEMP * 100.

  PRINT LIST= ' Area Type Statistics '
  PRINT LIST= '-----'
  PRINT LIST= '
  PRINT LIST= '          TAZ Count  ' '          ' TAZ Pct.  ' '          '
  POPULATION ' ' ' ' POP Pct.  ' '          ' EMPLOYMENT ' '          ' EMP Pct.  '
  PRINT LIST= '-----'
  PRINT LIST= 'Area Type 1:  ' ' AT1_CNT(11),' ' AT1_PCT(11.2) ' '          '
  TPOP1(11)  ' '          ' TPOP1PT(11.2) ' '          ' TEMP1(11)  ' '          ' TEMP1PT(11.2)
  PRINT LIST= 'Area Type 2:  ' ' AT2_CNT(11),' ' AT2_PCT(11.2) ' '          '
  TPOP2(11)  ' '          ' TPOP2PT(11.2) ' '          ' TEMP2(11)  ' '          ' TEMP2PT(11.2)
  PRINT LIST= 'Area Type 3:  ' ' AT3_CNT(11),' ' AT3_PCT(11.2) ' '          '
  TPOP3(11)  ' '          ' TPOP3PT(11.2) ' '          ' TEMP3(11)  ' '          ' TEMP3PT(11.2)
  PRINT LIST= 'Area Type 4:  ' ' AT4_CNT(11),' ' AT4_PCT(11.2) ' '          '
  TPOP4(11)  ' '          ' TPOP4PT(11.2) ' '          ' TEMP4(11)  ' '          ' TEMP4PT(11.2)
  PRINT LIST= 'Area Type 5:  ' ' AT5_CNT(11),' ' AT5_PCT(11.2) ' '          '
  TPOP5(11)  ' '          ' TPOP5PT(11.2) ' '          ' TEMP5(11)  ' '          ' TEMP5PT(11.2)
  PRINT LIST= 'Area Type 6:  ' ' AT6_CNT(11),' ' AT6_PCT(11.2) ' '          '
  TPOP6(11)  ' '          ' TPOP6PT(11.2) ' '          ' TEMP6(11)  ' '          ' TEMP6PT(11.2)
  PRINT LIST= 'Area Type 7:  ' ' AT7_CNT(11),' ' AT7_PCT(11.2) ' '          '
  TPOP7(11)  ' '          ' TPOP7PT(11.2) ' '          ' TEMP7(11)  ' '          ' TEMP7PT(11.2)

```

```

PRINT LIST= ' '
PRINT LIST= '- Total ---- ' , TOT_CNT(11),' ' ' ,TOT_PCT(11.2) , ' ' ,
TPOP(11) , ' ' ,TPOP_PT(11.2) , ' ' , TEMP(11) , ' ' ,TEMP_PT(11.2)
PRINT LIST= ' '
PRINT LIST= ' '
PRINT LIST= ' '
PRINT LIST= 'Error Count ' , Err_CNT(11),' ' ' ,Err_PCT(11.2)
ENDIF

ENDRUN

;=====
; Step 1.4.
; Highway Building - Part 1,
; Develop Area type, Spdclass/CapClass Vars
;
;=====
;
;
;
RUN PGM = HWYNET
ZONES=@ZONESIZE@

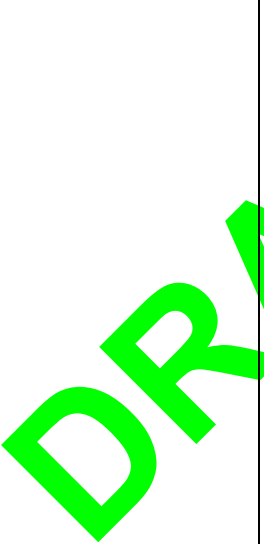
; Node Coordinate File
; XY Units are NAD83 (in whole feet)
FILE1 NODES=NODCRDZN.ASC,
  VAR=N,01-06, ; Node
  VAR=X,07-14, ; X Crd
  VAR=Y,15-22, ; Y Crd
  VAR=TZ,27-30, ; Nearest TAZ associated with node
  VAR=DS,33-38 ; Distance from node to nearest taz

; Highway Links
FILE1 LINKI=@LINKFILE@,
  VAR=A,01-05, ; A-Node Number
  VAR=B,06-10, ; B-Node Number
  VAR=DISTANCE,13-17, ; Distance in whole miles (xx.xx)
  VAR=SPDCLASS,23-24, ; Speed Class(optional)
  VAR=CAPCLASS,26-27, ; Capacity Class(optional)
  VAR=COUNT,30-33, ; Observed AAWDT in 1000's
  VAR=JUR,39-40, ; Jurisdiction Code (0-23)
  VAR=SCREEN,51-52, ; Screenline Code (1-36)
  VAR=FTYPE,54-55, ; Facility Type Code (0-6)
  VAR=TOLL,61-64, ; Current year Toll Value in cents
  VAR=TOLLGRP,67-67, ; Toll Group code (1-9)
  VAR=AMLANE,81-82, ; AM Peak Prd. No. of Lanes
  VAR=AMLIMIT,84-85, ; AM Peak Period Operation Code (0-9)
  VAR=PMLANE,87-88, ; PM Peak Prd. No. of Lanes
  VAR=PMLIMIT,90-91, ; PM Peak Period Operation Code (0-9)
  VAR=OPLANE,93-94, ; Off-Peak Prd. No. of Lanes
  VAR=OPLIMIT,96-97, ; Off-Peak Period Operation Code (0-9)
  VAR=PROJ_ID,TYP=A,BEG=107,LEN=10; Project ID String

; Note:
; The Standard SPDCLASS(1-67), CAPCLASS(1-67),& TAZ defined below
;
;
; WRITE TEMPORARY NETWORK TO BE PASSED ONTO NEXT STEP
NETO=TEMP.NET

;-----
; Develop Link Area type/ Spdclass/ Capclass Attributes
;-----
;

```





## Appendix A. Version 2.1 D Draft #50 Scripts

```

; Zonal Area Type Lookup (produced above)
;
LOOKUP NAME=ZNAT,
  LOOKUP[1] = 1, RESULT=11, ; ZONAL AREA TYPE (1-7)
  INTERPOLATE=N, FAIL= 0,0,0, LIST=N, FILE=@ATYPFILE@

;
; The TAZ designated for the link is that with the minimum distance
; to either the A-node or the B-node
;
      TAZ=A.TZ
      IF (B.DS < A.DS)
        TAZ=B.TZ
      ENDIF
;
; With the TAZ designated, now the speed/capacity class is defined as
; a two-digit code-- facility type & areatype
;
      SPDCLASS = FTYPE*10 + ZNAT(1,TAZ) ; Speed Class
      CAPCLASS = FTYPE*10 + ZNAT(1,TAZ) ; Capacity Class
      AREATP = ZNAT(1,TAZ) ; Area Type
;
; Check that TOLLGRP is coded for any link coded with a TOLL value-
; IF TOLLGRP is not coded with non-zero value, then give it a default
; value of '1.0'
;
      IF (TOLL > 0.0 && TOLLGRP = 0.0)
        TOLLGRP = 1.0
      ENDIF
;
ENDRUN

;=====
; Step 1.5:
; Highway Building - Part 2, compute initial highway speed,
; write out support files
;=====
;
;
RUN PGM = HWYNET

ZONES=@ZONESIZE@

NETI=TEMP.NET
; output network in TP+ format
NETO=@OU_BSNET@

READ FILE=@IN_TESC@

;
; Compute AM, PM, Off-Peak Tolls
;
AMTOLL=(TOLL+(DSTFAC(1,tollgrp)*DISTANCE))*TTFAC(1,tollgrp)*escfac(1,tollgrp)
PMTOLL=(TOLL+(DSTFAC(1,tollgrp)*DISTANCE))*TTFAC(2,tollgrp)*escfac(1,tollgrp)
OPTOLL=(TOLL+(DSTFAC(1,tollgrp)*DISTANCE))*TTFAC(3,tollgrp)*escfac(1,tollgrp)

; AM and Off-peak Initial Speed Lookup Tables...
;
; Two sets of initial AM/Opk speeds are used, one by TAZ and Fac. Type,
; and one by Facility type and Area type. The more detailed TAZ
; fac. type table will be used unless it returns a value of zero.

```

```

; In that case, the less detailed atype/ftype value will be used.
;
lookup name = tazamspd, ; AM Initial Speeds TAZ x Fac.Type
lookup[1] = 1,result=2, ; AM CentConn Speeds (mph)
lookup[2] = 1,result=3, ; AM Freeway Speeds (mph)
lookup[3] = 1,result=4, ; AM Maj Art Speeds (mph)
lookup[4] = 1,result=5, ; AM Min Art Speeds (mph)
lookup[5] = 1,result=6, ; AM Collect Speeds (mph)
lookup[6] = 1,result=7, ; AM Exprway Speeds (mph)
lookup[7] = 1,result=8, ; AM Ramp Speeds (mph)
interpolate=N,fail=0,0,0,file=@AMSPDTF@

lookup name = tazopspd, ; Off-pk Initial Speeds TAZ x Fac.Type
lookup[1] = 1,result=2, ; Off-pk CentConn Speeds (mph)
lookup[2] = 1,result=3, ; Off-pk Freeway Speeds (mph)
lookup[3] = 1,result=4, ; Off-pk Maj Art Speeds (mph)
lookup[4] = 1,result=5, ; Off-pk Min Art Speeds (mph)
lookup[5] = 1,result=6, ; Off-pk Collect Speeds (mph)
lookup[6] = 1,result=7, ; Off-pk Exprway Speeds (mph)
lookup[7] = 1,result=8, ; Off-pk Ramp Speeds (mph)
interpolate=N,fail=0,0,0,file=@OPSPDTF@

lookup name = amspd, ; AM Initial Speeds Atype x Ftype
lookup[1] = 1,result=2, ; AM CentConn Speeds (mph)
lookup[2] = 1,result=3, ; AM Freeway Speeds (mph)
lookup[3] = 1,result=4, ; AM Maj Art Speeds (mph)
lookup[4] = 1,result=5, ; AM Min Art Speeds (mph)
lookup[5] = 1,result=6, ; AM Collect Speeds (mph)
lookup[6] = 1,result=7, ; AM Exprway Speeds (mph)
lookup[7] = 1,result=8, ; AM Ramp Speeds (mph)
interpolate=N,fail=0,0,0,file=@AMSPD@

lookup name = opspd, ; Off-Pk Initial Speeds Atype x Ftype
lookup[1] = 1,result=2, ; Off-pk CentConn Speeds (mph)
lookup[2] = 1,result=3, ; Off-pk Freeway Speeds (mph)
lookup[3] = 1,result=4, ; Off-pk Maj Art Speeds (mph)
lookup[4] = 1,result=5, ; Off-pk Min Art Speeds (mph)
lookup[5] = 1,result=6, ; Off-pk Collect Speeds (mph)
lookup[6] = 1,result=7, ; Off-pk Exprway Speeds (mph)
lookup[7] = 1,result=8, ; Off-pk Ramp Speeds (mph)
interpolate=N,fail=0,0,0,file=@OPSPD@

_IDX = FTYPE + 1
PPAMSPD = TAZAMSPD(_IDX,TAZ)
PPOPSPD = TAZOPSPD(_IDX,TAZ)

IF (PPAMSPD = 0)
  PPAMSPD= AMSPD(_IDX,AREATP)
ENDIF
IF (PPOPSPD = 0)
  PPOPSPD= OPSPD(_IDX,AREATP)
ENDIF

;
; ESTABLISH AM/PM/OFF-PEAK Highway Times (for the transit Network)
;
;
PPPMSPD = PPAMSPD ; assume PM spd is equal to AM
IF (PPAMSPD != 0 )
  AMHTIME = (DISTANCE/PPAMSPD)*60.00
  PMHTIME = (DISTANCE/PPPMSPD)*60.00
ELSE
  AMHTIME = 0
  PMHTIME = 0
ENDIF

IF (PPOPSPD != 0 )
  OPHTIME = (DISTANCE/PPOPSPD)*60.00
ELSE

```

# Appendix A. Version 2.1 D Draft #50 Scripts

```

OPHTIME = 0
ENDIF

;-----
; Generate list of walk links for transit path building -
;-----
; Critrerea for a Walk Link:
; 1)The links are non-centroids and non-freeways (spdclass > 19)
; 2)The X coordinate range OR Y coordinate range of the A/B nodes are within
; the following pre-designated 'downtown-like' areas as defined by
; XY coordinate ranges:
; X range: 1304529- 1313238 Y range: 442628- 450578 DC Downtown Area 1
; X range: 1294904- 1306426 Y range: 443406- 453764 DC Downtown Area 2
; X range: 1301347- 1304777 Y range: 481102- 484409 Silver Spring
; X range: 1297245- 1297442 Y range: 437527- 437730 Pentagon
;

if (spdclass>19) ; if link is non-centroid & non-freeway type

if (((a.x= 1304529- 1313238 || b.x= 1304529- 1313238 ) &&
(a.y= 442628- 450578 || b.y= 442628- 450578 ))
_walkflg =1
elseif (((a.x= 1294904- 1306426 || b.x= 1294904- 1306426 ) &&
(a.y= 443406- 453764 || b.y= 443406- 453764 ))
_walkflg =2
elseif (((a.x= 1301347- 1304777 || b.x= 1301347- 1304777 ) &&
(a.y= 481102- 484409 || b.y= 481102- 484409 ))
_walkflg =3
elseif (((a.x= 1297245- 1297442 || b.x= 1297245- 1297442 ) &&
(a.y= 437527- 437730 || b.y= 437527- 437730 ))
_walkflg =4
else
_walkflg =0
endif
endif
if (_walkflg > 0) ; if anode or bnode of link is within predefined areas

print list='SUPPORT N=',a(5),'-',b(5),' MODES=13 SPEED=3 ONEWAY=Y',
' ',_walkflg(3),file=wlknet.tb

endif
endif

;-----
; Generate list of Freeway Nodes for cntconn2 program -
;-----
;print list=a(5),b(5),' ',FTYPE(2),
;file=LINKBSE.DAT
;-----
if (spdclass==10-19)
print list=a(6),file=trn_fwyn.asc
endif

; CREATE SOME FREQUENCY-CROSSTABS FOR CHECKING
_CNT= 1

CROSSTAB VAR=_CNT,ROW=FTYPE, RANGE=1-7-1, COL=AMLANE, RANGE=1-7-1
CROSSTAB VAR=_CNT,ROW=FTYPE, RANGE=1-7-1, COL=OPLANE, RANGE=1-7-1
CROSSTAB VAR=_CNT,ROW=FTYPE, RANGE=1-7-1, COL=PMLANE, RANGE=1-7-1

CROSSTAB VAR=_CNT,ROW=FTYPE, RANGE=1-7-1, COL=AMLIMIT, RANGE=0-9-1
CROSSTAB VAR=_CNT,ROW=FTYPE, RANGE=1-7-1, COL=OPLIMIT, RANGE=0-9-1
CROSSTAB VAR=_CNT,ROW=FTYPE, RANGE=1-7-1, COL=PMLIMIT, RANGE=0-9-1

;
;
ENDRUN

```

```

;-----
; STEP 2:
; HIGHWAY TERMINAL TIME DEVELOPMENT
; Input File: ZONE.ASC (Standard Land Use File)
;
; Output File: ZTERMTM.ASC ZONAL TERMINAL TIME FILE
;
;-----
RUN PGM=MATRIX
zones=@ZONESIZE@
; READ ZONAL EMPLOYMENT AND AREA FROM 'STANDARD' V2 LAND USE FILE

ZDATI[1]= @ZONEFILE@, Z=1-4,EMP=40-47,SQMI=83-92

; CREATE ZONAL ARRAY FOR EMPLOYMENT DENSITY

ARRAY, ; CREATE ZONAL ARRAYS
EDENSITY = @ZONESIZE@, ; ARRAY FOR EMPLOYMENT DENSITY
TERMTM = @ZONESIZE@ ; ARRAY FOR TERMINAL TIME

IF (I=1) ; COMPUTE EMPLOYMENT DENSITY --
LOOP, INDEX=1,@ZONESIZE@ ; ONCE AT THE 1ST I ZONE 'PASS'
IF (SQMI[INDEX] = 0)
EDENSITY[INDEX] = 0
ELSE
EDENSITY[INDEX]=EMP[INDEX]/SQMI[INDEX]
ENDIF

IF (INDEX>@LSTITAZ@)
TERMTM[INDEX] = 0.0
ELSEIF (EDENSITY[INDEX] < 4618)
TERMTM[INDEX] = 1.0
ELSEIF (EDENSITY[INDEX] < 6632)
TERMTM[INDEX] = 2.0
ELSEIF (EDENSITY[INDEX] < 11563)
TERMTM[INDEX] = 4.0
ELSEIF (EDENSITY[INDEX] < 32986)
TERMTM[INDEX] = 6.0
ELSE
TERMTM[INDEX] = 8.0
ENDIF

TOTEMP = TOTEMP+ EMP[INDEX] ; ACCUMULATE TOTAL EMP. FOR CHECKING
TOTSQM = TOTSQM+SQMI[INDEX] ; ACCUMULATE TOTAL SQMI.FOR CHECKING

; WRITE OUT ZONAL TERMINAL TIME FILE

LIST = INDEX(4),' ',EMP[INDEX](6),' ',SQMI[INDEX](10.2),' ',
TERMTM[INDEX](5),' ; <-- TAZ, Empl, SqMi, HwyTermTime (min)',
FILE=ZTERMTM.ASC

ENDLOOP
ENDIF

; NOW PRINT OUT THE REGIONAL EMPLOYMENT, SQ MILEAGE TOTALS FOR CHECKING

IF (I=@ZONESIZE@)
LIST = ' ** THE TOTAL EMPLOYMENT INPUT IS: ',TOTEMP(12.0C)
LIST = ' ** THE TOTAL SQ MILEAGE INPUT IS: ',TOTSQM(12.2C)
ENDIF

ENDRUN

```



## Highway\_Skims.s

```

////////////////////////////////////
; Highway_Skims.S
; MWCOCG Version 2 Model
;
; Build AM Peak/Off-Peak Highway Skims
; the Current Iteration Assignment
; AM and Off-Pk Skims are built in 2 separate HWYLOAD
; programs.
; Three files are created, per SOV, HOV2, and HOV3 paths.
; Each file will contain 3 Tables (in MINUTP format)
; 1) Time (whole minutes)
; 2) Distance (implied tenths of mi.)
; 3) Toll (in 1980 cents)
;
; 6/30/03 MODIFICATIONS FOR IMPROVED TOLL MODELING MADE rjm
;
////////////////////////////////////
; Environment Variables:
; _iter_ (Iteration indicator = 'pp','il'-'i6')
;
NETIN = '%_iter_%hwy.net'

LOOP Period=1,2 ; We are looping through the skimming process
; twice: (1) for the AM Peak & (2) the Off-Peak

in_tskm = 'inputs\toll.skm' ; read in toll param file

IF (Period=1) ; AM Highway Skim tokens
  PRD = 'AM'
  MATOUT1 = 'sov%_iter_%am.skm'
  MATOUT2 = 'hov2%_iter_%am.skm'
  MATOUT3 = 'hov3%_iter_%am.skm'
  MYID = '%_iter_% AM skims'
ELSE ; OP Highway Skim tokens
  PRD = 'OP'
  MATOUT1 = 'sov%_iter_%op.skm'
  MATOUT2 = 'hov2%_iter_%op.skm'
  MATOUT3 = 'hov3%_iter_%op.skm'
  MYID = '%_iter_% OP skims'
ENDIF

RUN PGM=HWYLOAD
;
;
NETI =@NETIN@ ; Pk Prd TP+ network
MATO[1]=@MATOUT1@, MO=1-3, FORMAT=MINUTP ; LOV skims
MATO[2]=@MATOUT2@, MO=4-6, FORMAT=MINUTP ; HOV2 skims
MATO[3]=@MATOUT3@, MO=7-9, FORMAT=MINUTP ; HOV3+ skims
ID=@MYID@
;-
READ FILE = @in_tskm@
;-

PHASE=LINKREAD
SPEED = LI.%_iter_%@PRD@SPD ;Restrained speed (min)
IF (SPEED = 0)
  T1 = 0
ELSE
  T1 = LI.DISTANCE / SPEED * 60.0

```

```

ENDIF
;-
; Define AM /OP link level tolls by vehicle type here:
LW.SOV@PRD@TOLL = LI.@PRD@TOLL * @PRD@TFAC(1,LI.TOLLGRP) ; SOV
TOLLS in 1980 cents
LW.HV2@PRD@TOLL = LI.@PRD@TOLL * @PRD@TFAC(2,LI.TOLLGRP) ; HOV 2
occ TOLLS in 1980 cents
LW.HV3@PRD@TOLL = LI.@PRD@TOLL * @PRD@TFAC(3,LI.TOLLGRP) ; HOV
3+occ TOLLS in 1980 cents
LW.TRK@PRD@TOLL = LI.@PRD@TOLL * @PRD@TFAC(4,LI.TOLLGRP) ; Truck
TOLLS in 1980 cents
LW.APX@PRD@TOLL = LI.@PRD@TOLL * @PRD@TFAC(5,LI.TOLLGRP) ; AP Pax
TOLLS in 1980 cents

; Define AM /OP IMPEDANCE by vehicle type here:
LW.SOV@PRD@IMP= T1 + ((LW.SOV@PRD@TOLL/100.0)* SV@PRD@EQM);SOV IMP
LW.HV2@PRD@IMP= T1 + ((LW.HV2@PRD@TOLL/100.0)* H2@PRD@EQM);HOV 2 IMP
LW.HV3@PRD@IMP= T1 + ((LW.HV3@PRD@TOLL/100.0)* H3@PRD@EQM);HOV 3+IMP
LW.TRK@PRD@IMP= T1 + ((LW.TRK@PRD@TOLL/100.0)* TRK@PRD@EQM);Truck IMP
LW.APX@PRD@IMP= T1 + ((LW.APX@PRD@TOLL/100.0)* AP@PRD@EQM);APAX IMP

;
; Define the three path types here:
;
; limit codes used:
; 1=no prohibitions
; 2=prohibit 1/occ autos,trucks
; 3=prohibit 1&2occ autos,trucks
; 4=prohibit trucks
; 5=prohibit non-airport access trips
; 6-8=unused
; 9=prohibit all traffic use
IF (LI.@PRD@LIMIT = 2,3,5-9) ADDTOGROUP=1 ; SOV prohibited links
IF (LI.@PRD@LIMIT = 3,5-9) ADDTOGROUP=2 ; HOV2 prohibited links
IF (LI.@PRD@LIMIT = 5-9) ADDTOGROUP=3 ; HOV3+ prohibited links
;
ENDPHASE
;
; Now do the path skimming, per the three path types. Time, distance,
; and Toll skims created. Scaling to the desired specified below.
; All skims are based on minimum time paths.
;
; Note that override values of 0 will be inserted for disconnected ijs
; (i.e. cells associated with 'unused' zones and intrazonal cells).
; I don't like the TP+ default value of 1,000,000 for these situations
;
PHASE=ILOOP

PATHLOAD PATH=LW.SOV@PRD@IMP, EXCLUDEGRP=1, ; SOV paths
MW[1]=PATHTRACE(TIME), NOACCESS=0, ; -excluding links
MW[2]=PATHTRACE(DIST), NOACCESS=0, ; w/ LIMIT=2,3,5-9
MW[3]=PATHTRACE(LI.@PRD@TOLL), NOACCESS=0 ;
PATHLOAD PATH=LW.HV2@PRD@IMP, EXCLUDEGRP=2, ; HOV2 paths
MW[4]=PATHTRACE(TIME), NOACCESS=0, ; -excluding links
MW[5]=PATHTRACE(DIST), NOACCESS=0, ; w/ LIMIT=3,5-9
MW[6]=PATHTRACE(LI.@PRD@TOLL), NOACCESS=0 ;
PATHLOAD PATH=LW.HV3@PRD@IMP, EXCLUDEGRP=3, ; HOV3+ paths
MW[7]=PATHTRACE(TIME), NOACCESS=0, ; -excluding links
MW[8]=PATHTRACE(DIST), NOACCESS=0, ; w/ LIMIT=5-9
MW[9]=PATHTRACE(LI.@PRD@TOLL), NOACCESS=0 ;

;-----
; scaling, rounding of skim tables done here!!
;-----

mw[1] = ROUND(MW[1]) ; ROUND TIME SKIMS

```

## Appendix A. Version 2.1 D Draft #50 Scripts

---

```
mw[4] = ROUND(MW[4])           ; TO WHOLE MINUTES
mw[7] = ROUND(MW[7])           ;
mw[1] = MIN(MW[1],326.0)      ; Impose Max TIME / MC Model Maximum
mw[4] = MIN(MW[4],326.0)      ; Impose Max TIME / MC Model Maximum
mw[7] = MIN(MW[7],326.0)      ; Impose Max TIME / MC Model Maximum
                               ; ...just in case
mw[2] = ROUND(MW[2]*10)       ; FACTOR/ROUND DIST.
mw[5] = ROUND(MW[5]*10)       ; SKIMS TO IMPLICIT
mw[8] = ROUND(MW[8]*10)       ; 1/10THS OF MILES

mw[3] = ROUND(MW[3])           ; ROUND TOLL
mw[6] = ROUND(MW[6])           ; SKIMS TO 1980
mw[9] = ROUND(MW[9])           ; WHOLE CENTS

;-----
; Print selected rows of skim files
; for checking.
;-----

IF (i = 1-2)                   ; for select rows (Is)
  printrow MW=1-3, j=1-2191    ; print work matrices 1-3
ENDIF                           ; row value to all Js.
ENDPHASE
ENDRUN
ENDLOOP
```

**DRAFT**

## MC\_Auto\_Drivers.s

```

; =====
; MC_Auto_Drivers.s
; This program used to develop 1-occ, 2-occ, and 3+occ auto driver
; trip tables directly from a the Mode Choice Model Output file.
;
; 'off-the-shelf' disaggregation curves to arrive at auto driver
; trips in occupant categories.
; The program is applied in four 'loops'
; -- one for each purpose (HBW, HBS, HBO, and NHB)
; =====
;
; //////////////////////////////////////
;
; First, establish Input/Output filenames:
LOOP PURP=1,4 ; We'll Loop 4 times, for each purpose
; Note default auto driver shares and occupant
; shares to be used in case no seed shares exist

IF (PURP=1) ; HBW Loop
MCFILE = 'mc_hbw%_iter%.fin' ; HBW Mode Choice file (Input)
MCL23OCC = 'HBW%_iter%.ADR' ; HBW auto driver trips- 1,2,3+ Occ. (Output)
PURPOSE = 'HBW' ;

ELSEIF (PURP=2) ; HBS Loop
MCFILE = 'mc_hbs%_iter%.fin' ; HBS Mode Choice file (Input)
MCL23OCC = 'HBS%_iter%.ADR' ; HBS auto driver trips- 1,2,3+ Occ. (Output)
PURPOSE = 'HBS' ;

ELSEIF (PURP=3) ; HBO Loop
MCFILE = 'mc_hbo%_iter%.fin' ; HBO Mode Choice file (Input)
MCL23OCC = 'HBO%_iter%.ADR' ; HBO auto driver trips- 1,2,3+ Occ. (Output)
PURPOSE = 'HBO' ;

ELSEIF (PURP=4) ; NHB Loop
MCFILE = 'mc_nhb%_iter%.fin' ; NHB Mode Choice file (Input)
MCL23OCC = 'NHB%_iter%.ADR' ; NHB auto driver trips- 1,2,3+ Occ. (Output)
PURPOSE = 'NHB' ;

ENDIF
;
; //////////////////////////////////////
;
RUN PGM=MATRIX
MATI[1]=MCFILE@ ; MC model ouput

; Put Mode Choice Mats 1-7, respectively, The tables are:
; 1/LOVADR 2/LOVAPSNs 3/Trn_Wk 4/Trn_Dr 5/HOV2ADR 6/HOVPSNs 7/HOV3+ADR
; HOV trips refer to carpool trips on special priority facilities.
; Carpools not on special facilities are subsumed in the LOV group.

FILLMW MW[1] = MI.1.1,2,3,4,5,6,7
MW[8] = MW[1] + MW[5] + MW[7] ; Total input ADR in work mat 8

JLOOP
IF (MW[1] = 0) ; COMPUTE AVG LOV Auto Occupancy
MW[10] = 0 ; in Work Mat 10
ELSE ;
MW[10] = MW[2]/MW[1] ;
ENDIF
; Determine LOV Vehicles in 1,2,3&4+ occupant groups using model
; COG's disaggregation model.

```

```

IF (MW[10] < 1.0050) ; Make sure the computed Car Occ.
MW[10] = 1.0050 ; is between 1.005 and 2.500
ELSEIF (MW[10] > 2.5000) ; -- if not establish boundary
MW[10] = 2.5000 ; conditions
ENDIF

;
; Apply Car Occ. Pct Model-Computes Pct Vehs.in Occ groups as function
; of avg auto occ.

IF (MW[10] = 1.0050 - 1.1199999)
MW[21] = 2.00264 - (0.9989 * MW[10]) ; Shr of 1-Occ Vehs
MW[22] = -1.00050 + (0.9952 * MW[10]) ; Shr of 2-Occ Vehs
MW[23] = -0.00158 + (0.0029 * MW[10]) ; Shr of 3-Occ Vehs
MW[24] = -0.00056 + (0.0008 * MW[10]) ; Shr of 4-Occ Vehs
ELSEIF (MW[10] = 1.1200 - 2.5000)
MW[21] = 1.59600 - (0.6357 * MW[10]) ; Shr of 1-Occ Vehs
MW[22] = -0.31143 + (0.3800 * MW[10]) ; Shr of 2-Occ Vehs
MW[23] = -0.17082 + (0.1540 * MW[10]) ; Shr of 3-Occ Vehs
MW[24] = -0.11375 + (0.1017 * MW[10]) ; Shr of 4-Occ Vehs
ENDIF

;
; if we're working with an intrazonal
; situation, make all auto drivers are SOV.
; Override modeled shares here
IF (157) ;
MW[21] = 1.00 ; Pct of 1-Occ Vehs
MW[22] = 0.00 ; Pct of 2-Occ Vehs
MW[23] = 0.00 ; Pct of 3-Occ Vehs
MW[24] = 0.00 ; Pct of 4-Occ Vehs
ENDIF

; Apply Modeled Shares to the Auto Drivers
MW[31] =(MW[21] * MW[1]) ; Estimated LOV 1 occ vehicles
MW[32] =(MW[22] * MW[1]) ; Estimated LOV 2 occ vehicles
MW[33] =(MW[23] * MW[1]) ; Estimated LOV 3 occ vehicles
MW[34] =(MW[24] * MW[1]) ; Estimated LOV 4+occ vehicles

; compute add HOV2 & HOV3 trips from MC file to LOV dissagg. trips,
; also combine 3 & 4+ occ. auto driver trips into one group.

MW[41] = MW[31] ; Total 1-Occ Auto Drivers
MW[42] = MW[32] + MW[5] ; 2-occ(lov+carpool)
MW[43] = MW[33] + MW[34] + MW[7] ; 3-occ(lov+carpool)

;
; endjloop

DUMMY = ROWFIX(41) ; make resultant trips integers
DUMMY = ROWFIX(42) ;
DUMMY = ROWFIX(43) ;

MW[44] = MW[41] + MW[42] + MW[43] ; total output auto drivers

JLOOP

; Lets sum up the above to get neat total summaries

INPLADR = INPLADR + MW[1] ; Input LOV Auto Driver Accumulation
INPHAADR = INPHAADR + MW[5] ; Input HOV/2 CP ADR Accumulation
INPHBADR = INPHBADR + MW[7] ; Input HOV/3 CP ADR Accumulation
INPADR = INPADR + MW[8] ; Input Auto Driver Accumulation
OUT1ADR = OUT1ADR + MW[41] ; Output 1 occ Auto Dr Accumulation
OUT2ADR = OUT2ADR + MW[42] ; Output 2 occ Auto Dr Accumulation
OUT3ADR = OUT3ADR + MW[43] ; Output 3 occ Auto Dr Accumulation

```

## Appendix A. Version 2.1 D Draft #50 Scripts

---

```
OUTADR = OUTADR + MW[44] ; Output 4 occ Auto Dr Accumulation
endjloop
IF (I == ZONES)
;
; Compute Regional Occ. distributions
;
IF (OUTADR = 0)
OUTAD1SH = 0
OUTAD2SH = 0
OUTAD3SH = 0
ELSE
OUTAD1SH = OUT1ADR/OUTADR *100 ; 1-occ adr SHARE
OUTAD2SH = OUT2ADR/OUTADR *100 ; 2-occ adr SHARE
OUTAD3SH = OUT3ADR/OUTADR *100 ; 3+occ adr SHARE
OUTADSH = OUTADR /OUTADR *100 ; TOTAL SHARE /1.000
ENDIF

LIST='/bt
LIST='Summary of ', '@PURPOSE@', ' BASE-ITERATION AUTO Dr Trip Results'
LIST='
LIST='
List=' Summary of Input/Output Shares'
List='Input Auto LOV Auto Drivers: ', inpladr(8)
List='Input Auto HOV2 CP Auto Drivers: ', inphaadr(8)
List='Input Auto HOV3 CP Auto Drivers: ', inphbadr(8)
List='-----'
List='Input Total Auto Drivers: ', inpadr(8)
LIST='
List='Output 1-Occ Auto Drivers: ', out1adr(8),outad1sh(6.1),'%'
List='Output 2-Occ Auto Drivers: ', out2adr(8),outad2sh(6.1),'%'
List='Output 3+Occ Auto Drivers: ', out3adr(8),outad3sh(6.1),'%'
List='-----'
List='Output Total Auto Drivers: ', outadr(8),outadsh(6.1),'%'
LIST='/et
ENDIF

MATO=@MCL23OCC@,MO=41,42,43 ; output file designation

ENDRUN
ENDLOOP
```

**DRAFT**

## MC\_Constraint.s

```

;
; Start of HBW
AMWTRHNP = 70.00 ; AM Pk Prd HBW Transit H -> NH
PMWTRHNP = 5.00 ; PM Pk Prd HBW Transit H -> NH
OPWTRHNP = 25.00 ; NON Pk Prd HBW Transit H -> NH

AMWTRHNP = 1.00 ; AM Pk Prd HBW Transit NH -> H
PMWTRHNP = 72.00 ; PM Pk Prd HBW Transit NH -> H
OPWTRHNP = 27.00 ; NON Pk Prd HBW Transit NH -> H

; End of HBW
;
; Start of HBS
AMSTRHNP = 24.00 ; AM Pk Prd HBS Transit H -> NH
PMSTRHNP = 15.00 ; PM Pk Prd HBS Transit H -> NH
OPSTRHNP = 61.00 ; NON Pk Prd HBS Transit H -> NH

AMSTRHNP = 2.00 ; AM Pk Prd HBS Transit NH -> H
PMSTRHNP = 35.00 ; PM Pk Prd HBS Transit NH -> H
OPSTRHNP = 63.00 ; NON Pk Prd HBS Transit NH -> H

; End of HBS
;
; Start of HBO
AMOTRHNP = 38.00 ; AM Pk Prd HBO Transit H -> NH
PMOTRHNP = 13.00 ; PM Pk Prd HBO Transit H -> NH
OPOTRHNP = 49.00 ; NON Pk Prd HBO Transit H -> NH

AMOTRHNP = 2.00 ; AM Pk Prd HBO Transit NH -> H
PMOTRHNP = 35.00 ; PM Pk Prd HBO Transit NH -> H
OPOTRHNP = 63.00 ; NON Pk Prd HBO Transit NH -> H

; End of HBO
;
; Start of NHB
AMNTRHNP = 14.00 ; AM Pk Prd NHB Transit H -> NH
PMNTRHNP = 31.00 ; PM Pk Prd NHB Transit H -> NH
OPNTRHNP = 55.00 ; NON Pk Prd NHB Transit H -> NH

AMNTRHNP = 14.00 ; AM Pk Prd NHB Transit NH -> H
PMNTRHNP = 31.00 ; PM Pk Prd NHB Transit NH -> H
OPNTRHNP = 55.00 ; NON Pk Prd NHB Transit NH -> H

; End of NHB

;
; Step 1.
; 2005 & future year peak/off-peak transit trips are calculated
; for each purpose using 1994 HTS time period factors.
;
; Loop Time = 1, 2 ; Time '1' = 2005/ Time '2' = Future year
;
; IF (Time = 1)
; PATHSPECHBW = '%_path05HBW_%' ; path specification of 2005 HBW transit trips
; PATHSPECHBS = '%_path05HBS_%' ; path specification of 2005 HBS transit trips
; PATHSPECHBO = '%_path05HBO_%' ; path specification of 2005 HBO transit trips
; PATHSPECNHB = '%_path05NHB_%' ; path specification of 2005 NHB transit trips
; YR = 'con' ; constraint indicator (for file naming)
; title = '2005 Constrained Transit Summary by Time Period'
;
; ELSE
; PATHSPECHBW = 'mc_HBW%_iter%.FIN' ; forecast year should be in current subdir
; PATHSPECHBS = 'mc_HBS%_iter%.FIN' ; forecast year should be in current subdir
; PATHSPECHBO = 'mc_HBO%_iter%.FIN' ; forecast year should be in current subdir
; PATHSPECNHB = 'mc_NHB%_iter%.FIN' ; forecast year should be in current subdir
; YR = 'ucn' ; unconstrained indicator (for file naming)
; title = 'Future Year (Post 2005) UnConstrained Transit Summary by Time Period'
;
; ENDIF
;
; Factors for distributing Daily Transit Trips
; (HBW,HBS,HBO,NHB) Among 3 Time Periods:
;
; - AM peak (6:00 - 9:00 AM)
; - PM peak (4:00 - 7:00 PM)
; - Off-peak (All Other hrs )
;
; =====
;
; Transit Time-of-Day Factors (Pcts) Follow:
;
; Period Purpose Mode Direction

```

```

;
; Start of HBW
AMWTRHNP = 70.00 ; AM Pk Prd HBW Transit H -> NH
PMWTRHNP = 5.00 ; PM Pk Prd HBW Transit H -> NH
OPWTRHNP = 25.00 ; NON Pk Prd HBW Transit H -> NH

AMWTRHNP = 1.00 ; AM Pk Prd HBW Transit NH -> H
PMWTRHNP = 72.00 ; PM Pk Prd HBW Transit NH -> H
OPWTRHNP = 27.00 ; NON Pk Prd HBW Transit NH -> H

; End of HBW
;
; Start of HBS
AMSTRHNP = 24.00 ; AM Pk Prd HBS Transit H -> NH
PMSTRHNP = 15.00 ; PM Pk Prd HBS Transit H -> NH
OPSTRHNP = 61.00 ; NON Pk Prd HBS Transit H -> NH

AMSTRHNP = 2.00 ; AM Pk Prd HBS Transit NH -> H
PMSTRHNP = 35.00 ; PM Pk Prd HBS Transit NH -> H
OPSTRHNP = 63.00 ; NON Pk Prd HBS Transit NH -> H

; End of HBS
;
; Start of HBO
AMOTRHNP = 38.00 ; AM Pk Prd HBO Transit H -> NH
PMOTRHNP = 13.00 ; PM Pk Prd HBO Transit H -> NH
OPOTRHNP = 49.00 ; NON Pk Prd HBO Transit H -> NH

AMOTRHNP = 2.00 ; AM Pk Prd HBO Transit NH -> H
PMOTRHNP = 35.00 ; PM Pk Prd HBO Transit NH -> H
OPOTRHNP = 63.00 ; NON Pk Prd HBO Transit NH -> H

; End of HBO
;
; Start of NHB
AMNTRHNP = 14.00 ; AM Pk Prd NHB Transit H -> NH
PMNTRHNP = 31.00 ; PM Pk Prd NHB Transit H -> NH
OPNTRHNP = 55.00 ; NON Pk Prd NHB Transit H -> NH

AMNTRHNP = 14.00 ; AM Pk Prd NHB Transit NH -> H
PMNTRHNP = 31.00 ; PM Pk Prd NHB Transit NH -> H
OPNTRHNP = 55.00 ; NON Pk Prd NHB Transit NH -> H

; End of NHB

;
; Begin Step 1 TP+ WORK
;
;
; =====
;
; RUN PGM=MATRIX
; Read input Mode Choice Model Output (Transit in tabs 3,4)
; MATI[1] = @PATHSPECHBW@ ; HBW Wk,Dr Access Trn Trips (T3-4)
; MATI[2] = @PATHSPECHBS@ ; HBS Wk,Dr Access Trn Trips (T3-4)
; MATI[3] = @PATHSPECHBO@ ; HBO Wk,Dr Access Trn Trips (T3-4)
; MATI[4] = @PATHSPECNHB@ ; NHB Wk,Dr Access Trn Trips (T3-4)
;
; Specify output Pk, Offpk transit Total Transit trips (t1-3) by purpose
; Peak trips consist of AM & PM Trips
; MATO[1] = TRNWPKOP.@yr@, MO=51,41,1 ;HBW Pk,Off-Pk,total Transit Trips
; MATO[2] = TRNSPKOP.@yr@, MO=52,42,2 ;HBS Pk,Off-Pk,total Transit Trips
; MATO[3] = TRNOPKOP.@yr@, MO=53,43,3 ;HBO Pk,Off-Pk,total Transit Trips
; MATO[4] = TRNPKOP.@yr@, MO=54,44,4 ;NHB Pk,Off-Pk,total Transit Trips
;
;
; Put HBW Total (Walk, Drive Access) Transit Trips in MW 1
; Put HBS Total (Walk, Drive Access) Transit Trips in MW 2

```

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```

; Put HBO Total (Walk, Drive Access) Transit Trips in MW 3
; Put NHB Total (Walk, Drive Access) Transit Trips in MW 4

; These are in P/A format and represent the Home-to-NonHome direction

MW[01] = MI.1.3 + MI.1.4 ; Work transit P/A fmt
MW[02] = MI.2.3 + MI.2.4 ; Shop transit P/A fmt
MW[03] = MI.3.3 + MI.3.4 ; Othr transit P/A fmt
MW[04] = MI.4.3 + MI.4.4 ; NHB transit P/A fmt

; Put Transpose of the above
; HBW, HBS, HBO, and NHB trip tables in Work Mats 5 -8
; The transpose represents the NonHome-to-Home direction

MW[11]=MI.1.3.T, MW[12]=MI.1.4.T ; Work wk,dr transit A/P fmt
MW[13]=MI.2.3.T, MW[14]=MI.2.4.T ; Shop wk,dr transit A/P fmt
MW[15]=MI.3.3.T, MW[16]=MI.3.4.T ; Othr wk,dr transit A/P fmt
MW[17]=MI.4.3.T, MW[18]=MI.4.4.T ; NHB wk,dr transit A/P fmt

MW[05]=MW[11] + MW[12] ; Work total transit A/P fmt
MW[06]=MW[13] + MW[14] ; Shop total transit A/P fmt
MW[07]=MW[15] + MW[16] ; Othe total transit A/P fmt
MW[08]=MW[17] + MW[18] ; NonH total transit A/P fmt

; Now we're ready to apply apply TOD factors
;
;
JLOOP

;//////////////////////////////////////
;//////////////////// AM Trip Calculations //////////////////////
;//////////////////////////////////////

; AM Peak Period Transit Trips (MWs 21-24)
; HBW Transit Trips:
MW[21]=(( MW[1]*(@AMWTRHNP@/100.0)))+(MW[05]*(@AMWTRHNP@/100.0))/2.0;
; HBS Transit Trips:
MW[22]=(( MW[2]*(@AMSTRHNP@/100.0)))+(MW[06]*(@AMSTRHNP@/100.0))/2.0;
; HBO Transit Trips:
MW[23]=(( MW[3]*(@AMOTRHNP@/100.0)))+(MW[07]*(@AMOTRHNP@/100.0))/2.0;
; NHB Transit Trips:
MW[24]=(( MW[4]*(@AMNTRHNP@/100.0)))+(MW[08]*(@AMNTRHNP@/100.0))/2.0;
;

;//////////////////////////////////////
;//////////////////// PM Trip Calculations //////////////////////
;//////////////////////////////////////

; PM Peak Period Transit Trips (MWs 31-34)
; HBW Transit Trips:
MW[31]=(( MW[1]*(@PMWTRHNP@/100.0)))+(MW[05]*(@PMWTRHNP@/100.0))/2.0;
; HBS Transit Trips:
MW[32]=(( MW[2]*(@PMSTRHNP@/100.0)))+(MW[06]*(@PMSTRHNP@/100.0))/2.0;
; HBO Transit Trips:
MW[33]=(( MW[3]*(@PMOTRHNP@/100.0)))+(MW[07]*(@PMOTRHNP@/100.0))/2.0;
; NHB Transit Trips:
MW[34]=(( MW[4]*(@PMNTRHNP@/100.0)))+(MW[08]*(@PMNTRHNP@/100.0))/2.0;
;

;//////////////////////////////////////
;//////////////////// Off-Pk Trip Calculations //////////////////////
;//////////////////////////////////////

; Off-Peak Period Transit Trips (MWs 41-44)
; HBW Transit Trips:
MW[41]=(( MW[1]*(@OPWTRHNP@/100.0)))+(MW[05]*(@OPWTRHNP@/100.0))/2.0;
; HBS Transit Trips:
MW[42]=(( MW[2]*(@OPSTRHNP@/100.0)))+(MW[06]*(@OPSTRHNP@/100.0))/2.0;

```

```

; HBO Transit Trips:
MW[43]=(( MW[3]*(@OPOTRHNP@/100.0)))+(MW[07]*(@OPOTRHNP@/100.0))/2.0;
; NHB Transit Trips:
MW[44]=(( MW[4]*(@OPNTRHNP@/100.0)))+(MW[08]*(@OPNTRHNP@/100.0))/2.0;
;
ENDJLOOP

; bucket round

DUMMY = ROWFIX(21) ; FINAL AM hbw transit Trips
DUMMY = ROWFIX(22) ; FINAL AM hbs transit Trips
DUMMY = ROWFIX(23) ; FINAL AM hbo transit Trips
DUMMY = ROWFIX(24) ; FINAL AM nhb transit Trips

DUMMY = ROWFIX(31) ; FINAL PM hbw transit Trips
DUMMY = ROWFIX(32) ; FINAL PM hbs transit Trips
DUMMY = ROWFIX(33) ; FINAL PM hbo transit Trips
DUMMY = ROWFIX(34) ; FINAL PM nhb transit Trips

DUMMY = ROWFIX(41) ; FINAL OP hbw transit Trips
DUMMY = ROWFIX(42) ; FINAL OP hbs transit Trips
DUMMY = ROWFIX(43) ; FINAL OP hbo transit Trips
DUMMY = ROWFIX(44) ; FINAL OP nhb transit Trips

;-----
; Summarize Output // Allocated Transit Trips by purpose for checking;
; Total HBW:
MW[101] = MW[21] + MW[31] + MW[41]
; Total HBS:
MW[102] = MW[22] + MW[32] + MW[42]
; Total HBO:
MW[103] = MW[23] + MW[33] + MW[43]
; Total NHB:
MW[104] = MW[24] + MW[34] + MW[44]
;-----
; Summarize by purpose & Pk time periods(AM+PM) - put in MWs 51-54

; HBW PK(AM&PM):
MW[51]= MW[21]+MW[31] ; Peak (AM+PM) HBW Transit Trips
MW[52]= MW[22]+MW[32] ; Peak (AM+PM) HBS Transit Trips
MW[53]= MW[23]+MW[33] ; Peak (AM+PM) HBO Transit Trips
MW[54]= MW[24]+MW[34] ; Peak (AM+PM) NHB Transit Trips

;
;
; Now get regional totals to summarize neatly
Jloop
; accumulate trips by period(a,p,o), purpose(w,s,o,n)
; e.g. 'aw' refers to period 'a', and purp 'w'

aw=aw+mw[21] as=as+mw[22] ao=ao+mw[23] an=an+mw[24]
pw=pw+mw[31] ps=ps+mw[32] po=po+mw[33] pn=pn+mw[34]
ow=ow+mw[41] os=os+mw[42] oo=oo+mw[43] on=on+mw[44]

; accumulate total output trips by time period
oam=oam + MW[21] + MW[22] + MW[23] + MW[24]

opm=opm + MW[31] + MW[32] + MW[33] + MW[34]

oop=oop + MW[41] + MW[42] + MW[43] + MW[44]

; accumulate total input trips by purpose, total
ihbw=ihbw + MW[1] ; Total Input HBW Transit Trips

```





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```

ihbs=ihbs + MW[2] ; Total Input HBS Transit Trips
ihbo=ihbo + MW[3] ; Total Input HBO Transit Trips
inhb=inhb + MW[4] ; Total Input NHB Transit Trips
itot=itot + MW[1]+MW[2]+MW[3]+MW[4] ; Total Input Transit Trips

; accumulate total output trips by purpose, total
ohbw=ohbw + MW[101]
ohbs=ohbs + MW[102]
ohbo=ohbo + MW[103]
onhb=onhb + MW[104]
otot=otot + MW[101] + MW[102] + MW[103] + MW[104]

endjloop

; now write out the totals neatly:
if (i=zones)
; get differences by purpose (output - Input)
dfhbw = ohbw - ihbw;
dfhbs = ohbs - ihbs;
dfhbo = ohbo - ihbo;
dfnhb = onhb - inhb;
dftot = otot - itot;

LIST = '/bt '
LIST = '@title@','\n'
LIST = ' '
list = 'TIME PERIOD HBW HBS HBO NHB Sum '
list = '-----'
list = 'AM ',aw(8.0), as(8.0), ao(8.0), an(8.0), oam(8.0)
list = 'PM ',pw(8.0), ps(8.0), po(8.0), pn(8.0), opm(8.0)
list = 'OP ',ow(8.0), os(8.0), oo(8.0), on(8.0), oop(8.0)
list = ' '
list = 'Total ',ohbw(8.0),ohbs(8.0),ohbo(8.0),onhb(8.0),otot(8.0)
list = ' '
list = 'I/P Totls',ihbw(8.0),ihbs(8.0),ihbo(8.0),inhb(8.0),itot(8.0)
list = ' '
list = 'Diff. ',dfhbw(8.0),dfhbs(8.0),dfhbo(8.0),dfnhb(8.0),dftot(8.0)

list = '/et '
endif

;
;-----
;--- END of TRANSIT Time-of-Day Process -----
;---
;-----
ENDRUN
ENDLOOP ; End of time-of -day loop

;////////////////////////////////////
;
; Step 2
; 2005 & Future year peak & total transit trips are squeezed to
; a 3x3 (core/va/dc,md). Factors for scaling unconstrained
; transit trips to constrained transit trips are computed, on
; an i/j basis FOR ijs TO AND THROUGH the regional core.
;
;////////////////////////////////////
; create zone, state equiv table (Note: Internal TAZs ONLY)
COPY FILE = three.egv
; Beginning of 3x3 Equivalency Table
D 1=1239-2144 ; VA - Non-Regional Core
D 2=1-88,1230-1238 ; DC&VA - Regional Core
D 3=89-1229 ; DC&MD - Non-Regional Core
; End of 3x3 Equivalency Table
ENDCOPY

```

```

RUN PGM=MATRIX
; Read input Files

; Input Year 2005 / Constraining Transit Trips:
MATI[01] = TRNWPKOP.con ; HBW Pk,OffPk, Total Transit
MATI[02] = TRNSPKOP.con ; HBS Pk,OffPk, Total Transit
MATI[03] = TRNOPKOP.con ; HBO Pk,OffPk, Total Transit
MATI[04] = TRNNPKOP.con ; NHB Pk,OffPk, Total Transit

; Input Forecast Year /Unconstrained Transit Trips:
MATI[05] = TRNWPKOP.ucn ; HBW Pk,OffPk, Total Transit
MATI[06] = TRNSPKOP.ucn ; HBS Pk,OffPk, Total Transit
MATI[07] = TRNOPKOP.ucn ; HBO Pk,OffPk, Total Transit
MATI[08] = TRNNPKOP.ucn ; NHB Pk,OffPk, Total Transit

; Output 3x3 tables
FILEO MATO[1] = tempsqz.dat, MO=1-8,11-18
; sequence of squeezed (3x3) output trip tables
; 1-4 ->> 2005 Peak HBW,HBS,HBO,NHB Transit trips
; 5-8 ->> 2005 Daily HBW,HBS,HBO,NHB Transit trips
; 11-14 ->> Forecast Peak HBW,HBS,HBO,NHB Transit trips
; 15-18 ->> Forecast Daily HBW,HBS,HBO,NHB Transit trips

; Read in Constraining Transit Trips for each purpose (mw 1-8)
MW[1] = MI.1.1 MW[5]=MI.1.3 ; HBW Pk,Total Trn Trips (MW1,5)
MW[2] = MI.2.1 MW[6]=MI.2.3 ; HBS Pk,Total Trn Trips (MW2,6)
MW[3] = MI.3.1 MW[7]=MI.3.3 ; HBO Pk,Total Trn Trips (MW3,7)
MW[4] = MI.4.1 MW[8]=MI.4.3 ; NHB Pk,Total Trn Trips (MW4,8)

; Read in Forecasted Transit Trips for each purpose (mw 11-18)
MW[11] = MI.5.1 MW[15]=MI.5.3 ; HBW Pk,Total Trn Trips (MW11,15)
MW[12] = MI.6.1 MW[16]=MI.6.3 ; HBS Pk,Total Trn Trips (MW12,16)
MW[13] = MI.7.1 MW[17]=MI.7.3 ; HBO Pk,Total Trn Trips (MW13,17)
MW[14] = MI.8.1 MW[18]=MI.8.3 ; NHB Pk,Total Trn Trips (MW14,18)

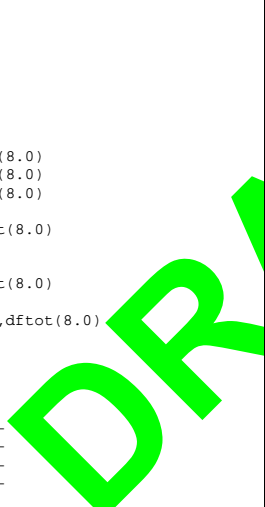
RENUMBER FILE=three.egv, MISSINGZI=M, MISSINGZO=W
ENDRUN

RUN PGM=MATRIX
; Read input Squeezed
ZONES=3
MATI[1] = tempsqz.dat
; Read in Constraining Transit Trips for each purpose (mw 1-8)
MW[1] = MI.1.1 MW[5]=MI.1.5 ; HBW Pk,Total Trn Trips (MW1,5)
MW[2] = MI.1.2 MW[6]=MI.1.6 ; HBS Pk,Total Trn Trips (MW2,6)
MW[3] = MI.1.3 MW[7]=MI.1.7 ; HBO Pk,Total Trn Trips (MW3,7)
MW[4] = MI.1.4 MW[8]=MI.1.8 ; NHB Pk,Total Trn Trips (MW4,8)

; Read in Forecasted Transit Trips for each purpose (mw 11-18)
MW[11] = MI.1.9 MW[15]=MI.1.13 ; HBW Pk,Total Trn Trips (MW11,15)
MW[12] = MI.1.10 MW[16]=MI.1.14 ; HBS Pk,Total Trn Trips (MW12,16)
MW[13] = MI.1.11 MW[17]=MI.1.15 ; HBO Pk,Total Trn Trips (MW13,17)
MW[14] = MI.1.12 MW[18]=MI.1.16 ; NHB Pk,Total Trn Trips (MW14,18)

; Now calculate constrained factors on an ij basis
JLOOP ; Initialize transit constraint factors
WConFtr = 1.000 ; HBW ftr
SConFtr = 1.000 ; HBS Ftr
OConFtr = 1.000 ; HBO Ftr
NConFtr = 1.000 ; NHB Ftr
IF ((I = 1 && J = 2) || ; IF from VA nonCore to Regional Core
(I = 1 && J = 3) || ; or from VA nonCore to DC/MD Non Reg Core
(I = 3 && J = 1) || ; or from MD/DCnonCore to VA Non Reg Core
(I = 3 && J = 2)) ; or from MD/DCnonCore to Regional Core
; THEN calculate peak constraint factor, by purpose
; Constrained Transit trips =

```



# Appendix A. Version 2.1 D Draft #50 Scripts

```

; UnCon. Daily trips - UnCon. Pk Trips + Constrained Pk Trips
MW[21] = (MW[15]-MW[11])+MW[1] ; Constrained HBW Daily Trn Trips
MW[22] = (MW[16]-MW[12])+MW[2] ; Constrained HBS Daily Trn Trips
MW[23] = (MW[17]-MW[13])+MW[3] ; Constrained HBO Daily Trn Trips
MW[24] = (MW[18]-MW[14])+MW[4] ; Constrained NHB Daily Trn Trips

IF (MW[15]=0)
  WConFctr = 0 ;
ELSE
  WConFctr = MW[21] / MW[15] ;
ENDIF

IF (MW[16]=0)
  SConFctr = 0 ;
ELSE
  SConFctr = MW[22] / MW[16] ;
ENDIF

IF (MW[17]=0)
  OConFctr = 0 ;
ELSE
  OConFctr = MW[23] / MW[17] ;
ENDIF

IF (MW[18]=0)
  NConFctr = 0 ;
ELSE
  NConFctr = MW[24] / MW[18] ;
ENDIF

; Accumulate Final Costrained Transit
HBW_FCT = HBW_FCT + ((MW[15]-MW[11])+MW[1]) ; Constrained HBW Daily Trn
Trips
HBS_FCT = HBS_FCT + ((MW[16]-MW[12])+MW[2]) ; Constrained HBS Daily Trn
Trips
HBO_FCT = HBO_FCT + ((MW[17]-MW[13])+MW[3]) ; Constrained HBO Daily Trn
Trips
NHB_FCT = NHB_FCT + ((MW[18]-MW[14])+MW[4]) ; Constrained NHB Daily Trn
Trips

ELSE
  HBW_FCT = HBW_FCT + MW[15] ; Constrained HBW Daily Trn
Trips
  HBS_FCT = HBS_FCT + MW[16] ; Constrained HBS Daily Trn
Trips
  HBO_FCT = HBO_FCT + MW[17] ; Constrained HBO Daily Trn
Trips
  NHB_FCT = NHB_FCT + MW[18] ; Constrained NHB Daily Trn
Trips

ENDIF

IJ = I*10+j ; create two digit no where 1st digit=i,2nd=j

; print ij, const pk&total,unconstr pk/total, final total trn trips,ctr
; --one file for each purpose

Print LIST = ij(4),MW[1](8),MW[5](8),MW[11](8),MW[15](8),MW[21](8),
  WConFctr(6.3),File=tconfr.HBW
Print LIST = ij(4),MW[2](8),MW[6](8),MW[12](8),MW[16](8),MW[22](8),
  SConFctr(6.3),File=tconfr.HBS
Print LIST = ij(4),MW[3](8),MW[7](8),MW[13](8),MW[17](8),MW[23](8),
  OConFctr(6.3),File=tconfr.HBO
Print LIST = ij(4),MW[4](8),MW[8](8),MW[14](8),MW[18](8),MW[24](8),
  NConFctr(6.3),File=tconfr.NHB

ENDJLOOP

```

```

IF (I=ZONES)
  Print LIST = ' Control Total HBW Constrained Transit Trips: ',HBW_FCT(10)
  Print LIST = ' Control Total HBS Constrained Transit Trips: ',HBS_FCT(10)
  Print LIST = ' Control Total HBO Constrained Transit Trips: ',HBO_FCT(10)
  Print LIST = ' Control Total NHB Constrained Transit Trips: ',NHB_FCT(10)
endif
; Now, Let's carry the control totals with us so we can compare with the
; zonal totals, top be computed in the next step
LOG PREFIX = MATRIX, VAR = HBW_FCT, HBS_FCT, HBO_FCT, NHB_FCT
;
;
ENDRUN

;//////////////////////////////////////
;
; Begin Step 3
; future year constrained trips are computed by applying
; the constraint factors to the zonal trip tables.
; constrained transit trips are produced (i.e., residual auto
; persons are generated. and LOV,HOV auto person/driver trips
; are computed using existing distributions on a cell by cell
; basis.
;
;//////////////////////////////////////
LOOP TIME = 1,4 ; Loop through for each purpose
IF (TIME=1)
  PRP = 'HBW' ; Purpose code
  INTAB = 'FILLMW MW[1]=MI.1.1,2,3,4,5,6,7' ; Input table spec
  DADRPCT = 0.9009 ; LOV Default Adr %
  HADRPCT = 0.2857 ; HOV Default Adr %
  Control = MATRIX.HBW_FCT ; Transit Control Total
ELSEIF (TIME=2)
  PRP = 'HBS' ; Purpose Code
  INTAB = 'FILLMW MW[1]=MI.1.1,2,3,4' ; Input table spec
  DADRPCT = 0.8130 ; Default Adr %
  HADRPCT = 0.2857 ; HOV Default Adr %
  Control = MATRIX.HBS_FCT ; Transit Control Total
ELSEIF (TIME=3)
  PRP = 'HBO' ; Purpose code
  INTAB = 'FILLMW MW[1]=MI.1.1,2,3,4' ; Input table spec
  DADRPCT = 0.6897 ; Default Adr %
  HADRPCT = 0.2857 ; HOV Default Adr %
  Control = MATRIX.HBO_FCT ; Transit Control Total
ELSEIF (TIME=4)
  PRP = 'NHB' ; Purpose code
  INTAB = 'FILLMW MW[1]=MI.1.1,2,3,4' ; Input table spec
  DADRPCT = 0.8000 ; Default Adr %
  HADRPCT = 0.2857 ; HOV Default Adr %
  Control = MATRIX.NHB_FCT ; Transit Control Total
ENDIF

RUN PGM=MATRIX
ZONES = 2191
; DEFINE INPUT/OUTPUT FILES HERE:
MATI[1] = MC@prp%_iter%.FIN ; UNCONST. MODE CH TRIPS
MATO[1] = MC@prp%_iter%.CON,MO=17,15,10,11,5,14,18 ; CONSTR. MODE CH TRIPS
MW[5] = 0 ; initialize HOV tabs (5-7) to 0
MW[6] = 0 ; they exist for HBW purpose but do not exist
MW[7] = 0 ; for non-work purposes
@INTAB@ ; Read in 'Final' Mode Choice Model tables
; Trip tables read in are:
; 1/SOVadr, 2/SOVapn, 3/WlkTrn, 4/DrvTrn, 5/Hv2adr, 6/Hvapn, 7/Hv3adr

LOOKUP NAME=TCONFTR,
LOOKUP[1]=1,RESULT=7,INTERPOLATE=N,LIST=T,FAIL=0,0,0,FILE=TCONFTR.@prp@

```

# Appendix A. Version 2.1 D Draft #50 Scripts

```

IF (I = 1239-2144)      MW[30] = 11, INCLUDE=1239-2144
IF (I = 1239-2144)      MW[30] = 12, INCLUDE=1-88,1230-1238
IF (I = 1239-2144)      MW[30] = 13, INCLUDE=89-1229

IF (I = 1-88,1230-1238) MW[30] = 21, INCLUDE=1239-2144
IF (I = 1-88,1230-1238) MW[30] = 22, INCLUDE=1-88,1230-1238
IF (I = 1-88,1230-1238) MW[30] = 23, INCLUDE=89-1229

IF (I = 89-1229)        MW[30] = 31, INCLUDE=1239-2144
IF (I = 89-1229)        MW[30] = 32, INCLUDE=1-88,1230-1238
IF (I = 89-1229)        MW[30] = 33, INCLUDE=89-1229
;
; Now Factor transit tables
;
JLOOP
MW[8] = MW[3] + MW[4]           ; Initial/Unconstr. Total Trn
MW[9] = MW[2] + MW[3] + MW[4] + MW[6] ; Initial Total Person

MW[10] = MW[3] * tconftr(1,MW[30]) ; Constrained Walk transit
MW[11] = MW[4] * tconftr(1,MW[30]) ; Constrained Drive transit
MW[12] = MW[10] + MW[11]          ; Constrained Total transit

MW[13] = MW[8] - MW[12]         ; Transit 'Residual'
IF (MW[13] < 0)                 ; - Make sure the residual is
    MW[13] = 0                   ; NOT negative
ENDIF

IF (MW[6] = 0)
    MW[14] = MW[6]
ELSE
    MW[14] = MW[6] + (MW[13] * (MW[6]/(MW[2]+MW[6]))) ; Updated HOV Psn
ENDIF

MW[15] = MW[9] - (MW[14] + MW[12]) ; Updated LOV Psn
; Updated LOV Adr:

IF (MW[2] = 0 && MW[6] = 0)
    MW[17] = MW[1]+(@DADRPCT@ * MW[13])
ELSEIF (MW[2] > 0)
    MW[17] = MW[1]+((MW[11]/MW[2]) * (MW[13]-(MW[13]*(MW[6]/(MW[2]+MW[6]))))
ELSE
    MW[17] = MW[1]+ (@DADRPCT@ * (MW[13]-(MW[13]*(MW[6]/(MW[2]+MW[6])))))
ENDIF

IF (MW[14] = 0)
    MW[18] = MW[7]
ELSE
    MW[18] = MW[7]+((@HADRPCT@) * (MW[13]*(MW[6]/(MW[2]+MW[6]))))
ENDIF
ENDJLOOP

;Bucket Round

DUMMY=ROWFIX(17)
DUMMY=ROWFIX(15)
DUMMY=ROWFIX(10)
DUMMY=ROWFIX(11)
DUMMY=ROWFIX(05)
DUMMY=ROWFIX(14)
DUMMY=ROWFIX(18)
;
;
;
;
JLOOP
; Now Accumulate Initial and Updated Totals /RATES Here: ; OLD|NEW
; ; -----

```

```

INISOVAD = INISOVAD + MW[01]   UPDSOVAD = UPDSOVAD + MW[17] ; SOV ADRs
INISOVAP = INISOVAP + MW[02]   UPDSOVAP = UPDSOVAP + MW[15] ; SOV APns
INITRNWK = INITRNWK + MW[03]   UPDTRNWK = UPDTRNWK + MW[10] ; Trn Wk
INITRNDR = INITRNDR + MW[04]   UPDTRNDR = UPDTRNDR + MW[11] ; Trn Dr
INIHV2AD = INIHV2AD + MW[05]   UPDHV2AD = UPDHV2AD + MW[05] ; HV2 Adrs
INIHOVAP = INIHOVAP + MW[06]   UPDHOVAP = UPDHOVAP + MW[14] ; HOV APns
INIHV3AD = INIHV3AD + MW[07]   UPDHV3AD = UPDHV3AD + MW[18] ; HV3 Adrs

INI_PSN = INI_PSN + MW[02] + MW[03] + MW[04] + MW[06] ; OLD Psns
UPD_PSN = UPD_PSN + MW[15] + MW[10] + MW[11] + MW[14] ; NEW Psns

INI_TRN = INI_TRN + MW[03] + MW[04] ; OLD TRN
UPD_TRN = UPD_TRN + MW[10] + MW[11] ; NEW TRN

INI_APN = INI_APN + MW[02] + MW[06] ; OLD APSN
UPD_APN = UPD_APN + MW[15] + MW[14] ; NEW APSN

INI_ADR = INI_ADR + MW[01] + MW[05] + MW[07] ; OLD APSN
UPD_ADR = UPD_ADR + MW[17] + MW[05] + MW[18] ; NEW APSN

ENDJLOOP

; If at end, Get Global Mode differences and regional rates
if (i=zones)
; get differences by purpose (output - Input)
DIFSOVAD = UPDSOVAD - INISOVAD
DIFSOVAP = UPDSOVAP - INISOVAP
DIFTRNWK = UPDTRNWK - INITRNWK
DIFTRNDR = UPDTRNDR - INITRNDR
DIFHV2AD = UPDHV2AD - INIHV2AD
DIFHOVAP = UPDHOVAP - INIHOVAP
DIFHV3AD = UPDHV3AD - INIHV3AD
DIF_PSN = UPD_PSN - INI_PSN
DIF_TRN = UPD_TRN - INI_TRN
DIF_APN = UPD_APN - INI_APN

; Calculate final car occupancy and transit percentage
IF (INI_ADR = 0)
    INI_OCC = 0 ; OLD OCC
ELSE
    INI_OCC = INI_APN/INI_ADR ; OLD OCC
ENDIF

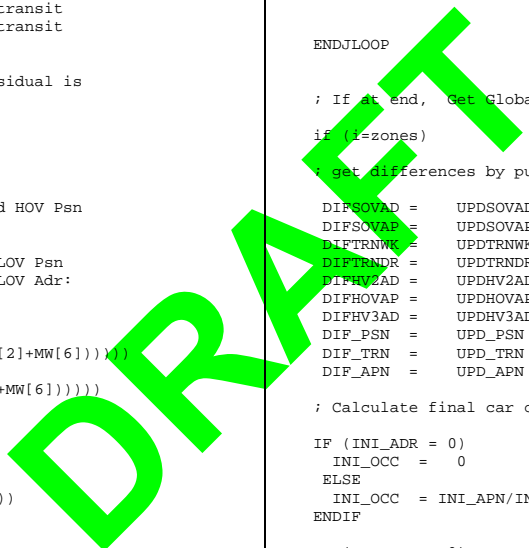
IF (UPD_ADR = 0)
    UPD_OCC = 0 ; NEW OCC
ELSE
    UPD_OCC = UPD_APN/UPD_ADR ; NEW OCC
ENDIF

IF (INI_PSN = 0)
    INI_TPCT = 0 ; OLD %TRN
ELSE
    INI_TPCT = INI_TRN/INI_PSN * 100.00 ; OLD %TRN
ENDIF

IF (UPD_PSN = 0)
    UPD_TPCT = 0 ; NEW %TRN
ELSE
    UPD_TPCT = UPD_TRN/UPD_PSN * 100.00 ; NEW %TRN
ENDIF

DIF_OCC = UPD_OCC - INI_OCC

```



## Appendix A. Version 2.1 D Draft #50 Scripts

---

```
DIF_TPCT = UPD_TPCT - INI_TPCT

CONTOTAL = @control@ ; control total from previous step
LIST = '/bt
LIST = '@prp@ TRANSIT CONSTRAINT RESULTS- Zonal Totals by Mode'
LIST = '          Initial and Final Totals by Mode','\n'
LIST = ' '
list = 'MODE          ',' INITIAL ',' UPDATED ','DIFFERENCE'
list = '----- ','----- ','----- ','-----'
LIST=' '
LIST = 'SOV_AD:      ',' INISOVAD(10),  UPDSOVAD(10),  DIFSOVAD(10)
LIST = 'SOV_AP:      ',' INISOVAP(10),  UPDSOVAP(10),  DIFSOVAP(10)
LIST = 'TRN_WK:      ',' INITRNWK(10),  UPDTRNWK(10),  DIFTRNWK(10)
LIST = 'TRN_DR:      ',' INITRNDR(10),  UPDTRNDR(10),  DIFTRNDR(10)
LIST = 'HV2_AD:      ',' INIHV2AD(10),  UPDHV2AD(10),  DIFHV2AD(10)
LIST = 'HOV_AP:      ',' INIHOVAP(10),  UPDHOVAP(10),  DIFHOVAP(10)
LIST = 'HV3_AD:      ',' INIHV3AD(10),  UPDHV3AD(10),  DIFHV3AD(10)
LIST=' '
LIST = 'TOTAL PERSON: ',' INI_PSN(10),  UPD_PSN(10),  DIF_PSN(10)
LIST=' '
LIST = 'TRANSIT:      ',' INI_TRN(10),  UPD_TRN(10),  DIF_TRN(10)
LIST = 'TRANSIT Control Total ', CONTOTAL(10),'          <-- Based on Squeezed
3x3 Trips'
LIST=' '
LIST = 'AUTO PSN:      ',' INI_APN(10),  UPD_APN(10),  DIF_APN(10)
LIST=' '
LIST = 'Transit %:      ',' INI_TPCT(10.3),  UPD_TPCT(10.3),  DIF_TPCT(10.3)
LIST = 'AUTO OCCUP.: ',' INI_OCC(10.3),  UPD_OCC(10.3),  DIF_OCC(10.3)
list = '/et
endif

ENDRUN
ENDLOOP
```

**DRAFT**

## MC\_Consummary.s

```

;-----
; MC_ConSummary.s - Juris. Summary of constrained transit trips
;                   by Purpose and Mode
;
;
; Now summarize total purpose trip tables, by mode
;-----

RUN PGM=MATRIX
ZONES=2191
MATI[1]= MC_HBW%_iter_%.FIN
MATI[2]= MC_HBS%_iter_%.FIN
MATI[3]= MC_HBO%_iter_%.FIN
MATI[4]= MC_NHB%_iter_%.FIN
FILLMW MW[01]=MI.1.1,2,3,4,5,6,7
FILLMW MW[11]=MI.2.1,2,3,4,5,6,7
FILLMW MW[21]=MI.3.1,2,3,4,5,6,7
FILLMW MW[31]=MI.4.1,2,3,4,5,6,7

MW[51] = MW[01] + MW[11] + MW[21] + MW[31] ; Total LOV Auto Drv
MW[52] = MW[02] + MW[12] + MW[22] + MW[32] ; Total LOV Auto Psn
MW[53] = MW[03] + MW[13] + MW[23] + MW[33] ; Total Walk Acc Transit
MW[54] = MW[04] + MW[14] + MW[24] + MW[34] ; Total Drive Acc Transit
MW[55] = MW[05] + MW[15] + MW[25] + MW[35] ; Total HOV-2occ Auto Drv
MW[56] = MW[06] + MW[16] + MW[26] + MW[36] ; Total HOV(2/3+) Auto Psn
MW[57] = MW[07] + MW[17] + MW[27] + MW[37] ; Total HOV-3+occ Auto Drv

MATO[1] = MC_ALL%_iter_%.FIN, MO=51-57 ; Total Purpose Mode Choice Trips
ENDRUN

;-----
; Summarize the Mode Choice Model Output to Juris. Level
;-----
DESCRIPT='Simulation - Year: %_year_%. Alt: %_alt_%. Iter. %_iter_%. *
W/Tran.Constraint *'
LOOP PURP=1,5 ; Outer Loop for Each Purpose (HBW,HBS,HBO,NHB,Total)
IF (PURP=1)
  MCOUATAB='mc_HBW%_iter_%.FIN'
  PURPOSE = 'HBW'
ELSEIF (PURP=2)
  MCOUATAB='mc_HBS%_iter_%.FIN'
  PURPOSE = 'HBS'
ELSEIF (PURP=3)
  MCOUATAB='mc_HBO%_iter_%.FIN'
  PURPOSE = 'HBO'
ELSEIF (PURP=4)
  MCOUATAB='mc_NHB%_iter_%.FIN'
  PURPOSE = 'NHB'
ELSEIF (PURP=5)
  MCOUATAB='mc_ALL%_iter_%.FIN'
  PURPOSE = 'ALL'
ENDIF

;
COPY FILE=DJ.EQV
; -- Start of Jurisdiction-to-TAZ equivalency --
D 1=1-88 ; DC cr
D 2=89-319 ; DC ncr
D 3=320-639 ; MTG MD
D 4=640-1029 ; PG MD
D 5=1230-1238 ; ARL core
D 6=1239-1329 ; ARLcnore
D 7=1330-1399 ; ALX VA

```

```

D 8=1400-1779 ; FFX VA
D 9=1780-1919 ; LDN VA
D 10=1920-2069 ; PW VA
D 11=1030-1059 ; FRD MD
D 12=1060-1079 ; CAR MD
D 13=1080-1109 ; HOW MD
D 14=1110-1149 ; AAR MD
D 15=1150-1169 ; CAL
D 16=1170-1199 ; STM
D 17=1200-1229 ; CHS MD
D 18=2115-2129 ; FAU VA
D 19=2080-2099 ; STA VA
D 20=2130-2134,2135-2144 ; CLK/JEF
D 21=2100-2104,2105-2114 ; FBG/SPTS
D 22=2070-2079 ; KGEOVA
D 23=2145-2191 ; EXTRNLS
; -- end of Jurisdiction-to-TAZ equivalency --
ENDCOPY

RUN PGM=MATRIX
ZONES=2191
MATI[1]= @MCOUATAB@
MW[1]=MI.1.1 ; SOV ADR
MW[2]=MI.1.2 ; SOV APSN
MW[3]=MI.1.3+MI.1.4 ; Transit
MW[4]=MI.1.6 ; HOV APSN
MW[5]=MI.1.5+MI.1.7 ; HOV ADR
MW[6]=MI.1.1+MI.1.5+MI.1.7 ; Auto Driver
MW[7]=MI.1.2+MI.1.6 ; Auto Psn
MW[8]=MI.1.2+MI.1.3+MI.1.4+MI.1.6 ; Person
MW[10]=0 ; dummy/placemaker table
FILEO MATO[1] = TEMP.sad MO=1,10
MATO[2] = TEMP.sap MO=2,10
MATO[3] = TEMP.trn MO=3,10
MATO[4] = TEMP.hap MO=4,10
MATO[5] = TEMP.had MO=5,10
MATO[6] = TEMP.adr MO=6,10
MATO[7] = TEMP.apn MO=7,10
MATO[8] = TEMP.psn MO=8,10
MATO[9] = TEMP.trp MO=3,8
MATO[10] = TEMP.occ MO=7,6

; renumber OUT.MAT according to DJ.EQV
RENUMBER FILE=DJ.EQV, MISSINGZI=M, MISSINGZO=W
ENDRUN

;
LOOP INDEX2=1,10 ; Inner Loop for Each Summary Type:
; 1/LOV Adrs,2/LOV APpsns,3/Transit,4/HOV Psns,5/HOV Adrs
; 6/Adrs ,7/Apsns ,8/Persons,9/Pct Trn ,10/Auto Occ
;
IF (INDEX2=1) ; Parameters for each table:
  SQFNAME='temp.sad' ; Token name of squeezed modal trip table(s)
  MODE = 'LOV Auto Driver' ; Token mode label od trip table
  DCML=0 ; decimal specification
  TABTYPE=1 ; table type(1/2)-involves 1 or 2 trip tables
  SCALE=1 ; scale factor to be applied (if desired)
  OPER='+' ; operation(if tabtype=2) Tab1(?)Tab2=Result
ELSEIF (INDEX2=2)
  SQFNAME='temp.sap' ;
  MODE = 'LOV Auto Person' ;
  DCML=0 ;
  TABTYPE=1 ;
  SCALE=1 ;
  OPER='+' ;
ELSEIF (INDEX2=3)
  SQFNAME='temp.trn' ;
  MODE = 'Transit' ;

```

```

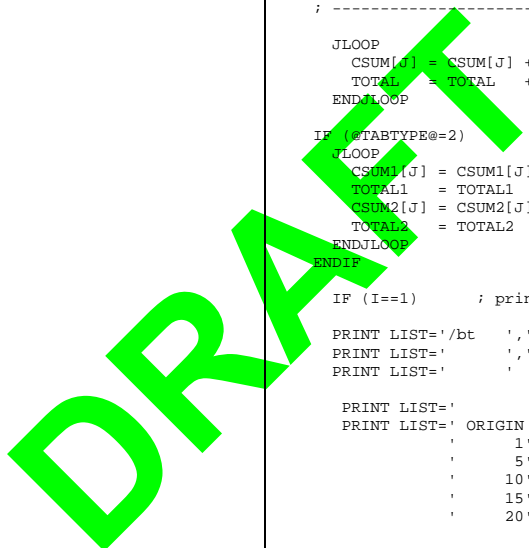
DCML=0
TABTYPE=1
SCALE=1 ;
OPER='+ ' ;
ELSEIF (INDEX2=4)
SQFNAME='temp.hap' ;
MODE = 'HOV Auto Person'
DCML=0
TABTYPE=1
SCALE=1 ;
OPER='+ ' ;
ELSEIF (INDEX2=5)
SQFNAME='temp.had' ;
MODE = 'HOV AUTO Driver'
DCML=0
TABTYPE=1
SCALE=1 ;
OPER='+ ' ;
ELSEIF (INDEX2=6)
SQFNAME='temp.adr' ;
MODE = 'Auto Driver'
DCML=0
TABTYPE=1
SCALE=1 ;
OPER='+ ' ;
ELSEIF (INDEX2=7)
SQFNAME='temp.apn' ;
MODE = 'Auto Person '
DCML=0
TABTYPE=1
SCALE=1 ;
OPER='+ ' ;
ELSEIF (INDEX2=8)
SQFNAME='temp.psn' ;
MODE = 'Total Motorized Person'
DCML=0
TABTYPE=1
SCALE=1 ;
OPER='+ ' ;
ELSEIF (INDEX2=9)
SQFNAME='temp.trp' ;
MODE = 'Transit Percentage'
DCML=1
TABTYPE=2
SCALE=100 ;
OPER='/' ;
ELSEIF (INDEX2=10)
SQFNAME='temp.occ' ;
MODE = 'Avg. Auto Occupancy '
DCML=2
TABTYPE=2
SCALE=1 ;
OPER='/' ;
ENDIF
;
RUN PGM=MATRIX
ZONES=23
FILEI MATI=@SQFNAME@
ARRAY CSUM=23,CSUM1=23,CSUM2=23
;
-----
; -- Table Cell Value decalaration or computation (in MW[1])
-----
;
FILLMW MW[1]=MI.1.1,2 ; read input tables in MW 2,3
IF (@TABTYPE@ = 2)
FILLMW MW[2]=MI.1.1,2 ; read input tables in MW 2,3
ENDIF

```

```

IF (@TABTYPE@=2) ; Cell Value
JLOOP ; computed for
IF (MW[3][J]>0) MW[1]=MW[2]*@SCALE@@OPER@MW[3]; special summaries-
ENDJLOOP ; calculation in MW[1]
ENDIF
;
-----
; --- ROW Marginal declaration or computation -----
;
RSUM = ROWSUM(1) ; 'normal' table- row summary value
IF (@TABTYPE@=2)
RSUM = @SCALE*@ROWSUM(2)@OPER@ROWSUM(3) ; non-'normal' table
ENDIF ; compute the row marginal(%)
;
-----
; --- COLUMN/Total Marginal Accumulation ---
; --- The computation (if necessary) is done below ---
;
JLOOP ; COL/Total Accumulation
CSUM[J] = CSUM[J] + MW[1][J] ; for 'normal' table
TOTAL = TOTAL + MW[1] ;
ENDJLOOP
IF (@TABTYPE@=2)
JLOOP ; COL/Total Accumulation
CSUM1[J] = CSUM1[J] + MW[2][J] ; for non-'normal' Table
TOTAL1 = TOTAL1 + MW[2] ;
CSUM2[J] = CSUM2[J] + MW[3][J] ;
TOTAL2 = TOTAL2 + MW[3] ;
ENDJLOOP
ENDIF
IF (I=1) ; print header
PRINT LIST='/bt ', '@DESCRIPT@'
PRINT LIST=' ', 'Purpose: ', '@PURPOSE@', ' MODE: ', '@MODE@'
PRINT LIST=' '
PRINT LIST=' DESTINATION'
PRINT LIST=' ORIGIN |',
' 1', ' 2', ' 3', ' 4',
' 5', ' 6', ' 7', ' 8', ' 9',
' 10', ' 11', ' 12', ' 13', ' 14',
' 15', ' 16', ' 17', ' 18', ' 19',
' 20', ' 21', ' 22', ' 23', ' | TOTAL'
PRINT LIST='=====',
'=====',
'=====',
'=====',
'=====',
ENDIF
IF (I=1)
CURDIST=STR(I,2,1)+' DC CR'+ '| ' ; Make row header
ELSEIF (I=2)
CURDIST=STR(I,2,1)+' DC NC'+ '| ' ; Make row header
ELSEIF (I=3)
CURDIST=STR(I,2,1)+' MTG '+ '| ' ; Make row header
ELSEIF (I=4)
CURDIST=STR(I,2,1)+' PG '+ '| ' ; Make row header

```



```

ELSEIF (I=5)
  CURDIST=STR(I,2,1)+' ARLCR'+ '|' ; Make row header
ELSEIF (I=6)
  CURDIST=STR(I,2,1)+' ARNCR'+ '|' ; Make row header
ELSEIF (I=7)
  CURDIST=STR(I,2,1)+' ALX '+ '|' ; Make row header
ELSEIF (I=8)
  CURDIST=STR(I,2,1)+' PFX '+ '|' ; Make row header
ELSEIF (I=9)
  CURDIST=STR(I,2,1)+' LDN '+ '|' ; Make row header
ELSEIF (I=10)
  CURDIST=STR(I,2,1)+' PW '+ '|' ; Make row header
ELSEIF (I=11)
  CURDIST=STR(I,2,1)+' FRD '+ '|' ; Make row header
ELSEIF (I=12)
  CURDIST=STR(I,2,1)+' CAR '+ '|' ; Make row header
ELSEIF (I=13)
  CURDIST=STR(I,2,1)+' HOW '+ '|' ; Make row header
ELSEIF (I=14)
  CURDIST=STR(I,2,1)+' AAR '+ '|' ; Make row header
ELSEIF (I=15)
  CURDIST=STR(I,2,1)+' CAL '+ '|' ; Make row header
ELSEIF (I=16)
  CURDIST=STR(I,2,1)+' STM '+ '|' ; Make row header
ELSEIF (I=17)
  CURDIST=STR(I,2,1)+' CHS '+ '|' ; Make row header
ELSEIF (I=18)
  CURDIST=STR(I,2,1)+' FAU '+ '|' ; Make row header
ELSEIF (I=19)
  CURDIST=STR(I,2,1)+' STA '+ '|' ; Make row header
ELSEIF (I=20)
  CURDIST=STR(I,2,1)+' CL/JF'+ '|' ; Make row header
ELSEIF (I=21)
  CURDIST=STR(I,2,1)+' SP/FB'+ '|' ; Make row header
ELSEIF (I=22)
  CURDIST=STR(I,2,1)+' KGEO '+ '|' ; Make row header
ELSEIF (I=23)
  CURDIST=STR(I,2,1)+' EXTL '+ '|' ; Make row header
ELSE (I=24)
  CURDIST=STR(I,2,1)+' TOTAL'+ '|' ; Make row header
ENDIF

PRINT FORM=7.@DCML@ LIST=CURDIST, MW[1][1],MW[1][2],MW[1][3],MW[1][4],MW[1][5],
MW[1][6],MW[1][7],MW[1][8],MW[1][9],MW[1][10],
MW[1][11],MW[1][12],MW[1][13],MW[1][14],MW[1][15],
MW[1][16],MW[1][17],MW[1][18],MW[1][19],MW[1][20],
MW[1][21],MW[1][22],MW[1][23], ' ',RSUM

IF (I==ZONES)
; Now at the end of Processed zone matrix
; Do final Column/Grand Total Computations
  IF (@TABTYPE@=2)
    LOOP IDX = 1,ZONES
      IF (CSUM2[IDX] = 0)
        CSUM[IDX] = 0
      ELSE
        CSUM[IDX] = @SCALE@* CSUM1[IDX] @OPER@ CSUM2[IDX]
      ENDIF
    ENDLOOP
  ENDIF
  IF (@TABTYPE@=2 )
    IF (TOTAL2 = 0)
      TOTAL = 0
    ELSE
      TOTAL = @SCALE@ *TOTAL1 @OPER@ TOTAL2
    ENDIF
  ENDIF
ENDIF

```

```

; End of final Column/Grand Total Computations

PRINT LIST='=====',
'=====',
'=====',
'=====',
'=====',

PRINT FORM=8.@DCML@,
LIST=' TOTAL ',',CSUM[1],',
',CSUM[5],',',CSUM[7],',',CSUM[9],
',CSUM[11],',',CSUM[13],',',CSUM[15],
',CSUM[17],',',CSUM[19],',',CSUM[21],
',CSUM[23],', '|
PRINT FORM=8.@DCML@,
LIST='/et ',CSUM[2],
',CSUM[4],',',CSUM[6],',',CSUM[8],
',CSUM[10],',',CSUM[12],',',CSUM[14],
',CSUM[16],',',CSUM[18],',',CSUM[20],
',CSUM[22],',',TOTAL(9.@DCML@)

ENDIF
ENDRUN
ENDLOOP ; End 'Inner' Loop
ENDLOOP ; End 'Outer' Loop

```

## MC\_Summary.s

```

-----
; Program Name: MC_Summary.s
; MWCOCG Version 2 Model
;
; 1) Update interchanges where person trips exceed
; 32367, by purpose.
; 2) Summarize final table by purpose
;
; Environment Variables Used:
;   %_iter_%
;   %_year_%
;   %_alt_%
;
; Updated 12/12/02 to generate model trip summaries for ALL purposes,
; in addition to individual purposes (rm)
-----
LOOP PURP=1,4
IF (PURP = 1)
  PURPOSE = 'HBW'
  VEH_OCC = 1.11
  INPTRIPS= 'FILLMW MW[1]=MI.2.1,2,3,4,5,6,7'
ELSEIF (PURP = 2)
  PURPOSE = 'HBS'
  VEH_OCC = 1.23
  INPTRIPS= 'FILLMW MW[1]=MI.2.1,2,3,4'
ELSEIF (PURP = 3)
  PURPOSE = 'HBO'
  VEH_OCC = 1.45
  INPTRIPS= 'FILLMW MW[1]=MI.2.1,2,3,4'
ELSE
  PURPOSE = 'NHB'
  VEH_OCC = 1.25
  INPTRIPS= 'FILLMW MW[1]=MI.2.1,2,3,4'
ENDIF
;
;
;-----
;
;-----
RUN PGM=MATRIX
MATI[1] = %_iter_%@purpose@mu.ptt ; PP Iteration Person Trips
MATI[2] = mc_@PURPOSE@.trp ; COGMC Model Output Trip Table
MATO[1] = mc_@PURPOSE%@_iter_%.FIN, MO=1-7 ; Updated/Final Mode Choice Trips

MW[5] = 0
MW[6] = 0
MW[7] = 0

@INPTRIPS@

;---- Update the Mode Choice Output ----

JLOOP
IF (MI.1.1 > 32367) ;
  MW[2] = MI.1.1 ;
  MW[1] = ROUND (MI.1.1 / @VEH_OCC@) ;
ENDIF ;

_PERSON = MW[2] + MW[3] + MW[4] + MW[6]

ENDJLOOP
ENDRUN

```

```

ENDLOOP
;-----
; Now summarize total purpose trip tables, by mode
;-----

RUN PGM=MATRIX
ZONES=2191
MATI[1]= MC_HBW%_iter_%.FIN
MATI[2]= MC_HBS%_iter_%.FIN
MATI[3]= MC_HBO%_iter_%.FIN
MATI[4]= MC_NHB%_iter_%.FIN
FILLMW MW[01]=MI.1.1,2,3,4,5,6,7
FILLMW MW[11]=MI.2.1,2,3,4,5,6,7
FILLMW MW[21]=MI.3.1,2,3,4,5,6,7
FILLMW MW[31]=MI.4.1,2,3,4,5,6,7

MW[51] = MW[01] + MW[11] + MW[21] + MW[31] ; Total LOV Auto Drv
MW[52] = MW[02] + MW[12] + MW[22] + MW[32] ; Total LOV Auto Psn
MW[53] = MW[03] + MW[13] + MW[23] + MW[33] ; Total Walk Acc Transit
MW[54] = MW[04] + MW[14] + MW[24] + MW[34] ; Total Drive Acc Transit
MW[55] = MW[05] + MW[15] + MW[25] + MW[35] ; Total HOV-2occ Auto Drv
MW[56] = MW[06] + MW[16] + MW[26] + MW[36] ; Total HOV(2/3+) Auto Psn
MW[57] = MW[07] + MW[17] + MW[27] + MW[37] ; Total HOV-3+occ Auto Drv

MATO[1] = MC_ALL%_iter_%.FIN, MO=51-57 ; Total Purpose Mode Choice Trips
ENDRUN

;-----
; Summarize the Mode Choice Model Output to Juris. Level
;-----
DESCRIBE Simulation - Year: %_year_% Alternative: %_alt_% Iteration: %_iter_% '
LOOP PURP=1,5 ; Outer Loop for Each Purpose (HBW,HBS,HBO,NHB,Total)
IF (PURP=1)
  MCOUATAB='mc_HBW%_iter_%.FIN'
  PURPOSE = 'HBW'
ELSEIF (PURP=2)
  MCOUATAB='mc_HBS%_iter_%.FIN'
  PURPOSE = 'HBS'
ELSEIF (PURP=3)
  MCOUATAB='mc_HBO%_iter_%.FIN'
  PURPOSE = 'HBO'
ELSEIF (PURP=4)
  MCOUATAB='mc_NHB%_iter_%.FIN'
  PURPOSE = 'NHB'
ELSEIF (PURP=5)
  MCOUATAB='mc_ALL%_iter_%.FIN'
  PURPOSE = 'ALL'
ENDIF

;
COPY FILE=DJ.EQV
; -- Start of Jurisdiction-to-TAZ equivalency --
D 1=1-88 ; DC cr
D 2=89-319 ; DC ncr
D 3=320-639 ; MTG MD
D 4=640-1029 ; PG MD
D 5=1230-1238 ; ARL core
D 6=1239-1329 ; ARLcnore
D 7=1330-1399 ; ALX VA
D 8=1400-1779 ; FFX VA
D 9=1780-1919 ; LDN VA
D 10=1920-2069 ; PW VA
D 11=1030-1059 ; FRD MD
D 12=1060-1079 ; CAR MD
D 13=1080-1109 ; HOW MD
D 14=1110-1149 ; AAR MD

```



# Appendix A. Version 2.1 D Draft #50 Scripts

```

D 15=1150-1169          ; CAL
D 16=1170-1199          ; STM
D 17=1200-1229          ; CHS MD
D 18=2115-2129          ; FAU VA
D 19=2080-2099          ; STA VA
D 20=2130-2134,2135-2144 ; CLK/JEF
D 21=2100-2104,2105-2114 ; FBG/SPTS
D 22=2070-2079          ; KGEOVA
D 23=2145-2191          ; EXTRNLS
; -- end of Jurisdiction-to-TAZ equivalency --
ENDCOPY

```

```

RUN PGM=MATRIX
ZONES=2191
MATI[1]= @MCOUATAB@
MW[1]=MI.1.1           ; SOV ADR
MW[2]=MI.1.2           ; SOV APSN
MW[3]=MI.1.3+MI.1.4    ; Transit
MW[4]=MI.1.6           ; HOV APSN
MW[5]=MI.1.5+MI.1.7    ; HOV ADR
MW[6]=MI.1.1+MI.1.5+MI.1.7 ; Auto Driver
MW[7]=MI.1.2+MI.1.6    ; Auto Psn
MW[8]=MI.1.2+MI.1.3+MI.1.4+MI.1.6 ; Person
MW[10]=0               ; dummy/placemaker table
FILEO MATO[1] = TEMP.sad MO=1,10
      MATO[2] = TEMP.sap MO=2,10
      MATO[3] = TEMP.trn MO=3,10
      MATO[4] = TEMP.hap MO=4,10
      MATO[5] = TEMP.had MO=5,10
      MATO[6] = TEMP.adr MO=6,10
      MATO[7] = TEMP.apn MO=7,10
      MATO[8] = TEMP.psn MO=8,10
      MATO[9] = TEMP.trp MO=3,8
      MATO[10] = TEMP.occ MO=7,6
; renumber OUT.MAT according to DJ.EQV
RENUMBER FILE=DJ.EQV, MISSINGZI=M, MISSINGZO=W
ENDRUN

```

```

;
LOOP INDEX2=1,10 ; Inner Loop for Each Summary Type:
;               1/LOV Adrs,2/LOV Apsns,3/Transit,4/HOV Psn,5/HOV Adrs
;               6/Adrs ,7/Apsns ,8/Persons,9/Pct Trn ,10/Auto Occ
;
IF (INDEX2=1) ; Parameters for each table:
SQFNAME='temp.sad' ; Token name of squeezed modal trip table(s)
MODE ='LOV Auto Driver' ; Token mode label od trip table
DCML=0 ; decimal specification
TABTYPE=1 ; table type(1/2)-involves 1 or 2 trip tables
SCALE=1 ; scale factor to be applied (if desired)
OPER='+' ; operation(if tabtype=2) Tab1(?)Tab2=Result
ELSEIF (INDEX2=2)
SQFNAME='temp.sap' ;
MODE ='LOV Auto Person' ;
DCML=0 ;
TABTYPE=1 ;
SCALE=1 ;
OPER='+' ;
ELSEIF (INDEX2=3)
SQFNAME='temp.trn' ;
MODE ='Transit ' ;
DCML=0 ;
TABTYPE=1 ;
SCALE=1 ;
OPER='+' ;
ELSEIF (INDEX2=4)
SQFNAME='temp.hap' ;
MODE ='HOV Auto Person' ;

```

```

DCML=0
TABTYPE=1
SCALE=1 ;
OPER='+' ;
ELSEIF (INDEX2=5)
SQFNAME='temp.had' ;
MODE ='HOV AUTO Driver' ;
DCML=0 ;
TABTYPE=1 ;
SCALE=1 ;
OPER='+' ;
ELSEIF (INDEX2=6)
SQFNAME='temp.adr' ;
MODE ='Auto Driver' ;
DCML=0 ;
TABTYPE=1 ;
SCALE=1 ;
OPER='+' ;
ELSEIF (INDEX2=7)
SQFNAME='temp.apn' ;
MODE ='Auto Person ' ;
DCML=0 ;
TABTYPE=1 ;
SCALE=1 ;
OPER='+' ;
ELSEIF (INDEX2=8)
SQFNAME='temp.psn' ;
MODE ='Total Motorized Person' ;
DCML=0 ;
TABTYPE=1 ;
SCALE=1 ;
OPER='+' ;
ELSEIF (INDEX2=9)
SQFNAME='temp.trp' ;
MODE ='Transit Percentage' ;
DCML=1 ;
TABTYPE=2 ;
SCALE=100 ;
OPER='/' ;
ELSEIF (INDEX2=10)
SQFNAME='temp.occ' ;
MODE ='Avg. Auto Occupancy ' ;
DCML=2 ;
TABTYPE=2 ;
SCALE=1 ;
OPER='/' ;
ENDIF
;
RUN PGM=MATRIX
ZONES=23
FILEI MATI=@SQFNAME@
ARRAY CSUM=23,CSUM1=23,CSUM2=23
; -----
; -- Table Cell Value decalaration or computation (in MW[1])
; -----
FILLMW MW[1]=MI.1.1,2 ; read input tables in MW 2,3
IF (@TABTYPE@ = 2)
FILLMW MW[2]=MI.1.1,2 ; read input tables in MW 2,3
ENDIF
IF (@TABTYPE@=2) ; Cell Value
JLOOP ; computed for
IF (MW[3][J]>0) MW[1]=MW[2]*@SCALE@@OPER@MW[3]; special summaries-
ENDJLOOP ; calculation in MW[1]
ENDIF

```

Appendix A. Version 2.1 D Draft #50 Scripts

```

;-----
; --- ROW Marginal declaration or computation ---
;-----
RSUM = ROWSUM(1) ; 'normal' table- row summary value

IF (@TABTYPE=2)
    RSUM = @SCALE@*ROWSUM(2)@OPER@ROWSUM(3) ; non-'normal' table
ENDIF ; compute the row marginal(%)

;-----
; --- COLUMN/Total Marginal Accumulation ---
; --- The computation (if necessary) is done below ---
;-----

JLOOP ; COL/Total Accumulation
CSUM[J] = CSUM[J] + MW[1][J] ; for 'normal' table
TOTAL = TOTAL + MW[1] ;
ENDJLOOP

IF (@TABTYPE=2)
    JLOOP ; COL/Total Accumulation
    CSUM1[J] = CSUM1[J] + MW[2][J] ; for non-'normal' Table
    TOTAL1 = TOTAL1 + MW[2] ;
    CSUM2[J] = CSUM2[J] + MW[3][J] ;
    TOTAL2 = TOTAL2 + MW[3] ;
ENDJLOOP
ENDIF

IF (I=1) ; print header

PRINT LIST='/bt ', '@DESCRIPT@'
PRINT LIST=' ', 'Purpose: ', '@PURPOSE@', ' MODE: ', '@MODE@'
PRINT LIST=' '

PRINT LIST=' DESTINATION'
PRINT LIST=' ORIGIN |',
' 1', ' 2', ' 3', ' 4',
' 5', ' 6', ' 7', ' 8', ' 9',
' 10', ' 11', ' 12', ' 13', ' 14',
' 15', ' 16', ' 17', ' 18', ' 19',
' 20', ' 21', ' 22', ' 23', ' | TOTAL'

PRINT LIST='=====',
'=====',
'=====',
'=====',
'=====',
'=====',
'=====',
'=====',

ENDIF

IF (I=1)
    CURDIST=STR(I,2,1)+' DC CR'+ '| ' ; Make row header
ELSEIF (I=2)
    CURDIST=STR(I,2,1)+' DC NC'+ '| ' ; Make row header
ELSEIF (I=3)
    CURDIST=STR(I,2,1)+' MTG '+ '| ' ; Make row header
ELSEIF (I=4)
    CURDIST=STR(I,2,1)+' PG '+ '| ' ; Make row header
ELSEIF (I=5)
    CURDIST=STR(I,2,1)+' ARLCR'+ '| ' ; Make row header
ELSEIF (I=6)
    CURDIST=STR(I,2,1)+' ARNCR'+ '| ' ; Make row header
ELSEIF (I=7)
    CURDIST=STR(I,2,1)+' ALX '+ '| ' ; Make row header
ELSEIF (I=8)

```

```

    CURDIST=STR(I,2,1)+' FFX '+ '| ' ; Make row header
ELSEIF (I=9)
    CURDIST=STR(I,2,1)+' LDN '+ '| ' ; Make row header
ELSEIF (I=10)
    CURDIST=STR(I,2,1)+' PW '+ '| ' ; Make row header
ELSEIF (I=11)
    CURDIST=STR(I,2,1)+' FRD '+ '| ' ; Make row header
ELSEIF (I=12)
    CURDIST=STR(I,2,1)+' CAR '+ '| ' ; Make row header
ELSEIF (I=13)
    CURDIST=STR(I,2,1)+' HOW '+ '| ' ; Make row header
ELSEIF (I=14)
    CURDIST=STR(I,2,1)+' AAR '+ '| ' ; Make row header
ELSEIF (I=15)
    CURDIST=STR(I,2,1)+' CAL '+ '| ' ; Make row header
ELSEIF (I=16)
    CURDIST=STR(I,2,1)+' STM '+ '| ' ; Make row header
ELSEIF (I=17)
    CURDIST=STR(I,2,1)+' CHS '+ '| ' ; Make row header
ELSEIF (I=18)
    CURDIST=STR(I,2,1)+' FAU '+ '| ' ; Make row header
ELSEIF (I=19)
    CURDIST=STR(I,2,1)+' STA '+ '| ' ; Make row header
ELSEIF (I=20)
    CURDIST=STR(I,2,1)+' CL/JF'+ '| ' ; Make row header
ELSEIF (I=21)
    CURDIST=STR(I,2,1)+' SP/FB'+ '| ' ; Make row header
ELSEIF (I=22)
    CURDIST=STR(I,2,1)+' KGEO '+ '| ' ; Make row header
ELSEIF (I=23)
    CURDIST=STR(I,2,1)+' EXTL '+ '| ' ; Make row header
ELSEIF (I=24)
    CURDIST=STR(I,2,1)+' TOTAL'+ '| ' ; Make row header
ENDIF

PRINT FORM=7.@DCML@ LIST=CURDIST, MW[1][1],MW[1][2],MW[1][3],MW[1][4],MW[1][5],
MW[1][6],MW[1][7],MW[1][8],MW[1][9],MW[1][10],
MW[1][11],MW[1][12],MW[1][13],MW[1][14],MW[1][15],
MW[1][16],MW[1][17],MW[1][18],MW[1][19],MW[1][20],
MW[1][21],MW[1][22],MW[1][23], ' |',RSUM

IF (I==ZONES)
; Now at the end of Processed zone matrix
; Do final Column/Grand Total Computations
    IF (@TABTYPE=2)
        LOOP IDX = 1,ZONES
            IF (CSUM2[IDX] = 0)
                CSUM[IDX] = 0
            ELSE
                CSUM[IDX] = @SCALE@* CSUM1[IDX] @OPER@ CSUM2[IDX]
            ENDIF
        ENDOLOOP
    ENDIF
ENDIF

IF (@TABTYPE=2 )
    IF (TOTAL2 = 0)
        TOTAL = 0
    ELSE
        TOTAL = @SCALE@ *TOTAL1 @OPER@ TOTAL2
    ENDIF
ENDIF

; End of final Column/Grand Total Computations

PRINT LIST='=====',
'=====',
'=====',
'=====',
'=====',
'=====',
'=====',
'=====',

```

DRAFT

```
PRINT FORM=8.@DCML@,
LIST=' TOTAL ' ', ' ,CSUM[1], ' ' ,CSUM[3],
' ',CSUM[5], ' ' ,CSUM[7], ' ' ,CSUM[9],
' ',CSUM[11], ' ' ,CSUM[13], ' ' ,CSUM[15],
' ',CSUM[17], ' ' ,CSUM[19], ' ' ,CSUM[21],
' ',CSUM[23], ' | '
PRINT FORM=8.@DCML@,
LIST='/et ' ',CSUM[2],
' ',CSUM[4], ' ' ,CSUM[6], ' ' ,CSUM[8],
' ',CSUM[10], ' ' ,CSUM[12], ' ' ,CSUM[14],
' ',CSUM[16], ' ' ,CSUM[18], ' ' ,CSUM[20],
' ',CSUM[22], ' ' ,TOTAL(9.@DCML@)

ENDIF
ENDRUN

ENDLOOP ; End 'Inner' Loop
ENDLOOP ; End 'Outer' Loop
```

**DRAFT**

## Metrorail\_skims.s

```

=====
; Metrorail_skims.S
; MWCOG Version 2 Model
;
; Step 1: Build Metrorail Staion to Station Network
; Step 2: Build Distance skims (in 1/100s mi) to be used in the
; MPARE1 process
=====
;
; Global variables:
NZNONES = 116           ; Max. no. of Stations
NODIN='METNODM1.TB'    ; Input Station Links
LNKIN='METLNKM1.TB'    ; Input Station Nodes
DSKMO='rldist.skm'     ; Output Distance Skim File
TPENS='inputs\trnpen.dat' ; Turn Penalty file

=====
; Step 1: Build Metrorail Network
=====

RUN PGM=HWYNET
;
ZONES=@NZONES@

; Node Coordinate File
; XY Units are NAD83 (in whole feet)
FILEI NODEI=@NODIN@,
      VAR=N,09-13,
      VAR=X,19-26,
      VAR=Y,32-39

; Metrorail Links
FILEI LINKI=@LNKIN@,
      VAR=A,12-16,      ; A-Node Number
      VAR=B,18-22,      ; B-Node Number
      VAR=REV,30-30,    ; Reverse Code
      VAR=DISTANCE,37-41, ; Distance in 1/100ths of Miles
      VAR=SPEED,58-62   ; Speed Value (mph)

; output network in TP+ format
NETO=metrail.TPN
;

=====
; Step 2: Build Station Level Distance Skims
=====

RUN PGM=HWYLOAD
NETI =metrail.tpn      ; Metrorail Network
MATO[1]=@DSKMO@,MO=1,
      FORMAT=MINUTP
TURNPENI=@TPENS@

PHASE=LINKREAD
SPEED = LI.SPEED      ; Use Link Coded Speed
DISTANCE= LI.DISTANCE / 100 ; Set Distance in 1/100ths of mi to true mi
ENDPHASE
;

```

```

; Now create station-to-station distance skims over minimum time
; paths. The distance skims are in 100ths of miles
; (e.g. a skim value of '145' indicates 1.45 miles)
;
;
PHASE=ILOOP

PATHLOAD PATH=TIME, PENI=1, TRACE=(I=64 && J=37),

      MW[1]=PATHTRACE(LI.DISTANCE), noaccess = 0
;-----
; I will print selected rows of skim files
;-----
      IF (i = 1-2)           ; for select rows (Is)
          printrow MW=1, j=1-@NZONES@ ; print work matrices 1-3
      ENDIF                 ; row value to all Js.
ENDPHASE
ENDRUN

```

DRAFT

### Misc\_Time-of-Day.s

```

; =====
; Misc_Time-of-Day.s
; MWCOCG Version 2 Model
;
;
;       Distribute Truck and
;       miscellaneous (non-modeled) trips among
;       among three time periods:
;       - AM peak (6:00 - 9:00 AM)
;       - PM peak (4:00 - 7:00 PM)
;       - Off-peak (All Other Hrs)
;
;       The Time-of-Day factors are taken from a card image
;       file named: 'V2TODTPP.PAR'. The factors are based on
;       the 1994 Auto External Survey & the 1996 Truck Ext survey.
; =====
;
;
; ////////////////////////////////////////////////////////////////////
; //
; // Input/Output filenames: //
; //
; READ FILE=..\support\V2TODTPP.PAR ; Time of Day Factor File //
; //
; // I/P PP Auto Driver Trip Tables: //
; //
; XXTRUCK = 'inputs\xxtrk.vtt' ; TRUCK XX Trips (t1) //
; XXAUTDR = 'inputs\xxaut.vtt' ; Auto Dr XX Trips (t1) //
; //
; TAXIADR = 'inputs\taxi.adr' ; TAXI Auto Dr Trips //
; VISIADR = 'inputs\visi.adr' ; Visitor A.Dr Trips //
; SCHLADR = 'inputs\schl.adr' ; School A.Dr Trips //
; //
; MKTKDOUT = 'MKTESTPP.VTT' ; Medium Truck Trips //
; HTKTDOUT = 'HTKTESTPP.VTT' ; Heavy Truck Trips //
; //
; APXADR = 'inputs\airpax.adr' ; Air Passenger Auto Dr. //
; //
; // O/P Auto Dr. Pct. tables: //
; //
; MISCAM = 'MISCAM.TT' ; AM Non-Modeled Trips //
; MISCPM = 'MISCPM.TT' ; PM Non-Modeled Trips //
; MISCOP = 'MISCOP.TT' ; Off-Pk Non-Modeled Trips //
; //
; // Each output file contains 8 tables - //
; //
; // 1/xx truck,2/xx autodr,3/taxi adr,4/visitor adr,5/school adr,
; // 6/med. truck, 7/hvy truck, 8/air passenger adr
; ////////////////////////////////////////////////////////////////////
; //
; RUN PGM=MATRIX ; Read in Daily Miscellaneous Trips
; MATI[1]=@XXTRUCK@ ; Thru Truck Trips
; MATI[2]=@XXAUTDR@ ; Thru Auto Driver Trips
; MATI[3]=@TAXIADR@ ; Taxi Auto Driver Trips
; MATI[4]=@VISIADR@ ; Visitor/Tourist Auto Driver Trips
; MATI[5]=@SCHLADR@ ; School Auto Driver Trips
; MATI[6]=@MTKTDOUT@ ; Medium Truck (I-I,I-X,X-I) Trips
; MATI[7]=@HTKTDOUT@ ; Heavy Truck (I-I,I-X,X-I) Trips
; MATI[8]=@APXADR@ ; Air Passenger auto driver Trips
;
; Put Misc Trips in Work Mats 1-8, respectively
MW[1] = MI.1.1
MW[2] = MI.2.1
MW[3] = MI.3.1
MW[4] = MI.4.1
MW[5] = MI.5.1
MW[6] = MI.6.3
MW[7] = MI.7.3
MW[8] = MI.8.1

```

```

; Apply TOD Factors
; put AM trips in work mats 11-17
; put PM trips in work mats 21-27
; put Off-Peak trips in work mats 31-37
;
; JLOOP
; AM Peak Period Trips
MW[11] = @AMXXTRKP@ * MW[1] / 100.0 ; AM Thru Truck
MW[12] = @AMXXADRP@ * MW[2] / 100.0 ; AM Thru Auto Driver
MW[13] = @AMTAXISP@ * MW[3] / 100.0 ; AM Taxi Auto Driver
MW[14] = @AMVISITP@ * MW[4] / 100.0 ; AM Visitor Auto Driver
MW[15] = @AMSCOOP@ * MW[5] / 100.0 ; AM School Auto Driver
MW[16] = @AMIIMTKP@ * MW[6] / 100.0 ; AM I-I,I-E,E-I Medium Truck
MW[17] = @AMIHTKP@ * MW[7] / 100.0 ; AM I-I,I-E,E-I Heavy Truck
MW[18] = @AMAIRPXP@ * MW[8] / 100.0 ; AM Air Pax Auto Driver
;
; PM Peak Period Trips
MW[21] = @PMXXTRKP@ * MW[1] / 100.0 ; PM Thru Truck
MW[22] = @PMXXADRP@ * MW[2] / 100.0 ; PM Thru Auto Driver
MW[23] = @PMTAXISP@ * MW[3] / 100.0 ; PM Taxi Auto Driver
MW[24] = @PMVISITP@ * MW[4] / 100.0 ; PM Visitor Auto Driver
MW[25] = @PMSCOOP@ * MW[5] / 100.0 ; PM School Auto Driver
MW[26] = @PMIIMTKP@ * MW[6] / 100.0 ; PM I-I,I-E,E-I Medium Truck
MW[27] = @PMIHTKP@ * MW[7] / 100.0 ; PM I-I,I-E,E-I Heavy Truck
MW[28] = @PMAIRPXP@ * MW[8] / 100.0 ; PM Air Pax Auto Driver
;
; Off-Peak Period Trips
MW[31] = MW[1] - (MW[11] + MW[21]) ; Off-Pk Thru Truck
MW[32] = MW[2] - (MW[12] + MW[22]) ; Off-Pk Thru Auto Driver
MW[33] = MW[3] - (MW[13] + MW[23]) ; Off-Pk Taxi Auto Driver
MW[34] = MW[4] - (MW[14] + MW[24]) ; Off-Pk Visitor Auto Driver
MW[35] = MW[5] - (MW[15] + MW[25]) ; Off-Pk School Auto Driver
MW[36] = MW[6] - (MW[16] + MW[26]) ; Off-Pk I-I,I-E,E-I Medium Truck
MW[37] = MW[7] - (MW[17] + MW[27]) ; Off-Pk I-I,I-E,E-I Heavy Truck
MW[38] = MW[8] - (MW[18] + MW[28]) ; Off-Pk Air Pax Auto Driver
;
; ENDJLOOP
;
; Now bucket round all tables
DUMMY=ROWFIX(11), DUMMY=ROWFIX(12), DUMMY=ROWFIX(13), DUMMY=ROWFIX(14)
DUMMY=ROWFIX(15), DUMMY=ROWFIX(16), DUMMY=ROWFIX(17), DUMMY=ROWFIX(18)
;
DUMMY=ROWFIX(21), DUMMY=ROWFIX(22), DUMMY=ROWFIX(23), DUMMY=ROWFIX(24)
DUMMY=ROWFIX(25), DUMMY=ROWFIX(26), DUMMY=ROWFIX(27), DUMMY=ROWFIX(28)
;
DUMMY=ROWFIX(31), DUMMY=ROWFIX(32), DUMMY=ROWFIX(33), DUMMY=ROWFIX(34)
DUMMY=ROWFIX(35), DUMMY=ROWFIX(36), DUMMY=ROWFIX(37), DUMMY=ROWFIX(38)
;
; LETS SUMMARIZE NEATLY
jloop
DAYXXTK = DAYXXTK + MW[1] ; ACCUMULATE TOTAL DAILY THRU TRUCKS
DAYXXAD = DAYXXAD + MW[2] ; ACCUMULATE TOTAL DAILY THRU AUTO DRV
DAYTXAD = DAYTXAD + MW[3] ; ACCUMULATE TOTAL DAILY TAXI ADR TRIPS
DAYVSAD = DAYVSAD + MW[4] ; ACCUMULATE TOTAL DAILY VISITOR ADR TRIPS
DAYSCAD = DAYSCAD + MW[5] ; ACCUMULATE TOTAL DAILY SCHOOL ADR TRIPS
DAYMTRK = DAYMTRK + MW[6] ; ACCUMULATE TOTAL DAILY MED. TRUCK TRIPS
DAYHTRK = DAYHTRK + MW[7] ; ACCUMULATE TOTAL DAILY HVY. TRUCK TRIPS
DAYAPAX = DAYAPAX + MW[8] ; ACCUMULATE TOTAL DAILY AIR PAX ADR TRIPS
;
AMXXTK = AMXXTK + MW[11] ; ACCUMULATE TOTAL AM XX TRUCKS
AMXXAD = AMXXAD + MW[12] ; ACCUMULATE TOTAL AM XX ADR TRIPS
AMTXAD = AMTXAD + MW[13] ; ACCUMULATE TOTAL AM TAXI ADR TRIPS
AMVSAD = AMVSAD + MW[14] ; ACCUMULATE TOTAL AM VISIT ADR TRIPS
AMSCAD = AMSCAD + MW[15] ; ACCUMULATE TOTAL AM SCHOO ADR TRIPS
AMMTRK = AMMTRK + MW[16] ; ACCUMULATE TOTAL AM MED TRUCK TRIPS
AMHTRK = AMHTRK + MW[17] ; ACCUMULATE TOTAL AM HVY TRUCK TRIPS
AMAPAX = AMAPAX + MW[18] ; ACCUMULATE TOTAL AIR PAX ADR TRIPS

```

## Appendix A. Version 2.1 D Draft #50 Scripts

```
PMXXTK = PMXXTK + MW[21] ; ACCUMULATE TOTAL PM XX TRUCKS
PMXXAD = PMXXAD + MW[22] ; ACCUMULATE TOTAL PM XX ADR TRIPS
PMTXAD = PMTXAD + MW[23] ; ACCUMULATE TOTAL PM TAXI ADR TRIPS
PMVSAD = PMVSAD + MW[24] ; ACCUMULATE TOTAL PM VISIT ADR TRIPS
PMSCAD = PMSCAD + MW[25] ; ACCUMULATE TOTAL PM SCHOO ADR TRIPS
PMMTRK = PMMTRK + MW[26] ; ACCUMULATE TOTAL PM MED TRUCK TRIPS
PMHTRK = PMHTRK + MW[27] ; ACCUMULATE TOTAL PM HVY TRUCK TRIPS
PMAPAX = PMAPAX + MW[28] ; ACCUMULATE TOTAL AIR PAX ADR TRIPS

OPXXTK = OPXXTK + MW[31] ; ACCUMULATE TOTAL OP XX TRUCKS
OPXXAD = OPXXAD + MW[32] ; ACCUMULATE TOTAL OP XX ADR TRIPS
OPTXAD = OPTXAD + MW[33] ; ACCUMULATE TOTAL OP TAXI ADR TRIPS
OPVSAD = OPVSAD + MW[34] ; ACCUMULATE TOTAL OP VISIT ADR TRIPS
OPSCAD = OPSCAD + MW[35] ; ACCUMULATE TOTAL OP SCHOO ADR TRIPS
OPMTRK = OPMTRK + MW[36] ; ACCUMULATE TOTAL OP MED TRUCK TRIPS
OPHTRK = OPHTRK + MW[37] ; ACCUMULATE TOTAL OP HVY TRUCK TRIPS
OPAPAX = OPAPAX + MW[38] ; ACCUMULATE TOTAL AIR PAX ADR TRIPS

; total input misc trips
ipmisc = ipmisc + MW[1]+MW[2]+MW[3]+MW[4]+MW[5]+MW[6]+MW[7]+MW[8]

; total output misc trips
opmisc = opmisc +
MW[11]+MW[12]+MW[13]+MW[14]+MW[15]+MW[16]+MW[17]+MW[18]+
MW[21]+MW[22]+MW[23]+MW[24]+MW[25]+MW[26]+MW[27]+MW[28]+
MW[31]+MW[32]+MW[33]+MW[34]+MW[35]+MW[36]+MW[37]+MW[38]

ENDJLOOP

IF (I=ZONES) ; LIST OUT THE TOTALS IF AT THE END OF THE I-LOOP
; get regional I/O differences
diff = opmisc-ipmisc ;

LIST = '/bt '
LIST = ' MISCELLANEOUS/TRUCK TIME-OF-DAY TOTALS ', '\n',
list = ' '

list = 'Input Misc/Truck Total: ', ipmisc(8.0)
list = 'Output Misc/Truck Total: ', opmisc(8.0)
list = 'Diff. (Output-Input): ', diff(8.0)
list = ' '

LIST = 'DAILY XX TRUCKS: ', dayxxtk(8.0), ' AM,PM, Off-Pk totals: ',
AMXXTK(8.0), ', ', PMXXTK(8.0), ', ', OPXXTK(8.0)
LIST = 'DAILY XX ADRS: ', dayxxad(8.0), ' AM,PM, Off-Pk totals: ',
AMXXAD(8.0), ', ', PMXXAD(8.0), ', ', OPXXAD(8.0)
LIST = 'DAILY TAXI ADRS: ', dayTxAD(8.0), ' AM,PM, Off-Pk totals: ',
AMTXAD(8.0), ', ', PMTXAD(8.0), ', ', OPTXAD(8.0)
LIST = 'DAILY VISI ADRS: ', dayVSAD(8.0), ' AM,PM, Off-Pk totals: ',
AMVSAD(8.0), ', ', PMVSAD(8.0), ', ', OPVSAD(8.0)
LIST = 'DAILY SCHO ADRS: ', daySCAD(8.0), ' AM,PM, Off-Pk totals: ',
AMSCAD(8.0), ', ', PMSCAD(8.0), ', ', OPSCAD(8.0)
LIST = 'DAILY MED TRKS: ', dayMTRK(8.0), ' AM,PM, Off-Pk totals: ',
AMMTRK(8.0), ', ', PMMTRK(8.0), ', ', OPMTRK(8.0)
LIST = 'DAILY HVY TRKS: ', dayHTRK(8.0), ' AM,PM, Off-Pk totals: ',
AMHTRK(8.0), ', ', PMHTRK(8.0), ', ', OPHTRK(8.0)
LIST = 'DAILY APX ADRS: ', dayAPAX(8.0), ' AM,PM, Off-Pk totals: ',
AMAPAX(8.0), ', ', PMAPAX(8.0), ', ', OPAPAX(8.0)

LIST = '/et '
endif
; Write out the Miscellaneous Trips in time period-specific files

MATO[1] = @MISCAM@, MO=11-18 ; AM MISC Trips
MATO[2] = @MISCPM@, MO=21-28 ; PM MISC Trips
MATO[3] = @MISCOP@, MO=31-38 ; OP MISC Trips
```

```
ENDRUN
;
```

## PP\_Auto\_Drivers.s

```

; =====
; PP_Auto_Drivers.s
; MWCOG Version 2 Model
;
; This program used to develop 1-occ, 2-occ, and 3+occ auto driver
; trip tables directly from the a pump-prime total person trip table.
; The trips are developed using auto driver percentages
; from a pre-existing (or seed) mode choice output file
; and 'off-the-shelf' disaggregation curves to arrive at auto driver
; trips in occupant categories.
; =====
;
;
; //////////////////////////////////////
; First, establish Input/Output filenames:
LOOP PURP=1,4 ; We'll Loop 4 times, for each purpose
                ; Note default auto driver shares and occupant
                ; shares to be used in case no seed shares exist

IF (PURP=1)    ; HBW Loop
PPPERSON = 'HBWESTPP.PTT'; HBW Pump Prime Person Trips      (Input)
PPPTABNO = 7    ; Table no. for total trips PP Person trip file
SEED_MCH = 'INPUTS\HBWMC.OLD' ; HBW Mode Choice file      (Input)
PP123OCC = 'HBWPP.ADR' ; HBW auto driver trips- 1,2,3+ Occ. (Output)
DADRSHAR = 0.7546 ; DFLT HBW Auto Driver Share
DOCC1PCT = 0.8840 ; DFLT Share of HBW Adrs that are 1 occ Adrs
DOCC2PCT = 0.1142 ; DFLT Share of HBW Adrs that are 2 occ Adrs
DOCC3PCT = 0.0018 ; DFLT Share of HBW Adrs that are 3+ occ Adrs
PURPOSE = 'HBW' ;

ELSEIF (PURP=2) ; HBS Loop

PPPERSON = 'HBSESTPP.PTT'; HBS Pump Prime Person Trips      (Input)
PPPTABNO = 7    ; Table no. for total trips PP Person trip file
SEED_MCH = 'INPUTS\HBSMC.OLD' ; HBS Mode Choice file      (Input)
PP123OCC = 'HBSPP.ADR' ; HBS auto driver trips- 1,2,3+ Occ. (Output)
DADRSHAR = 0.7966 ; DFLT HBS Auto Driver Share
DOCC1PCT = 0.8141 ; DFLT Share of HBS Adrs that are 1 occ Adrs
DOCC2PCT = 0.1560 ; DFLT Share of HBS Adrs that are 2 occ Adrs
DOCC3PCT = 0.0299 ; DFLT Share of HBS Adrs that are 3+ occ Adrs
PURPOSE = 'HBS' ;

ELSEIF (PURP=3) ; HBO Loop

PPPERSON = 'HBOESTPP.PTT'; HBO Pump Prime Person Trips      (Input)
PPPTABNO = 7    ; Table no. for total trips PP Person trip file
SEED_MCH = 'INPUTS\HBOMC.OLD' ; HBO Mode Choice file      (Input)
PP123OCC = 'HBOPP.ADR' ; HBO auto driver trips- 1,2,3+ Occ. (Output)
DADRSHAR = 0.6722 ; DFLT HBO Transit Share
DOCC1PCT = 0.6806 ; DFLT Share of HBO Adrs that are 1 occ Adrs
DOCC2PCT = 0.2358 ; DFLT Share of HBO Adrs that are 2 occ Adrs
DOCC3PCT = 0.0836 ; DFLT Share of HBO Adrs that are 3+ occ Adrs
PURPOSE = 'HBO' ;

ELSEIF (PURP=4) ; NHB Loop

PPPERSON = 'NHBESTPP.PTT'; NHB Pump Prime Person Trips      (Input)
PPPTABNO = 4    ; Table no. for total trips PP Person trip file
SEED_MCH = 'INPUTS\NHBMC.OLD' ; NHB Mode Choice file      (Input)
PP123OCC = 'NHBPP.ADR' ; NHB auto driver trips- 1,2,3+ Occ. (Output)

```

```

DTRNSHAR = 0.7608 ; DFLT NHB Auto Driver Share
DOCC1PCT = 0.8014 ; DFLT Share of NHB Adrs that are 1 occ Adrs
DOCC2PCT = 0.1636 ; DFLT Share of NHB Adrs that are 2 occ Adrs
DOCC3PCT = 0.0350 ; DFLT Share of NHB Adrs that are 3+ occ Adrs
PURPOSE = 'NHB' ;

ENDIF
;
; //////////////////////////////////////
RUN PGM=MATRIX
MATI[1]=@SEED_MCH@ ; MC model ouput
MATI[2]=@PPPERSON@ ; PP Person trips
;
; First, put 'pump prime' person trips in mtx 10 and 'seed' person
; trips in mtx 44. If pp persons exist but no 'seed' persons exist
; then apply default transit shares and adr. occ shares. Otherwise,
; compute auto auto driver/occ shares directly, i.e.,
; 1-occ adrs/persons, 2-occ adrs/persons, and 3+occ adrs/persons)
;
MW[10] = MI.2.@PPPTABNO@ ; Pump Prime Person trips

; Put Mode Choice Mats 1-7, respectively, The tables are:
; 1/LOVADRS 2/LOVADRS 3/Trn_Wk 4/Trn_Dr 5/HOV2ADRS 6/HOVPSNs 7/HOV3+ADRS
; HOV trips refer to carpool trips on special priority facilities.
; Carpools not on special facilities are subsumed in the LOV group.
FILLMW MW[1] = MI.1.1,2,3,4,5,6,7
MW[8] = MW[1] + MW[5] + MW[7] ; 'seed' auto driver total (LOV&HOV)
; if the PP person trip table has trips but the seed person trips
; does not let's put default values just in case..

JLOOP
MW[44] = MW[2] + MW[3] + MW[4] + MW[6] ; Total MC Model Person

; If pump prime person trips exist but 'seed' person trips do not
; Then apply default auto driver/occupant level share defaults

IF (MW[10] > 0 & MW[44] = 0) ;
MW[60] = 1.0 ; counter for the no. of cases (i/js)

MW[50] = MW[10] * (@DADRSHAR@) * @DOCC1PCT@ ; Apply default
MW[51] = MW[10] * (@DADRSHAR@) * @DOCC2PCT@ ; auto drv / occupant
MW[52] = MW[10] * (@DADRSHAR@) * @DOCC3PCT@ ; shares

IF (MW[50] > MW[10])
MW[50] = MW[10]
MW[51] = 0
MW[52] = 0
ENDIF
;

; Otherwise estimate auto driver/occupant level shares from mode
; choice output

ELSEIF ((MW[10] > 0 & MW[44] > 0) || (MW[10] = 0 & MW[44] > 0))

; Compute LOV Car Occs --put in mtx 20
; Note: LOV contains SOV's and background HOVs (Those not on priority
; facilities)
IF (MW[1] = 0)
MW[20] = 0
ELSE
MW[20] = MW[2]/MW[1] ; the LOV Avg Auto Occupancy

```

# Appendix A. Version 2.1 D Draft #50 Scripts

```

ENDIF
; Determine LOV Vehicles in 1,2,3&4+ occupant groups using model
; COG's disaggregation model.

IF (MW[20] < 1.0050) ; Make sure the computed Car Occ.
  MW[20] = 1.0050 ; is between 1.005 and 2.500
ELSEIF (MW[20] > 2.5000) ; -- if not establish boundary
  MW[20] = 2.5000 ; conditions
ENDIF
;
; Apply Car Occ. Pct Model-Computes Pct Vehs.in Occ groups as function
; of avg auto occ.

IF (MW[20] = 1.0050 - 1.1199999)
  MW[21] = 2.00264 - (0.9989 * MW[20]) ; Pct of 1-Occ Vehs
  MW[22] = -1.00050 + (0.9952 * MW[20]) ; Pct of 2-Occ Vehs
  MW[23] = -0.00158 + (0.0029 * MW[20]) ; Pct of 3-Occ Vehs
  MW[24] = -0.00056 + (0.0008 * MW[20]) ; Pct of 4-Occ Vehs
ELSEIF (MW[20] = 1.1200 - 2.5000)
  MW[21] = 1.59600 - (0.6357 * MW[20]) ; Pct of 1-Occ Vehs
  MW[22] = -0.31143 + (0.3800 * MW[20]) ; Pct of 2-Occ Vehs
  MW[23] = -0.17082 + (0.1540 * MW[20]) ; Pct of 3-Occ Vehs
  MW[24] = -0.11375 + (0.1017 * MW[20]) ; Pct of 4-Occ Vehs
ENDIF

;
; if we're working with an intrazonal
; situation, make all auto drivers SOV.
; Override modeled shares here
IF (i=j) ;
  MW[21] = 1.00 ; Pct of 1-Occ Vehs
  MW[22] = 0.00 ; Pct of 2-Occ Vehs
  MW[23] = 0.00 ; Pct of 3-Occ Vehs
  MW[24] = 0.00 ; Pct of 4-Occ Vehs
ENDIF

; Apply Modeled Pcts to the Auto Drivers

MW[31] = (MW[21] * MW[1]) ; Estimated LOV 1 occ vehicles
MW[32] = (MW[22] * MW[1]) ; Estimated LOV 2 occ vehicles
MW[33] = (MW[23] * MW[1]) ; Estimated LOV 3 occ vehicles
MW[34] = (MW[24] * MW[1]) ; Estimated LOV 4+ occ vehicles

; compute add HOV2 & HOV3 trips from MC file to LOV dissagg. trips,
; also combine 3 & 4+ occ. auto driver trips into one group.

MW[41] = MW[31] ; Total seed 1-Occ Auto Drivers
MW[42] = MW[32] + MW[5] ; 2-occ(lov+carpool)
MW[43] = MW[33] + MW[34] + MW[7] ; 3-occ(lov+carpool)
MW[46] = MW[41] + MW[42] + MW[43] ; Total seed auto drivers

; Now distribute pump prime person trips based on the above
;
IF (MW[46] = 0) ; if total seed auto drivers are zero
  MW[50] = 0 ; then auto occ. sub groupings are zero too.
  MW[51] = 0 ;
  MW[52] = 0 ;
ELSE ; otherwise compute pp auto drivers with freeze-dried
  ; auto driver/occupant level shares...
  MW[50] = MW[10] * (MW[46]/MW[44]) * (MW[41]/(MW[46])) ;
  MW[51] = MW[10] * (MW[46]/MW[44]) * (MW[42]/(MW[46])) ;
  MW[52] = MW[10] * (MW[46]/MW[44]) * (MW[43]/(MW[46])) ;
  IF (MW[50] > MW[10])
    MW[50] = MW[10]
  MW[51] = 0

```

```

MW[52] = 0
ENDIF

ENDIF

ENDIF ;
ENDJLOOP ;

DUMMY = ROWFIX(50) ; make resultant trips integers
DUMMY = ROWFIX(51) ;
DUMMY = ROWFIX(52) ;

MW[53] = MW[50] + MW[51] + MW[52] ; total output auto drivers

JLOOP

; Lets sum up the above to get neat total summaries

seedpsn = seedpsn + MW[44] ; Mode choice(seed) person trips
seedadri = seedadri + MW[8] ; Mode choice(seed) auto dr trips
seedadr1 = seedadr1 + MW[41] ; Estim. seed 1-occ auto dr trips
seedadr2 = seedadr2 + MW[42] ; Estim. seed 2-occ auto dr trips
seedadr3 = seedadr3 + MW[43] ; Estim. seed 3+occ auto dr trips
seedadro = seedadro + MW[46] ; Sum of seed 1,2,3+ Occ auto dr trips
pppsn = ppsn + MW[10] ; Pump Prime person trips
ppadr1 = ppadr1 + MW[50] ; Est. Pump Prime 1-occ auto dr trips
ppadr2 = ppadr2 + MW[51] ; Est. Pump Prime 2-occ auto dr trips
ppadr3 = ppadr3 + MW[52] ; Est. Pump Prime 3+occ auto dr trips
ppadr = ppadr + MW[53] ; Est. Pump Prime total auto dr trips

ENDJLOOP

IF (I == ZONES)
;
; Compute Regional Seed/Pump Prime Auto Dr Shares/Occ. distributions
;
IF (seedpsn = 0)
  sadrpt = 0
ELSE
  sadrpt = seedadri/seedpsn ; seed auto driver pct
ENDIF

IF (seedadro = 0)
  sladpt = 0
  s2adpt = 0
  s3adpt = 0
ELSE
  sladpt = seedadr1/seedadro ; seed 1-occ adr pct
  s2adpt = seedadr2/seedadro ; seed 2-occ adr pct
  s3adpt = seedadr3/seedadro ; seed 3+occ adr pct
ENDIF

IF (pppsn = 0)
  padrpt = 0
ELSE
  padrpt = ppadr/pppsn ; Pump Prime auto driver pct
ENDIF

IF (ppadr = 0)
  pladpt = 0
  p2adpt = 0
  p3adpt = 0
ELSE
  pladpt = ppadr1/ppadr ; Pump Prime 1-occ adr pct
  p2adpt = ppadr2/ppadr ; Pump Prime 2-occ adr pct
  p3adpt = ppadr3/ppadr ; Pump Prime 3+occ adr pct
ENDIF

```



```
LIST='/bt '
LIST='Summary of ', '@PURPOSE@', ' Pump-Prime Auto Driver Trip Results'
LIST=' '
LIST='Total Mode Choice Model (seed) Person Trips: ', seedpsn(10)
LIST='Total Mode Choice Model (seed) AutoDr Trips: ', seedadri(10)
LIST='Total seed 1-Occ Auto Dr. Trips: ', seedadr1(10)
LIST='Total seed 2-Occ Auto Dr. Trips: ', seedadr2(10)
LIST='Total seed 3+Occ Auto Dr. Trips: ', seedadr3(10)
LIST='Sum of seed 1,2,3+ Auto Dr. Trips: ', seedadro(10)
LIST='Total Pump Prime Person Trips: ', ppsn(10)
LIST='Total PP 1-Occ. Auto Driver Trips: ', ppadr1(10)
LIST='Total PP 2-Occ. Auto Driver Trips: ', ppadr2(10)
LIST='Total PP 3+Occ. Auto Driver Trips: ', ppadr3(10)
LIST='Sum of PP 1,2,3+ Auto Driver Trips: ', ppadr(10)
LIST=' '
List=' Summary of Input/Output Shares'
List='Input AutoDr Share: ', sadrpt(6.2),
' 1,2,3+Occ.AutoDr.Shares: ', sladpt(6.2),s2adpt(6.2),s3adpt(6.2)
List='Output AutoDr.Share:', padrpt(6.2),
' 1,2,3+Occ.AutoDr.Shares: ', pladpt(6.2),p2adpt(6.2),p3adpt(6.2)
LIST='/et '
ENDIF

MATO=@PP123OCC@,MO=50,51,52 ; output file designation

ENDRUN
ENDLOOP
;
```

**DRAFT**

## PUMP\_PRIME\_SKIMS.S

```

-----
;PUMP_PRIME_SKIMS.S
;MWCOG VERSION 2 MODEL
;
; 6/30/03 MODIFICATIONS FOR IMPROVED TOLL MODELING MADE rjm
; BUILDING PEAK PUMP PRIME HWY SKIMS & PNR Links
;
; Input files - ZONEHWY.NET (Zonal highway network,all periods)
; Output files - PP_am.skm,pp_op.skm (AM, Off-peak SOV Skims)
;
; 3 tables in skims files:
; 1- time (min),
; 2- distance(whole mi)
; 3- tolls (1980 cents)
;
;
;
; Input files - PP_am.skm,pp_op.skm (AM, Off-peak SOV Skims)
; tazpnr.eqv (TAZ pnr equivalency file)
; Output files - pnr_am.tb , pnr_op.tb
;
;
;
; First, convert TAZ/PNR list to a lookup table that
; relates each TAZ to 1 or multiple PNR lots (if multiple lots exist).
; the lookup file name is tazpnr.lkp
; NOTE: The current script assumes that the maximum PNR lots for a
; given TAZ is 4.
;
run pgm=matrix
reci=tazpnr.asc, taz=2, pnr=3

array v_taz=1000, v_pnr=1000

_cnt=_cnt+1
v_taz[_cnt]=ri.taz ; read data into arrays
v_pnr[_cnt]=ri.pnr

if (i=0) ; last record
sort array=-v_taz, v_pnr
_curtaz=v_taz[1] ; starting taz
print form=10, list=v_taz[1], v_pnr[1], file=tazpnr.lkp
loop ind=2,_cnt
if (v_taz[ind]==_curtaz)
print form=10, list='\', v_pnr[ind], file=tazpnr.lkp
else
_curtaz=v_taz[ind] ; reset taz
print form=10, list=v_taz[ind], v_pnr[ind], file=tazpnr.lkp
endif
endloop
endif
endrun
;
; *copy tazpnr.lkp tazpnr.zfl
;
LOOP PERIOD=1,2 ; loop through two time periods-- AM, Off-Peak
;-
;
in_tskm = 'inputs\toll.skm' ; read in toll param file

```

```

IF (PERIOD=1)
PRD = 'AM'
IDS = 'AM Pump Prime Skims'
ELSE
PRD = 'OP'
IDS = 'Off-Peak Pump Prime Skims'
ENDIF

RUN PGM = HWYLOAD

;
NETI = ZONEHWY.NET
MATO[1] = PP_@PRD@.skm, MO=1-3, FORMAT=MINUTP ; SOV skims
ID = @IDS@

PHASE=LINKREAD
;-
READ FILE = @in_tskm@

; Define AM /OP link level tolls by vehicle type here:
LW.SOV@PRD@TOLL = LI.@PRD@TOLL * @PRD_TFAC(1,LI.TOLLGRP) ; SOV
TOLLS in 1980 cents
LW.HV2@PRD@TOLL = LI.@PRD@TOLL * @PRD_TFAC(2,LI.TOLLGRP) ; HOV 2
occ TOLLS in 1980 cents
LW.HV3@PRD@TOLL = LI.@PRD@TOLL * @PRD_TFAC(3,LI.TOLLGRP) ; HOV
3+occ TOLLS in 1980 cents
LW.TRK@PRD@TOLL = LI.@PRD@TOLL * @PRD_TFAC(4,LI.TOLLGRP) ; Truck
TOLLS in 1980 cents
LW.APX@PRD@TOLL = LI.@PRD@TOLL * @PRD_TFAC(5,LI.TOLLGRP) ; AP Pax
TOLLS in 1980 cents

; Define AM /OP Equivalent 'toll minutes' by vehicle type here:
LW.SOV@PRD@_tm = (LW.SOV@PRD@TOLL / 100.0) * SV@PRD@EQM ; SOV
Time(min) equiv. of toll value in 1980$
LW.HV2@PRD@_tm = (LW.HV2@PRD@TOLL / 100.0) * H2@PRD@EQM ; HOV 2 occ
Time(min) equiv. of toll value in 1980$
LW.HV3@PRD@_tm = (LW.HV3@PRD@TOLL / 100.0) * H3@PRD@EQM ; HOV 3+occ
Time(min) equiv. of toll value in 1980$
LW.TRK@PRD@_tm = (LW.TRK@PRD@TOLL / 100.0) * TK@PRD@EQM ; Truck
Time(min) equiv. of toll value in 1980$
LW.APX@PRD@_tm = (LW.APX@PRD@TOLL / 100.0) * AP@PRD@EQM ; APAX
Time(min) equiv. of toll value in 1980$

; Define AM /OP IMPEDANCE (HIGHWAY TIME + EQV.TIME) by vehicle type here:
LW.SOV@PRD@IMP = LW.SOV@PRD@_tm + LI.@PRD@HTIME ; SOV IMPEDANCE
LW.HV2@PRD@IMP = LW.HV2@PRD@_tm + LI.@PRD@HTIME ; HOV 2
IMPEDANCE
LW.HV3@PRD@IMP = LW.HV3@PRD@_tm + LI.@PRD@HTIME ; HOV 3+
IMPEDANCE
LW.TRK@PRD@IMP = LW.TRK@PRD@_tm + LI.@PRD@HTIME ; TRUCK
IMPEDANCE
LW.APX@PRD@IMP = LW.APX@PRD@_tm + LI.@PRD@HTIME ; APPAX
IMPEDANCE

; Limit Codes:
; 0/1 = No prohibitions
; 2 = prohibit 1/occ autos,trucks
; 3 = prohibit 1&2occ autos,trucks
; 4 = prohibit trucks
; 5 = prohibit non-airport trips (year 2000 and beyond)
; 6-8 = Unused
; 9 = prohibit all traffic use
;
;
; Define the three path types here:
;
IF (LI.@PRD@LIMIT = 2,3,5-9) ADDTOGROUP=1 ; SOV prohibited links

```

# Appendix A. Version 2.1 D Draft #50 Scripts

```

IF (LI.@PRD@LIMIT = 3,5-9) ADDTOGROUP=2 ; HOV2 prohibited links
IF (LI.@PRD@LIMIT = 5-9) ADDTOGROUP=3 ; HOV3+ prohibited links
;
ENDPHASE
;
; Specify path skimming Time, distance, & toll skims over minimum time paths
; Note that override values of 0 will be inserted for disconnected ijs
;
PHASE=ILOOP
PATHLOAD PATH=LW.SOV@PRD@IMP, EXCLUDEGRP=1, ; SOV paths
MW[1]=PATHTRACE(LI.@PRD@HTIME), NOACCESS=0, ; -excluding links
MW[2]=PATHTRACE(LI.DISTANCE), NOACCESS=0, ; w/ LIMIT=2,3,5-9
MW[3]=PATHTRACE(LI.@PRD@TOLL), NOACCESS=0 ;
;-----
; scaling, rounding of skim tables
;-----

mw[1] = ROUND(MW[1]) ; round time skims to whole min
mw[2] = Round(MW[2]*100) ; round distance skims to
; 100ths of mi
mw[3] = ROUND(MW[3]) ; round tolls to whole
; 1980 cents
;-----
; I will print selected rows of skim files
;-----

IF (i = 920) ; for select rows (Is)
; printrow MW=1-3, j=1-2191 ; print work matrices 1-3
; printrow MW=2 , j=741 ; print work matrices 1-3
ENDIF
ENDPHASE
ENDRUN

;-----
; Step 2: Park-&-Ride Access Data
;-----
;
; Next write out TAZ-to-PNR links based on skim times/distances
; for each time period
;
RUN PGM=MATRIX
MATI[1]=PP_@PRD@.SKM

LOOKUP NAME=TAZPNRLK,
LOOKUP[1] = 1, RESULT=2, ; pnr node 1
LOOKUP[2] = 1, RESULT=3, ; pnr node 2 (if any)
LOOKUP[3] = 1, RESULT=4, ; pnr node 3 (if any)
LOOKUP[4] = 1, RESULT=5, ; pnr node 4 (if any)
INTERPOLATE=N, FAIL=0,0,0, FILE=TAZPNR.LKP

ZDATI[1]=BASEZON.DAT, Z=1-5, XCRD = 7-14, YCRD = 15-22

MW[1] = mi.1.1 ; Time (min)
MW[2] = mi.1.2 ; Distance (1/100ths mi)

; calculate the i/j airline distance in miles MW[3] and
JLOOP
IF (XCRD[I] = 0 || XCRD[J] = 0)
MW[3] = 0
ELSE

```

```

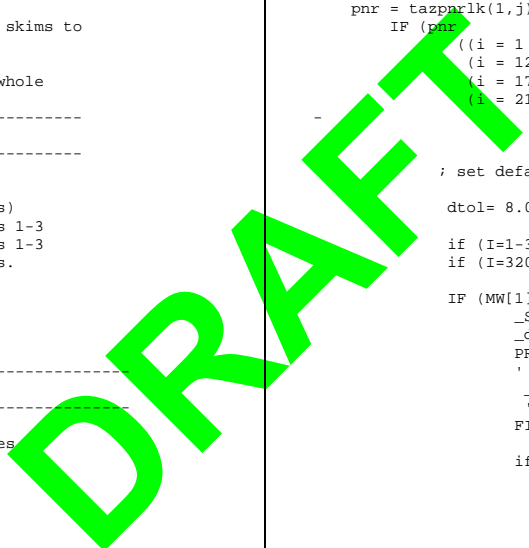
XCHGFT = XCRD[I] - XCRD[J]
YCHGFT = YCRD[I] - YCRD[J]
MW[3] = (SQRT((XCHGFT**2) + (YCHGFT**2))) / 5280.0
ENDIF
ENDJLOOP
; Insert 50% of lowest time/distance value into intrazonal cells
JLOOP
IF (J == I)
MW[1]=(0.50 * LOWEST(1,1,0.0001,99999.9))
MW[2]=(0.50 * LOWEST(2,1,0.0001,99999.9))
MW[3]=(0.50 * LOWEST(3,1,0.0001,99999.9))
ENDIF
ENDJLOOP

JLOOP
pnr = tazpnrk(1,j)
IF (pnr > 0 & ;---- Park-&-Ride Station ----
((i = 1 -1229 & j = 1 -1229) | ;---- DC/Maryland Internals ----
(i = 1230-2141 & j = 1230-2141) | ;---- Virginia Internals ----
(i = 1780-1919 & j = 1 -1229) | ;---- Loudoun to DC/Maryland ----
(i = 2135-2141 & j = 1 -1229)) ;---- Jefferson to DC/Maryland ---
-
; set default airline distance tolerances here:
dtol = 8.0 ; default distance limit to pnr stations is 9mi
; limit is shorter for more developed juris.
if (I=1-319,1230-1329,1330-1399) dtol=4.00; 4mi/dc,arl/alx
if (I=320-639,640-1029,1400-1779) dtol=5.00; 7mi/mtg,pg,ffx

IF (MW[1] > 0 & MW[3] > 0.0001 & MW[3] <= dtol) ;
_SPEED = ROUND (MW[2] / MW[1] * 0.60)
_dis00 = MW[2]
PRINT LIST='SUPPORT N=',i(4),'-',pnr(5),
'DIST=',_dis00(5),' ONEWAY=Y MODES=11 SPEED=',
_SPEED(3),' ; jtaz/pnr(1)= ',j(5),
'Airln Dist(mi): ',MW[3],
FILE=PNR_@PRD@.TB

if (tazpnrk(2,j) > 0)
pnr2 = tazpnrk(2,j)
PRINT LIST='SUPPORT N=',i(4),'-',pnr2(5),
'DIST=',_dis00(5),' ONEWAY=Y MODES=11 SPEED=',
_SPEED(3),' ; jtaz/pnr(2)= ',j(5),
'Airln Dist(mi): ',MW[3],
FILE=PNR_@PRD@.TB
endif
if (tazpnrk(3,j) > 0)
pnr3 = tazpnrk(3,j)
PRINT LIST='SUPPORT N=',i(4),'-',pnr3(5),
'DIST=',_dis00(5),' ONEWAY=Y MODES=11 SPEED=',
_SPEED(3),' ; jtaz/pnr(3)= ',j(5),
'Airln Dist(mi): ',MW[3],
FILE=PNR_@PRD@.TB
endif
if (tazpnrk(4,j) > 0)
pnr4 = tazpnrk(4,j)
PRINT LIST='SUPPORT N=',i(4),'-',pnr4(5),
'DIST=',_dis00(5),' ONEWAY=Y MODES=11 SPEED=',
_SPEED(3),' ; jtaz/pnr(4)= ',j(5),
'Airln Dist(mi): ',MW[3],
FILE=PNR_@PRD@.TB
endif
endif

```



```
        ENDIF
    ENDIF
ENDJLOOP
ENDRUN
ENDLOOP ;
```

**DRAFT**

set\_factors.s

```

-----
; Set_factors.s      8/13/04  Used in  cgv21d_46
;
; MWCOG Version 2.1D Model
; Set up time penalty & K-factor files used in Trip Distribution
; Income-based Time Penalty Files & Superzone-to-TAZ Equivalency File
;
; Input Files:
;
; HBWPEN.03=       HBW TIME PENALITES (Inc 1-4) 12x12 (ASCII)
; HBSPEN.03=       HBS TIME PENALITES (Inc 1-4) 12x12 (ASCII)
; HBOPEN.03=       HBO TIME PENALITES (Inc 1-4) 12x12 (ASCII)
; NHBPEN.03=       NHB TIME PENALITES          12x12 (ASCII)
;
; PENEXPND =       JURISV21.EQV'  TIME PENALTY ZONE-TO-TAZ
;                 EQUVALENCE FILE
;
; Output Files:
; HBWPEN.DAT=      HBW Time Penalties at 2191 zone level (Inc 1-4)
; HBSPEN.DAT=      HBS Time Penalties at 2191 zone level (Inc 1-4)
; HBOPEN.DAT=      HBO Time Penalties at 2191 zone level (Inc 1-4)
; NHBPEN.DAT=      NHB Time Penalties at 2191 zone level
;
; HBWK.DAT =       HBW           K-Factor Matrix 2191 zone level
; HBSK.DAT =       HBS           K-Factor Matrix 2191 zone leve
; HBOK.DAT =       HBO           K-Factor Matrix 2191 zone leve
; NHBK.DAT =       NHB           K-Factor Matrix 2191 zone leve
; MTKK.DAT =       Medium Truck K-Factor Matrix 2191 zone leve
; HTKK.DAT =       Heavy  Truck K-Factor Matrix 2191 zone leve
;
-----

;
; Time Penalty Files & Superzone-to-TAZ Equivalency File
; Non-work penalties were updated by JC
;
HBWPEN  = '..\support\HBWPEN.03' ; HBW TIME PENALITES (Inc 1-4)
HBSPEN  = '..\support\HBSPEN.03' ; HBS TIME PENALITES (Inc 1-4)
HBOPEN  = '..\support\HBOPEN.03' ; HBO TIME PENALITES (Inc 1-4)
NHBPEN  = '..\support\NHBPEN.03' ; NHB TIME PENALITES

PENEXPND = '..\support\JURISV21.EQV' ; TIME PENALTY ZONE-TO-TAZ
;             ; EQUVALENCE FILE
;
;
RUN PGM=MATRIX
ZONES=12

; Build Income stratified time penalties (min)
; at 12x12 superdistrict level.

MATI[1] = @HBWPEN@, PATTERN=IJM:V, FIELDS=1-5,6-10,11-15-4
MATI[2] = @HBSPEN@, PATTERN=IJM:V, FIELDS=1-5,6-10,11-15-4
MATI[3] = @HBOPEN@, PATTERN=IJM:V, FIELDS=1-5,6-10,11-15-4
MATI[4] = @NHBPEN@, PATTERN=IJM:V, FIELDS=1-5,6-10,11-15-1

; ESTABLISH WORK FILES FOR TIME PENALTIES
; HBW/INC 1-4       HBS/INC 1-4       HBO/INC 1-4       NHB
-----
MW[1] = MI.1.1,  MW[5] = MI.2.1,  MW[9] = MI.3.1,  MW[13] = MI.4.1
MW[2] = MI.1.2,  MW[6] = MI.2.2,  MW[10] = MI.3.2
MW[3] = MI.1.3,  MW[7] = MI.2.3,  MW[11] = MI.3.3
MW[4] = MI.1.4,  MW[8] = MI.2.4,  MW[12] = MI.3.4

; NOW, WRITE OUT THE 12X12 TIME PENATLY MATRICES

```

```

MATO[1] = PENALTY.TEM, MO= 1- 13;
ENDRUN

;
; -----
; NEXT, EXPAND TIME PENALTY MATRICES AT SUPERZONE LEVEL TO 2191 TAZ LEVEL

RUN PGM=MATRIX
ZONES=12
MATI[1] = PENALTY.TEM

; ESTABLISH WORK FILES FOR TIME PENALTIES
; HBW/INC 1-4       HBS/INC 1-4       HBO/INC 1-4       NHB
-----
MW[1] = MI.1.1,  MW[5] = MI.1.5,  MW[9] = MI.1.9,  MW[13] = MI.1.13
MW[2] = MI.1.2,  MW[6] = MI.1.6,  MW[10] = MI.1.10
MW[3] = MI.1.3,  MW[7] = MI.1.7,  MW[11] = MI.1.11
MW[4] = MI.1.4,  MW[8] = MI.1.8,  MW[12] = MI.1.12

RENUMBER FILE=@PENEXPND@, ZONES=2191, MISSINGZI=M, MISSINGZO=M

MATO[1] = HBWPEN.DAT, MO= 1- 4 ;
MATO[2] = HBSPEN.DAT, MO= 5- 8 ;
MATO[3] = HBOPEN.DAT, MO= 9-12 ;
MATO[4] = NHBPEN.DAT, MO= 13 ;

;
;
; ////////////////////////////////////////
; //          5) Begin K-Factor building, by trip purpose. //
; // K-Factors values below are scaled by 1000. //
; // (i.e., a value of 1000 below means K-Ftr of 1) //
; // The will be applied across income strata in trip //
; // distribution. //
; ///////////////////////////////////////////////////

RUN PGM=MATRIX
ZONES=2191
; Now Begin the K-Factor Establishment
; Initialize K-factor matrices for each purpose:

MW[1] = 1000.0 ; HBW           K-factor matrix
MW[2] = 1000.0 ; HBS           K-factor matrix
MW[3] = 1000.0 ; HBO           K-factor matrix
MW[4] = 1000.0 ; NHB           K-factor matrix
MW[5] = 1000.0 ; Med Truck K-factor matrix
MW[6] = 1000.0 ; Hvy Truck K-factor matrix

; Establish Output Files for each purpose:

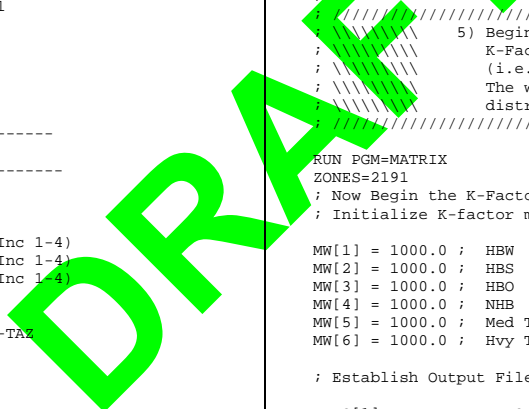
MATO[1] = HBWK.DAT ,MO=1
MATO[2] = HBSK.DAT ,MO=2
MATO[3] = HBOK.DAT ,MO=3
MATO[4] = NHBK.DAT ,MO=4
MATO[5] = MTKK.DAT ,MO=5
MATO[6] = HTKK.DAT ,MO=6

;
; -----
; |----- Start of K-Factor Specifications for All Purposes -----|
; |-----|

; Specify HBW K-Factors / MW[1] here:

IF      ( I =      1-      88)
      MW[1] = 2000,  INCLUDE=      1-      88 ; dc cr - dc cr
      MW[1] = 2200,  INCLUDE=      89-     319 ; dc cr - dcncr
ELSEIF  ( I =      89-     319)

```



Appendix A. Version 2.1 D Draft #50 Scripts

```

MW[1] = 1800, INCLUDE= 1- 88 ; dcncr - dc cr
MW[1] = 1000, INCLUDE= 89- 319 ; dcncr - dcncr
MW[1] = 1000, INCLUDE= 2145- 2191 ; dcncr - extls
ELSEIF (I = 320- 627)
MW[1] = 2000, INCLUDE= 1- 88 ; mtg- dc cr
MW[1] = 1700, INCLUDE= 89- 319 ; mtg- dcncr
MW[1] = 2000, INCLUDE= 320- 627 ; mtg- mtg
MW[1] = 500, INCLUDE= 1080- 1099 ; mtg- how
MW[1] = 200, INCLUDE= 1110- 1142 ; mtg- aar
ELSEIF (I = 640- 1020)
MW[1] = 1400, INCLUDE= 1- 88 ; pg - dc cr
MW[1] = 1400, INCLUDE= 89- 319 ; pg - dcncr
MW[1] = 1000, INCLUDE= 320- 627 ; pg - mtg
MW[1] = 1500, INCLUDE= 640- 1020 ; pg - pg
MW[1] = 500, INCLUDE= 1080- 1099 ; pg - how
MW[1] = 500, INCLUDE= 1110- 1142 ; pg - aar
MW[1] = 1000, INCLUDE= 2145- 2191 ; pg - ext
ELSEIF (I = 1230- 1238)
MW[1] = 2500, INCLUDE= 1- 88 ; arl cr- dc cr
MW[1] = 1800, INCLUDE= 89- 319 ; arl cr- dcncr
ELSEIF (I = 1239- 1311)
MW[1] = 2400, INCLUDE= 1- 88 ; arlnrcr- dc cr
ELSEIF (I = 1330- 1389)
MW[1] = 1900, INCLUDE= 1- 88 ; alx - dc cr
ELSEIF (I = 1080- 1099)
MW[1] = 2200, INCLUDE= 640- 1020 ; how- pg
MW[1] = 2500, INCLUDE= 2175- 2190 ; how- extls(balt)
ELSEIF (I = 1110- 1142)
MW[1] = 500, INCLUDE= 1110- 1142 ; aa- aa
ELSEIF (I = 1400- 1755)
MW[1] = 2200, INCLUDE= 1- 88 ; ffx- dccr
MW[1] = 1300, INCLUDE= 89- 319 ; ffx- dcncr
MW[1] = 900, INCLUDE= 1400- 1755 ; ffx- ffx
MW[1] = 1300, INCLUDE= 1239- 1311 ; ffx- arlnrcr
ELSEIF (I = 1920- 2061)
MW[1] = 2800, INCLUDE= 1- 88 ; pw - dccr
ELSEIF (I = 1030- 1053)
MW[1] = 200, INCLUDE= 1110- 1142 ; frd - aa
MW[1] = 200, INCLUDE= 1080- 1099 ; frd - how
ELSEIF (I = 1200-1229)
MW[1] = 2200, INCLUDE= 1- 88 ; chs - dc cr
MW[1] = 2000, INCLUDE= 640- 1020 ; chs - pg
ENDIF

; Specify HBS K-Factors / MW[2] here:
IF (I = 89- 319)
MW[2] = 1000, INCLUDE= 89- 319 ; dcncr - dcncr
MW[2] = 1000, INCLUDE= 1- 88 ; dcncr - dc cr
MW[2] = 2000, INCLUDE= 320- 627 ; dcncr - mtg
ELSEIF (I = 320- 627)
MW[2] = 2800, INCLUDE= 320- 627 ; mtg- mtg
ELSEIF (I = 640- 1020)
MW[2] = 1000, INCLUDE= 320- 627 ; pg - mtg
MW[2] = 1700, INCLUDE= 640- 1020 ; pg - pg
ELSEIF (I = 1239- 1311)
MW[2] = 2600, INCLUDE= 1239- 1311 ; arlnrcr- arlnrcr
ELSEIF (I = 1330- 1389)
MW[2] = 2300, INCLUDE= 1330- 1389 ; alx - alx
ELSEIF (I = 1400- 1755)
MW[2] = 1000, INCLUDE= 1400- 1755 ; ffx - ffx
ELSEIF (I = 1030- 1053) ; added
MW[2] = 2800, INCLUDE= 1030- 1053 ; frd - frd ** ; 3/12/02
ELSEIF (I = 1200- 1223) ;
MW[2] = 2500, INCLUDE= 1200- 1223 ; chs - chs ** ;
ELSEIF (I = 1060- 1079) ;
MW[2] = 500, INCLUDE= 1060- 1079 ; car - car
ENDIF

```

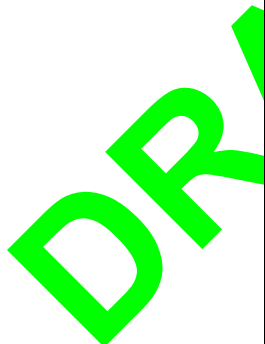
```

; Specify HBO K-Factors / MW[3] here:
IF (I = 89- 319)
MW[3] = 1000, INCLUDE= 1- 88 ; dcncr - dc cr
MW[3] = 1000, INCLUDE= 89- 319 ; dcncr - dcncr
MW[3] = 1000, INCLUDE= 1400- 1755 ; dcncr - ffx
ELSEIF (I = 320- 627)
MW[3] = 2000, INCLUDE= 1- 88 ; mtg -dc cr
MW[3] = 2000, INCLUDE= 320- 627 ; mtg- mtg
MW[3] = 1000, INCLUDE= 1080- 1099 ; mtg- how
ELSEIF (I = 640- 1020)
MW[3] = 1800, INCLUDE= 1- 88 ; pg -dc cr
MW[3] = 1000, INCLUDE= 320- 627 ; pg - mtg
MW[3] = 1900, INCLUDE= 640- 1020 ; pg - pg
ELSEIF (I = 1080- 1099)
MW[3] = 1000, INCLUDE= 320- 627 ; how - mtg
ELSEIF (I = 1110- 1142)
MW[3] = 1800, INCLUDE= 1110- 1142 ; aa - aa
MW[3] = 0700, INCLUDE= 640- 1020 ; aa - pg
ELSEIF (I = 1239- 1311)
MW[3] = 1000, INCLUDE= 1239- 1311 ; arlnrcr- arlnrcr
ELSEIF (I = 1330- 1389)
MW[3] = 1600, INCLUDE= 1330- 1389 ; alx - alx
ELSEIF (I = 1400- 1755)
MW[3] = 1600, INCLUDE= 1- 88 ; ffx - dc cr
MW[3] = 1000, INCLUDE= 1400- 1755 ; ffx - ffx
ELSEIF (I = 1030- 1053) ; added
MW[3] = 2500, INCLUDE= 1030- 1053 ; frd - frd ** ; 3/12/02
ELSEIF (I = 1200- 1223) ;
MW[3] = 2400, INCLUDE= 1200- 1223 ; chs - chs ** ;
ENDIF

; Specify NHB K-Factors / MW[4] here:
IF (I = 320- 627)
MW[4] = 1900, INCLUDE= 320- 627 ; mtg- mtg
MW[4] = 0200, INCLUDE= 1080- 1099 ; mtg- how
ELSEIF (I = 640- 1020)
MW[4] = 1000, INCLUDE= 320- 627 ; pg - mtg
MW[4] = 1900, INCLUDE= 640- 1020 ; pg - pg
MW[4] = 0300, INCLUDE= 1110- 1142 ; pg - aa
ELSEIF (I = 1239- 1311)
MW[4] = 1000, INCLUDE= 1239- 1311 ; arlnrcr- arlnrcr
ELSEIF (I = 1330- 1389)
MW[4] = 1700, INCLUDE= 1330- 1389 ; alx - alx
ELSEIF (I = 1400- 1755)
MW[4] = 1000, INCLUDE= 1400- 1755 ; ffx - ffx
ELSEIF (I = 1030- 1053) ; added
MW[4] = 1000, INCLUDE= 1030- 1053 ; frd - frd ** ; 3/12/02
ELSEIF (I = 1200- 1223) ;
MW[4] = 1000, INCLUDE= 1200- 1223 ; chs - chs ** ;
ENDIF

; Specify Medium Truck K-Factors / MW[5] here:
IF (I = 0320- 0505,0510-0582,0585-0593) MW[5] =01300, INCLUDE= 0320-0505
IF (I = 0320- 0505,0510-0582,0585-0593) MW[5] =01300, INCLUDE= 0510-0582
IF (I = 0320- 0505,0510-0582,0585-0593) MW[5] =01300, INCLUDE= 0585-0593
IF (I = 0640- 0996) MW[5] =02200, INCLUDE= 0640-0996
IF (I = 1230- 1311) MW[5] =01800, INCLUDE= 1230-1311
IF (I = 1330- 1389) MW[5] =02400, INCLUDE= 1330-1389
IF (I = 1400- 1755) MW[5] =01900, INCLUDE= 1400-1755
IF (I = 1780- 1780,1781-1905) MW[5] =01600, INCLUDE= 1780,1781-1905

```



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```
IF (I = 1920- 2061) MW[5] =01800, INCLUDE= 1920-2061
IF (I = 0001- 0088) MW[5] =02600, INCLUDE= 0001-0088
IF (I = 0089- 0319) MW[5] =02100, INCLUDE= 0089-0319
IF (I =1825- 1898,1900-1905) MW[5] =02000, INCLUDE= 1825-1898,1900-1905
IF (I = 0089- 0101) MW[5] =01900, INCLUDE= 0089-0101
IF (I = 0102- 0113) MW[5] =01900, INCLUDE= 0102-0113
IF (I = 0114- 0122) MW[5] =01900, INCLUDE= 0114-0122
IF (I = 0123- 0132) MW[5] =01900, INCLUDE= 0123-0132
IF (I = 0133- 0142) MW[5] =01900, INCLUDE= 0133-0142
IF (I = 0143- 0148) MW[5] =01900, INCLUDE= 0143-0148
IF (I = 0149- 0161) MW[5] =01900, INCLUDE= 0149-0161
IF (I = 0162- 0171) MW[5] =01900, INCLUDE= 0162-0171
IF (I = 0172- 0182) MW[5] =01900, INCLUDE= 0172-0182
IF (I = 0183- 0193) MW[5] =01900, INCLUDE= 0183-0193
IF (I = 0194- 0202) MW[5] =03500, INCLUDE= 0194-0202
IF (I = 0203- 0207) MW[5] =03500, INCLUDE= 0203-0207
IF (I = 0208- 0224) MW[5] =03500, INCLUDE= 0208-0224
IF (I = 0225- 0245) MW[5] =03500, INCLUDE= 0225-0245
IF (I = 0246- 0262) MW[5] =03500, INCLUDE= 0246-0262
IF (I = 0263- 0269) MW[5] =03500, INCLUDE= 0263-0269
IF (I = 0270- 0281) MW[5] =03500, INCLUDE= 0270-0281
IF (I = 0282- 0291) MW[5] =03500, INCLUDE= 0282-0291
IF (I = 0292- 0299) MW[5] =03500, INCLUDE= 0292-0299
IF (I = 0300- 0312) MW[5] =03500, INCLUDE= 0300-0312
IF (I = 0313- 0319) MW[5] =03500, INCLUDE= 0313-0319
IF (I = 0001- 0006) MW[5] =03500, INCLUDE= 0001-0006
IF (I = 0007- 0012) MW[5] =03500, INCLUDE= 0007-0012
IF (I = 0013- 0018) MW[5] =03500, INCLUDE= 0013-0018
IF (I = 0019- 0023) MW[5] =03500, INCLUDE= 0019-0023
IF (I = 0024- 0029) MW[5] =03500, INCLUDE= 0024-0029
IF (I = 0030- 0035) MW[5] =03500, INCLUDE= 0030-0035
IF (I = 0036- 0045) MW[5] =03500, INCLUDE= 0036-0045
IF (I = 0046- 0049) MW[5] =03500, INCLUDE= 0046-0049
IF (I = 0050- 0054) MW[5] =03500, INCLUDE= 0050-0054
IF (I = 0055- 0058) MW[5] =03500, INCLUDE= 0055-0058
IF (I = 0059- 0067) MW[5] =03500, INCLUDE= 0059-0067
IF (I = 0068- 0071) MW[5] =03500, INCLUDE= 0068-0071
IF (I = 0072- 0081) MW[5] =03500, INCLUDE= 0072-0081
IF (I = 0082- 0088) MW[5] =03500, INCLUDE= 0082-0088
IF (I =1230- 1311,1330-1389,1400-1755) MW[5] =00400, INCLUDE= 0001-0319
IF (I =1780- 1905,1920-2061) MW[5] =00400, INCLUDE= 0001-0319
IF (I = 0089- 0319) MW[5] =01900, INCLUDE= 0001-0088
IF (I = 1030- 1053) MW[5] =06600, INCLUDE= 1030-1053
IF (I = 1200- 1223) MW[5] =05000, INCLUDE= 1200-1223
IF (I = 1110- 1142) MW[5] =05700, INCLUDE= 1110-1142
IF (I = 1780- 1780) MW[5] =00001, INCLUDE= 1780
IF (I = 0828- 0833) MW[5] =00001, INCLUDE= 0828-0833
IF (I = 1080- 1099) MW[5] =02900, INCLUDE= 1080-1099
IF (I = 1030- 1053) MW[5] =00200, INCLUDE=0320-0505,0510-0582,0585-0593
IF (I = 1030- 1053) MW[5] =00200, INCLUDE=0594-0627,0583-0584,0506-0509
IF (I =0320- 0505,0510-0582,0585-0593) MW[5] =00300, INCLUDE= 1030-1053
IF (I =0594- 0627,0583-0584,0506-0509) MW[5] =00300, INCLUDE= 1030-1053
IF (I = 1080- 1099) MW[5] =02500, INCLUDE=1230-1311,1330-1389
IF (I = 1080- 1099) MW[5] =02500, INCLUDE=1400-1755,1780-1905,1920-2061
IF (I =1230- 1311,1330-1389) MW[5] =02000, INCLUDE= 1080-1099
IF (I =1400- 1755,1780-1905,1920-2061) MW[5] =02000, INCLUDE= 1080-1099
IF (I = 1110- 1142) MW[5] =00500, INCLUDE=0001-0319
IF (I = 0001- 0319) MW[5] =00500, INCLUDE= 1110-1142
IF (I = 1200- 1223) MW[5] =02100, INCLUDE= 0001-0319
IF (I = 1200- 1223) MW[5] =02200, INCLUDE=1230-1311,1330-1389
IF (I = 1200- 1223) MW[5] =02200, INCLUDE=1400-1755,1780-1905,1920-2061
IF (I = 1080- 1099) MW[5] =01700, INCLUDE= 0001-0319
IF (I = 0640- 0996) MW[5] =00700, INCLUDE= 1200-1223
IF (I =0320- 0505,0510-0582,0585-0593) MW[5] =02500, INCLUDE= 1200-1223
IF (I =0594- 0627,0583-0584,0506-0509) MW[5] =02500, INCLUDE= 1200-1223
IF (I =0320- 0505,0510-0582,0585-0593) MW[5] =01500, INCLUDE= 1110-1142
IF (I =0594- 0627,0583-0584,0506-0509) MW[5] =01500, INCLUDE= 1110-1142
IF (I = 1110- 1142) MW[5] =01400, INCLUDE=0320-0505,0510-0582,0585-0593
```

```
IF (I = 1110- 1142) MW[5] =01400, INCLUDE=0594-0627,0583-0584,0506-0509
; Specify Heavy Truck K-Factors / MW[6] here:
IF (I =0320- 0505,0510-0582,0585-0593) MW[6] =02000, INCLUDE= 0320-0505
IF (I =0320- 0505,0510-0582,0585-0593) MW[6] =02000, INCLUDE= 0510-0582
IF (I =0320- 0505,0510-0582,0585-0593) MW[6] =02000, INCLUDE= 0585-0593
IF (I = 0640- 0996) MW[6] =01500, INCLUDE= 0640-0996
IF (I = 1230- 1311) MW[6] =01600, INCLUDE= 1230-1311
IF (I =1306- 1311,1330-1389) MW[6] =01300, INCLUDE= 1306-1311,1330-1389
IF (I = 1400- 1755) MW[6] =01600, INCLUDE= 1400-1755
IF (I =1780- 1780,1781-1905) MW[6] =02000, INCLUDE= 1780,1781-1905
IF (I = 1920- 2061) MW[6] =01300, INCLUDE= 1920-2061
IF (I = 0001- 0088) MW[6] =01500, INCLUDE= 0001-0088
IF (I = 0089- 0319) MW[6] =02300, INCLUDE= 0089-0319
IF (I = 0828- 0833) MW[6] =00001, INCLUDE= 0828-0833
IF (I =1230- 1311,1330-1389) MW[6] =00400, INCLUDE= 0001-0319
IF (I =1400- 1755,1780-1905,1920-2061) MW[6] =00400, INCLUDE= 0001-0319
IF (I = 0089- 0319) MW[6] =01900, INCLUDE= 0001-0088
IF (I =1825- 1898,1900-1905) MW[6] =01000, INCLUDE= 1035,1045
IF (I =1825- 1898,1900-1905) MW[6] =01000, INCLUDE= 1047
IF (I = 1780- 1780) MW[6] =00001, INCLUDE= 1780
IF (I =1825- 1898,1900-1905) MW[6] =02000, INCLUDE= 1825-1898,1900-1905
IF (I = 1030- 1053) MW[6] =03800, INCLUDE= 1030-1053
IF (I = 1200- 1223) MW[6] =01200, INCLUDE= 1200-1223
IF (I = 1110- 1142) MW[6] =02500, INCLUDE= 1110-1142
IF (I = 1080- 1099) MW[6] =01300, INCLUDE= 1080-1099
IF (I =1080- 1099,0997-1007) MW[6] =02500, INCLUDE= 1230-1311,1330-1389
IF (I =1080- 1099,0997-1007) MW[6] =02500, INCLUDE= 1400-1755,1780-1905
IF (I =1080- 1099,0997-1007) MW[6] =02500, INCLUDE= 1920-2061
IF (I =1230- 1311,1330-1389) MW[6] =02000, INCLUDE= 1080-1099
IF (I =1400- 1755,1780-1905,1920-2061) MW[6] =02000, INCLUDE= 1080-1099
IF (I = 1200- 1223) MW[6] =01200, INCLUDE= 0001-0319
IF (I = 1200- 1223) MW[6] =01200, INCLUDE= 1230-1311,1330-1389
IF (I = 1200- 1223) MW[6] =01200, INCLUDE= 1400-1755,1780-1905,1920-2061
IF (I =0640- 0996,1230-1230) MW[6] =00700, INCLUDE= 1200-1223
IF (I =0320- 0505,0510-0582,0585-0593) MW[6] =07000, INCLUDE= 1200-1223
IF (I =0594- 0627,0583-0584,0506-0509) MW[6] =05000, INCLUDE= 1200-1223
IF (I = 1200- 1223) MW[6] =01500, INCLUDE= 0640-0996
IF (I =1230- 1311,1330-1389) MW[6] =02000, INCLUDE= 1200-1223
IF (I =1400- 1755,1780-1905,1920-2061) MW[6] =02000, INCLUDE= 1200-1223
```

```
; |////////////////////////////////////////////////////////////////|
; |///// End of K-Factor Specifications for All Purposes |////|
; |////////////////////////////////////////////////////////////////|
```

endrun

## Time-of-Day.s

```
*del wcog*.PRN
; =====
; Time-of-Day.s
; MWCOCG Version 2 Model
;
;
; Distribute Modeled Pump Prime Auto Driver Trips, i.e.,
; 4 Purposes (HBW,HBS,HBO,NHB), 3 Modes (1,2,3+Occ Adrs)
; among three time periods:
; - AM peak (6:00 - 9:00 AM)
; - PM peak (4:00 - 7:00 PM)
; - Off-peak (All Other hrs )
; A card image file named: 'V2TODTPP.PAR' is used.
; It contains trip percentages
; for each time period by purpose, mode, and direction.
;
; Environment Variable:
;   _iter_ (Iteration indicator = 'pp','il','-i6')
; =====
;
; Input/Output filenames:
;
; READ FILE=..\support\V2TODTPP.PAR ; Time of Day Factor File //
;
; I/P PP Auto Driver Trip Tables:
; HBWADR = 'HBW%_iter%.ADR' ; HBW 1,2,3+ Occ Adr Trips (t1-3) //
; HBSADR = 'HBS%_iter%.ADR' ; HBS 1,2,3+ Occ Adr Trips (t1-3) //
; HBOADR = 'HBO%_iter%.ADR' ; HBO 1,2,3+ Occ Adr Trips (t1-3) //
; NHBADR = 'NHB%_iter%.ADR' ; NHB 1,2,3+ Occ Adr Trips (t1-3) //
;
; O/P Auto Dr. Pct. tables:
; ADRAM = 'AM%_iter%.ADR' ; AM Modeled Total Auto Drivers //
; AD RPM = 'PM%_iter%.ADR' ; PM Modeled Total Auto Drivers //
; ADROP = 'OP%_iter%.ADR' ; Off-Pk Modeled Total Auto Drivers //
;
; =====
;
; RUN PGM=MATRIX
; MATI[1]=@HBWADR@ ; HBW 1,2,3+-Occ. Auto Drv. Trips(T1-3)
; MATI[2]=@HBSADR@ ; HBS 1,2,3+-Occ. Auto Drv. Trips(T1-3)
; MATI[3]=@HBOADR@ ; HBO 1,2,3+-Occ. Auto Drv. Trips(T1-3)
; MATI[4]=@NHBADR@ ; NHB 1,2,3+-Occ. Auto Drv. Trips(T1-3)
;
; Put HBW 1-Occ,2-Occ, 3+ Occ Adrs in tabs 1- 3, respectively
; Put HBS 1-Occ,2-Occ, 3+ Occ Adrs in tabs 4- 6, respectively
; Put HBO 1-Occ,2-Occ, 3+ Occ Adrs in tabs 7- 9, respectively
; Put NHB 1-Occ,2-Occ, 3+ Occ Adrs in tabs 10-12, respectively
; These are in P/A format and represent the Home-to-NonHome direction
;
; FILLMW MW[1] = MI.1.1, MI.1.2, MI.1.3 ; Work 1,2,3+ Occ Adrs P/A
; FILLMW MW[4] = MI.2.1, MI.2.2, MI.2.3 ; Shop 1,2,3+ Occ Adrs P/A
; FILLMW MW[7] = MI.3.1, MI.3.2, MI.3.3 ; Othr 1,2,3+ Occ Adrs P/A
; FILLMW MW[10] = MI.4.1, MI.4.2, MI.4.3 ; NHB 1,2,3+ Occ Adrs P/A
;
; Put Transpose of the above
; HBW, HBS, HBO, and NHB trip tables in Work Mats 21-32
; The transpose represents the NonHome-to-Home direction
;
; MW[21]=MI.1.1.T, MW[22]=MI.1.2.T, MW[23]=MI.1.3.T; HBW 1,2,3+ Occ Adrs A/P
; MW[24]=MI.2.1.T, MW[25]=MI.2.2.T, MW[26]=MI.2.3.T; HBS 1,2,3+ Occ Adrs A/P
```

```
MW[27]=MI.3.1.T, MW[28]=MI.3.2.T, MW[29]=MI.3.3.T; HBO 1,2,3+ Occ Adrs A/P
MW[30]=MI.4.1.T, MW[31]=MI.4.2.T, MW[32]=MI.4.3.T; NHB 1,2,3+ Occ Adrs A/P
;
; Now we're ready to apply apply TOD factors
;
; JLOOP
;
; =====
; AM Trip Calculations
;
; AM Peak Period Auto Driver Trips
; HBW:
; MW[40]=(( MW[1]*(@AMWDAHNP@/100.0))+ (MW[21]*(@AMWDANHP@/100.0)))/2.0;1occ
; MW[41]=(( MW[2]*(@AMWCPHNP@/100.0))+ (MW[22]*(@AMWCPNHP@/100.0)))/2.0;2occ
; MW[42]=(( MW[3]*(@AMWCPHNP@/100.0))+ (MW[23]*(@AMWCPNHP@/100.0)))/2.0;3+oc
; HBS:
; MW[45]=(( MW[4]*(@AMSDAHNP@/100.0))+ (MW[24]*(@AMSDANHP@/100.0)))/2.0;1occ
; MW[46]=(( MW[5]*(@AMSCP HNP@/100.0))+ (MW[25]*(@AMSCP NHP@/100.0)))/2.0;2occ
; MW[47]=(( MW[6]*(@AMSCP HNP@/100.0))+ (MW[26]*(@AMSCP NHP@/100.0)))/2.0;3+oc
; HBO:
; MW[50]=(( MW[7]*(@AMODAHNP@/100.0))+ (MW[27]*(@AMODANHP@/100.0)))/2.0;1occ
; MW[51]=(( MW[8]*(@AMOCPHNP@/100.0))+ (MW[28]*(@AMOCPNHP@/100.0)))/2.0;2occ
; MW[52]=(( MW[9]*(@AMOCPHNP@/100.0))+ (MW[29]*(@AMOCPNHP@/100.0)))/2.0;3+oc
; NHB:
; MW[55]=(( MW[10]*(@AMNDAHNP@/100.0))+ (MW[30]*(@AMNDANHP@/100.0)))/2.0;1occ
; MW[56]=(( MW[11]*(@AMNCPHNP@/100.0))+ (MW[31]*(@AMNCPNHP@/100.0)))/2.0;2occ
; MW[57]=(( MW[12]*(@AMNCPHNP@/100.0))+ (MW[32]*(@AMNCPNHP@/100.0)))/2.0;3+oc
;
; =====
; PM Trip Calculations
;
; PM Peak Period Auto Driver Trips
; HBW:
; MW[60]=(( MW[1]*(@PMWDAHNP@/100.0))+ (MW[21]*(@PMWDANHP@/100.0)))/2.0;1occ
; MW[61]=(( MW[2]*(@PMWCPHNP@/100.0))+ (MW[22]*(@PMWCPNHP@/100.0)))/2.0;2occ
; MW[62]=(( MW[3]*(@PMWCPHNP@/100.0))+ (MW[23]*(@PMWCPNHP@/100.0)))/2.0;3+oc
; HBS:
; MW[65]=(( MW[4]*(@PMSDAHNP@/100.0))+ (MW[24]*(@PMSDANHP@/100.0)))/2.0;1occ
; MW[66]=(( MW[5]*(@PMSCP HNP@/100.0))+ (MW[25]*(@PMSCP NHP@/100.0)))/2.0;2occ
; MW[67]=(( MW[6]*(@PMSCP HNP@/100.0))+ (MW[26]*(@PMSCP NHP@/100.0)))/2.0;3+oc
; HBO:
; MW[70]=(( MW[7]*(@PMODAHNP@/100.0))+ (MW[27]*(@PMODANHP@/100.0)))/2.0;1occ
; MW[71]=(( MW[8]*(@PMOCPHNP@/100.0))+ (MW[28]*(@PMOCPNHP@/100.0)))/2.0;2occ
; MW[72]=(( MW[9]*(@PMOCPHNP@/100.0))+ (MW[29]*(@PMOCPNHP@/100.0)))/2.0;3+oc
; NHB:
; MW[75]=(( MW[10]*(@PMNDAHNP@/100.0))+ (MW[30]*(@PMNDANHP@/100.0)))/2.0;1occ
; MW[76]=(( MW[11]*(@PMNCPHNP@/100.0))+ (MW[31]*(@PMNCPNHP@/100.0)))/2.0;2occ
; MW[77]=(( MW[12]*(@PMNCPHNP@/100.0))+ (MW[32]*(@PMNCPNHP@/100.0)))/2.0;3+oc
;
; =====
; Off-Pk Trip Calculations
;
; Off-Peak Period Auto Driver Trips
; HBW:
; MW[80]=(( MW[1]*(@OPWDAHNP@/100.0))+ (MW[21]*(@OPWDANHP@/100.0)))/2.0;1occ
; MW[81]=(( MW[2]*(@OPWCPHNP@/100.0))+ (MW[22]*(@OPWCPNHP@/100.0)))/2.0;2occ
; MW[82]=(( MW[3]*(@OPWCPHNP@/100.0))+ (MW[23]*(@OPWCPNHP@/100.0)))/2.0;3+oc
; HBS:
; MW[85]=(( MW[4]*(@OPSDAHNP@/100.0))+ (MW[24]*(@OPSDANHP@/100.0)))/2.0;1occ
; MW[86]=(( MW[5]*(@OPSCP HNP@/100.0))+ (MW[25]*(@OPSCP NHP@/100.0)))/2.0;2occ
; MW[87]=(( MW[6]*(@OPSCP HNP@/100.0))+ (MW[26]*(@OPSCP NHP@/100.0)))/2.0;3+oc
; HBO:
```



# Appendix A. Version 2.1 D Draft #50 Scripts

```

MW[90]=(( MW[7]*(@OPDAHNP@/100.0))+MW[27]*(@OPDANHP@/100.0))/2.0;loc
MW[91]=(( MW[8]*(@OPOCPHNP@/100.0))+MW[28]*(@OPOCPNHP@/100.0))/2.0;2occ
MW[92]=(( MW[9]*(@OPOCPHNP@/100.0))+MW[29]*(@OPOCPNHP@/100.0))/2.0;3occ
; NHB:
MW[95]=((MW[10]*(@OPDAHNP@/100.0))+MW[30]*(@OPDANHP@/100.0))/2.0;1occ
MW[96]=((MW[11]*(@OPNCPHNP@/100.0))+MW[31]*(@OPNCPNHP@/100.0))/2.0;2occ
MW[97]=((MW[12]*(@OPNCPHNP@/100.0))+MW[32]*(@OPNCPNHP@/100.0))/2.0;3occ
;
ENDJLOOP

; bucket round

DUMMY = ROWFIX(40) ; FINAL AM hbw 1-OCC Adr Trips
DUMMY = ROWFIX(41) ; 2-OCC Adr Trips
DUMMY = ROWFIX(42) ; 3+OCC Adr Trips
DUMMY = ROWFIX(45) ; FINAL AM hbs 1-OCC Adr Trips
DUMMY = ROWFIX(46) ; 2-OCC Adr Trips
DUMMY = ROWFIX(47) ; 3+OCC Adr Trips
DUMMY = ROWFIX(50) ; FINAL AM hbo 1-OCC Adr Trips
DUMMY = ROWFIX(51) ; 2-OCC Adr Trips
DUMMY = ROWFIX(52) ; 3+OCC Adr Trips
DUMMY = ROWFIX(55) ; FINAL AM nhb 1-OCC Adr Trips
DUMMY = ROWFIX(56) ; 2-OCC Adr Trips
DUMMY = ROWFIX(57) ; 3+OCC Adr Trips

DUMMY = ROWFIX(60) ; FINAL PM hbw 1-OCC Adr Trips
DUMMY = ROWFIX(61) ; 2-OCC Adr Trips
DUMMY = ROWFIX(62) ; 3+OCC Adr Trips
DUMMY = ROWFIX(65) ; FINAL PM hbs 1-OCC Adr Trips
DUMMY = ROWFIX(66) ; 2-OCC Adr Trips
DUMMY = ROWFIX(67) ; 3+OCC Adr Trips
DUMMY = ROWFIX(70) ; FINAL PM hbo 1-OCC Adr Trips
DUMMY = ROWFIX(71) ; 2-OCC Adr Trips
DUMMY = ROWFIX(72) ; 3+OCC Adr Trips
DUMMY = ROWFIX(75) ; FINAL PM nhb 1-OCC Adr Trips
DUMMY = ROWFIX(76) ; 2-OCC Adr Trips
DUMMY = ROWFIX(77) ; 3+OCC Adr Trips

DUMMY = ROWFIX(80) ; FINAL OP hbw 1-OCC Adr Trips
DUMMY = ROWFIX(81) ; 2-OCC Adr Trips
DUMMY = ROWFIX(82) ; 3+OCC Adr Trips
DUMMY = ROWFIX(85) ; FINAL OP hbs 1-OCC Adr Trips
DUMMY = ROWFIX(86) ; 2-OCC Adr Trips
DUMMY = ROWFIX(87) ; 3+OCC Adr Trips
DUMMY = ROWFIX(90) ; FINAL OP hbo 1-OCC Adr Trips
DUMMY = ROWFIX(91) ; 2-OCC Adr Trips
DUMMY = ROWFIX(92) ; 3+OCC Adr Trips
DUMMY = ROWFIX(95) ; FINAL OP nhb 1-OCC Adr Trips
DUMMY = ROWFIX(96) ; 2-OCC Adr Trips
DUMMY = ROWFIX(97) ; 3+OCC Adr Trips

;-----
; Summarize by purpose for checking;
; Total HBW:
MW[100]= MW[40]+MW[41]+MW[42]+MW[60]+MW[61]+MW[62]+MW[80]+MW[81]+MW[82]
; Total HBS:
MW[101]= MW[45]+MW[46]+MW[47]+MW[65]+MW[66]+MW[67]+MW[85]+MW[86]+MW[87]
; Total HBW:
MW[102]= MW[50]+MW[51]+MW[52]+MW[70]+MW[71]+MW[72]+MW[90]+MW[91]+MW[92]
; Total HBS:
MW[103]= MW[55]+MW[56]+MW[57]+MW[75]+MW[76]+MW[77]+MW[95]+MW[96]+MW[97]

;-----
; Summarize by Time period, Occ Group for Assignment
;
MW[110]= MW[40]+MW[45]+MW[50]+MW[55] ; AM 1-Occ adrs
MW[111]= MW[41]+MW[46]+MW[51]+MW[56] ; AM 2-Occ adrs
MW[112]= MW[42]+MW[47]+MW[52]+MW[57] ; AM 3+Occ adrs

```

```

;
MW[113]= MW[60]+MW[65]+MW[70]+MW[75] ; PM 1-Occ adrs
MW[114]= MW[61]+MW[66]+MW[71]+MW[76] ; PM 2-Occ adrs
MW[115]= MW[62]+MW[67]+MW[72]+MW[77] ; PM 3+Occ adrs
;
MW[116]= MW[80]+MW[85]+MW[90]+MW[95] ; OP 1-Occ adrs
MW[117]= MW[81]+MW[86]+MW[91]+MW[96] ; OP 2-Occ adrs
MW[118]= MW[82]+MW[87]+MW[92]+MW[97] ; OP 3+Occ adrs

; Now summarize regional totals to summarize neatly
Jloop
; am hbw, hbs, hbo, nhb by occupant totals:
amhbw1=amhbw1+MW[40], amhbw2=amhbw2+MW[41], amhbw3=amhbw3+MW[42]
amhbs1=amhbs1+MW[45], amhbs2=amhbs2+MW[46], amhbs3=amhbs3+MW[47]
amhbo1=amhbo1+MW[50], amhbo2=amhbo2+MW[51], amhbo3=amhbo3+MW[52]
amnhb1=amnhb1+MW[55], amnhb2=amnhb2+MW[56], amnhb3=amnhb3+MW[57]
; am hbw, hbs, hbo, nhb totals:
amhbw =amhbw + MW[40] + MW[41] + MW[42]
amhbs =amhbs + MW[45] + MW[46] + MW[47]
amhbo =amhbo + MW[50] + MW[51] + MW[52]
amnhb =amnhb + MW[55] + MW[56] + MW[57]
; am occupant level totals:
am1 =am1 +MW[110],am2 =am2 +MW[111],am3 =am3 +MW[112]
; am totals:
am =am +MW[110] +MW[111] +MW[112]

; pm hbw, hbs, hbo, nhb by occupant totals:
pmhbw1=pmhbw1+MW[60], pmhbw2=pmhbw2+MW[61], pmhbw3=pmhbw3+MW[62]
pmhbs1=pmhbs1+MW[65], pmhbs2=pmhbs2+MW[66], pmhbs3=pmhbs3+MW[67]
pmhbo1=pmhbo1+MW[70], pmhbo2=pmhbo2+MW[71], pmhbo3=pmhbo3+MW[72]
pmnhb1=pmnhb1+MW[75], pmnhb2=pmnhb2+MW[76], pmnhb3=pmnhb3+MW[77]
; pm hbw, hbs, hbo, nhb totals:
pmhbw =pmhbw + MW[60] + MW[61] + MW[62]
pmhbs =pmhbs + MW[65] + MW[66] + MW[67]
pmhbo =pmhbo + MW[70] + MW[71] + MW[72]
pmnhb =pmnhb + MW[75] + MW[76] + MW[77]
; pm occupant level totals:
pm1 =pm1 +MW[113],pm2 =pm2 +MW[114],pm3 =pm3 +MW[115]
; pm totals:
pm =pm +MW[113] +MW[114] +MW[115]

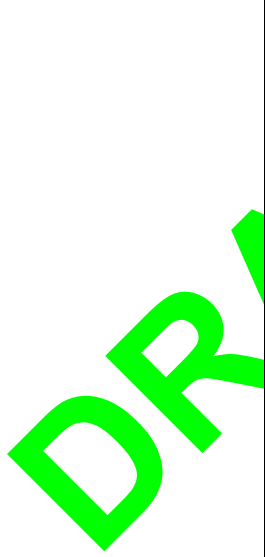
; op hbw, hbs, hbo, nhb by occupant totals:
ophbw1=ophbw1+MW[80], ophbw2=ophbw2+MW[81], ophbw3=ophbw3+MW[82]
ophbs1=ophbs1+MW[85], ophbs2=ophbs2+MW[86], ophbs3=ophbs3+MW[87]
ophbo1=ophbo1+MW[90], ophbo2=ophbo2+MW[91], ophbo3=ophbo3+MW[92]
opnhb1=opnhb1+MW[95], opnhb2=opnhb2+MW[96], opnhb3=opnhb3+MW[97]
; op hbw, hbs, hbo, nhb totals:
ophbw =ophbw + MW[80] + MW[81] + MW[82]
ophbs =ophbs + MW[85] + MW[86] + MW[87]
ophbo =ophbo + MW[90] + MW[91] + MW[92]
opnhb =opnhb + MW[95] + MW[96] + MW[97]
; op occupant level totals:
op1 =op1 +MW[116],op2 =op2 +MW[117],op3 =op3 +MW[118]
; op totals:
op =op +MW[116] +MW[117] +MW[118]

; total output trips by purpose--output total:
ohbw=ohbw+MW[100], ohbs=ohbs+MW[101], ohbo=ohbo+MW[102], onhb=onhb+MW[103]

; total grand Total of output auto driver trips:
adr = adr + MW[100] + MW[101] + MW[102] + MW[103]

; total input trips by purpose
ihbw=ihbw + MW[1] + MW[2] + MW[3]
ihbs=ihbs + MW[4] + MW[5] + MW[6]
ihbo=ihbo + MW[7] + MW[8] + MW[9]
inhb=inhb + MW[10] + MW[11] + MW[12]

```



## Appendix A. Version 2.1 D Draft #50 Scripts

```
endjloop

; now write out the totals neatly:
if (i=zones)
; get differences by purpose (output - Input)
dfhbw = ohbw - inhbw;
dfhbs = ohbs - ihbs;
dfhbo = ohbo - ihbo;
dfnhb = onhb - inhb;

LIST = '/bt
LIST = ' Modeled Pump Prime Time-of-Day Results','\n'
list = 'AM Period: 1-Occ. 2-Occ. 3+Occ. Total'
list = 'HBW ',amhbw1(8.0),amhbw2(8.0),amhbw3(8.0),' ',amhbw(8.0)
list = 'HBS ',amhbs1(8.0),amhbs2(8.0),amhbs3(8.0),' ',amhbs(8.0)
list = 'HBO ',amhbo1(8.0),amhbo2(8.0),amhbo3(8.0),' ',amhbo(8.0)
list = 'NHB ',amnhb1(8.0),amnhb2(8.0),amnhb3(8.0),' ',amnhb(8.0)
list = '-----'
list = 'Subtotal: ',am1(8.0),am2(8.0),am3(8.0),' ',am(8.0)
list = ' '
list = ' '
list = 'PM Period: 1-Occ. 2-Occ. 3+Occ. Total'
list = 'HBW ',pmhbw1(8.0),pmhbw2(8.0),pmhbw3(8.0),' ',pmhbw(8.0)
list = 'HBS ',pmhbs1(8.0),pmhbs2(8.0),pmhbs3(8.0),' ',pmhbs(8.0)
list = 'HBO ',pmhbo1(8.0),pmhbo2(8.0),pmhbo3(8.0),' ',pmhbo(8.0)
list = 'NHB ',pmnhb1(8.0),pmnhb2(8.0),pmnhb3(8.0),' ',pmnhb(8.0)
list = '-----'
list = 'Subtotal: ',pm1(8.0),pm2(8.0),pm3(8.0),' ',pm(8.0)
list = ' '
list = ' '
list = 'Off-Peak: 1-Occ. 2-Occ. 3+Occ. Total'
list = 'HBW ',ophbw1(8.0),ophbw2(8.0),ophbw3(8.0),' ',ophbw(8.0)
list = 'HBS ',ophbs1(8.0),ophbs2(8.0),ophbs3(8.0),' ',ophbs(8.0)
list = 'HBO ',ophbo1(8.0),ophbo2(8.0),ophbo3(8.0),' ',ophbo(8.0)
list = 'NHB ',opnhb1(8.0),opnhb2(8.0),opnhb3(8.0),' ',opnhb(8.0)
list = '-----'
list = 'Subtotal: ',op1(8.0),op2(8.0),op3(8.0),' ',op(8.0)
list = ' '
list = ' '
list = ' Input / Output Totals by Purpose:
list = ' Diff. '
list = ' Input Output (O-I) '
list = 'HBW ',inhw(8.0),' ',ohbw(8.0),' ',dfhbw(8.0)
list = 'HBS ',ihbs(8.0),' ',ohbs(8.0),' ',dfhbs(8.0)
list = 'HBO ',ihbo(8.0),' ',ohbo(8.0),' ',dfhbo(8.0)
list = 'NHB ',inhb(8.0),' ',onhb(8.0),' ',dfnhb(8.0)
list = ' '
list = 'Total Auto Drv:',adr(8.0)

list = '/et
endif

; Write out the auto driver tables by time period

MATO[1] = @ADRAM@, MO=110-112 ; AM Auto Drv Trips 1,2,3+occ tabs 1-3
MATO[2] = @ADRP@, MO=113-115 ; PM Auto Drv Trips 1,2,3+occ tabs 1-3
MATO[3] = @ADROP@, MO=116-118 ; OP Auto Drv Trips 1,2,3+occ tabs 1-3
ENDRUN
;
```

**DRAFT**

## Transit\_Skims.s

```

-----
;Transit_Skims.s
;MWCOG Version 2.1D Model
;
;   - PATHSTYLE changed from 1 to 0 on 3.9.04 (RM)
;   - iteration (_iter_) global variables used
;   - 7/13/04
;
;   Non-Metrorail output time matrix is now altered
;   to reflect the fact that degrading Hwy arterial speeds over time
;   will also affect local bus speeds. A time factor file
;   in the \INPUTS subdirectory named: LBus_TimFTRS.ASC
;   will be read in.
;   The time factors are applied to the local bus IVT's.
;   The Non-Metrorail IVT matrix was stored in MW[5]. It is now
;   developed as three matrices for Modes 1,6/'inner' Local bus;
;
;           Mode      8/outer local bus;
;           Modes 2,4,5,7,9/X bus & commuter
;
;   rail.
;
;           The Three Matrices are collapsed into one matrix in the following
MATRIX
;Build Transit Skims by Time Period and Access Mode
; Input Files:
; TP+ Highway Network      = ZONEHWY.NET
; Transit Line Files      = MODE?_pp.TB
; Transit Network Data    = MET*_TB, COM*_TB, BUS*_TB
; Walk and Drive Access   = WALK_pp.TB, PNR_pp.TB
; Walk Sidewalk Network   = WLKNET.TB
; Zone Employment         = ZONE.ASC
; Output Files:
; Walk and Drive Access Skims = %_iter_%_pp_aa.SKM
; Walk and Drive Station Data = %_iter_%_pp_aa.STA
; Walk and Drive Travel Time = %_iter_%_pp_aa.TTT
; Transit Access to Employment = JOBACC.ASC
;
; Step 1: AM Peak Walk Skims
; Input Files: ZONEHWY.NET, MODE?_AM.TB, *.TB
; Output Files: TRANSIT.SKM
; Step 2: Split Skims into Multiple Files
; Input Files: TRANSIT.SKM
; Output Files: %_iter_%_AM_WK.SKM, %_iter_%_AM_WK.STA, %_iter_%_AM_WK.TTT
; Step 3: AM Peak Drive Skims
; Input Files: ZONEHWY.NET, MODE?_AM.TB, *.TB
; Output Files: TRANSIT.SKM
; Step 4: Split Skims into Multiple Files
; Input Files: TRANSIT.SKM
; Output Files: %_iter_%_AM_DR.SKM, %_iter_%_AM_DR.STA, %_iter_%_AM_DR.TTT
; Step 5: Off Peak Walk Skims
; Input Files: ZONEHWY.NET, MODE?_OP.TB, *.TB
; Output Files: TRANSIT.SKM
; Step 6: Split Skims into Multiple Files
; Input Files: TRANSIT.SKM
; Output Files: %_iter_%_OP_WK.SKM, %_iter_%_OP_WK.STA, %_iter_%_OP_WK.TTT
; Step 7: Off Peak Drive Skims
; Input Files: ZONEHWY.NET, MODE?_OP.TB, *.TB
; Output Files: TRANSIT.SKM
; Step 8: Split Skims into Multiple Files
; Input Files: TRANSIT.SKM
; Output Files: %_iter_%_OP_DR.SKM, %_iter_%_OP_DR.STA, %_iter_%_OP_DR.TTT
; Step 9: Sum the Jobs by Transit Travel Time
; Input Files: %_iter_%_AM_WK.TTT, %_iter_%_AM_DR.TTT
; Output Files: JOBACC.ASC
;
;-----
; Global Variables

```

```

;
;           _iter_ (= PP,il-i6)
;
;-----
;           Loop through each period and access mode
;-----
LOOP PERIOD = 1, 2
IF (PERIOD = 1)
    TIME_PERIOD = 'AM'
    COMBINE = 5.0
ELSE
    TIME_PERIOD = 'OP'
    COMBINE = 10.0
ENDIF

;---- start the access mode loop ----
LOOP ACCESS = 1, 2
IF (ACCESS = 1)
    ACCESS_MODE = 'WK'
    WALK_MODEL = ' '
    DRIVE_MODEL = ' '
ELSE
    ACCESS_MODE = 'DR'
    WALK_MODEL = ' '
    DRIVE_MODEL = ' '
ENDIF

;-----
; Steps 1, 3, and 5: Build Transit Paths
;-----
RUN PGM = TRNBUILD
NETI = ZONEHWY.NET
MATO = TRANSIT.SKM

HWYTIME = @TIME_PERIOD@HTIME

;--- set default zone access and line parameters ---
ZONEACCESS GENERATE=N

@WALK_MODEL@ACCESSMODES = 14,16
@DRIVE_MODEL@ACCESSMODES = 11

@WALK_MODEL@SKIPMODES = 11,15

PATHSTYLE = 0
USERUNTIME = Y

;---- rules for combining multiple line and headways ----
COMBINE MAXDIFF[1] = 0.0, IF[1] = ((RUN - MINRUN) < @COMBINE@)
COMBINE MAXDIFF[2] = 0.0, IF[2] = ((RUN - MINRUN) < @COMBINE@)
COMBINE MAXDIFF[3] = 0.0, IF[3] = ((RUN - MINRUN) < @COMBINE@)
COMBINE MAXDIFF[4] = 0.0, IF[4] = ((RUN - MINRUN) < @COMBINE@)
COMBINE MAXDIFF[5] = 0.0, IF[5] = ((RUN - MINRUN) < @COMBINE@)
COMBINE MAXDIFF[6] = 0.0, IF[6] = ((RUN - MINRUN) < @COMBINE@)
COMBINE MAXDIFF[7] = 0.0, IF[7] = ((RUN - MINRUN) < @COMBINE@)
COMBINE MAXDIFF[8] = 0.0, IF[8] = ((RUN - MINRUN) < @COMBINE@)
COMBINE MAXDIFF[9] = 0.0, IF[9] = ((RUN - MINRUN) < @COMBINE@)

;---- factors to convert actual time to perceived time ----
MODEFAC[1] = 10*1.00 ;---- in-vehicle time

```

# Appendix A. Version 2.1 D Draft #50 Scripts

```

MODEFAC[11] = 1.00 ;---- drive access time
MODEFAC[12] = 2.50 ;---- transit transfer time
MODEFAC[13] = 2.50 ;---- walk network time
MODEFAC[14] = 2.50 ;---- unused (used to be dummy link to station)
MODEFAC[15] = 2.50 ;---- park-&-ride transfer time
MODEFAC[16] = 2.50 ;---- walk access time

;---- initial and transfer wait factors ----

IWAITFAC[1] = 10*2.50
XWAITFAC[1] = 10*2.50
IWAITMAX[1] = 10*60.0

;---- boarding penalty - limit to three transfers ----

BOARDPEN[1] = 0.0, 6.0, 6.0, 60.0

;---- transfer prohibitions ----

;--- mode 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16
NOX[1] = n, n, n, n, n, n, n, n, n, n, n, Y, n, n, n, Y, n
NOX[2] = n, n, n, n, n, n, n, n, n, n, n, Y, n, n, n, Y, n
NOX[3] = n, n, n, n, n, n, n, n, n, n, n, Y, n, n, n, Y, n
NOX[4] = n, n, n, n, n, n, n, n, n, n, n, Y, n, n, n, Y, n
NOX[5] = n, n, n, n, n, n, n, n, n, n, n, Y, n, n, n, Y, n
NOX[6] = n, n, n, n, n, n, n, n, n, n, n, Y, n, n, n, Y, n
NOX[7] = n, n, n, n, n, n, n, n, n, n, n, Y, n, n, n, Y, n
NOX[8] = n, n, n, n, n, n, n, n, n, n, n, Y, n, n, n, Y, n
NOX[9] = n, n, n, n, n, n, n, n, n, n, n, Y, n, n, n, Y, n
NOX[10] = n, n, n, n, n, n, n, n, n, n, n, Y, n, n, n, Y, n
NOX[11] = n, n, n, n, n, n, n, n, n, n, n, Y, Y, n, Y, n, n
NOX[12] = n, n, n, n, n, n, n, n, n, n, n, Y, Y, n, n, Y, n
NOX[13] = n, n, n, n, n, n, n, n, n, n, n, Y, n, n, n, Y, n
NOX[14] = n, n, n, n, n, n, n, n, n, n, n, Y, n, n, n, Y, n
NOX[15] = n, n, n, n, n, n, n, n, n, n, n, Y, Y, Y, Y, Y, Y
NOX[16] = n, n, n, n, n, n, n, n, n, n, n, Y, n, Y, n, Y, Y

;---- Parameters ----

LISTINPUT = N ;--- echo input files

MAXPATHTIME = 240.0 ;--- Kill any path with preceived time > 240 min.
FREPERIOD = 1 ;--- Use the First Headway value
USERRUNTIME = Y ;--- Ignore any RUNTIME or RT parameters on lines.
MAXRUNTIME = 240.0 ;--- Report lines with run times > 240 min.
;ONLINE = 100 ;--- Display every 100 lines

;WALKSPEED = 3.0 ;--- Set default walk speed to 3.0 mph
;XYFACTOR = 0.84401 ;--- Replicate MINUTP value
;WALKSPEED = 2.0 ;--- Added on 09/25
;XYFACTOR = 1.97 ;--- Added on 09/25

;-----
; write out support links for later viewing in VIPER
fileo supporto = supl@access_mode@time_period.asc modes=11-16 oneway=t fixed=y
fileo nodeo = supn@access_mode@time_period.dbf
;

;---- specify output skims ----

MATRICES NAME = WLKT, DACCT, INIT, XFERT, IVTIL, IVTOL, IVTNL, IVMT, TOT, ISTOS,
JSTOS, ZWLK,
MW[1] = TIME(12,13,14,15)*0.01, ;---- xfer walk time (min)
MW[2] = TIME(11)*0.01, ;---- drv acc time (min)
MW[3] = IWAIT*0.01, ;---- ini.wait time (min)
MW[4] = XWAIT(1,2,3,4,5,6,7,8,9,10)*0.01, ;---- xfr wait time (min)

```

```

MW[5] = TIME(1,6)*0.01, ;---- ivt-nonmetrorail/'Inner' Juris
Local Bus Modes (min)
MW[6] = TIME(8)*0.01, ;---- ivt-nonmetrorail/'Outer' Juris
Local Bus Modes (min)
MW[7] = TIME(2,4,5,7,9,10)*0.01, ;---- ivt-nonmetrorail/Non-Local Bus
Modes (min)

MW[8] = TIME(3)*0.01, ;---- ivt-metrorail (min)
MW[9] = (IWAIT + TIME (0) + XWAIT (0))*0.01, ;---- total time (min)
MW[10] = NODE0(3) - 7300.0, ;---- metro board sta (1-116)
MW[11] = NODEL(3) - 7300.0, ;---- metro alight sta (1-116)
MW[12] = TIME(16)*0.01 ; Zonal Acces/Egress Time

;---- Rail Stations & Links (modes 3 & 4) ----

READ FILE = met_node.tb ;---- Metrorail stations
READ FILE = met_link.tb ;---- Metrorail links
READ FILE = com_node.tb ;---- Commuter Rail stations
READ FILE = com_link.tb ;---- Commuter Rail links

;---- Park and Ride Lots (mode 15) ----

@DRIVE_MODEL@ READ FILE = bus_pnrn.tb ;---- Bus PNR lots (nodes)
@DRIVE_MODEL@ READ FILE = met_pnrn.tb ;---- Metro PNR lots (nodes)
@DRIVE_MODEL@ READ FILE = com_pnrn.tb ;---- Commuter Rail PNR lots (nodes)

@DRIVE_MODEL@ READ FILE = bus_pnrl.tb ;---- Bus-PNR connectors (links)
@DRIVE_MODEL@ READ FILE = met_pnrl.tb ;---- Metro-PNR connectors (links)
@DRIVE_MODEL@ READ FILE = com_pnrl.tb ;---- Commuter Rail-PNR connectors (links)

;---- Access Links (modes 11, 12 and 16) ----

READ FILE = met_bus.tb ;--- bus-metro links&xfer cards
READ FILE = com_bus.tb ;--- bus-commuter rail links&xfer car
READ FILE = walk@TIME_PERIOD@.tb ;--- walk to local transit

@DRIVE_MODEL@READ FILE = pnr@TIME_PERIOD@.tb;--- drive to transit

;---- Dummy Centroid Access Links (mode 14) ----

;---- Sidewalk Network (mode 13) ----

READ FILE = wlknnet.tb;--- walk network for transfers

;---- Transit Line Cards (modes 1-9) ----

READ FILE = MODE1@TIME_PERIOD@.TB ;---- M1- metrobus local
READ FILE = MODE2@TIME_PERIOD@.TB ;---- M2- metrobus express
READ FILE = MODE3@TIME_PERIOD@.TB ;---- M3- metrorail
READ FILE = MODE4@TIME_PERIOD@.TB ;---- M4- commuter rail
READ FILE = MODE5@TIME_PERIOD@.TB ;---- M5- other rail (future)
READ FILE = MODE6@TIME_PERIOD@.TB ;---- M6- other local bus
READ FILE = MODE7@TIME_PERIOD@.TB ;---- M7- other express bus
READ FILE = MODE8@TIME_PERIOD@.TB ;---- M8- other local bus
READ FILE = MODE9@TIME_PERIOD@.TB ;---- M9- other express bus

;---- Reports ----
; Path Tracing
; Consider these "i"s to these "j"s
;-----
; 8 Downtwn 1236 Rosslyn 8 Downtwn
; 64 Union Sta 1337 Alexandria 64 Union Sta
; 345 Bethesda 1537 Tysons Crnr 345 Bethesda
; 362 Silver Spr 1554 Ft Belvoir 362 Silver Spr
; 464 N.SilverSpr 1619 Vienna 1231 Pentagon
; 578 Shady Gr Rd 1698 Dulles AP 1236 Rosslyn
; 829 Andrews AFB 1716 Reston 1337 Alexandria

```

# Appendix A. Version 2.1 D Draft #50 Scripts

```

; 927 New Carrltn 1842 Leesburg          1537 Tysons
;1043 Frederick  1942 Dale City
;1231 Pentagon    1967 Manassas

trace = (i = 8, 64, 345, 362, 464, 578, 829, 927, 1043, 1231, 1236, 1337,
1537, 1554, 1619, 1698, 1716, 1842, 1942, 1967 &
j = 8, 64, 345, 362, 1231, 1236, 1337, 1537)
REPORT LINES = NAME, MODE ; added by rm 4/09/04 to ensure line listings
                                ; with or without 'RT=' commands in transit line files
ENDRUN

;-----
;Steps 2, 4, and 6: Split Skims into Multiple Files
;-----

RUN PGM=MATRIX
MATI[1]=TRANSIT.SKM
MATO[1]=%_iter_%@TIME_PERIOD@_ACCESS_MODE@.SKM, MO = 1-4,20,8,
FORMAT = MINUTP
; NAME = WLKT, DACCT, INIT, XFERT, IVNMT, IVMT
MATO[2]=%_iter_%@TIME_PERIOD@_ACCESS_MODE@.STA, MO = 10-11,
FORMAT = MINUTP,
NAME = ISTOS, JSTOS
MATO[3]=%_iter_%@TIME_PERIOD@_ACCESS_MODE@.TTT, MO = 30,
;FORMAT = MINUTP
NAME = TOTT

;
; Read in time factors to increase local bus times
; based on increasing arterial hwy congestion

READ FILE=INPUTS\LBus_TimFTRS.ASC ; Local Bus Time Factors

MW[1] = MI.1.1 ; xfer walk time (min)
MW[2] = MI.1.2 ; drv acc time (min)
MW[3] = MI.1.3 ; ini.wait time (min)
MW[4] = MI.1.4 ; xfr wait time (min)

MW[5] = MI.1.5 ; ivt-nonmetrorail (min) Modes 1,6
MW[6] = MI.1.6 ; ivt-nonmetrorail (min) Modes 8
MW[7] = MI.1.7 ; ivt-nonmetrorail (min) Modes 2,4,5,7,9,10

MW[8] = MI.1.8 ; ivt-metrorail (min)
MW[9] = MI.1.9 ; total time (min)

MW[10] = MI.1.10 ; metro board sta (1-116)
MW[11] = MI.1.11 ; metro alight sta (1-116)

MW[12] = MI.1.12 ; Walk Acc/Egr time (min)

; Factor The Local Bus Time Here
MW[20] = (MW[5] * @TIME_PERIOD@IBFTR) + (MW[6] * @TIME_PERIOD@OBFTR) + MW[7]

; Recompute total transit time, given the local bus adjustment
MW[30] = MW[1] + MW[2] + MW[3] + MW[4] + MW[20] + MW[8] + MW[12]

JLOOP
IF (MW[10] < 0 || MW[10] > 116 ) MW[10] = 0
IF (MW[11] < 0 || MW[11] > 116 ) MW[11] = 0
ENDJLOOP

ENDRUN

ENDLOOP ;---- ACCESS ----
ENDLOOP ;---- PERIOD ----
;
;-----

```

```

; Step 7: Sum the Jobs by Transit Travel Time
;-----
;
RUN PGM=MATRIX
MATI[1] = %_iter_%_AM_WK.TTT
MATI[2] = %_iter_%_AM_DR.TTT
ZDATI[1] = INPUTS\ZONE.ASC, Z=1-4, EMP=40-47

_ACCESS = 0

JLOOP
IF (MI.1.1 = 0)
IF (MI.2.1 > 0)
MW[1] = MI.2.1
ELSE
MW[1] = 0
ENDIF
ELSEIF (MI.2.1 = 0)
MW[1] = MI.1.1
ELSE
MW[1] = MIN (MI.1.1, MI.2.1)
ENDIF

_ACCESS = _ACCESS + MW[1]
ENDJLOOP

IF (_ACCESS > 0)
MW[1][1] = 1
ENDIF

_EMPTY30 = 0
_EMPTY40 = 0
_EMPTY50 = 0
_EMPTY60 = 0
_EMPTYTOT = 0

JLOOP
IF (MW[1] = 1-30)
_EMPTY30 = _EMPTY30 + ZI.1.EMP[J]
ENDIF
IF (MW[1] = 1-40)
_EMPTY40 = _EMPTY40 + ZI.1.EMP[J]
ENDIF
IF (MW[1] = 1-50)
_EMPTY50 = _EMPTY50 + ZI.1.EMP[J]
ENDIF
IF (MW[1] = 1-60)
_EMPTY60 = _EMPTY60 + ZI.1.EMP[J]
ENDIF
_EMPTYTOT = _EMPTYTOT + ZI.1.EMP[J]
ENDJLOOP

PRINT FILE=JOBACC.ASC FORM=10, LIST=I(5), ' ', _EMPTY30, _EMPTY40, _EMPTY50,
_EMPTY60, _EMPTYTOT

ENDRUN

```



## Trip\_Distribution.s

```

;-----
; $
; Trip_Distribution.s - V2.1C Model with ICC changes (JPark) and
; improved toll modeling changes (RMilone) - Toll changes in '$' Blocks
; $
; MWCOC Version 2 Trip Distribution
; Update 8/28/02 rjm
; Note: Corrected misspecified MAXITERS (was MAXITRS) key word 11/05/02
; 9/8/04 Updated Post-Distribution External adjustments for all purposes
; to handle 6-figure external Ps/As. rm
;-----
;
;
; Environment Variables:
; %_iter_% ;---- Run Interaction (pp, bs, i1, i2)
; %_year_% ;
; %_alt_% ;
;
; Global Variables:
;
; //////////////////////////////////////
; INPUT/OUTPUT FILENAMES HERE:
; In TP Main
; //////////////////////////////////////
;
; =====
; == The Output Trip Distribution Filenames of this Program are: ==
; =====
;
; HBWTDOUT = 'hwest%_iter_%.ptt' ; HBW Person Trips
; HBSTDOUT = 'hbsest%_iter_%.ptt' ; HBS Person Trips
; HBOTDOUT = 'hboest%_iter_%.ptt' ; HBO Person Trips
; NHBTDOUT = 'nhbest%_iter_%.ptt' ; NHB Person Trips
; MTKTDOUT = 'mtkest%_iter_%.vtt' ; Medium Truck Trips
; HTKTDOUT = 'htkest%_iter_%.vtt' ; Heavy Truck Trips
;
; =====
; == The Input Filenames of this Program are: ==
; =====
;
; Land Use and Network Files:
;
; LUFIL = 'inputs\zone.asc' ; LAND USE FILE
; HWYTERM = 'ztermtm.asc' ; Zonal HWY TERMINAL TIME
;
; AMSOVSKM = '%_prev_%.am.skm' ; AM HWY TIME SKIMS
; OPSOVSKM = '%_prev_%.op.skm' ; OP HWY TIME SKIMS
;
; itr = '%_iter_%'
; IF (itr = 'pp' )
;
;     AWTRNSKM = 'pp_am_wk.ttt' ; AM WK ACC TRN TIME SKIMS /pump prime
;     ADTRNSKM = 'pp_am_dr.ttt' ; AM DR ACC TRN TIME SKIMS
;
;     OWTRNSKM = 'pp_op_wk.ttt' ; OP WK ACC TRN TIME SKIMS
;     ODTRNSKM = 'pp_op_dr.ttt' ; OP DR ACC TRN TIME SKIMS
; ENDIF
;
; IF (itr = 'i1' || itr = 'i2' || itr = 'i3')

```

```

; AWTRNSKM = 'i1_am_wk.ttt' ; AM WK ACC TRN TIME SKIMS / Itr 1- 3
; Cycle
; ADTRNSKM = 'i1_am_dr.ttt' ; AM DR ACC TRN TIME SKIMS
;
; OWTRNSKM = 'i1_op_wk.ttt' ; OP WK ACC TRN TIME SKIMS
; ODTRNSKM = 'i1_op_dr.ttt' ; OP DR ACC TRN TIME SKIMS
; ENDIF
;
; IF (itr = 'i4' || itr= 'i5' || itr= 'i6' )
;
;     AWTRNSKM = 'i4_am_wk.ttt' ; AM WK ACC TRN TIME SKIMS / Itr 4- 6
;     Cycle
;     ADTRNSKM = 'i4_am_dr.ttt' ; AM DR ACC TRN TIME SKIMS
;
;     OWTRNSKM = 'i4_op_wk.ttt' ; OP WK ACC TRN TIME SKIMS
;     ODTRNSKM = 'i4_op_dr.ttt' ; OP DR ACC TRN TIME SKIMS
; ENDIF
;
; -----
; Trip-End (P/A) Input Files:
;
; PROHBW1 = 'hbw_pro.i1' ; HBW Productions - Income 1 (Intl Only)
; PROHBW2 = 'hbw_pro.i2' ; HBW Productions - Income 2 (Intl Only)
; PROHBW3 = 'hbw_pro.i3' ; HBW Productions - Income 3 (Intl Only)
; PROHBW4 = 'hbw_pro.i4' ; HBW Productions - Income 4 (Intl Only)
; PROHBWAL = 'hbw_pro.all' ; HBW Productions - NonStrat.(Intl&Extl)
;
; ATTHBW1 = 'hbw_att.i1' ; HBW Attractions - Income 1 (Intl Only)
; ATTHBW2 = 'hbw_att.i2' ; HBW Attractions - Income 2 (Intl Only)
; ATTHBW3 = 'hbw_att.i3' ; HBW Attractions - Income 3 (Intl Only)
; ATTHBW4 = 'hbw_att.i4' ; HBW Attractions - Income 4 (Intl Only)
; ATTHBWAL = 'hbw_att.all' ; HBW Attractions - NonStrat.(Intl&Extl)
;
; PROHBS1 = 'hbs_pro.i1' ; HBS Productions - Income 1 (Intl Only)
; PROHBS2 = 'hbs_pro.i2' ; HBS Productions - Income 2 (Intl Only)
; PROHBS3 = 'hbs_pro.i3' ; HBS Productions - Income 3 (Intl Only)
; PROHBS4 = 'hbs_pro.i4' ; HBS Productions - Income 4 (Intl Only)
; PROHBSAL = 'hbs_pro.all' ; HBS Productions - NonStrat.(Intl&Extl)
;
; ATTHBS1 = 'hbs_att.i1' ; HBS Attractions - Income 1 (Intl Only)
; ATTHBS2 = 'hbs_att.i2' ; HBS Attractions - Income 2 (Intl Only)
; ATTHBS3 = 'hbs_att.i3' ; HBS Attractions - Income 3 (Intl Only)
; ATTHBS4 = 'hbs_att.i4' ; HBS Attractions - Income 4 (Intl Only)
; ATTHBSAL = 'hbs_att.all' ; HBS Attractions - NonStrat.(Intl&Extl)
;
; PROHBO1 = 'hbo_pro.i1' ; HBO Productions - Income 1 (Intl Only)
; PROHBO2 = 'hbo_pro.i2' ; HBO Productions - Income 2 (Intl Only)
; PROHBO3 = 'hbo_pro.i3' ; HBO Productions - Income 3 (Intl Only)
; PROHBO4 = 'hbo_pro.i4' ; HBO Productions - Income 4 (Intl Only)
; PROHBOAL = 'hbo_pro.all' ; HBO Productions - NonStrat.(Intl&Extl)
;
; ATTHBO1 = 'hbo_att.i1' ; HBO Attractions - Income 1 (Intl Only)
; ATTHBO2 = 'hbo_att.i2' ; HBO Attractions - Income 2 (Intl Only)
; ATTHBO3 = 'hbo_att.i3' ; HBO Attractions - Income 3 (Intl Only)
; ATTHBO4 = 'hbo_att.i4' ; HBO Attractions - Income 4 (Intl Only)
; ATTHBOAL = 'hbo_att.all' ; HBO Attractions - NonStrat.(Intl&Extl)
;
; PRONHBN = 'nhb_pro.i1' ; NHB Productions - (Intl Only)
; PRONHBAL = 'nhb_pro.all' ; NHB Productions - (Intl&Extl)
;
; ATTNHBN = 'nhb_att.i1' ; NHB Attractions - (Intl Only)
; ATTNHBAL = 'nhb_att.all' ; NHB Attractions - (Intl&Extl)
;
; PROMTKIN = 'MTK_pro.i1' ; Med Trk Productions - (Intl Only)
; PROMTKAL = 'MTK_pro.all' ; Med Trk Productions - (Intl&Extl)
; PROHTKIN = 'HTK_pro.i1' ; Hvy Trk Productions - (Intl Only)
; PROHTKAL = 'HTK_pro.all' ; Hvy Trk Productions - (Intl&Extl)

```

```

ATTMTKIN = 'MTK_att.il' ; Med Trk Attractions - (Intl Only)
ATTMTKAL = 'MTK_att.all' ; Med Trk Attractions - (Intl&Extl)
ATHTTKIN = 'HTK_att.il' ; Hvy Trk Attractions - (Intl Only)
ATHTTKAL = 'HTK_att.all' ; Hvy Trk Attractions - (Intl&Extl)
;
;-----
; Equivalent minutes (min/'80$) by income level (for toll modeling)
;
toll_inc = 'inputs\toll.inc' ;
;
;-----
; Zonal-to-Zone Time Penalty Tables
;
HBWPEN = '..\support\hbwpn.dat' ; HBW TIME PENALITES
HBSPEN = '..\support\hbspn.dat' ; HBS TIME PENALITES
HBOPEN = '..\support\hbopen.dat' ; HBO TIME PENALITES
NHBPEN = '..\support\nhbpen.dat' ; NHB TIME PENALITES
;
;-----
; Zonal K-factor Files
;
HBWK = '..\support\hbwk.dat' ;
HBSK = '..\support\hbsk.dat' ;
HBOK = '..\support\hbok.dat' ;
NHBK = '..\support\nhbk.dat' ;
NHBK = '..\support\nhbk.dat' ;
MTKK = '..\support\mtkk.dat' ;
HTKK = '..\support\htkk.dat' ;
;
;-----
; Friction Factor Files:
;
IHBWFFS = '..\support\HBWV2.FFS' ; HBW 6 Curves
IHBSFFS = '..\support\HBSV2.FFS' ; HBS 6 Curves
IHBOFFS = '..\support\HBOV2.FFS' ; HBO 6 Curves
IN_TFFS = '..\support\N_TV2.FFS' ; NHB/Truck 7 Curves
;
; Note: Sequence of F-Factor Curves:
;
; File:
; IHBWFFS IHBSFFS IHBOFFS IN_TFFS
; Curve # (work) (shop) (other) (NHB, Truck)
;-----
; 1 | intl/inc 1 | intl/inc 1 | intl/inc 1 | intl NHB
; 2 | intl/inc 2 | intl/inc 2 | intl/inc 2 | intl Med.trk
; 3 | intl/inc 3 | intl/inc 3 | intl/inc 3 | intl Hvy.truck
; 4 | intl/inc 4 | intl/inc 4 | intl/inc 4 | extl/interst/NHB
; 5 | extl/interst. | extl/interst. | extl/interst. | extl/arter./NHB
; 6 | extl/arter. | extl/arter. | extl/arter. | extl./Med Truck
; 7 | -- | -- | -- | extl./Hvy Truck
;
;-----
; \\\ End of Input/Output File Section \\\
;-----
; \\\ BEGIN TP+ \\\
;-----
; \\\ 1) Add Highway Terminal Times to AM, Off-peak \\\
; \\\ SOV Skims \\\
;-----

```

```

RUN PGM=MATRIX
zones=2191
; READ ZONAL EMPLOYMENT AND AREA FROM 'STANDARD' V2 LAND USE FILE

ZDATI[1]= @hwyterm@, Z=1-4,hterm=27-28

; READ AM PEAK & OFF-PEAK SOV TIME SKIM FILE (IN WHOLE MIN)

MATI[1] = @AMSOVSKM@ ; INPUT AM PK SKIM FILE
MATI[2] = @OPSOVSKM@ ; INPUT OFF-PK SKIM FILE

MW[1] = MI.1.1 ; INPUT AM PK SKIM FILE
MW[2] = MI.2.1 ; INPUT OFF-PK SKIM FILE

;
; Now add the terminal times to the AM/OP travel times below
; (terminal times added only to connected interchanges)
;
JLOOP
IF (MW[1] > 0)
  MW[3] = MW[1] + zi.1.hterm[I] + zi.1.hterm[J]
ELSE
  MW[3] = MW[1]
ENDIF
IF (MW[2] > 0)
  MW[4] = MW[2] + zi.1.hterm[I] + zi.1.hterm[J]
ELSE
  MW[4] = MW[2]
ENDIF
ENDJLOOP

; Establish Intra-zonal Values for Network Time Skims
; -- Values equal to 50% of single lowest nonzero interzonal value
; IMPOSE MAX INTRAZONAL TRAVEL TIME JCPARK 6/18/03
; NO INTRAZONAL TT OVERRIDES FOR RUN 12B2 JCPARK 6/24/03

JLOOP
IF (I=J)
  MW[3]=ROUND(0.50 * LOWEST(3,1,0.0001,99999.9))
  MW[4]=ROUND(0.50 * LOWEST(4,1,0.0001,99999.9))
;
; OLDAMIT = MW[3]
; OLDOPIT = MW[4]
;
; MW[3]=MIN(MW[3],10.0); IMPOSE MAX INTRAZONAL TT 10 MIN. AM
; MW[4]=MIN(MW[4],10.0); IMPOSE MAX INTRAZONAL TT 10 MIN. OP
;
; IF(I=320-627) ; MONT. CO FOR RUN 12D
; MW[3]=MIN(MW[3],5.0); IMPOSE MAX INTRAZONAL TT 5 MIN. AM
; MW[4]=MIN(MW[4],5.0); IMPOSE MAX INTRAZONAL TT 5 MIN. OP
; ENDIF
;
; IF(I=1030-1053) ; FRD. CO FOR RUN 12D
; MW[3]=MIN(MW[3],5.0); IMPOSE MAX INTRAZONAL TT 5 MIN. AM
; MW[4]=MIN(MW[4],5.0); IMPOSE MAX INTRAZONAL TT 5 MIN. OP
; ENDIF
;
; IF(I=1060-1073) ; CARROLL CO FOR RUN 12D
; MW[3]=MIN(MW[3],5.0); IMPOSE MAX INTRAZONAL TT 5 MIN. AM
; MW[4]=MIN(MW[4],5.0); IMPOSE MAX INTRAZONAL TT 5 MIN. OP
; ENDIF
;
; IF(I=1110-1142) ; MONT. CO FOR RUN 12D
; MW[3]=MIN(MW[3],5.0); IMPOSE MAX INTRAZONAL TT 5 MIN. AM
; MW[4]=MIN(MW[4],5.0); IMPOSE MAX INTRAZONAL TT 5 MIN. OP
; ENDIF

```

# Appendix A. Version 2.1 D Draft #50 Scripts

```

;
; NEWAMIT = MW[3]
; NEWOPIT = MW[4]
; PRINT LIST=I(5), OLDAMIT(5), OLDOPIT(5), NEWAMIT(5), NEWOPIT(5),
; FILE=%_ITER_%INTRATT.LST

ENDIF
ENDJLOOP
; WRITE OUT FINAL TIME SKIMS

MATO[1] = SOVAMTT.SKF, MO=3; output am sov time(min) w/ o&d term&intra times
MATO[2] = SOVOPTT.SKF, MO=4; output op sov time(min) w/ o&d term&intra times

; print row 1 of I/O matrices for checking

IF (I =92)
  PRINTROW MW=1-10
ENDIF

ENDRUN

; ////////////////////////////////////////
; ////////// 2) Compute Composite Impedances to be used in //
; ////////// Trip Distribution for HBW, HBS, HBO, NHB Purposes //
; ////////////////////////////////////////

RUN PGM=MATRIX
ZONES=2191

; COMPUTATION OF COMPOSITE IMPEDANCES
; READ AM PEAK & OFF-PEAK SOV TIME SKIM FILE (IN WHOLE MIN)

MATI[1] = SOVAMTT.SKF ; AM PK HWY TIME FILE W/ TERM&INTRAZNL VALUES
MATI[2] = SOVOPTT.SKF ; OFF-PK HWY TIME FILE W/ TERM&INTRAZNL VALUES

MATI[3] = @AWTRNSKM@ ; AM PK WALK ACC TRN SKIM FILE
MATI[4] = @ADTRNSKM@ ; AM PK AUTO ACC TRN SKIM FILE
MATI[5] = @OWTRNSKM@ ; OFF-PK WALK ACC TRN SKIM FILE
MATI[6] = @ODTRNSKM@ ; OFF-PK AUTO ACC TRN SKIM FILE

;$
MATI[7] = @AMSOVSKM@ ; INPUT AM PK tolls in 80 cents (on table 3)
MATI[8] = @OPSOVSKM@ ; INPUT OFF-PK tolls in 80 cents (on table 3)
;
; READ FILE =@TOLL_INC@ ; READ in equivalent min/80$ by income group
;
;$

; ESTABLISH WORK MATRICES:

MW[1]=MI.1.1 ; AM PK HWY TIME FILE W/ TERM&INTRAZNL VALUES
MW[2]=MI.2.1 ; OFF-PK HWY TIME FILE W/ TERM&INTRAZNL VALUES
;
;-----; Make Sure interzonal (conn.or disconn.)
;-----; have a minimum of 1 minute
JLOOP
  IF (MW[1] = 0.0) ;
    MW[1] = 1.0 ;
  ENDIF ;
  IF (MW[2] = 0.0) ;
    MW[2] = 1.0 ;
  ENDIF ;
ENDJLOOP
;-----;
;
; OLD Code Begin

```

```

;MW[3]=MI.3.1 ; AM PK WALK ACC TOTAL TRN TIME FILE
;MW[4]=MI.4.1 ; AM PK AUTO ACC TOTAL TRN TIME FILE
;
;MW[5]=MI.5.1 ; OFF-PK WALK ACC TOTAL TRN TIME FILE
;MW[6]=MI.6.1 ; OFF-PK AUTO ACC TOTAL TRN TIME FILE
;
; ;FIRST, FIND 'BEST' WALK/AUTO TRANSIT TIME BOTH AM AND OFF-PK CONDITIONS
; ; BEST AM TRN TIME STORED IN MW11, BEST OP TRN TIME STORED IN MW12
;
; JLOOP
; IF (MW[3] > 0 && MW[4] > 0) ; 'BEST' AM PK TRN TIME
; MW[11] = MIN(MW[3],MW[4]) ; WILL BE THE MINIMUM OF
; ELSE ; NON-ZERO WALK/AUTO TIMES OR
; MW[11] = MAX(MW[3],MW[4]) ; THE ONE THAT'S CONNECTED
; ENDIF
;
; IF (MW[5] > 0 && MW[6] > 0) ; SAME FOR OFF PEAK
; MW[12] = MIN(MW[5],MW[6]) ;
; ELSE ;
; MW[12] = MAX(MW[5],MW[6]) ;
; ENDIF
; ENDJLOOP
;
; ; NOW COMPUTE HBW,HBS,HBO,NHB COMPOSITE IMPEDANCES
; ;
; JLOOP
; IF (MW[11] = 0 || I = J)
; MW[15] = MW[11]
; MW[16] = MW[11]
; MW[17] = MW[11]
; MW[18] = MW[11]
; ELSE
; MW[15] = ROUND (1.0/((1.0/MW[11])+0.2572/MW[11])) ; HBW -INC 1 CI MTX
; MW[16] = ROUND (1.0/((1.0/MW[11])+0.1484/MW[11])) ; HBW -INC 2 CI MTX
; MW[17] = ROUND (1.0/((1.0/MW[11])+0.1365/MW[11])) ; HBW -INC 3 CI MTX
; MW[18] = ROUND (1.0/((1.0/MW[11])+0.1402/MW[11])) ; HBW -INC 4 CI MTX
; ENDIF
;
; IF (MW[12] = 0 || I = J)
; MW[20] = MW[2]
; MW[21] = MW[2]
; MW[22] = MW[2]
; MW[23] = MW[2]
;
; MW[25] = MW[2]
; MW[26] = MW[2]
; MW[27] = MW[2]
; MW[28] = MW[2]
;
; MW[30] = MW[2]
; ELSE
; MW[20] = ROUND (1.0/((1.0/MW[2])+0.0518/MW[12])) ; HBS -INC 1 CI MTX
; MW[21] = ROUND (1.0/((1.0/MW[2])+0.0235/MW[12])) ; HBS -INC 2 CI MTX
; MW[22] = ROUND (1.0/((1.0/MW[2])+0.0093/MW[12])) ; HBS -INC 3 CI MTX
; MW[23] = ROUND (1.0/((1.0/MW[2])+0.0075/MW[12])) ; HBS -INC 4 CI MTX
;
; MW[25] = ROUND (1.0/((1.0/MW[2])+0.0755/MW[12])) ; HBO -INC 1 CI MTX
; MW[26] = ROUND (1.0/((1.0/MW[2])+0.0311/MW[12])) ; HBO -INC 2 CI MTX
; MW[27] = ROUND (1.0/((1.0/MW[2])+0.0186/MW[12])) ; HBO -INC 3 CI MTX
; MW[28] = ROUND (1.0/((1.0/MW[2])+0.0244/MW[12])) ; HBO -INC 4 CI MTX
;
; MW[30] = ROUND (1.0/((1.0/MW[2])+0.0483/MW[12])) ; NHB
; ENDIF
;
; ENDJLOOP
;
; ;MATO[1] = HBWTDIMP.MAT, MO=15,16,17,18 ;HBW COMP.IMPEDANCES-INC.LEVELS 1-4
; ;MATO[2] = HBSTDIMP.MAT, MO=20,21,22,23 ;HBS COMP.IMPEDANCES-INC.LEVELS 1-4

```



# Appendix A. Version 2.1 D Draft #50 Scripts

```

;;MATO[3] = HBOTDIMP.MAT, MO=25,26,27,28 ;HBO COMP.IMPEDANCES-INC.LEVELS 1-4
;;MATO[4] = NHBTDIMP.MAT, MO=30 ;NHB COMP.IMPEDANCE
;; END OLD Code
;$
;~
; add equivalent 'tolled' AM/OP highway time to normal times by income level
; AM pk normal + equivalent hwy time in work tables 61-64
; Offpk normal + equivalent hwy time in work tables 71-74

MW[61] = Round(MW[1] + ((MI.7.3/100.0) * i1PKEQM)) ;i1 AM hwy time w/eqv
MW[62] = Round(MW[1] + ((MI.7.3/100.0) * i2PKEQM)) ;i2 AM hwy time w/eqv
MW[63] = Round(MW[1] + ((MI.7.3/100.0) * i3PKEQM)) ;i3 AM hwy time w/eqv
MW[64] = Round(MW[1] + ((MI.7.3/100.0) * i4PKEQM)) ;i4 AM hwy time w/eqv

MW[71] = Round(MW[2] + ((MI.8.3/100.0) * i1OPEQM)) ;i1 OP hwy time w/eqv
MW[72] = Round(MW[2] + ((MI.8.3/100.0) * i2OPEQM)) ;i2 OP hwy time w/eqv
MW[73] = Round(MW[2] + ((MI.8.3/100.0) * i3OPEQM)) ;i3 OP hwy time w/eqv
MW[74] = Round(MW[2] + ((MI.8.3/100.0) * i4OPEQM)) ;i4 OP hwy time w/eqv
;
;
;
;
MW[3]=MI.3.1 ; AM PK WALK ACC TOTAL TRN TIME FILE
MW[4]=MI.4.1 ; AM PK AUTO ACC TOTAL TRN TIME FILE

MW[5]=MI.5.1 ; OFF-PK WALK ACC TOTAL TRN TIME FILE
MW[6]=MI.6.1 ; OFF-PK AUTO ACC TOTAL TRN TIME FILE

;FIRST, FIND 'BEST' WALK/AUTO TRANSIT TIME BOTH AM AND OFF-PK CONDITIONS
; BEST AM TRN TIME STORED IN MW11, BEST OP TRN TIME STORED IN MW12

JLOOP
IF (MW[3] > 0 && MW[4] > 0) ; 'BEST' AM PK TRN TIME
MW[11] = MIN(MW[3],MW[4]) ; WILL BE THE MINIMUM OF
ELSE ; NON-ZERO WALK/AUTO TIMES OR
MW[11] = MAX(MW[3],MW[4]) ; THE ONE THAT'S CONNECTED
ENDIF

IF (MW[5] > 0 && MW[6] > 0) ; SAME FOR OFF PEAK
MW[12] = MIN(MW[5],MW[6]) ;
ELSE ;
MW[12] = MAX(MW[5],MW[6]) ;
ENDIF
ENDJLOOP

; NOW COMPUTE HBW,HBS,HBO,NHB COMPOSITE IMPEDANCES
;
JLOOP
IF (MW[11] = 0 || I = J)
MW[15] = MW[61]
MW[16] = MW[62]
MW[17] = MW[63]
MW[18] = MW[64]
ELSE
MW[15] = ROUND (1.0/((1.0/MW[61])+(0.2572/MW[11]))) ; HBW -INC 1 CI MTX
MW[16] = ROUND (1.0/((1.0/MW[62])+(0.1484/MW[11]))) ; HBW -INC 2 CI MTX
MW[17] = ROUND (1.0/((1.0/MW[63])+(0.1365/MW[11]))) ; HBW -INC 3 CI MTX
MW[18] = ROUND (1.0/((1.0/MW[64])+(0.1402/MW[11]))) ; HBW -INC 4 CI MTX
ENDIF

IF (MW[12] = 0 || I = J)
MW[20] = MW[71]
MW[21] = MW[72]
MW[22] = MW[73]
MW[23] = MW[74]

MW[25] = MW[71]

```

```

MW[26] = MW[72]
MW[27] = MW[73]
MW[28] = MW[74]

MW[30] = MW[72]
ELSE
MW[20] = ROUND (1.0/((1.0/MW[71])+(0.0518/MW[12]))) ; HBS -INC 1 CI MTX
MW[21] = ROUND (1.0/((1.0/MW[72])+(0.0235/MW[12]))) ; HBS -INC 2 CI MTX
MW[22] = ROUND (1.0/((1.0/MW[73])+(0.0093/MW[12]))) ; HBS -INC 3 CI MTX
MW[23] = ROUND (1.0/((1.0/MW[74])+(0.0075/MW[12]))) ; HBS -INC 4 CI MTX

MW[25] = ROUND (1.0/((1.0/MW[71])+(0.0755/MW[12]))) ; HBO -INC 1 CI MTX
MW[26] = ROUND (1.0/((1.0/MW[72])+(0.0311/MW[12]))) ; HBO -INC 2 CI MTX
MW[27] = ROUND (1.0/((1.0/MW[73])+(0.0186/MW[12]))) ; HBO -INC 3 CI MTX
MW[28] = ROUND (1.0/((1.0/MW[74])+(0.0244/MW[12]))) ; HBO -INC 4 CI MTX

MW[30] = ROUND (1.0/((1.0/MW[72])+(0.0483/MW[12]))) ; NHB
ENDIF

ENDJLOOP

MATO[1] = HBWTDIMP.MAT, MO=15,16,17,18 ;HBW COMP.IMPEDANCES-INC.LEVELS 1-4
MATO[2] = HBSTDIMP.MAT, MO=20,21,22,23 ;HBS COMP.IMPEDANCES-INC.LEVELS 1-4
MATO[3] = HBOTDIMP.MAT, MO=25,26,27,28 ;HBO COMP.IMPEDANCES-INC.LEVELS 1-4
MATO[4] = NHBTDIMP.MAT, MO=30 ;NHB COMP.IMPEDANCE
;
;$
; NOW WRITE OUT THE RESULTS OF SELECTED INTERCHANGES FOR CHECKING
; AND COMPARING WITH MINUTP
JLOOP INCLUDE=1 ; WILL PROCESS ONLY FOR J=1
PRINT LIST = I(4), ' ',J(4), ' ',mw[15](5),mw[16](5),mw[17](5),mw[18](5),
FILE =ci_hbw.chk
PRINT LIST = I(4), ' ',J(4), ' ',mw[20](5),mw[21](5),mw[22](5),mw[23](5),
FILE =ci_hbs.chk
PRINT LIST = I(4), ' ',J(4), ' ',mw[25](5),mw[26](5),mw[27](5),mw[28](5),
FILE =ci_hbo.chk
PRINT LIST = I(4), ' ',J(4), ' ',mw[30](5),
FILE =ci_nhb.chk
ENDJLOOP
ENDRUN

;
;
; //////////////////////////////////////
; ////////////////////////////////////// 3) Compute Impedance files to be used in the External \\
; ////////////////////////////////////// Trip Distribution processing //////////////////////////////////////
; //////////////////////////////////////

RUN PGM=MATRIX
;ZONES =2191
MATI[1] = SOVAMTT.SKF ; AM PK HWY TIME FILE W/ TERM&INTRAZNL VALUES
MATI[2] = SOVOPTT.SKF ; OFF-PK HWY TIME FILE W/ TERM&INTRAZNL VALUES

MW[1]=MI.1.1 ; AM PK HWY TIME FILE W/ TERM&INTRAZNL VALUES
MW[2]=MI.2.1 ; OFF-PK HWY TIME FILE W/ TERM&INTRAZNL VALUES

; Development of Peak, Off-Peak SOV Travel times to be used
; for External Trip distribution of Interstate and Arterial Trip Dist.
;
; 2 skim files will be written:
; MW[11] - AM Time Period, External ij's
; MW[12] - OffPeak Period, External ij's
;
; First, set work matrices equal to 'Full' AM, Off-peak time skims
;
MW[11] = MW[1] ; AM
MW[12] = MW[2] ; Off-Pk

```

# Appendix A. Version 2.1 D Draft #50 Scripts

```

; next, put very large time value into all
; i-i and x-x ijs

IF (I = 1-2144)
  MW[11] = 200, INCLUDE= 1-2144 ; i-i ijs
  MW[12] = 200, INCLUDE= 1-2144 ; i-i ijs
ELSE
  MW[11] = 200, INCLUDE= 2145-2191 ; x-x ijs
  MW[12] = 200, INCLUDE= 2145-2191 ; x-x ijs
ENDIF

; WRITE OUT EXTERNAL TRIP DISTRIBUTION IMPEDANCE TABLES

MATO[1] = SOVAMTTE.skf, MO=11 ; AM -PK Time skims for Extl trip dist.
MATO[2] = SOVOPTTE.skf, MO=12 ; Off-PK Time skims for Extl trip dist.
ENDRUN
;
; ////////////////////////////////////////////////////
; ////////////// 4) Add time penalty files to composite impedance //
; ////////////// skims. //
; ////////////////////////////////////////////////////

RUN PGM=MATRIX
; ADD TIME PENALTIES TO COMPOSITE TIME MATRICES
; READ AM PEAK & OFF-PEAK SOV TIME SKIM FILE (IN WHOLE MIN)
ZONES=2191
MATI[1] = @HBWPEN@ ; 2191 TAZ LEVEL HBW TIME PENS. INC 1-4
MATI[2] = @HBSPEN@ ; HBS TIME PENS. INC 1-4
MATI[3] = @HBOPEN@ ; HBO TIME PENS. INC 1-4
MATI[4] = @NHBPEN@ ; NHB TIME PENS.

MATI[11] = HBWDIMP.MAT ; HBW COMP.IMPEDANCES - INC.LEVELS 1-4
MATI[12] = HBSTDIMP.MAT ; HBS COMP.IMPEDANCES - INC.LEVELS 1-4
MATI[13] = HBOTDIMP.MAT ; HBO COMP.IMPEDANCES - INC.LEVELS 1-4
MATI[14] = NHBTDIMP.MAT ; NHB COMP.IMPEDANCE

; ESTABLISH WORK FILES FOR TIME PENALTIES
; HBW/INC 1-4 HBS/INC 1-4 HBO/INC 1-4 NHB
; -----
MW[1] = MI.1.1, MW[5] = MI.2.1, MW[9] = MI.3.1, MW[13] = MI.4.1
MW[2] = MI.1.2, MW[6] = MI.2.2, MW[10] = MI.3.2
MW[3] = MI.1.3, MW[7] = MI.2.3, MW[11] = MI.3.3
MW[4] = MI.1.4, MW[8] = MI.2.4, MW[12] = MI.3.4

; ESTABLISH WORK FILES FOR COMPOSITE TIMES
; HBW/INC 1-4 HBS/INC 1-4 HBO/INC 1-4 NHB
; -----
MW[21] = MI.11.1, MW[25] = MI.12.1, MW[29] = MI.13.1, MW[33] = MI.14.1
MW[22] = MI.11.2, MW[26] = MI.12.2, MW[30] = MI.13.2
MW[23] = MI.11.3, MW[27] = MI.12.3, MW[31] = MI.13.3
MW[24] = MI.11.4, MW[28] = MI.12.4, MW[32] = MI.13.4

;
; NOW, MERGE THE TIME PENALTIES IN WITH THE COMPOSITE TIMES
;
MW[40] = MW[1] + MW[21] ; FINAL HBW INC 1 COMPOSITE TIMES
MW[41] = MW[2] + MW[22] ; FINAL HBW INC 2 COMPOSITE TIMES
MW[42] = MW[3] + MW[23] ; FINAL HBW INC 3 COMPOSITE TIMES
MW[43] = MW[4] + MW[24] ; FINAL HBW INC 4 COMPOSITE TIMES

MW[44] = MW[5] + MW[25] ; FINAL HBS INC 1 COMPOSITE TIMES
MW[45] = MW[6] + MW[26] ; FINAL HBS INC 2 COMPOSITE TIMES
MW[46] = MW[7] + MW[27] ; FINAL HBS INC 3 COMPOSITE TIMES
MW[47] = MW[8] + MW[28] ; FINAL HBS INC 4 COMPOSITE TIMES

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```

MW[48] = MW[9] + MW[29] ; FINAL HBO INC 1 COMPOSITE TIMES
MW[49] = MW[10] + MW[30] ; FINAL HBO INC 2 COMPOSITE TIMES
MW[50] = MW[11] + MW[31] ; FINAL HBO INC 3 COMPOSITE TIMES
MW[51] = MW[12] + MW[32] ; FINAL HBO INC 4 COMPOSITE TIMES

MW[52] = MW[13] + MW[33] ; FINAL NHB COMPOSITE TIME
;
; Write out composite Impedance Tables
; The files are purpose-specific, HB purpose files have 4 tables
; corresponding to income levels

MATO[1] = HBWCII_4.DAT, MO=40-43 ; HBW Composite Impedances/Incomes 1-4
MATO[2] = HBSCII_4.DAT, MO=44-47 ; HBS Composite Impedances/Incomes 1-4
MATO[3] = HBOCII_4.DAT, MO=48-51 ; HBO Composite Impedances/Incomes 1-4
MATO[4] = NHBICI.DAT , MO=52 ; NHB Composite Impedance

; End of Composite Impedance Development
ENDRUN
;-----

; ////////////////////////////////////////////////////
; ////////////// 5) Start HBW Trip Distribution Here: //
; ////////////////////////////////////////////////////

RUN PGM=TRIPDIST
MATI= HBWCII_4.DAT ; Composite Time Impedances HBW Inc.Levels 1-4
SOVAMTTE.skf, ; AM Travel Time Imped. for Extl/Int. Trip Dist.
@HBWK@ ; HBW Kfactors (Scaled by 1000.0)

; Put impedance matrices in work tables 11-16
; tabs 11,14 are comp.time for inc.levels 1,2,3,4, tabs 15,16 are
; both AM & SOV time. All impedance and time values are in whole minutes.
FILLMW MW[11] = MI.1.1,2,3,4,MI.2.1,MI.2.1

; Put K-factor matrix in work table 20
; The k-factor values are scaled by 1000s (eg, a mtx value of '1000'=1.0)
; the K-factors are applied across all HBW distributions

FILLMW MW[20] = MI.3.1
DUMMY = ROWFAC(20,0.001) ; scale k-factor's to 'true' units

ZDATI[1] = @PROHBWI1@, Z=1-4,P1=5-10 ; HBW Inc. 1 productions
ZDATI[2] = @PROHBWI2@, Z=1-4,P2=5-10 ; HBW Inc. 2 productions
ZDATI[3] = @PROHBWI3@, Z=1-4,P3=5-10 ; HBW Inc. 3 productions
ZDATI[4] = @PROHBWI4@, Z=1-4,P4=5-10 ; HBW Inc. 4 productions
ZDATI[5] = @PROHBWAL@, Z=1-4,P5=5-10 ; HBW Totl productions

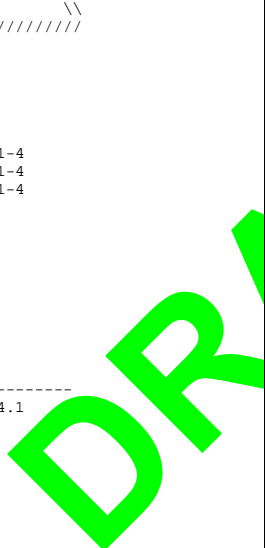
ZDATI[6] = @ATTHBWI1@, Z=1-4,A1=5-10 ; HBW Inc. 1 attractions
ZDATI[7] = @ATTHBWI2@, Z=1-4,A2=5-10 ; HBW Inc. 2 attractions
ZDATI[8] = @ATTHBWI3@, Z=1-4,A3=5-10 ; HBW Inc. 3 attractions
ZDATI[9] = @ATTHBWI4@, Z=1-4,A4=5-10 ; HBW Inc. 4 attractions
ZDATI[10] = @ATTHBWAL@, Z=1-4,A5=5-10 ; HBW Totl attractions

LOOKUP FILE = @IHBWFFS@, INTERPOLATE=N, SETUPPER=T, FAIL=,0, NAME = FF,
LOOKUP[1] = 1, RESULT = 2, ; HBW INC 1 F-FACTORS
LOOKUP[2] = 1, RESULT = 3, ; HBW INC 2 F-FACTORS
LOOKUP[3] = 1, RESULT = 4, ; HBW INC 3 F-FACTORS
LOOKUP[4] = 1, RESULT = 5, ; HBW INC 4 F-FACTORS
LOOKUP[5] = 1, RESULT = 6, ; HBW Extl-Interstate F-FACTORS
LOOKUP[6] = 1, RESULT = 7 ; HBW Extl-Arterial F-FACTORS

; Establish production and attraction vectors here:

SETPA P[1] = P1, P[2] = P2, P[3] = P3, P[4] = P4, P[5] = P5, P[6] = P5
SETPA A[1] = A1, A[2] = A2, A[3] = A3, A[4] = A4, A[5] = A5, A[6] = A5

```



# Appendix A. Version 2.1 D Draft #50 Scripts

```

MAXITERS = 7 ; specify GM iterations to be 7 to be consistent with
; prior MINUTP runs

; Establish gravity model run files & parameters
GRAVITY PURPOSE = 1, LOS=MW[11], FFACTORS= FF, KFACTORS = MW[20]
GRAVITY PURPOSE = 2, LOS=MW[12], FFACTORS= FF, KFACTORS = MW[20]
GRAVITY PURPOSE = 3, LOS=MW[13], FFACTORS= FF, KFACTORS = MW[20]
GRAVITY PURPOSE = 4, LOS=MW[14], FFACTORS= FF, KFACTORS = MW[20]
GRAVITY PURPOSE = 5, LOS=MW[15], FFACTORS= FF, KFACTORS = MW[20]
GRAVITY PURPOSE = 6, LOS=MW[16], FFACTORS= FF, KFACTORS = MW[20]

; Write out trips as integers to be consistent with MINUTP

DUMMY = ROWFIX(1)
DUMMY = ROWFIX(2)
DUMMY = ROWFIX(3)
DUMMY = ROWFIX(4)
DUMMY = ROWFIX(5)
DUMMY = ROWFIX(6)

MATO = EST.TEM,MO=1-6 ; Final HBW trip table(s)
; T1 - HBW Inc. Level 1 (i-i)
; T2 - HBW Inc. Level 2 (i-i)
; T3 - HBW Inc. Level 3 (i-i)
; T4 - HBW Inc. Level 4 (i-i)
; T5 - HBW ALL (Extl/Interst. FFs)
; T6 - HBW ALL (Extle/Arter. FFs)

; Note: The External Interstate and Arterial trips (t5 & t6) will be
; refined in the next two matrix runs

ENDRUN
;
;
;-----
; Refinement of External Trip Distribution Trip Tables
; (External Interstate and External Arterial Trips)
; There are two MATRIX steps
; 1) This program reads the external interstate and external arterial
; tables produced from the external trip dist. process above. The
; program wipes out trips in internal or through trip interchanges
; if any exist (there may be a small chance that some trips exist).
; It also makes sure that no extl/art. trips exist in the
; extl/interstate interchanges and vise-versa. Finally it writes out
; an array containing the column totals of the total external trips.
; to be used in the following program.
;
; 2) This program is used to make sure the row & column totals
; of the external trip files match those of P/A files produced in
; the trip generation process. the adjustment will affect the As
; much more than the P's.
;-----

RUN PGM=MATRIX
MATI= EST.TEM ; read in initial ext trips from trip dist.
ARRAY COLTOTX=2191 ; set up an array for init.col totals for ext trips

MW[5] = MI.1.5 ; Get Initial Extl Interstate table
MW[6] = MI.1.6 ; Get Initial Extl Arterial table

MW[15] = MW[5] ; Store HBW trips with Extl/Interst. FFs in MW15
MW[16] = MW[6] ; Store HBW trips with Extl/Arterial FFs in MW16
;
; Now, strip away or zero out unwanted interchanges
; interstate-type external stations MW[15]
;-
IF (I = 1-2144)

```

```

MW[15] = 0, INCLUDE= 1-2144 ; i-i ijs
ELSE
MW[15] = 0, INCLUDE= 2145-2191 ; x-x ijs
ENDIF

IF (I = 2145,2147-2148,2150-2153,2155,2157-2165,
2167-2170,2172-2179,2181,2185-2186,2188-2190)
MW[15] = 0 ; ext art. ijs
ENDIF

MW[15] = 0, INCLUDE=2145,2147-2148,2150-2153,2155,2157-2165,
2167-2170,2172-2179,2181,2185-2186,2188-2190 ; ext art. ijs
;
; Now, strip away or zero out unwanted interchanges
; arterial-type external stations MW[16]
;
IF (I = 1-2144)
MW[16] = 0, INCLUDE= 1-2144 ; i-i ijs
ELSE
MW[16] = 0, INCLUDE= 2145-2191 ; x-x ijs
ENDIF

IF (I = 2146,2149,2154,2156,2166,2171,2180,
2182,2183,2184,2187,2191)
MW[16] = 0 ; ext int.ijs
ENDIF

MW[16] = 0, INCLUDE=2146,2149,2154,2156,2166,2171,2180,
2182,2183,2184,2187,2191 ; ext int.ijs
;
;-----
; ACCUMULATE COLUMN TOTALS of ALL INITIAL EXTERNAL TRIPS
; LOOP
COLTOTX[J]=COLTOTX[J] + MW[15][J] + MW[16][J]
ENDJLOOP
;
; NOW, WRITE OUT THE INITIAL COLUMN TOTALS FOR Later Use
IF (I=2191)
LOOP K=2145,2191
PRINT FORM=8,LIST=K, COLTOTX[K], FILE=IXCOLTOT.DAT
ENDLOOP
ENDIF
MATO = EXT.TEM,MO=15,16 ; Final HBW trip table(s)
;
;-----

RUN PGM=MATRIX
MATI[1]= EXT.TEM
MATI[2]= EST.TEM
ZDATI[1]=@PROHBWAL@, Z=1-4,RCNTL=5-10 ; total trip gen. prod.totals
ZDATI[2]=@ATTHBWAL@, Z=1-4,CCNTL=5-10 ; total trip gen. attr.totals
ZDATI[3]=IXCOLTOT.DAT, Z=#1,ICOLTOT=2

FILLMW MW[1] = MI.2.1,2,3,4
FILLMW MW[5] = MI.1.1,2

ARRAY IROWTOTA= 2191

ARRAY FROWTOT = 2191
ARRAY FCOLTOT = 2191

ARRAY ROWADJ = 2191
ARRAY COLADJ = 2191

MW[15] = MW[5] ; Store HBW trips with Extl/Interst. FFs in MW15
MW[16] = MW[6] ; Store HBW trips with Extl/Arterial FFs in MW16

```

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```

; -----
IF (i=1-2144)
  JLOOP
  IF (ICOLTOT[j] = 0)
    COLADJ[j] = 1.0
  ELSE
    COLADJ[j] = CCNTL[j]/ICOLTOT[j]
  ENDIF
  MW[25] = ROUND (MW[15][j]*COLADJ[j])
  MW[26] = ROUND (MW[16][j]*COLADJ[j])
  FCOLTOT[j] = FCOLTOT[j] + MW[25][j] + MW[26][j]
endjloop
ELSE
  irowtota[i] = ROWSUM(15) + rowsum(16)

  JLOOP
  IF (IrowTota[i] = 0)
    rowADJ[i] = 1.0
  ELSE
    rowADJ[i] = RCNTL[i]/IROWTOTA[i]
  ENDIF
  MW[25] = ROUND (MW[15][j]*ROWADJ[i])
  MW[26] = ROUND (MW[16][j]*ROWADJ[i])
  FROWTOT[i] = FROWTOT[i] + MW[25][j] + MW[26][j]
endjloop
endif

;
; Now replace full external trip tables with 'trimmed' tables
; and compute Final Total Trip Table

dummy = rowfix(25) ; bucket round totals
dummy = rowfix(26) ;

MW[5] = MW[25]
MW[6] = MW[26]
DUMMY=ROWADD(7,1,2,3,4,5,6)

MATO = @HBWTDOUT@,MO=1-7 ; Final HBW trip table(s)

IF (I=2191) ; if at the last zone
  LIST = ' TAZ inital contrl final adjftr ',FILE=xcolHBW.asc
  LOOP INDEX = 2145,2191
  LIST = INDEX(4),' ',ICOLTOT[INDEX](8),' ',CCNTL[INDEX](8),
          FCOLTOT[INDEX](8),' ',coladj[INDEX](8.3),
          FILE=xcolHBW.asc
  ENDLOOP

  LIST = ' TAZ inital contrl final adjftr ',FILE=xrowHBW.asc
  LOOP INDEX = 2145,2191
  LIST = INDEX(4),' ',IROWTOTA[INDEX](8),RCNTL[INDEX](8),
          FROWTOT[INDEX](8),rowadj[INDEX](8.3),
          FILE=xrowHBW.asc
  ENDLOOP
ENDIF
; -----
; END of HBW Trip Distribution
; -----

;
; ////////////////
; //////////////// 6) Start HBS Trip Distribution Here: ////////////////
; ////////////////

```

```

RUN PGM=TRIPDIST
MATI= HBSI1.4.DAT, ; Composite Time Impedances HBS Inc.Levels 1-4
      SOVOPTE.skf, ; Off Pk Time Imped. for Extl/Int. Trip Dist.
      @HBSK@ ; HBW Kfactors (Scaled by 1000.0)

; Put impedance matrices in work tables 11-16
; tabs 11-14 are comp.time for inc.levels 1,2,3,4, tabs 15,16 are
; both Offpk SOV time. All impedance and time values are in whole minutes.

FILLMW MW[11] = MI.1.1,2,3,4,MI.2.1,MI.2.1

; Put K-factor matrix in work table 20
; The k-factor values are scaled by 1000s (eg, a mtx value of '1000'=1.0)
; the K-factors are applied across all HBS distributions

FILLMW MW[20] = MI.3.1
DUMMY = ROWFAC(20,0.001) ; scale k-factor's to 'true' units

ZDATI[1] = @PROHBSI1@, Z=1-4,P1=5-10 ; HBS Inc. 1 productions
ZDATI[2] = @PROHBSI2@, Z=1-4,P2=5-10 ; HBS Inc. 2 productions
ZDATI[3] = @PROHBSI3@, Z=1-4,P3=5-10 ; HBS Inc. 3 productions
ZDATI[4] = @PROHBSI4@, Z=1-4,P4=5-10 ; HBS Inc. 4 productions
ZDATI[5] = @PROHBSAL@, Z=1-4,P5=5-10 ; HBS Totl productions

ZDATI[6] = @ATTHBSI1@, Z=1-4,A1=5-10 ; HBS Inc. 1 attractions
ZDATI[7] = @ATTHBSI2@, Z=1-4,A2=5-10 ; HBS Inc. 2 attractions
ZDATI[8] = @ATTHBSI3@, Z=1-4,A3=5-10 ; HBS Inc. 3 attractions
ZDATI[9] = @ATTHBSI4@, Z=1-4,A4=5-10 ; HBS Inc. 4 attractions
ZDATI[10] = @ATTHBSAL@, Z=1-4,A5=5-10 ; HBS Totl attractions

LOOKUP FILE = @IHBSFFS@, INTERPOLATE=N,SETUPPER=T,FAIL=,0,NAME = FF,
LOOKUP[1] = 1, RESULT = 2, ; HBS INC 1 F-FACTORS
LOOKUP[2] = 1, RESULT = 3, ; HBS INC 2 F-FACTORS
LOOKUP[3] = 1, RESULT = 4, ; HBS INC 3 F-FACTORS
LOOKUP[4] = 1, RESULT = 5, ; HBS INC 4 F-FACTORS
LOOKUP[5] = 1, RESULT = 6, ; HBS Extl-Interstate F-FACTORS
LOOKUP[6] = 1, RESULT = 7 ; HBS Extl-Arterial F-FACTORS

; Establish production and attraction vectors here:

SETPA P[1] = P1, P[2] = P2, P[3] = P3, P[4] = P4, P[5] = P5, P[6] = P5
SETPA A[1] = A1, A[2] = A2, A[3] = A3, A[4] = A4, A[5] = A5, A[6] = A5

MAXITERS = 7 ; specify GM iterations to be 7 to be consistent with
; prior MINUTP runs

; Establish gravity model run files & parameters
GRAVITY PURPOSE = 1, LOS=MW[11], FFACTORS= FF, KFACTORS = MW[20]
GRAVITY PURPOSE = 2, LOS=MW[12], FFACTORS= FF, KFACTORS = MW[20]
GRAVITY PURPOSE = 3, LOS=MW[13], FFACTORS= FF, KFACTORS = MW[20]
GRAVITY PURPOSE = 4, LOS=MW[14], FFACTORS= FF, KFACTORS = MW[20]
GRAVITY PURPOSE = 5, LOS=MW[15], FFACTORS= FF, KFACTORS = MW[20]
GRAVITY PURPOSE = 6, LOS=MW[16], FFACTORS= FF, KFACTORS = MW[20]

; Write out trips as integers to be consistent with MINUTP

DUMMY = ROWFIX(1)
DUMMY = ROWFIX(2)
DUMMY = ROWFIX(3)
DUMMY = ROWFIX(4)
DUMMY = ROWFIX(5)
DUMMY = ROWFIX(6)

MATO = EST.TEM,MO=1-6 ; Final HBS trip table(s)
; T1 - HBS Inc. Level 1 (i-i)
; T2 - HBS Inc. Level 2 (i-i)
; T3 - HBS Inc. Level 3 (i-i)

```

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```

; T4 - HBS Inc. Level 4 (i-i)
; T5 - HBS ALL (Extl/Interst. FFs)
; T6 - HBS ALL (Extl/Arter. FFs)
; Note: The External Interstate and Arterial trips (t5 & t6) will be
; refined in the next two matrix runs

ENDRUN
;
;
;-----
; Refinement of External Trip Distribution Trip Tables
; (External Interstate and External Arterial Trips)
; There are two MATRIX steps
; 1) This program reads the external interstate and external arterial
; tables produced from the external trip dist. process above. The
; program wipes out trips in internal or through trip interchanges
; if any exist (there may be a small chance that some trips exist).
; It also makes sure that no extl/art. trips exist in the
; extl/interstate interchanges and vise-versa. Finally it writes out
; an array containing the column totals of the total external trips.
; to be used in the following program.
;
; 2) This program is used to make sure the row & column totals
; of the external trip files match those of P/A files produced in
; the trip generation process. the adjustment will affect the As
; much more than the P's.
;-----

RUN PGM=MATRIX
MATI= EST.TEM ; read in initial ext trips from trip dist.
ARRAY COLTOTX=2191 ; set up an array for init.col totals for ext trips

MW[5] = MI.1.5 ; Get Initial Extl Interstate table
MW[6] = MI.1.6 ; Get Initial Extl Arterial table

MW[15] = MW[5] ; Store HBS trips with Extl/Interst. FFs in MW15
MW[16] = MW[6] ; Store HBS trips with Extl/Arterial FFs in MW16
;
; Now, strip away or zero out unwanted interchanges
; interstate-type external stations MW[15]
;-----
IF (I = 1-2144)
MW[15] = 0, INCLUDE= 1-2144 ; i-i ijs
ELSE
MW[15] = 0, INCLUDE= 2145-2191 ; x-x ijs
ENDIF

IF (I = 2145,2147-2148,2150-2153,2155,2157-2165,2167-2170,
2172-2179,2181,2185-2186,2188-2190) MW[15] = 0 ; ext art. ijs

MW[15] = 0, INCLUDE=2145,2147-2148,2150-2153,2155,2157-2165,2167-2170,
2172-2179,2181,2185-2186,2188-2190 ; ext art. ijs
;
; Now, strip away or zero out unwanted interchanges
; arterial-type external stations MW[16]
;-----
IF (I = 1-2144)
MW[16] = 0, INCLUDE= 1-2144 ; i-i ijs
ELSE
MW[16] = 0, INCLUDE= 2145-2191 ; x-x ijs
ENDIF

IF (I = 2146,2149,2154,2156,2166,2171,2180,2182,2183,2184,
2187,2191) MW[16] = 0 ; ext int. ijs

MW[16] = 0, INCLUDE=2146,2149,2154,2156,2166,2171,2180,2182,2183,2184,

```

```

2187,2191 ; ext int.ijs
;
;-----
; ACCUMULATE COLUMN TOTALS of ALL INITIAL EXTERNAL TRIPS
JLOOP
COLTOTX[J]=COLTOTX[J] + MW[15][J] + MW[16][J]
ENDJLOOP
;
; NOW, WRITE OUT THE INITIAL COLUMN TOTALS FOR Later Use
IF (I=2191)
LOOP K=2145,2191
PRINT FORM=8,LIST=K, COLTOTX[K], FILE=IXCOLTOT.DAT
ENDLOOP
ENDIF
MATO = EXT.TEM,MO=15,16 ; Final HBS trip table(s)
;-----

RUN PGM=MATRIX
MATI[1]= EXT.TEM
MATI[2]= EST.TEM
ZDATI[1]=@PROHBSAL@, Z=1-4,RCNTL=5-10 ; total trip gen. prod.totals
ZDATI[2]=@ATTHBSAL@, Z=1-4,CCNTL=5-10 ; total trip gen. attr.totals
ZDATI[3]=IXCOLTOT.DAT, Z=#1,ICOLTOT=2

FILLMW MW[1] = MI.2.1,2,3,4
FILLMW MW[5] = MI.1.1,2

ARRAY IROWTOTA= 2191
ARRAY FROWTOT = 2191
ARRAY FCOLTOT = 2191

ARRAY ROWADJ = 2191
ARRAY COLADJ = 2191

MW[15] = MW[5] ; Store HBS trips with Extl/Interst. FFs in MW15
MW[16] = MW[6] ; Store HBS trips with Extl/Arterial FFs in MW16
;-----
IF (i=1-2144)
JLOOP
IF (ICOLTOT[j] = 0)
COLADJ[j] = 1.0
ELSE
COLADJ[j] = CCNTL[j]/ICOLTOT[j]
ENDIF
MW[25] = ROUND (MW[15][J]*COLADJ[J])
MW[26] = ROUND (MW[16][J]*COLADJ[J])
FCOLTOT[J] = FCOLTOT[J] + MW[25][J] + MW[26][J]
endjloop
ELSE
irowtota[i] = ROWSUM(15) + rowsum(16)

JLOOP
IF (IrowTOTa[i] = 0)
rowADJ[i] = 1.0
ELSE
rowADJ[i] = RCNTL[i]/IROWTOTA[i]
ENDIF
MW[25] = ROUND (MW[15][J]*ROWADJ[i])
MW[26] = ROUND (MW[16][J]*ROWADJ[i])
FROWTOT[i] = FROWTOT[i] + MW[25][j] + MW[26][j]
endjloop
endif

```

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```

;
; Now replace full external trip tables with 'trimmed' tables
; and compute Final Total Trip Table

dummy = rowfix(25) ; bucket round totals
dummy = rowfix(26) ;

MW[5] = MW[25]
MW[6] = MW[26]
DUMMY=ROWADD(7,1,2,3,4,5,6)

MATO = @HBSTDOUT@,MO=1-7 ; Final HBS trip table(s)

IF (I=2191) ; if at the last zone
LIST = 'TAZ inital contrl final adjftr ',FILE=xcolHBS.asc
LOOP INDEXT = 2145,2191
LIST = INDEX(4), ' ',ICOLTOT[INDEX](8), ' ',CCNTL[INDEX](8),
FCOLTOT[INDEX](8), ' ',coladj[INDEX](8.3),
FILE=xcolHBS.asc
ENDLOOP

LIST = 'TAZ inital contrl final adjftr ',FILE=xrowHBS.asc
LOOP INDEXT = 2145,2191
LIST = INDEX(4), ' ',IROWTOTA[INDEX](8),RCNTL[INDEX](8),
FROWTOT[INDEX](8),rowadj[INDEX](8.3),
FILE=xrowHBS.asc
ENDLOOP
ENDIF
;-----
; END of HBS Trip Distribution
;-----

; |////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////|
; |///// 7) Start HBO Trip Distribution Here: |///// |
; |////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////|

RUN PGM=TRIPDIST
MATI= HBOC11_4.DAT, ; Composite Time Impedances HBO Inc.Levels 1-4
SOVOPTTE.skf, ; Off Pk Time Imped. for Extl/Int. Trip Dist.
@HBOK@ ; HBW Kfactors (Scaled by 1000.0)

; Put impedance matrices in work tables 11-16
; tabs 11-14 are comp.time for inc.levels 1,2,3,4, tabs 15,16 are
; both Offpk SOV time. All impedance and time values are in whole minutes.

FILLMW MW[11] = MI.1.1,2,3,4,MI.2.1,MI.2.1

; Put K-factor matrix in work table 20
; The k-factor values are scaled by 1000s (eg, a mtx value of '1000'=1.0)
; the K-factors are applied across all HBO distributions

FILLMW MW[20] = MI.3.1
DUMMY = ROWFAC(20,0.001) ; scale k-factor's to 'true' units

ZDATI[1] = @PROHBOI1@, Z=1-4,P1=5-10 ; HBO Inc. 1 productions
ZDATI[2] = @PROHBOI2@, Z=1-4,P2=5-10 ; HBO Inc. 2 productions
ZDATI[3] = @PROHBOI3@, Z=1-4,P3=5-10 ; HBO Inc. 3 productions
ZDATI[4] = @PROHBOI4@, Z=1-4,P4=5-10 ; HBO Inc. 4 productions
ZDATI[5] = @PROHBOAL@, Z=1-4,P5=5-10 ; HBO Totl productions

ZDATI[6] = @ATTHBOI1@, Z=1-4,A1=5-10 ; HBO Inc. 1 attractions
ZDATI[7] = @ATTHBOI2@, Z=1-4,A2=5-10 ; HBO Inc. 2 attractions
ZDATI[8] = @ATTHBOI3@, Z=1-4,A3=5-10 ; HBO Inc. 3 attractions
ZDATI[9] = @ATTHBOI4@, Z=1-4,A4=5-10 ; HBO Inc. 4 attractions

```

```

ZDATI[10] = @ATTHBOAL@, Z=1-4,A5=5-10 ; HBO Totl attractions

LOOKUP FILE = @IHBOFFS@,INTERPOLATE=N,SETUPPER=T,FAIL=,0,NAME = FF,
LOOKUP[1] = 1, RESULT = 2, ; HBO INC 1 F-FACTORS
LOOKUP[2] = 1, RESULT = 3, ; HBO INC 2 F-FACTORS
LOOKUP[3] = 1, RESULT = 4, ; HBO INC 3 F-FACTORS
LOOKUP[4] = 1, RESULT = 5, ; HBO INC 4 F-FACTORS
LOOKUP[5] = 1, RESULT = 6, ; HBO Extl-Interstate F-FACTORS
LOOKUP[6] = 1, RESULT = 7 ; HBO Extl-Arterial F-FACTORS

; Establish production and attraction vectors here:

SETPA P[1] = P1, P[2] = P2, P[3] = P3, P[4] = P4, P[5] = P5, P[6] = P5
SETPA A[1] = A1, A[2] = A2, A[3] = A3, A[4] = A4, A[5] = A5, A[6] = A5

MAXITERS = 7 ; specify GM iterations to be 7 to be consistent with
; prior MINUTP runs

; Establish gravity model run files & parameters
GRAVITY PURPOSE = 1, LOS=MW[11], FFACTORS= FF, KFACTORS = MW[20]
GRAVITY PURPOSE = 2, LOS=MW[12], FFACTORS= FF, KFACTORS = MW[20]
GRAVITY PURPOSE = 3, LOS=MW[13], FFACTORS= FF, KFACTORS = MW[20]
GRAVITY PURPOSE = 4, LOS=MW[14], FFACTORS= FF, KFACTORS = MW[20]
GRAVITY PURPOSE = 5, LOS=MW[15], FFACTORS= FF, KFACTORS = MW[20]
GRAVITY PURPOSE = 6, LOS=MW[16], FFACTORS= FF, KFACTORS = MW[20]

; Write out trips as integers to be consistent with MINUTP
DUMMY = ROWFIX(1)
DUMMY = ROWFIX(2)
DUMMY = ROWFIX(3)
DUMMY = ROWFIX(4)
DUMMY = ROWFIX(5)
DUMMY = ROWFIX(6)

MATO = EST.TEM,MO=1-6 ; Final HBO trip table(s)
; T1 - HBO Inc. Level 1 (i-i)
; T2 - HBO Inc. Level 2 (i-i)
; T3 - HBO Inc. Level 3 (i-i)
; T4 - HBO Inc. Level 4 (i-i)
; T5 - HBO ALL (Extl/Interst. FFs)
; T6 - HBO ALL (Extle/Arter. FFs)

; Note: The External Interstate and Arterial trips (t5 & t6) will be
; refined in the next two matrix runs

ENDRUN
;
;-----
; Refinement of External Trip Distribution Trip Tables
; (External Interstate and External Arterial Trips)
; There are two MATRIX steps
; 1) This program reads the external interstate and external arterial
; tables produced from the external trip dist. process above. The
; program wipes out trips in internal or through trip interchanges
; if any exist (there may be a small chance that some trips exist).
; It also makes sure that no extl/art. trips exist in the
; extl/interstate interchanges and vise-versa. Finally it writes out
; an array containing the column totals of the total external trips.
; to be used in the following program.
;
; 2) This program is used to make sure the row & column totals
; of the external trip files match those of P/A files produced in
; the trip generation process. the adjustment will affect the As
; much more than the P's.
;-----

```

# Appendix A. Version 2.1 D Draft #50 Scripts

```

RUN PGM=MATRIX
MATI= EST.TEM      ; read in initial ext trips from trip dist.
ARRAY COLTOTX=2191 ; set up an array for init.col totals for ext trips

MW[5] = MI.1.5 ; Get Initial Extl Interstate table
MW[6] = MI.1.6 ; Get Initial Extl Arterial table

MW[15] = MW[5] ; Store HBO trips with Extl/Interst. FFs in MW15
MW[16] = MW[6] ; Store HBO trips with Extl/Arterial FFs in MW16
;
; Now, strip away or zero out unwanted interchanges
; interstate-type external stations MW[15]
;-
IF (I = 1-2144)
  MW[15] = 0, INCLUDE= 1-2144 ; i-i ijs
ELSE
  MW[15] = 0, INCLUDE= 2145-2191 ; x-x ijs
ENDIF

IF (I = 2145,2147-2148,2150-2153,2155,2157-2165,2167-2170,
    2172-2179,2181,2185-2186,2188-2190) MW[15] = 0 ; ext art. ijs

MW[15] = 0, INCLUDE=2145,2147-2148,2150-2153,2155,2157-2165,2167-2170,
    2172-2179,2181,2185-2186,2188-2190; ext art. ijs
;
; Now, strip away or zero out unwanted interchanges
; arterial-type external stations MW[16]
;
IF (I = 1-2144)
  MW[16] = 0, INCLUDE= 1-2144 ; i-i ijs
ELSE
  MW[16] = 0, INCLUDE= 2145-2191 ; x-x ijs
ENDIF

IF (I = 2146,2149,2154,2156,2166,2171,2180,2182,2183,
    2184,2187,2191) MW[16] = 0 ; ext int.ijs

MW[16] = 0, INCLUDE=2146,2149,2154,2156,2166,2171,2180,2182,2183,
    2184,2187,2191 ; ext int.ijs
;
; -----
; ACCUMULATE COLUMN TOTALS OF ALL INITIAL EXTERNAL TRIPS
JLOOP
  COLTOTX[J]=COLTOTX[J] + MW[15][J] + MW[16][J]
ENDJLOOP
;
; NOW, WRITE OUT THE INITIAL COLUMN TOTALS FOR Later Use
IF (I=2191)
  LOOP K=2145,2191
    PRINT FORM=8,LIST=K, COLTOTX[K], FILE=IXCOLTOT.DAT
  ENDL00P
ENDIF
MATO = EXT.TEM,MO=15,16 ; Final HBO trip table(s)
; -----

RUN PGM=MATRIX
MATI[1]= EXT.TEM
MATI[2]= EST.TEM
ZDATI[1]=@PROHBOAL@, Z=1-4,RCNTL=5-10 ; total trip gen. prod.totals
ZDATI[2]=@ATTHBOAL@, Z=1-4,CCNTL=5-10 ; total trip gen. attr.totals
ZDATI[3]=IXCOLTOT.DAT, Z=#1,ICOLTOT=2

FILLMW MW[1] = MI.2.1,2,3,4
FILLMW MW[5] = MI.1.1,2

```

```

ARRAY IROWTOTA= 2191

ARRAY FROWTOT = 2191
ARRAY FCOLTOT = 2191

ARRAY ROWADJ = 2191
ARRAY COLADJ = 2191

MW[15] = MW[5] ; Store HBO trips with Extl/Interst. FFs in MW15
MW[16] = MW[6] ; Store HBO trips with Extl/Arterial FFs in MW16
;
; -----
IF (i=1-2144)
  JLOOP
    IF (ICOLTOT[j] = 0)
      COLADJ[J] = 1.0
    ELSE
      COLADJ[J] = CCNTL[j]/ICOLTOT[j]
    ENDIF
    MW[25] = ROUND (MW[15][J]*COLADJ[J])
    MW[26] = ROUND (MW[16][J]*COLADJ[J])
    FCOLTOT[J] = FCOLTOT[J] + MW[25][J] + MW[26][J]
  endjloop
  ELSE
    irowtota[i] = ROWSUM(15) + rowsum(16)
  JLOOP
    IF (IrowTOTA[i] = 0)
      rowADJ[i] = 1.0
    ELSE
      rowADJ[i] = RCNTL[i]/IROWTOTA[i]
    ENDIF
    MW[25] = ROUND (MW[15][J]*ROWADJ[i])
    MW[26] = ROUND (MW[16][J]*ROWADJ[i])
    FROWTOT[i] = FROWTOT[i] + MW[25][j] + MW[26][j]
  endjloop
  endif
;
; Now replace full external trip tables with 'trimmed' tables
; and compute Final Total Trip Table

dummy = rowfix(25) ; bucket round totals
dummy = rowfix(26) ;

MW[5] = MW[25]
MW[6] = MW[26]
DUMMY=ROWADD(7,1,2,3,4,5,6)

MATO = @HBOVDOUT@,MO=1-7 ; Final HBO trip table(s)

IF (I=2191) ; if at the last zone
  LIST = ' TAZ inital contrl final adjftr ',FILE=xcolHBO.asc
  LOOP INDEX = 2145,2191
    LIST = INDEX(4), ' ',ICOLTOT[INDEX](8), ' ',CCNTL[INDEX](8),
        FCOLTOT[INDEX](8), ' ',coladj[INDEX](8.3),
        FILE=xcolHBO.asc
  ENDL00P

  LIST = ' TAZ inital contrl final adjftr ',FILE=xrowHBO.asc
  LOOP INDEX = 2145,2191
    LIST = INDEX(4), ' ',IROWTOTA[INDEX](8),RCNTL[INDEX](8),
        FROWTOT[INDEX](8),rowadj[INDEX](8.3),

```

# Appendix A. Version 2.1 D Draft #50 Scripts

```

FILE=xROWHBO.asc
ENDLOOP
ENDIF
;-----
; END of HBO Trip Distribution
;-----

; ////////////////////////////////////////////////////////////////////
; ////////////// 8) Start NHB, Med Trk, Hvy Trk Trip Distribution Here: //////////
; ////////////////////////////////////////////////////////////////////

RUN PGM=TRIPDIST
MATI= NHBKI.DAT, ; Composite Time Impedances NHB Inc.Levels 1-4
SOVOPTT.SKF, ; Off-Pk Time Imped. for Intl NHB Trips
SOVOPTTE.SKF, ; Off Pk Time Imped. for Extl/Intl Trip Dist.
@NHBK@, ; NHB Kfactors (Scaled by 1000.0)
@MTKK@, ; Med Truck Kfactors (Scaled by 1000.0)
@HTKK@, ; Hvy Truck Kfactors (Scaled by 1000.0)

; Put impedance matrices in work tables 11-13
; tab 11 is comp.time for Intl NHB Trips Purp 1
; tab 12 is SOV Off Pk time for Intl Mtk, HTK Trips Purp 2,3
; tab 13 is SOV Off Pk time for Extl NHB, Mtk, HTK Trips Purp 4-7
; Offpk SOV time. All impedance and time values are in whole minutes.

FILLMW MW[11] = MI.1.1,MI.2.1,MI.3.1

; Put K-factor matrices in work tables 20-22
; The k-factor values are scaled by 1000s (eg, a mtx value of '1000'=1.0)
; the NHB K-factors are applied across all Intl&Extl distributions

MW[20] = MI.4.1 ; NHB Kfactors
MW[21] = MI.5.1 ; MTK Intl K-Factors
MW[22] = MI.6.1 ; HTK Intl K-Factors
DUMMY = ROWFAC(20,0.001) ; scale NHB k-factor's to 'true' units
DUMMY = ROWFAC(21,0.001) ; scale MTK k-factor's to 'true' units
DUMMY = ROWFAC(22,0.001) ; scale HTK k-factor's to 'true' units

ZDATI[1] = @PRONHBIN@, Z=1-4,P1=5-10 ; Intl NHB productions
ZDATI[2] = @PROMTKIN@, Z=1-4,P2=5-10 ; Intl Med Trk productions
ZDATI[3] = @PROHTKIN@, Z=1-4,P3=5-10 ; Intl Hvy Trk productions
ZDATI[4] = @PRONHBAL@, Z=1-4,P4=5-10 ; Intl/Extl NHB productions
ZDATI[5] = @PROMTKAL@, Z=1-4,P5=5-10 ; Intl/Extl MTK productions
ZDATI[6] = @PROHTKAL@, Z=1-4,P6=5-10 ; Intl/Extl HTK productions

LOOKUP FILE = @IN_TFFS@, INTERPOLATE=N, SETUPPER=T, FAIL=, 0, ,NAME = FF,
LOOKUP[1] = 1, RESULT = 2, ; NHB Internal F-FACTORS
LOOKUP[2] = 1, RESULT = 3, ; MTK Internal F-FACTORS
LOOKUP[3] = 1, RESULT = 4, ; HTK Internal F-FACTORS
LOOKUP[4] = 1, RESULT = 5, ; NHB Extl/Interst F-FACTORS
LOOKUP[5] = 1, RESULT = 6, ; NHB Extl/Arterial F-FACTORS
LOOKUP[6] = 1, RESULT = 7, ; MTK External F-FACTORS
LOOKUP[7] = 1, RESULT = 8 ; HTK External F-FACTORS

; Establish production and attraction vectors here:
; Note here that I am reading in production z-files for BOTH
; Production and Attraction Vectors. Normally I'd read in 7 prod.
; and 7 attr. files but this Version of TP+ only allows for 10 z-files
; so I'm improvising a little bit. Anyhow the P/A files are 'supposed'
; to be balanced, aren't they??
;
SETPA P[1]=P1,P[2]=P2,P[3]=P3,P[4]=P4,P[5]=P4,P[6]=P5,P[7]=P6
SETPA A[1]=P1,A[2]=P2,A[3]=P3,A[4]=P4,A[5]=P4,A[6]=P5,A[7]=P6

MAXITERS = 7 ; specify GM iterations to be 7 to be consistent with

```

```

; prior MINUTP runs

; Establish gravity model run files & parameters
GRAVITY PURPOSE = 1, LOS=MW[11], PFACTORS= FF, KFACTORS = MW[20] ;nhbin
GRAVITY PURPOSE = 2, LOS=MW[12], PFACTORS= FF, KFACTORS = MW[21] ;mtkin
GRAVITY PURPOSE = 3, LOS=MW[12], PFACTORS= FF, KFACTORS = MW[22] ;htkin
GRAVITY PURPOSE = 4, LOS=MW[13], PFACTORS= FF, KFACTORS = MW[20] ;nhbxi
GRAVITY PURPOSE = 5, LOS=MW[13], PFACTORS= FF, KFACTORS = MW[20] ;nhbxa
GRAVITY PURPOSE = 6, LOS=MW[13], PFACTORS= FF, KFACTORS = MW[21] ;mtkex
GRAVITY PURPOSE = 7, LOS=MW[13], PFACTORS= FF, KFACTORS = MW[22] ;htkex

; Write out trips as integers to be consistent with MINUTP

DUMMY = ROWFIX(1)
DUMMY = ROWFIX(2)
DUMMY = ROWFIX(3)
DUMMY = ROWFIX(4)
DUMMY = ROWFIX(5)
DUMMY = ROWFIX(6)
DUMMY = ROWFIX(7)

MATO = EST.TEM,MO=1-7 ; Final NHB Truck trip tables:
; T1 - NHB (i-i)
; T2 - MTK (i-i)
; T3 - HTK (i-i)
; T4 - NHB (Extl/Interst)
; T5 - NHB (Extl/Arterial)
; T6 - MTK (Extl)
; T7 - HTK (Extl)
; Note: The External Interstate and Arterial trips (t4 - t7) will be
; refined in the next two matrix runs

ENDRUN
;-----
; Refinement of External Trip Distribution Trip Tables
; (External Interstate and External Arterial Trips)
; There are two MATRIX steps
; 1) This program reads the external interstate and external arterial
; tables produced from the external trip dist. process above. The
; program wipes out trips in internal or through trip interchanges
; if any exist (there may be a small chance that some trips exist).
; It also makes sure that no extl/art. trips exist in the
; extl/interstate interchanges and vise-versa. Finally it writes out
; an array containing the column totals of the total external trips.
;-----

RUN PGM=MATRIX
MATI= EST.TEM ; read in initial ext trips from trip dist.
ARRAY COLTOTN=2191 ; set up array for init.col totals for NHB ext
ARRAY COLTOTM=2191 ; set up array for init.col totals for MTK ext trips
ARRAY COLTOTH=2191 ; set up array for init.col totals for HTK ext trips

MW[5] = MI.1.4 ; Get Initial NHB Extl Interstate table
MW[6] = MI.1.5 ; Get Initial NHB Extl Arterial table
MW[7] = MI.1.6 ; Get Initial MTK Extl table
MW[8] = MI.1.7 ; Get Initial HTK Extl table

MW[15] = MW[5] ; Store NHB Extl/Interst. Trips in MW15
MW[16] = MW[6] ; Store NHB Extl/Arterial Trips in MW16
MW[17] = MW[7] ; Store MTK External Trips in MW17
MW[18] = MW[8] ; Store HTK External Trips in MW18
;
; Now, strip away or zero out unwanted interchanges

```



# Appendix A. Version 2.1 D Draft #50 Scripts

```

; interstate-type external stations MW[15]
;-
IF (I = 1-2144)
  MW[15] = 0, INCLUDE= 1-2144 ; i-i ijs
ELSE
  MW[15] = 0, INCLUDE= 2145-2191 ; x-x ijs
ENDIF

IF (I = 2145,2147-2148,2150-2153,2155,2157-2165,2167-2170,
    2172-2179,2181,2185-2186,2188-2190) MW[15] = 0 ; ext art. ijs

MW[15] = 0, INCLUDE=2145,2147-2148,2150-2153,2155,2157-2165,2167-2170,
    2172-2179,2181,2185-2186,2188-2190; ext art. ijs

;
; Now, strip away or zero out unwanted interchanges
; arterial-type external stations MW[16]
;
IF (I = 1-2144)
  MW[16] = 0, INCLUDE= 1-2144 ; i-i ijs
ELSE
  MW[16] = 0, INCLUDE= 2145-2191 ; x-x ijs
ENDIF

IF (I = 2146,2149,2154,2156,2166,2171,2180,2182,2183,
    2184,2187,2191) MW[16] = 0 ; ext int.ijs

MW[16] = 0, INCLUDE=2146,2149,2154,2156,2166,2171,2180,2182,2183,
    2184,2187,2191 ; ext int.ijs

;
; Now, strip away or zero out unwanted interchanges
; for Medium Trucks MW[17]
;-
IF (I = 1-2144)
  MW[17] = 0, INCLUDE= 1-2144 ; i-i ijs
ELSE
  MW[17] = 0, INCLUDE= 2145-2191 ; x-x ijs
ENDIF

;
; Now, strip away or zero out unwanted interchanges
; for Heavy Trucks MW[18]
;
IF (I = 1-2144)
  MW[18] = 0, INCLUDE= 1-2144 ; i-i ijs
ELSE
  MW[18] = 0, INCLUDE= 2145-2191 ; x-x ijs
ENDIF

;
; -----
; ACCUMULATE COLUMN TOTALS of ALL INITIAL EXTERNAL TRIPS
JLOOP
  COLTOTN[J]=COLTOTN[J] + MW[15][J] + MW[16][J] ;Col. Total NHB Extl
  COLTOTM[J]=COLTOTM[J] + MW[17][J] ;Col. Total MTK Extl
  COLTOTH[J]=COLTOTH[J] + MW[18][J] ;Col. Total HTK Extl
ENDJLOOP

;
; NOW, WRITE OUT THE INITIAL COLUMN TOTALS FOR Later Use
IF (I=2191)
  LOOP K=2145,2191
    PRINT FORM=8,LIST=K, COLTOTN[K], COLTOTM[K], COLTOTH[K],
      FILE=IXCOLTOT.DAT
  ENDLOOP
ENDIF
MATO = EXT.TEM,MO=15,16,17,18 ; Final Extl NHB, Mtk, HTK trip table(s)

```

```

; -----
RUN PGM=MATRIX ; Adjust NHB Externals
MATI[1]= EXT.TEM
MATI[2]= EST.TEM
ZDATI[1] = @PRONHBAL@, Z=1-4,RCNTL=5-10 ; NHB Trip Production Controls
ZDATI[2] = @ATTNHBAL@, Z=1-4,CCNTL=5-10 ; NHB Trip Attraction Controls
ZDATI[3] = IXCOLTOT.DAT, Z=#1,ICOLTOT=2

FILLMW MW[1] = MI.2.1 ; mw 1 i-i nhb
FILLMW MW[4] = MI.1.1,2 ; mw 4-5 ext nhb(intst,art)

ARRAY IROWTOTA = 2191
ARRAY FROWTOT = 2191
ARRAY FCOLTOT = 2191
ARRAY ROWADJ = 2191
ARRAY COLADJ = 2191

MW[14] = MW[4] ; Extr/Int. trips to be adj. --Start w/ initial trips
MW[15] = MW[5] ; Extr/Art. trips to be adj. --Start w/ initial trips

IF (I=1-2144)
  JLOOP
    IF (ICOLTOT[J] = 0)
      COLADJ[J] = 1.0
    ELSE
      COLADJ[J] = CCNTL[J] / ICOLTOT[J]
    ENDIF

    MW[24] = ROUND (MW[14] * COLADJ[J])
    MW[25] = ROUND (MW[15] * COLADJ[J])
    FCOLTOT[J] = FCOLTOT[J] + MW[24] + MW[25]
  ENDJLOOP
ELSE
  IROWTOTA[I] = ROWSUM(14) + ROWSUM(15)

  JLOOP
    IF (IROWTOTA[I] = 0)
      ROWADJ[I] = 1.0
    ELSE
      ROWADJ[I] = RCNTL[I] / IROWTOTA[I]
    ENDIF

    MW[24] = ROUND (MW[14][J] * ROWADJ[I])
    MW[25] = ROUND (MW[15][J] * ROWADJ[I])
    FROWTOT[I] = FROWTOT[I] + MW[24][J] + MW[25][J]
  ENDJLOOP
ENDIF

dummy = rowfix(24) ; bucket round totals
dummy = rowfix(25) ;

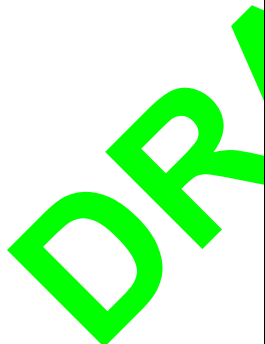
MW[4] = MW[24] ; Replace initial nhb ext/int trips w/ adj trips
MW[5] = MW[25] ; Replace initial nhb ext/art trips w/ adj trips

DUMMY=ROWADD(10,1,4,5) ; total NHB trips

MATO[1] = @NHBTDOUT@,MO=1,4,5,10 ; Final NHB trip table(s) 1-4
; intl,ext/int,ext/art,total

IF (I=2191) ; if at the last zone
  LIST = ' TAZ inital contrl final adjftr ',FILE=xcolNHB.asc
  LOOP INDEX = 2145,2191
    LIST = INDEX(4),' ',ICOLTOT[INDEX](8),' ',CCNTL[INDEX](8),
      FCOLTOT[INDEX](8),' ',coladj[INDEX](8.3),

```



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```

        FILE=xcolNHB.asc
    ENDLOOP

    LIST = ' TAZ inital contrl final adjftr ',FILE=xrownHB.asc
    LOOP INDEX = 2145,2191
        LIST = INDEX(4), ' ',IROWTOTA[INDEX](8),RCNTL[INDEX](8),
            FROWTOT[INDEX](8),rowadj[INDEX](8.3),
        FILE=xROWNHB.asc
    ENDLOOP
ENDIF
;-----
RUN PGM=MATRIX ; Adjust Medium Truck Externals
MATI[1]= EXT.TEM
MATI[2]= EST.TEM
ZDATI[1] = @PROMTKAL@, Z=1-4,RCNTL=5-10 ; MTK Trip Production Controls
ZDATI[2] = @ATTMTKAL@, Z=1-4,CCNTL=5-10 ; MTK Trip Attraction Controls
ZDATI[3] = IXCOLTOT.DAT, Z=#1,ICOLTOT=3

FILLMW MW[1] = MI.2.2 ; i-i mtk
FILLMW MW[4] = MI.1.3 ; ext mtk

ARRAY IROWTOTA = 2191
ARRAY FROWTOT = 2191
ARRAY FCOLTOT = 2191
ARRAY ROWADJ = 2191
ARRAY COLADJ = 2191

MW[14] = MW[4] ; Extr/Int. trips to be adj. --Start w/ initial trips

IF (I=1-2144)
    JLOOP
        IF (ICOLTOT[J] = 0)
            COLADJ[J] = 1.0
        ELSE
            COLADJ[J] = CCNTL[J] / ICOLTOT[J]
        ENDIF

        MW[24] = ROUND (MW[14] * COLADJ[J])
        FCOLTOT[J] = FCOLTOT[J] + MW[24]
    ENDJLOOP
ELSE
    IROWTOTA[I] = ROWSUM(14)

    JLOOP
        IF (IROWTOTA[I] = 0)
            ROWADJ[I] = 1.0
        ELSE
            ROWADJ[I] = RCNTL[I] / IROWTOTA[I]
        ENDIF

        MW[24] = ROUND (MW[14][J] * ROWADJ[I])
        FROWTOT[I] = FROWTOT[I] + MW[24][J]
    ENDJLOOP
ENDIF

dummy = rowfix(24) ; bucket round totals

MW[4] = MW[24] ; Replace initial MTK ext trips w/ adj trips

DUMMY=ROWADD(10,1,4) ; total MTK trips

MATO[1] = @MTKTDOUT@,MO=1,4,10 ; Final MTK trip table(s) 1-3
; intl,ext,total

```

```

IF (I=2191) ; if at the last zone
    LIST = ' TAZ inital contrl final adjftr ',FILE=xcolMTK.asc
    LOOP INDEX = 2145,2191
        LIST = INDEX(4), ' ',ICOLTOT[INDEX](8), ' ',CCNTL[INDEX](8),
            FCOLTOT[INDEX](8), ' ',coladj[INDEX](8.3),
        FILE=xcolMTK.asc
    ENDLOOP

    LIST = ' TAZ inital contrl final adjftr ',FILE=xrowMTK.asc
    LOOP INDEX = 2145,2191
        LIST = INDEX(4), ' ',IROWTOTA[INDEX](8),RCNTL[INDEX](8),
            FROWTOT[INDEX](8),rowadj[INDEX](8.3),
        FILE=xrowMTK.asc
    ENDLOOP
ENDIF
;-----
RUN PGM=MATRIX ; Adjust Heavy Truck Externals
MATI[1]= EXT.TEM
MATI[2]= EST.TEM
ZDATI[1] = @PROMHTKAL@, Z=1-4,RCNTL=5-10 ; HTK Trip Production Controls
ZDATI[2] = @ATTHTKAL@, Z=1-4,CCNTL=5-10 ; HTK Trip Attraction Controls
ZDATI[3] = IXCOLTOT.DAT, Z=#1,ICOLTOT=4

FILLMW MW[1] = MI.2.3 ; i-i htk
FILLMW MW[4] = MI.1.4 ; ext htk

ARRAY IROWTOTA = 2191
ARRAY FROWTOT = 2191
ARRAY FCOLTOT = 2191
ARRAY ROWADJ = 2191
ARRAY COLADJ = 2191

MW[14] = MW[4] ; Extr/Int. trips to be adj. --Start w/ initial trips

IF (I=1-2144)
    JLOOP
        IF (ICOLTOT[J] = 0)
            COLADJ[J] = 1.0
        ELSE
            COLADJ[J] = CCNTL[J] / ICOLTOT[J]
        ENDIF

        MW[24] = ROUND (MW[14] * COLADJ[J])
        FCOLTOT[J] = FCOLTOT[J] + MW[24]
    ENDJLOOP
ELSE
    IROWTOTA[I] = ROWSUM(14)

    JLOOP
        IF (IROWTOTA[I] = 0)
            ROWADJ[I] = 1.0
        ELSE
            ROWADJ[I] = RCNTL[I] / IROWTOTA[I]
        ENDIF

        MW[24] = ROUND (MW[14][J] * ROWADJ[I])
        FROWTOT[I] = FROWTOT[I] + MW[24][J]
    ENDJLOOP
ENDIF

dummy = rowfix(24) ; bucket round totals

MW[4] = MW[24] ; Replace initial HTK ext trips w/ adj trips

```

# Appendix A. Version 2.1 D Draft #50 Scripts

```

DUMMY=ROWADD(10,1,4) ; total HTK trips

MATO[1] = @HTKTDOUT@,MO=1,4,10 ; Final HTK trip table(s) 1-3
; intl,ext,total

IF (I=2191) ; if at the last zone
LIST = ' TAZ inital contrl final adjftr ',FILE=xcolHTK.asc
LOOP INDEK = 2145,2191
LIST = INDEK(4),' ',ICOLTOT[INDEK](8),' ',CCNTL[INDEK](8),
FCOLTOT[INDEK](8),' ',coladj[INDEK](8.3),
FILE=xcolHTK.asc
ENDLOOP

LIST = ' TAZ inital contrl final adjftr ',FILE=xrowHTK.asc
LOOP INDEK = 2145,2191
LIST = INDEK(4),' ',IROWTOTA[INDEK](8),RCNTL[INDEK](8),
FROWTOT[INDEK](8),rowadj[INDEK](8.3),
FILE=xrowHTK.asc
ENDLOOP
ENDIF

;-----
; END of NHB & Medium, Heavy Truck Trip Distribution
;-----

;
; ////////////////////////////////////////////////////
; ////////////// 9) Get final trip distribution totals //
; ////////////// and prepare input trips for the mode choice model //
; ////////////////////////////////////////////////////

RUN PGM=MATRIX
ZONES = 2191

MATI[1]= @HBWTDOUT@
MATI[2]= @HBSTDOUT@
MATI[3]= @HBOTDOUT@
MATI[4]= @NHBTDOUT@
MATI[5]= @MTKTDOUT@
MATI[6]= @HTKTDOUT@

MW[1] = MI.1.7 ; Total HBW Trips
MW[2] = MI.2.7 ; Total HBS Trips
MW[3] = MI.3.7 ; Total HBO Trips
MW[4] = MI.4.4 ; Total NHB Trips
MW[5] = MI.5.3 ; Total MTK Trips
MW[6] = MI.6.3 ; Total HTK Trips

MATO[1]= %_iter_%_hbwmu.ptt,MO=1,FORMAT=MINUTP
MATO[2]= %_iter_%_hbomu.ptt,MO=2,FORMAT=MINUTP
MATO[3]= %_iter_%_hbmomu.ptt,MO=3,FORMAT=MINUTP
MATO[4]= %_iter_%_nhbmomu.ptt,MO=4,FORMAT=MINUTP
ENDRUN
;
;-----
; Step 10.
; Standard 23x23 Summaries
; Trip Distribution (HBW,HBS,HBO,NHB,MTK,HTK) and formats
; them in neat jurisdictional summaries (23x23)
;
;-----

```

```

;
COPY FILE=DJ.EQV
; -- Start of Jurisdiction-to-TAZ equivalency --
D 1=1-88 ; DC cr
D 2=89-319 ; DC ncr
D 3=320-639 ; MTG MD
D 4=640-1029 ; PG MD
D 5=1230-1238 ; ARL core
D 6=1239-1329 ; ARLcnore
D 7=1330-1399 ; ALX VA
D 8=1400-1779 ; FFX VA
D 9=1780-1919 ; LDN VA
D 10=1920-2069 ; PW VA
D 11=1030-1059 ; FRD MD
D 12=1060-1079 ; CAR MD
D 13=1080-1109 ; HOW MD
D 14=1110-1149 ; AAR MD
D 15=1150-1169 ; CAL
D 16=1170-1199 ; STM
D 17=1200-1229 ; CHS MD
D 18=2115-2129 ; PAU VA
D 19=2030-2039 ; STA VA
D 20=2130-2134,2135-2144 ; CLK/JEF
D 21=2100-2104,2105-2114 ; FBG/SPTS
D 22=2070-2079 ; KGEOVA
D 23=2145-2191 ; EXTRNLS
; -- end of Jurisdiction-to-TAZ equivalency --
ENDCOPY

RUN PGM=MATRIX
ZONES=2191
MATI[1]= @HBWTDOUT@
MATI[2]= @HBSTDOUT@
MATI[3]= @HBOTDOUT@
MATI[4]= @NHBTDOUT@
MATI[5]= @MTKTDOUT@
MATI[6]= @HTKTDOUT@

MW[1] = MI.1.7; HBW TRIP TABLE/TAZ-LEVEL
MW[2] = MI.2.7; HBS TRIP TABLE/TAZ-LEVEL
MW[3] = MI.3.7; HBO TRIP TABLE/TAZ-LEVEL
MW[4] = MI.4.4; NHB TRIP TABLE/TAZ-LEVEL
MW[5] = MI.5.3; MTK TRIP TABLE/TAZ-LEVEL
MW[6] = MI.6.3; HTK TRIP TABLE/TAZ-LEVEL

; -- PLACEMARKER TABLES - FUTURE WORK
MW[11] = 0 ;MI.11.@TABNO1@ HBW TRIP TABLE/TAZ-LEVEL
MW[12] = 0 ;MI.12.@TABNO2@ HBS TRIP TABLE/TAZ-LEVEL
MW[13] = 0 ;MI.13.@TABNO3@ HBO TRIP TABLE/TAZ-LEVEL
MW[14] = 0 ;MI.14.@TABNO4@ NHB TRIP TABLE/TAZ-LEVEL
MW[15] = 0 ;MI.15.@TABNO5@ MTK TRIP TABLE/TAZ-LEVEL
MW[16] = 0 ;MI.16.@TABNO6@ HTK TRIP TABLE/TAZ-LEVEL

FILEO MATO[1] = HBW.SQZ MO=1,11 ; OUTPUT HBW TABLE(S), SQUEEZED
MATO[2] = HBS.SQZ MO=2,12 ; OUTPUT HBS TABLE(S), SQUEEZED
MATO[3] = HBO.SQZ MO=3,13 ; OUTPUT HBO TABLE(S), SQUEEZED
MATO[4] = NHB.SQZ MO=4,14 ; OUTPUT NHB TABLE(S), SQUEEZED
MATO[5] = MTK.SQZ MO=5,15 ; OUTPUT MTK TABLE(S), SQUEEZED
MATO[6] = HTK.SQZ MO=6,16 ; OUTPUT HTK TABLE(S), SQUEEZED

; renumber OUT.MAT according to DJ.EQV
RENUMBER FILE=DJ.EQV, MISSINGZI=M, MISSINGZO=W
ENDRUN

;
; LOOP PURP=1,6 ; Loop for Each Purpose

```



# Appendix A. Version 2.1 D Draft #50 Scripts

```

;
; Global Variables:
; SQFNAME Name of squeezed modal trip table(s)
; DESCRIPT Description
; PURPOSE Purpose
; MODE Mode
; DCML Decimal specification
; TABTYPE Table type(1/2), i.e., -involves 1 or 2 trip tables
; SCALE=1 Scale factor to be applied (if desired)
; OPER='+' Operation(if tabtype=2) Tab1(?)Tab2=Result
;
DESCRIPT = 'SIMULATION-%_iter_% Itr Year: %_year_% Alt: %_alt_%'
IF (PURP=1)
SQFNAME = 'HBW.SQZ'
PURPOSE = 'HBW'
MODE = 'MOTORIZED PERSON'
DCML = 0
TABTYPE = 1
SCALE = 1
OPER = '+'
ELSEIF (PURP=2)
SQFNAME = 'HBS.SQZ'
PURPOSE = 'HBS'
MODE = 'MOTORIZED PERSON'
DCML = 0
TABTYPE = 1
SCALE = 1
OPER = '+'
ELSEIF (PURP=3)
SQFNAME = 'HBO.SQZ'
PURPOSE = 'HBO'
MODE = 'MOTORIZED PERSON'
DCML = 0
TABTYPE = 1
SCALE = 1
OPER = '+'
ELSEIF (PURP=4)
SQFNAME = 'NHB.SQZ'
PURPOSE = 'NHB'
MODE = 'MOTORIZED PERSON'
DCML = 0
TABTYPE = 1
SCALE = 1
OPER = '+'
ELSEIF (PURP=5)
SQFNAME = 'MTK.SQZ'
PURPOSE = 'MTK'
MODE = 'TRUCKS'
DCML = 0
TABTYPE = 1
SCALE = 1
OPER = '+'
ELSEIF (PURP=6)
SQFNAME = 'HTK.SQZ'
PURPOSE = 'HTK'
MODE = 'TRUCKS'
DCML = 0
TABTYPE = 1
SCALE = 1
OPER = '+'
ENDIF
;
RUN PGM=MATRIX
ZONES=23
FILEI MATI=@SQFNAME@
ARRAY CSUM=23,CSUM1=23,CSUM2=23
;

```

```

; -- Table Cell Value decalaration or computation (in MW[1])
; -----
FILLMW MW[1]=MI.1.1,2 ; read input tables in MW 2,3

IF (@TABTYPE@ = 2)
FILLMW MW[2]=MI.1.1,2 ; read input tables in MW 2,3
ENDIF

IF (@TABTYPE@=2) ; Cell Value
JLOOP ; computed for
IF (MW[3][J]>0) MW[1]=MW[2]*@SCALE@@OPER@MW[3]; special summaries-
ENDJLOOP ; calculation in MW[1]
ENDIF

; -----
; --- ROW Marginal declaration or computation ---
; -----
RSUM = ROWSUM(1) ; 'normal' table- row summary value

IF (@TABTYPE@=2)
RSUM = @SCALE*@ROWSUM(2)@OPER@ROWSUM(3) ; non-'normal' table
ENDIF
; compute the row marginal(%)

; -----
; --- COLUMN/Total Marginal Accumulation ---
; --- The computation (if necessary) is done below ---
; -----
JLOOP ; COL/Total Accumulation
CSUM[J] = CSUM[J] + MW[1][J] ; for 'normal' table
TOTAL = TOTAL + MW[1] ;
ENDJLOOP

IF (@TABTYPE@=2)
JLOOP ; COL/Total Accumulation
CSUM1[J] = CSUM1[J] + MW[2][J] ; for non-'normal' Table
TOTAL1 = TOTAL1 + MW[2] ;
CSUM2[J] = CSUM2[J] + MW[3][J] ;
TOTAL2 = TOTAL2 + MW[3] ;
ENDJLOOP
ENDIF

IF (I=1) ; print header

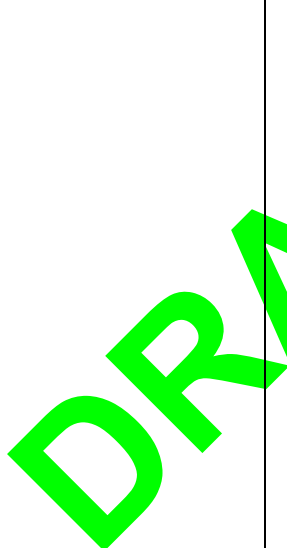
PRINT LIST='/bt ', '@DESCRIPT@'
PRINT LIST= ' ', 'Purpose: ', '@PURPOSE@', ' MODE: ', '@MODE@'
PRINT LIST= ' '

PRINT LIST=' DESTINATION'
PRINT LIST=' ORIGIN |',
' 1',' 2',' 3',' 4',
' 5',' 6',' 7',' 8',' 9',
' 10',' 11',' 12',' 13',' 14',
' 15',' 16',' 17',' 18',' 19',
' 20',' 21',' 22',' 23',' | TOTAL'

PRINT LIST='=====',
'=====',
'=====',
'====='

ENDIF

```



Appendix A. Version 2.1 D Draft #50 Scripts

```

IF (I=1)
  CURDIST=STR(I,2,1)+' DC CR'+ '|'; Make row header
ELSEIF (I=2)
  CURDIST=STR(I,2,1)+' DC NC'+ '|'; Make row header
ELSEIF (I=3)
  CURDIST=STR(I,2,1)+' MTG '+ '|'; Make row header
ELSEIF (I=4)
  CURDIST=STR(I,2,1)+' PG '+ '|'; Make row header
ELSEIF (I=5)
  CURDIST=STR(I,2,1)+' ARLCR'+ '|'; Make row header
ELSEIF (I=6)
  CURDIST=STR(I,2,1)+' ARNCR'+ '|'; Make row header
ELSEIF (I=7)
  CURDIST=STR(I,2,1)+' ALX '+ '|'; Make row header
ELSEIF (I=8)
  CURDIST=STR(I,2,1)+' FFX '+ '|'; Make row header
ELSEIF (I=9)
  CURDIST=STR(I,2,1)+' LDN '+ '|'; Make row header
ELSEIF (I=10)
  CURDIST=STR(I,2,1)+' PW '+ '|'; Make row header
ELSEIF (I=11)
  CURDIST=STR(I,2,1)+' FRD '+ '|'; Make row header
ELSEIF (I=12)
  CURDIST=STR(I,2,1)+' CAR '+ '|'; Make row header
ELSEIF (I=13)
  CURDIST=STR(I,2,1)+' HOW '+ '|'; Make row header
ELSEIF (I=14)
  CURDIST=STR(I,2,1)+' AAR '+ '|'; Make row header
ELSEIF (I=15)
  CURDIST=STR(I,2,1)+' CAL '+ '|'; Make row header
ELSEIF (I=16)
  CURDIST=STR(I,2,1)+' STM '+ '|'; Make row header
ELSEIF (I=17)
  CURDIST=STR(I,2,1)+' CHS '+ '|'; Make row header
ELSEIF (I=18)
  CURDIST=STR(I,2,1)+' FAU '+ '|'; Make row header
ELSEIF (I=19)
  CURDIST=STR(I,2,1)+' STA '+ '|'; Make row header
ELSEIF (I=20)
  CURDIST=STR(I,2,1)+' CL/JF'+ '|'; Make row header
ELSEIF (I=21)
  CURDIST=STR(I,2,1)+' SP/FB'+ '|'; Make row header
ELSEIF (I=22)
  CURDIST=STR(I,2,1)+' KGEO '+ '|'; Make row header
ELSEIF (I=23)
  CURDIST=STR(I,2,1)+' EXTL '+ '|'; Make row header
ELSE (I=24)
  CURDIST=STR(I,2,1)+' TOTAL'+ '|'; Make row header
ENDIF

PRINT FORM=7.@DCML@ LIST=CURDIST, MW[1][1],MW[1][2],MW[1][3],MW[1][4],MW[1][5],
MW[1][6],MW[1][7],MW[1][8],MW[1][9],MW[1][10],
MW[1][11],MW[1][12],MW[1][13],MW[1][14],MW[1][15],
MW[1][16],MW[1][17],MW[1][18],MW[1][19],MW[1][20],
MW[1][21],MW[1][22],MW[1][23], ' |',RSUM

IF (I==ZONES)
; Now at the end of Processed zone matrix
; Do final Column/Grand Total Computations
IF (@TABTYPE@=2)
  LOOP IDX = 1,ZONES
  IF (CSUM2[IDX] = 0)
    CSUM[IDX] = 0
  ELSE
    CSUM[IDX] = @SCALE@* CSUM1[IDX] @OPER@ CSUM2[IDX]
  ENDIF
ENDLOOP
ENDIF

```

```

IF (@TABTYPE@=2 )
  IF (TOTAL2 = 0)
    TOTAL = 0
  ELSE
    TOTAL = @SCALE@ *TOTAL1 @OPER@ TOTAL2
  ENDIF
ENDIF

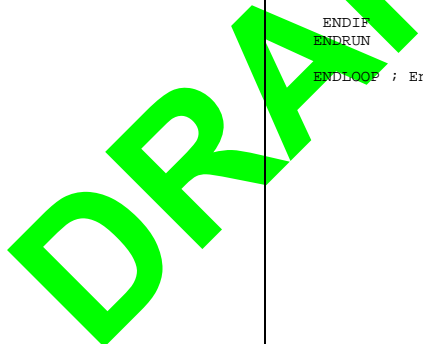
; End of final Column/Grand Total Computations

PRINT LIST='=====',
'=====',
'=====',
'=====';

PRINT FORM=8.@DCML@,
LIST=' TOTAL ',',',CSUM[1],',',CSUM[3],
',',CSUM[5],',',CSUM[7],',',CSUM[9],
',',CSUM[11],',',CSUM[13],',',CSUM[15],
',',CSUM[17],',',CSUM[19],',',CSUM[21],
',',CSUM[23],'|'
PRINT FORM=8.@DCML@,
LIST='/et ',CSUM[2],
',',CSUM[4],',',CSUM[6],',',CSUM[8],
',',CSUM[10],',',CSUM[12],',',CSUM[14],
',',CSUM[16],',',CSUM[18],',',CSUM[20],
',',CSUM[22],',',TOTAL(9.@DCML@)

ENDIF
ENDRUN
ENDLOOP ; End Loop

```



## Update\_wklink.s

```

;-----;
; Update_WkLinks.S ;
; Program updates AM/Off-PK walk access links sets to reflect a merging of ;
; a current year and previous year walk access link set. The updated/merged ;
; file will ensure that walk access consistency is met between both years. ;
; The files each contain three variables: ;
; Anode, Bnode, and Distance in 100ths of mi. If a given link exists ;
; in both sets with different distances- the MINIMUM distance is used. ;
;-----;
LOOP PERIOD =1,2
  IF (PERIOD=1)
    PRD='AM'
  ENDIF
  IF (PERIOD=2)
    PRD='OP'
  ENDIF

run pgm=hwynet ; 'network 1' is previous walk link set
; 'network 2' is current walk link set
linki[1]=inputs\walk_@PRD@.old, ; <<-- 'previous year' walk acc set
var=a,11-15,var=b,17-21,var=dist00,28-32
linki[2]=walk_@PRD@.tb, ; <<-- 'current' walk access set
var=a,11-15,var=b,17-21,var=dist00,28-32

; linko=combo.txt, ; write out a combined file
; format=tst,form=6.0 include=a,b

zones=2191 ;

```

```

compare record=1-2

if (_compare= 0) ;
  _tempstr= 'Case 1/link in old(1)/new(2) walk link set ' ;
  findist = li.1.dist00

endif

if (_compare> 0) ;
  _tempstr= 'Case 2/link in old(1)/new (2) walk link set but DIST.DIFFERENT'
  distdiff=li.1.dist00 - li.2.dist00
  findist =MIN(li.1.dist00,li.2.dist00)
endif

if (_compare= -1)
  _tempstr='Case 3/link not in old(1) but in new(2) walk link set'
  findist = li.2.dist00

endif

if (_compare= -2)
  _tempstr='Case 4/link in old(1) but not in new(2) walk link set'
  findist = li.1.dist00
endif

;
; write out 'merged walk link file unless walk link exist
;
if (!(_compare= -2 & b = 7301-7450,7600-7802))
  list='SUPPORT N=',a(5),'-',b(5),' DIST=',findist(5),
  ' ONEWAY=N MODES= 16 SPEED= 3 ; ',_tempstr, file =walk_@PRD@.upd
endif
ENDRUN
ENDLOOP

```

DRAFT

---

## Appendix B. Version 2.1 D Draft #50 Control Files

cogmcal.ctl.....	B-1
ct2_am.ctl.....	B-1
ct2_op.ctl.....	B-1
GIS.ctl.....	B-1
HBO_TG.ctl.....	B-2
HBS_TG.ctl.....	B-3
HBW_TG.ctl.....	B-4
HTK_TG.ctl.....	B-5
MC_HBO00.ctl.....	B-6
MC_HBO05.ctl.....	B-7
MC_HBO25.ctl.....	B-9
MC_HBO30.ctl.....	B-11
MC_HBO94.ctl.....	B-13
MC_HBS00.ctl.....	B-15
MC_HBS05.ctl.....	B-17
MC_HBS25.ctl.....	B-18
MC_HBS30.ctl.....	B-20
MC_HBS94.ctl.....	B-22
MC_HBW00.ctl.....	B-24
MC_HBW05.ctl.....	B-26
MC_HBW25.ctl.....	B-27
MC_HBW30.ctl.....	B-29
MC_HBW94.ctl.....	B-31
MC_NHB00.ctl.....	B-33
MC_NHB05.ctl.....	B-35
MC_NHB25.ctl.....	B-37
MC_NHB30.ctl.....	B-38
MC_NHB94.ctl.....	B-40
mf1am00.ctl.....	B-42
mf1am05.ctl.....	B-42
mf1am94.ctl.....	B-43
mf1op00.ctl.....	B-43
mf1op05.ctl.....	B-43
mf1op94.ctl.....	B-44
mfamdr00.ctl.....	B-44
mfamdr05.ctl.....	B-45
mfamdr94.ctl.....	B-45
mfamwk00.ctl.....	B-45
mfamwk05.ctl.....	B-46

mfamwk94.ctl .....	B-46
mfopdr00.ctl.....	B-46
mfopdr05.ctl.....	B-47
mfopdr94.ctl.....	B-47
mfopwk00.ctl .....	B-47
mfopwk05.ctl .....	B-48
mfopwk94.ctl .....	B-48
mtk_tg.ctl .....	B-48
Netswam.ctl .....	B-49
Netswop.ctl .....	B-50
NHB_TG.ctl.....	B-50
NT_AM.ctl.....	B-51
NT_OP.ctl .....	B-51
Prefartp.ctl.....	B-51
staprotp.ctl.....	B-51
VEHAVTP.CTL .....	B-52
Walk_AM.CTL.....	B-52
Walk_OP.CTL .....	B-53

**DRAFT**



### cogmca1.ctl

```
COGMCA1.CTL
Control File for COGMCA1.EXE Program -- Version 2, TP+ application

The 4 INPUT files are:
landusef - the standard v2. zonal land use file
amshlgf - AM pk zonal walk pct/walk time file (WLKLNKTP-based)
opshlgf - Offpk zonal walk pct/walk time file (WLKLNKTP-based)
carownf - file containing HH by vehicle own.(0,1,2+)

The 4 OUTPUT files are:
hbwalv2 - Version 2 HBW zonal A1 deck
hbsalv2 - Version 2 HBS zonal A1 deck
hboalv2 - Version 2 HBO zonal A1 deck
nhbalv2 - Version 2 NHB zonal A1 deck
```

Note: hh\_veh.dat (zonal HH by Vehs avail) is output of vehav model

```
&files
landusef = 'inputs\zone.asc'
amshlgf = 'shlgam.fin'
opshlgf = 'shlgop.fin'
carownf = 'hh_veh.dat'
hbwalv2 = 'hbvw2.alf'
hbsalv2 = 'hbsv2.alf'
hboalv2 = 'hbov2.alf'
nhbalv2 = 'nhbv2.alf'
/
```

### ct2\_am.ctl

```
CT2_AM.CTL
Pk Period Walk to Transit Connectors for Accessibility Estimation
Note: some params set to accomodate current model convention
Maximum walk access threshold (max_walk) set to 1.00 mile
&files
node_file = 'trn_node.asc'
lnk_file = 'nt_am.asc'
xnod_file = 'trn_fwyn.asc'
scr_file = 'inputs\riverstp.bna'
out_file = 'ct2_am.asc'
rpt_file = 'ct2_am.rpt'
/
&specs
miles = 5280.
max_zone = 2191
max_node = 16600
max_walk = 1.00
dev_fac = 3.00
max_conn = 8
mod_type = 1
nodesfmt = T
modes = 16
tmespd = 'SPEED=3'
dumdlist = F
trnpth = T
trnbld = T
/
```

### ct2\_op.ctl

```
CT2_OP.CTL
Off Pk Prd Walk to Transit Connectors for Accessibility Estimation
Note: some params set to accomodate current model convention
Maximum walk access threshold (max_walk) set to 1.00 mile
&files
node_file = 'trn_node.asc'
lnk_file = 'nt_op.asc'
xnod_file = 'trn_fwyn.asc'
scr_file = 'inputs\riverstp.bna'
out_file = 'CT2_op.asc'
rpt_file = 'CT2_op.RPT'
/
&specs
miles = 5280.0
max_zone = 2191
max_node = 16600
max_walk = 1.00
dev_fac = 3.00
max_conn = 8
mod_type = 1
nodesfmt = T
modes = 16
tmespd = 'SPEED=3'
dumdlist = F
trnpth = T
trnbld = T
/
```

### GIS.ctl

```
GIS.CTL
Control File for GIS_PROC.EXE Program

The 2 INPUT files are:
unit 7 gispkwc - the 'raw' GIS-produced short/long walk area file
unit 8 gisopwc - the 'raw' GIS-produced short/long walk area file

The 2 OUTPUT filea are:
unit 11 finpkwc - final am peak short/long walk file
unit 12 finopwc - final off-pk short/long walk file

&files
gispkwc = 'inputs\giswkaam.asc'
gisopwc = 'inputs\giswkaop.asc'

finpkwc = 'shlgam.asc'
finopwc = 'shlgop.asc'
/
nowlk section indicates where all walking pcts will be set to zero.
These are zones that have a physical barrier between nearest rail
stop (the GIS process did not account for this).
&nowlk
stopwlc = 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0

/
&param
maxzn = 2191
/
```

DRAFT

# HBO\_TG.ctf

Control File: HBO\_TG.CTL  
 MCMCOG Version 2 Trip Generation Model Run(CGTGV2TP)  
 Purpose: HBO

Trip purpose (purp) MUST be one of the following choices:  
 'HBW' 'HBS' 'HBO' 'NHB' 'MTK' 'HTK'

```
&tpurp
purp='HBO'
/
```

```
&param
zones = 2191
lastizn = 2144
dcclo = 1
dcchi = 88
dcnlo = 89
dcnhi = 319
vaelo = 1230
vachi = 1238
val0lo = 1239
val0hi = 1360
/
```

```
&files
zhhi1sv='hhi1_sv.dat'
zhhi2sv='hhi2_sv.dat'
zhhi3sv='hhi3_sv.dat'
zhhi4sv='hhi4_sv.dat'
```

```
zonelu = 'inputs\zone.asc'
ext_ps = 'inputs\pext.asc'
ext_as = 'inputs\axext.asc'
basezn = 'basezon.dat'
znmod = '..\support\adjzpf7.upo'
```

```
outp1 = 'hbo_pro.i1'
outp2 = 'hbo_pro.i2'
outp3 = 'hbo_pro.i3'
outp4 = 'hbo_pro.i4'
outp5 = 'hbo_pro.all'
```

```
outa1 = 'hbo_att.i1'
outa2 = 'hbo_att.i2'
outa3 = 'hbo_att.i3'
outa4 = 'hbo_att.i4'
outa5 = 'hbo_att.all'
```

```
production rates:
array structure: 4 income groups (across) by size/va groups (down)
```

inc,siz,veh:	111	211	311	411
	121	221	321	421
	131	231	331	431
	141	241	341	441
	.	.	.	.
	144	244	344	444

```
&prates
```

```
prat= 0.415, 0.685, 0.708, 0.708,
0.540, 0.889, 0.889, 1.567,
1.284, 1.349, 1.548, 3.446,
1.364, 0.750, 3.446, 4.146,
1.121, 1.158, 1.035, 1.087,
1.700, 1.892, 2.161, 1.810,
2.400, 2.500, 2.843, 3.446,
2.900, 3.486, 4.653, 4.839,
1.435, 1.474, 1.474, 1.083,
1.770, 1.968, 2.460, 2.460,
2.614, 3.190, 3.190, 3.937,
4.266, 4.266, 5.395, 5.921,
1.435, 1.474, 1.474, 2.000,
1.800, 2.041, 2.659, 2.460,
2.391, 3.472, 3.559, 3.940,
3.819, 5.674, 6.501, 6.738
```

```
/
area type-based attraction rates:
array structure: 10 land use variables (across) by 7 area types (down)
1 2 3 4 5 6 7 8 (9 10)
HH HHPOP EMP IndEMP RetEMP OffEMP OthEMP NRetEMP Unused
```

```
Atype 1
.
7
location-based attraction rates:
array structure: 5 land use variables (across) by 4 locations (down)
Locations are: 1)Reg. Core, 2)DC NonCore, 3)VA 10 Mi Sq, 4)Other
1 2 3 4 5
IndEMP RetEMP OffEMP OthEMP HH
Locat 1
2
4
```

```
&arates
arat= 0.00,0.77,0.00,0.00,1.30,0.00,0.00,0.30,0.00,0.00,
0.00,0.77,0.00,0.00,1.30,0.00,0.00,0.30,0.00,0.00,
0.00,0.77,0.00,0.00,1.30,0.00,0.00,0.30,0.00,0.00,
0.00,0.77,0.00,0.00,1.30,0.00,0.00,0.30,0.00,0.00,
0.00,0.77,0.00,0.00,1.30,0.00,0.00,0.30,0.00,0.00,
0.00,0.77,0.00,0.00,1.30,0.00,0.00,0.30,0.00,0.00,
0.00,0.77,0.00,0.00,1.30,0.00,0.00,0.30,0.00,0.00
```

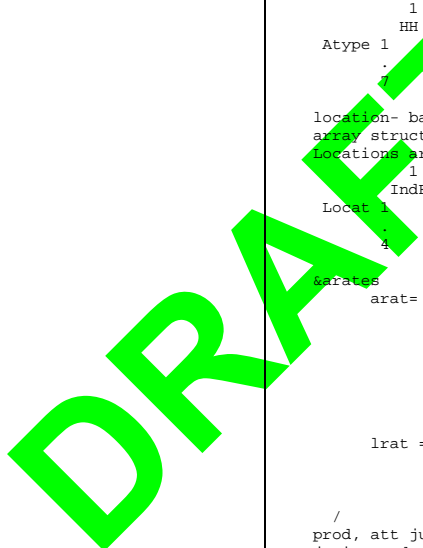
```
lrat =0.00,0.00,0.00,0.00,0.00,
0.00,0.00,0.00,0.00,0.00,
0.00,0.00,0.00,0.00,0.00,
0.00,0.00,0.00,0.00,0.00
```

```
/
prod, att jurisdiction adjustment rates for each jurisdiction(1-24)
juris. codes 1-24 are:
1-dc 2-mtg 3-pg 4-arl 5-alx 6-ffx 7-ldn 8-pw 9 - 10-frd
11-how 12-aa 13-chs 14 - 15-car 16-cal 17-stm 18-kge 19-fbg 20-stf
21-spt 22-fau 23-clk 24-jef
```

```
&juradj
pjuradj =1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,
0.70,1.00,1.00,1.00,0.75,1.00,1.00,1.00,1.00,1.00,
1.00,1.00,1.00,1.00,1.00
```

```
ajuradj =1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,
0.80,1.00,1.00,1.00,0.75,1.00,1.00,1.00,1.00,1.00,
1.00,1.00,1.00,1.00,1.00
```

```
/
global purpose adjustment array
&puradj
purpadj =1.50
```



# HBS\_TG.ctf

Control File: HBS\_TG.CTL  
 MWCOC Version 2 Trip Generation Model Run(CGTGV2TP)  
 Purpose: HBS

Trip purpose (purp) MUST be one of the following choices:  
 'HBW' 'HBS' 'HBO' 'NHB' 'MTK' 'HTK'

```
&tpurp
purp='HBS'
/
```

```
&param
zones = 2191
lastizn = 2144
dccl0 = 1
dcchi = 88
dcnlo = 89
dcnhi = 319
vaclo = 1230
vachi = 1238
va10lo = 1239
va10hi = 1360
/
```

```
&files
zhhi1sv='hhi1_sv.dat'
zhhi2sv='hhi2_sv.dat'
zhhi3sv='hhi3_sv.dat'
zhhi4sv='hhi4_sv.dat'

zonelu = 'inputs\zone.asc'
ext_ps = 'inputs\pext.asc'
ext_as = 'inputs\aext.asc'
basezn = 'basezon.dat'
znmod = '..\support\adjzpf7.ups'
```

```
outp1 = 'hbs_pro.i1'
outp2 = 'hbs_pro.i2'
outp3 = 'hbs_pro.i3'
outp4 = 'hbs_pro.i4'
outp5 = 'hbs_pro.all'
```

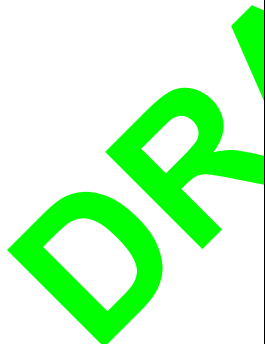
```
outa1 = 'hbs_att.i1'
outa2 = 'hbs_att.i2'
outa3 = 'hbs_att.i3'
outa4 = 'hbs_att.i4'
outa5 = 'hbs_att.all'
```

```
production rates:
array structure: 4 income groups (across) by size/va groups (down)
area type-based attraction rates:

inc,siz,veh: 111, 211, 311, 411
              121, 221, 321, 421
              131, 231, 331, 431
              141, 241, 341, 441
```

```

              . 144 244 344 444
&prates
prat= 0.215, 0.215, 0.294, 0.429,
      0.215, 0.294, 0.429, 0.886,
      0.215, 0.400, 0.500, 0.900,
      0.215, 0.450, 0.600, 1.092,
      0.599, 0.599, 0.666, 0.860,
      0.680, 0.680, 0.680, 0.886,
      0.680, 0.965, 0.965, 1.039,
      0.680, 0.965, 0.956, 1.278,
      0.599, 0.599, 0.666, 0.860,
      0.680, 0.680, 0.900, 0.965,
      0.838, 0.965, 1.000, 1.150,
      0.960, 1.000, 1.141, 1.333,
      0.631, 0.631, 0.666, 0.860,
      0.680, 0.840, 0.965, 0.980,
      0.838, 1.043, 1.141, 1.200,
      1.000, 1.100, 1.400, 1.659
/
area type-based attraction rates:
array structure: 10 land use variables (across) by 7 area types (down)
      1 2 3 4 5 6 7 8 (9 10)
      HH HHPOP EMP IndEmp RetEMP OffEMP OthEMP NRetEmp Unused
Atype 1
      .
      7
location-based attraction rates:
array structure: 5 land use variables (across) by 4 locations (down)
Locations are: 1)Reg. Core, 2)DC NonCore, 3)VA 10 Mi Sq, 4)Other
      1 2 3 4 5
      IndEmp RetEMP OffEMP OthEMP HH
Locat 1
      .
      4
&karates
arat= 0.00,0.00,0.00,0.00,0.29,0.00,0.00,0.00,0.00,0.00,
      0.00,0.00,0.00,0.00,2.44,0.00,0.00,0.00,0.00,0.00,
      0.00,0.00,0.00,0.00,3.35,0.00,0.00,0.00,0.00,0.00,
      0.00,0.00,0.00,0.00,3.35,0.00,0.00,0.00,0.00,0.00,
      0.00,0.00,0.00,0.00,3.35,0.00,0.00,0.00,0.00,0.00,
      0.00,0.00,0.00,0.00,3.35,0.00,0.00,0.00,0.00,0.00,
      0.00,0.00,0.00,0.00,3.35,0.00,0.00,0.00,0.00,0.00
lrat =0.00,0.00,0.00,0.00,0.00,
      0.00,0.00,0.00,0.00,0.00,
      0.00,0.00,0.00,0.00,0.00,
      0.00,0.00,0.00,0.00,0.00
/
prod, att jurisdiction adjustment rates for each jurisdiction(1-24)
juris. codes 1-24 are:
1-dc 2-mtg 3-pg 4-ar1 5-alx 6-ffx 7-ldn 8-pw 9 - 10-frd
11-how 12-aa 13-chs 14 - 15-car 16-cal 17-stm 18-kge 19-fbg 20-stf
21-spt 22-fau 23-clk 24-jef
&juradj
pjuradj =1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,
          0.75,1.00,1.00,1.00,0.68,1.00,1.00,1.00,1.00,1.00,
          1.00,1.00,1.00,1.00,1.00
ajuradj =1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,
          0.80,1.03,1.00,1.00,0.70,1.00,1.00,1.00,1.00,1.00,
          1.00,1.00,1.00,1.00,1.00
/
```



Appendix B: Version 2.1 D Draft #50 Control Files

```
global purpose adjustment array
&puradj
  purpadj =1.50
/
```

### HBW\_TG.ctf

```
Control File: HBW_TG.CTL
MWCOCG Version 2 Trip Generation Model Run(CGTGV2TP)
Purpose: HBW
```

Trip purpose (purp) MUST be one of the following choices:  
'HBW' 'HBS' 'HBO' 'NHB' 'MTK' 'HTK'

```
&tpurp
  purp='HBW'
/
```

```
&param
  zones = 2191
  lastizn = 2144
  dcclo = 1
  dcchi = 88
  dcnlo = 89
  dcnhi = 319
  vaclo = 1230
  vachi = 1238
  val0lo = 1239
  val0hi = 1360
/
```

```
&files
  zhhi1sv='hhi1_sv.dat'
  zhhi2sv='hhi2_sv.dat'
  zhhi3sv='hhi3_sv.dat'
  zhhi4sv='hhi4_sv.dat'
```

```
zonelu='inputs\zone.asc'
ext_ps='inputs\pext.asc'
ext_as='inputs\axet.asc'
basezn='basezon.dat'
znmod='..\support\adjzpf7.upw'
```

```
outp1='hbw_pro.i1'
outp2='hbw_pro.i2'
outp3='hbw_pro.i3'
outp4='hbw_pro.i4'
outp5='hbw_pro.all'
```

```
outa1='hbw_att.i1'
outa2='hbw_att.i2'
outa3='hbw_att.i3'
outa4='hbw_att.i4'
outa5='hbw_att.all'
```

```
production rates:
array structure: 4 income groups (across) by size/va groups (down)
inc,siz,veh: 111, 211, 311, 411
             121, 221, 321, 421
             131, 231, 331, 431
```

```
141, 241, 341, 441
.
.
.
.
144 244 344 444
```

```
&prates
  prat= 0.686, 1.017, 1.017, 1.335,
         1.082, 1.352, 1.464, 1.451,
         1.096, 1.662, 1.662, 1.672,
         1.664, 1.849, 2.295, 3.333,
         0.851, 1.182, 1.223, 1.335,
         1.082, 1.352, 1.464, 1.451,
         1.517, 1.662, 1.662, 1.672,
         1.664, 1.849, 2.295, 3.333,
         0.750, 1.301, 1.223, 1.335,
         1.412, 1.531, 1.841, 1.841,
         1.936, 1.790, 2.016, 2.017,
         1.936, 2.049, 2.295, 3.333,
         0.957, 1.527, 1.223, 2.000,
         1.412, 2.122, 2.152, 2.152,
         1.936, 2.122, 3.024, 3.024,
         1.936, 2.426, 3.076, 3.365
```

```
/
area type-based attraction rates:
array structure: 10 land use variables (across) by 7 area types (down)
  1 2 3 4 5 6 7 8 (9 10)
  HH HNPOR EMP IndEmp RetEMP OffEMP OthEMP NRetEMP Unused
```

```
location-based attraction rates:
array structure: 5 land use variables (across) by 4 locations (down)
Locations are: 1)Reg. Core, 2)DC NonCore, 3)VA 10 Mi Sq, 4)Other
  1 2 3 4 5
  IndEmp RetEMP OffEMP OthEMP HH
```

```
Locat 1
.
.
.
.
4
&arates
```

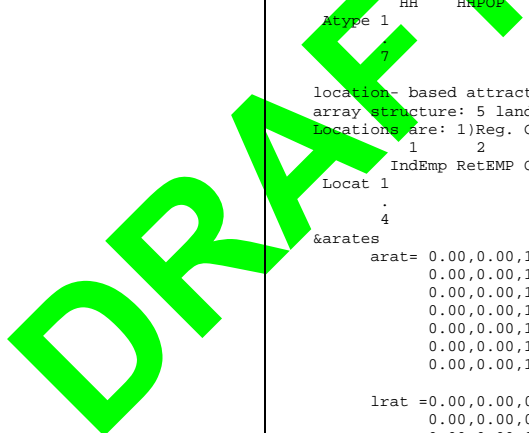
```
arat= 0.00,0.00,1.11,0.00,0.00,0.00,0.00,0.00,0.00,0.00,
       0.00,0.00,1.11,0.00,0.00,0.00,0.00,0.00,0.00,0.00,
       0.00,0.00,1.11,0.00,0.00,0.00,0.00,0.00,0.00,0.00,
       0.00,0.00,1.11,0.00,0.00,0.00,0.00,0.00,0.00,0.00,
       0.00,0.00,1.11,0.00,0.00,0.00,0.00,0.00,0.00,0.00,
       0.00,0.00,1.11,0.00,0.00,0.00,0.00,0.00,0.00,0.00,
       0.00,0.00,1.11,0.00,0.00,0.00,0.00,0.00,0.00,0.00
```

```
lrat =0.00,0.00,0.00,0.00,0.00,
      0.00,0.00,0.00,0.00,0.00,
      0.00,0.00,0.00,0.00,0.00,
      0.00,0.00,0.00,0.00,0.00
```

```
/
prod, att jurisdiction adjustment rates for each jurisdiction(1-24)
juris. codes 1-24 are:
  1-dc 2-mtg 3-pg 4-arl 5-alx 6-ffx 7-ldn 8-pw 9 - 10-frd
  11-how 12-aa 13-chs 14 - 15-car 16-cal 17-stm 18-kge 19-fbg 20-stf
  21-spt 22-fau 23-clk 24-jeF 25-unused
```

```
&juradj
  pjuradj =1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,
           0.75,0.85,1.00,1.00,0.85,1.00,1.00,1.00,1.00,1.00,
           1.00,1.00,1.00,1.00,1.00
```

```
ajuradj =1.07,1.00,1.10,1.00,1.00,1.00,1.00,1.00,1.00,1.00,
          0.75,0.85,1.00,1.00,0.85,1.00,1.00,1.00,1.00,1.00,
```





## Appendix B: Version 2.1 D Draft #50 Control Files

```

    ajuradj =1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,
            1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,
            1.00,1.00,1.00,1.00,1.00
/
global purpose adjustment array
&puradj
    purpadj =1.000
/

```

### MC\_HBO00.ctl

```

mc_hbo.ctl - Version 2.1D_19 Mode Choice Model Control File 6/2/04
Purpose:   HBO   Year: 1994
Auto Operating Cost (UPARM(12)): 8.5 cents/mi in 1994$

```

Auto operating costs to be used in Version 2.1D, 19 Travel Model

Year	Auto operating cost 1994 cents/mile
year	aoc1994
1994	9.1
2000	8.5
2005	8.3
2010	8.2
2015	8.1
2020	8.0
2025	7.9
2030	7.8

Record of revisions:

Date	Pen Adj	Description of change
06/03/04	msm db	uparms 43-45 iter 0,1,2,3,4,5 stop
06/03/04	msm mb	uparms 53-55,63-65 iter 0 (no new run)
06/03/04	msm mb	uparms 53-55,63-65 iter 1,2,3 stop

Set file names:

```

&FILES
J1= 'hbomu.ptt',
J3= 'op_wk.skm',
J4= 'mf_op_wk.far',
J5= 'op_dr.skm',
J6= 'mf_op_dr.far',
J7= 'sovop .skm',
HOVA='hov2op .skm',
HOVB='hov3op .skm',
A1= 'hbov2.alf',
D1= '..\support\mctf_hbo.asc',
D2= '..\support\mccf_hbo.asc',
D3= '..\support\mc_fac.asc',

J9='mc_hbo.trp', LIST='mc_hbo.prn' /

```

Set user-coded parameters. Commonly modified UPARMS are:

```

1 : minimum carpool size - HOV "A" (or liberal carpool definition)
2 : intrazonal transit share
3 : intrazonal auto driver share
4 : I/X transit share

```

```

5 : I/X auto driver share
6 : minimum carpool size - HOV "B" (or stringent carpool definition)
11 : factor to scale input highway distance to whole miles
16 : apply parking cost model
17 : apply highway terminal time model
18 : model application option: 5=nwk per, 6=nwk adr, 7=no nwk
19 : un-transformed zonal data report switch (1=yes, 2=NO)
20 : transformed zonal data report switch (1=yes, 2=NO)
21 : run only MODAS & MODBS
30 : calibration report switch (1=yes, 2=no)

```

Here is a list of the UPARMS values we will use in this run

```

&PARAM
zones = 2191
uparms(1) = 0
uparms(2) = 0.0
uparms(3) = 1.0
uparms(4) = 0.0
uparms(5) = 0.620
uparms(6) = 0
uparms(10) = 1.00
uparms(11) = 0.1
uparms(12) = 8.5
uparms(13) = 82.5
uparms(14) = 82.5
uparms(16) = 2
uparms(17) = 2
uparms(18) = 7
uparms(19) = 2
uparms(20) = 1
uparms(21) = 1
uparms(22) = 0.75
uparms(23) = 1.81
uparms(24) = 3.71
uparms(26) = 2.845
uparms(27) = 3.703
uparms(28) = 4.732
uparms(30) = 1

uparms(15) = 4.36
uparms(31) = 0.04991
uparms(32) = 0.04991
uparms(33) = 0.04991
uparms(34) = 0.01902
uparms(35) = 0.01902
uparms(36) = -2.585e-5
uparms(37) = -2.171e-5
uparms(38) = 0.0
uparms(39) = 0.0
uparms(40) = 0.0
uparms(41) = 0.0
uparms(42) = 0.01902
uparms(43) = 2.9
uparms(44) = 1.1
uparms(45) = 0.65
uparms(46) = -5.194e-5
uparms(47) = 0.01902
uparms(48) = 0.01902
uparms(49) = 0.0
uparms(50) = 0.0
uparms(51) = 0.0
uparms(52) = 0.0
uparms(53) = 4.3573
uparms(54) = -0.0047
uparms(55) = -0.3111
uparms(56) = -2.307e-5
uparms(57) = 0.01902
uparms(58) = 0.01902

```

Appendix B: Version 2.1 D Draft #50 Control Files

```

uparms(59) = 0.0
uparms(60) = 0.0
uparms(61) = 0.0
uparms(62) = 0.0
uparms(63) = 3.1938
uparms(64) = 0.5041
uparms(65) = -0.0499
uparms(66) = 0.78384
uparms(67) = 0.68530
uparms(68) = 0.68530
uparms(69) = 0.0
uparms(70) = 0.0
uparms(71) = 0.0
uparms(72) = 0.0
uparms(73) = 0.68530
uparms(74) = 0.68530
uparms(75) = 0.0
uparms(76) = 0.0
uparms(77) = 0.0
uparms(78) = 0.0
uparms(79) = 0.0
uparms(80) = 0.31756
uparms(81) = 0.15151
uparms(82) = 0.78384
uparms(83) = 0.68530
uparms(84) = 0.68530
uparms(85) = 0.0
uparms(86) = 0.0
uparms(87) = 0.0
uparms(88) = 0.0
uparms(89) = 0.0
uparms(90) = 0.0
uparms(91) = -0.21854
uparms(92) = -0.41346
uparms(93) = 0.0
uparms(94) = 0.0
uparms(95) = 3
uparms(96) = 0.0
uparms(97) = 0.0
uparms(98) = 0.0
uparms(99) = -0.69708
uparms(100) = 0.0
OrigSLWalk = t
DestSLWalk = t
UseShort = t
/

Set zone-district equivalencies for exogenous modal factors
based on 2191 zone system:
HBW Transit:

&ADJDST ADST=1,AZNE=1,-88 / dc core
&ADJDST ADST=2,AZNE=89,-319 / dc noncore
&ADJDST ADST=3,AZNE=320,-639 / mtg
&ADJDST ADST=4,AZNE=640,-1029 / pg
&ADJDST ADST=5,AZNE=1230,-1238 / arl core
&ADJDST ADST=6,AZNE=1239,-1329 / arl noncore
&ADJDST ADST=7,AZNE=1330,-1399 / alx
&ADJDST ADST=8,AZNE=1400,-1779 / ffx
&ADJDST ADST=9,AZNE=1780,-1919 / ldn
&ADJDST ADST=10,AZNE=1920,-2069 / pw
&ADJDST ADST=11,AZNE=1030,-1059 / frd
&ADJDST ADST=12,AZNE=1080,-1109 / how
&ADJDST ADST=13,AZNE=1110,-1149 / aa
&ADJDST ADST=14,AZNE=1200,-1229 / chs
&ADJDST ADST=15,AZNE=1060,-1079 / car
&ADJDST ADST=16,AZNE=1150,-1199 / cal,stm
&ADJDST ADST=17,AZNE=2070,-2114 / stf,kg,spts,fbrg

```

```

&ADJDST ADST=18,AZNE=2115,-2129 / fau
&ADJDST ADST=19,AZNE=2130,-2144 / clk,jef
&ADJDST ADST=20,AZNE=2145,-2191 / externals

Non-Work/NHB Transit: (These are not used)
&NWKDST NDST=1,NZNE=1,-88 / dc core
&NWKDST NDST=2,NZNE=89,-319 / dc noncore
&NWKDST NDST=3,NZNE=320,-639 / mtg
&NWKDST NDST=4,NZNE=640,-1029 / pg
&NWKDST NDST=5,NZNE=1230,-1238 / arl core
&NWKDST NDST=6,NZNE=1239,-1329 / arl noncore
&NWKDST NDST=7,NZNE=1330,-1399 / alx
&NWKDST NDST=8,NZNE=1400,-1779 / ffx
&NWKDST NDST=9,NZNE=1780,-1919 / ldn
&NWKDST NDST=10,NZNE=1920,-2069 / pw
&NWKDST NDST=11,NZNE=1030,-1059 / frd
&NWKDST NDST=12,NZNE=1080,-1109 / how
&NWKDST NDST=13,NZNE=1110,-1149 / aa
&NWKDST NDST=14,NZNE=1200,-1229 / chs
&NWKDST NDST=15,NZNE=1060,-1079 / car
&NWKDST NDST=16,NZNE=1150,-1199 / cal,stm
&NWKDST NDST=17,NZNE=2070,-2114 / stf,kg,spts,fbrg
&NWKDST NDST=18,NZNE=2115,-2129 / fau
&NWKDST NDST=19,NZNE=2130,-2144 / clk,jef
&NWKDST NDST=20,NZNE=2145,-2191 / externals

Car Occupancy:
&CARDST CDST=1,CZNE=1,-88 / dc core
&CARDST CDST=2,CZNE=89,-319 / dc noncore
&CARDST CDST=3,CZNE=320,-639 / mtg
&CARDST CDST=4,CZNE=640,-1029 / pg
&CARDST CDST=5,CZNE=1230,-1238 / arl core
&CARDST CDST=6,CZNE=1239,-1329 / arl noncore
&CARDST CDST=7,CZNE=1330,-1399 / alx
&CARDST CDST=8,CZNE=1400,-1779 / ffx
&CARDST CDST=9,CZNE=1780,-1919 / ldn
&CARDST CDST=10,CZNE=1920,-2069 / pw
&CARDST CDST=11,CZNE=1030,-1059 / frd
&CARDST CDST=12,CZNE=1080,-1109 / how
&CARDST CDST=13,CZNE=1110,-1149 / aa
&CARDST CDST=14,CZNE=1200,-1229 / chs
&CARDST CDST=15,CZNE=1060,-1079 / car
&CARDST CDST=16,CZNE=1150,-1199 / cal,stm
&CARDST CDST=17,CZNE=2070,-2114 / stf,kg,spts,fbrg
&CARDST CDST=18,CZNE=2115,-2129 / fau
&CARDST CDST=19,CZNE=2130,-2144 / clk,jef
&CARDST CDST=20,CZNE=2145,-2191 / externals

```

```

External Stations:
&XTERN EDST = 1, EZNE = 2145 /
&XTERN EDST = 2, EZNE = 2146 /
&XTERN EDST = 3, EZNE = 2147,-2191 /

```

**MC\_HBO05.ctf**

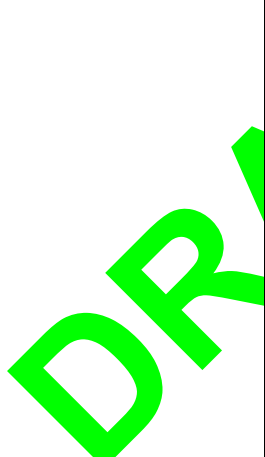
mc\_hbo.ctf - Version 2.1D\_19 Mode Choice Model Control File 6/2/04  
 Purpose: HBO Year: 2005  
 Auto Operating Cost (UPARM(12)): 8.3 cents/mi in 1994\$

Auto operating costs to be used in Version 2.1D, 19 Travel Model

```

Year      Auto
          operating
          cost

```



## Appendix B: Version 2.1 D Draft #50 Control Files

```

1994
cents/mile
year      aoc1994
1994      9.1
2000      8.5
2005      8.3
2010      8.2
2015      8.1
2020      8.0
2025      7.9
2030      7.8

```

### Record of revisions:

Date	Psn	Adj	Description of change
06/03/04	msm	db	uparms 43-45 iter 0,1,2,3,4,5 stop
06/03/04	msm	mb	uparms 53-55,63-65 iter 0 (no new run)
06/03/04	msm	mb	uparms 53-55,63-65 iter 1,2,3 stop

### Set file names:

#### &FILES

```

J1= 'hbomu.ptt',
J3= 'op_wk.skm',
J4= 'mf_op_wk.far',
J5= 'op_dr.skm',
J6= 'mf_op_dr.far',
J7= 'sovop.skm',
HOVA='hov2op.skm',
HOVB='hov3op.skm',
A1= 'hbov2.alf',
D1= '..\support\mctf_hbo.asc',
D2= '..\support\mccf_hbo.asc',
D3= '..\support\mc_fac.asc',

```

```
J9='mc_hbo.trp', LIST='mc_hbo.prn' /
```

### Set user-coded parameters. Commonly modified UPARMS are:

```

1 : minimum carpool size - HOV "A" (or liberal carpool definition)
2 : intrazonal transit share
3 : intrazonal auto driver share
4 : I/X transit share
5 : I/X auto driver share
6 : minimum carpool size - HOV "B" (or stringent carpool definition)
11 : factor to scale input highway distance to whole miles
16 : apply parking cost model
17 : apply highway terminal time model
18 : model application option: 5=nwk per, 6=nwk adr, 7=no nwk
19 : un-transformed zonal data report switch (1=yes, 2=NO)
20 : transformed zonal data report switch (1=yes, 2=NO)
21 : run only MODAS & MODBS
30 : calibration report switch (1=yes, 2=no)

```

### Here is a list of the UPARMS values we will use in this run

```

&PARAM
zones      = 2191
uparms(1)  = 0
uparms(2)  = 0.0
uparms(3)  = 1.0
uparms(4)  = 0.0
uparms(5)  = 0.620
uparms(6)  = 0
uparms(10) = 1.0
uparms(11) = 0.1
uparms(12) = 8.3
uparms(13) = 82.5
uparms(14) = 82.5

```

```

uparms(16) = 2
uparms(17) = 2
uparms(18) = 7
uparms(19) = 2
uparms(20) = 1
uparms(21) = 1
uparms(22) = 0.75
uparms(23) = 1.81
uparms(24) = 3.71
uparms(26) = 2.845
uparms(27) = 3.703
uparms(28) = 4.732
uparms(30) = 1

uparms(15) = 4.36
uparms(31) = 0.04991
uparms(32) = 0.04991
uparms(33) = 0.04991
uparms(34) = 0.01902
uparms(35) = 0.01902
uparms(36) = -2.585e-5
uparms(37) = -2.171e-5
uparms(38) = 0.0
uparms(39) = 0.0
uparms(40) = 0.0
uparms(41) = 0.0
uparms(42) = 0.01902
uparms(43) = 2.9
uparms(44) = 1.1
uparms(45) = 0.65
uparms(46) = -5.194e-5
uparms(47) = 0.01902
uparms(48) = 0.01902
uparms(49) = 0.0
uparms(50) = 0.0
uparms(51) = 0.0
uparms(52) = 0.0
uparms(53) = 4.3573
uparms(54) = -0.0047
uparms(55) = -0.3111
uparms(56) = -2.307e-5
uparms(57) = 0.01902
uparms(58) = 0.01902
uparms(59) = 0.0
uparms(60) = 0.0
uparms(61) = 0.0
uparms(62) = 0.0
uparms(63) = 3.1938
uparms(64) = 0.5041
uparms(65) = -0.0499
uparms(66) = 0.78384
uparms(67) = 0.68530
uparms(68) = 0.68530
uparms(69) = 0.0
uparms(70) = 0.0
uparms(71) = 0.0
uparms(72) = 0.0
uparms(73) = 0.68530
uparms(74) = 0.68530
uparms(75) = 0.0
uparms(76) = 0.0
uparms(77) = 0.0
uparms(78) = 0.0
uparms(79) = 0.0
uparms(80) = 0.31756
uparms(81) = 0.15151
uparms(82) = 0.78384
uparms(83) = 0.68530

```



Appendix B: Version 2.1 D Draft #50 Control Files

```

uparms(84) = 0.68530
uparms(85) = 0.0
uparms(86) = 0.0
uparms(87) = 0.0
uparms(88) = 0.0
uparms(89) = 0.0
uparms(90) = 0.0
uparms(91) = -0.21854
uparms(92) = -0.41346
uparms(93) = 0.0
uparms(94) = 0.0
uparms(95) = 3
uparms(96) = 0.0
uparms(97) = 0.0
uparms(98) = 0.0
uparms(99) = -0.69708
uparms(100) = 0.0
OrigSLWalk = t
DestSLWalk = t
UseShort = t
/

```

Set zone-district equivalencies for exogenous modal factors based on 2191 zone system:  
 HBW Transit:

```

&ADJDST ADST=1,AZNE=1,-88 / dc core
&ADJDST ADST=2,AZNE=89,-319 / dc noncore
&ADJDST ADST=3,AZNE=320,-639 / mtg
&ADJDST ADST=4,AZNE=640,-1029 / pg
&ADJDST ADST=5,AZNE=1230,-1238 / arl core
&ADJDST ADST=6,AZNE=1239,-1329 / arl noncore
&ADJDST ADST=7,AZNE=1330,-1399 / alx
&ADJDST ADST=8,AZNE=1400,-1779 / ffx
&ADJDST ADST=9,AZNE=1780,-1919 / ldn
&ADJDST ADST=10,AZNE=1920,-2069 / pw
&ADJDST ADST=11,AZNE=1030,-1059 / frd
&ADJDST ADST=12,AZNE=1080,-1109 / how
&ADJDST ADST=13,AZNE=1110,-1149 / aa
&ADJDST ADST=14,AZNE=1200,-1229 / chs
&ADJDST ADST=15,AZNE=1060,-1079 / car
&ADJDST ADST=16,AZNE=1150,-1199 / cal,stm
&ADJDST ADST=17,AZNE=2070,-2114 / stf,kg,spts,fbrg
&ADJDST ADST=18,AZNE=2115,-2129 / fau
&ADJDST ADST=19,AZNE=2130,-2144 / clk,jef
&ADJDST ADST=20,AZNE=2145,-2191 / externals

```

Non-Work/NHB Transit: (These are not used)

```

&NWKDST NDST=1,NZNE=1,-88 / dc core
&NWKDST NDST=2,NZNE=89,-319 / dc noncore
&NWKDST NDST=3,NZNE=320,-639 / mtg
&NWKDST NDST=4,NZNE=640,-1029 / pg
&NWKDST NDST=5,NZNE=1230,-1238 / arl core
&NWKDST NDST=6,NZNE=1239,-1329 / arl noncore
&NWKDST NDST=7,NZNE=1330,-1399 / alx
&NWKDST NDST=8,NZNE=1400,-1779 / ffx
&NWKDST NDST=9,NZNE=1780,-1919 / ldn
&NWKDST NDST=10,NZNE=1920,-2069 / pw
&NWKDST NDST=11,NZNE=1030,-1059 / frd
&NWKDST NDST=12,NZNE=1080,-1109 / how
&NWKDST NDST=13,NZNE=1110,-1149 / aa
&NWKDST NDST=14,NZNE=1200,-1229 / chs
&NWKDST NDST=15,NZNE=1060,-1079 / car
&NWKDST NDST=16,NZNE=1150,-1199 / cal,stm
&NWKDST NDST=17,NZNE=2070,-2114 / stf,kg,spts,fbrg
&NWKDST NDST=18,NZNE=2115,-2129 / fau
&NWKDST NDST=19,NZNE=2130,-2144 / clk,jef
&NWKDST NDST=20,NZNE=2145,-2191 / externals

```

```

Car Occupancy:
&CARDST CDST=1,CZNE=1,-88 / dc core
&CARDST CDST=2,CZNE=89,-319 / dc noncore
&CARDST CDST=3,CZNE=320,-639 / mtg
&CARDST CDST=4,CZNE=640,-1029 / pg
&CARDST CDST=5,CZNE=1230,-1238 / arl core
&CARDST CDST=6,CZNE=1239,-1329 / arl noncore
&CARDST CDST=7,CZNE=1330,-1399 / alx
&CARDST CDST=8,CZNE=1400,-1779 / ffx
&CARDST CDST=9,CZNE=1780,-1919 / ldn
&CARDST CDST=10,CZNE=1920,-2069 / pw
&CARDST CDST=11,CZNE=1030,-1059 / frd
&CARDST CDST=12,CZNE=1080,-1109 / how
&CARDST CDST=13,CZNE=1110,-1149 / aa
&CARDST CDST=14,CZNE=1200,-1229 / chs
&CARDST CDST=15,CZNE=1060,-1079 / car
&CARDST CDST=16,CZNE=1150,-1199 / cal,stm
&CARDST CDST=17,CZNE=2070,-2114 / stf,kg,spts,fbrg
&CARDST CDST=18,CZNE=2115,-2129 / fau
&CARDST CDST=19,CZNE=2130,-2144 / clk,jef
&CARDST CDST=20,CZNE=2145,-2191 / externals

```

```

External Stations:
&XTERN EDST = 1, EZNE = 2145 /
&XTERN EDST = 2, EZNE = 2146 /
&XTERN EDST = 3, EZNE = 2147,-2191 /

```

**MC\_HBO25.ct1**

mc\_hbo.ct1 - Version 2.1D\_19 Mode Choice Model Control File 6/2/04  
 Purpose: HBO Year: 1994  
 Auto Operating Cost (UPARM(12)): 7.9 cents/mi in 1994\$

Auto operating costs to be used in Version 2.1D, 19 Travel Model

Year	Auto operating cost 1994 cents/mile
year	aoc1994

1994	9.1
2000	8.5
2005	8.3
2010	8.2
2015	8.1
2020	8.0
2025	7.9
2030	7.8

Record of revisions:

Date	Pan	Adj	Description of change
06/03/04	msm	db	uparms 43-45 iter 0,1,2,3,4,5 stop
06/03/04	msm	mb	uparms 53-55,63-65 iter 0 (no new run)
06/03/04	msm	mb	uparms 53-55,63-65 iter 1,2,3 stop

Set file names:

```

&FILES
J1= 'hbomu.ptt',
J3= 'op_wk.skm',
J4= 'mf_op_wk.far',

```

## Appendix B: Version 2.1 D Draft #50 Control Files

```
J5= 'op_dr.skm',
J6= 'mf_op_dr.far',
J7= 'sovop .skm',
HOVA='hov2op .skm',
HOVB='hov3op .skm',
A1= 'hbov2.alf',
D1= '..\support\mctf_hbo.asc',
D2= '..\support\mccf_hbo.asc',
D3= '..\support\mc_fac.asc',
```

```
J9='mc_hbo.trp', LIST='mc_hbo.prn' /
```

Set user-coded parameters. Commonly modified UPARMS are:

```
1 : minimum carpool size - HOV "A" (or liberal carpool definition)
2 : intrazonal transit share
3 : intrazonal auto driver share
4 : I/X transit share
5 : I/X auto driver share
6 : minimum carpool size - HOV "B" (or stringent carpool definition)
11 : factor to scale input highway distance to whole miles
16 : apply parking cost model
17 : apply highway terminal time model
18 : model application option: 5=nwk per, 6=nwk adr, 7=no nwk
19 : un-transformed zonal data report switch (1=yes, 2=NO)
20 : transformed zonal data report switch (1=yes, 2=NO)
21 : run only MODAS & MODBS
30 : calibration report switch (1=yes, 2=no)
```

Here is a list of the UPARMS values we will use in this run

```
&PARAM
```

```
zones = 2191
uparms(1) = 0
uparms(2) = 0.0
uparms(3) = 1.0
uparms(4) = 0.0
uparms(5) = 0.620
uparms(6) = 0
uparms(10) = 1.0
uparms(11) = 0.1
uparms(12) = 7.9
uparms(13) = 82.5
uparms(14) = 82.5
uparms(16) = 2
uparms(17) = 2
uparms(18) = 7
uparms(19) = 2
uparms(20) = 1
uparms(21) = 1
uparms(22) = 0.75
uparms(23) = 1.81
uparms(24) = 3.71
uparms(26) = 2.845
uparms(27) = 3.703
uparms(28) = 4.732
uparms(30) = 1

uparms(15) = 4.36
uparms(31) = 0.04991
uparms(32) = 0.04991
uparms(33) = 0.04991
uparms(34) = 0.01902
uparms(35) = 0.01902
uparms(36) = -2.585e-5
uparms(37) = -2.171e-5
uparms(38) = 0.0
uparms(39) = 0.0
uparms(40) = 0.0
uparms(41) = 0.0
```

```
uparms(42) = 0.01902
uparms(43) = 2.9
uparms(44) = 1.1
uparms(45) = 0.65
uparms(46) = -5.194e-5
uparms(47) = 0.01902
uparms(48) = 0.01902
uparms(49) = 0.0
uparms(50) = 0.0
uparms(51) = 0.0
uparms(52) = 0.0
uparms(53) = 4.3573
uparms(54) = -0.0047
uparms(55) = -0.3111
uparms(56) = -2.307e-5
uparms(57) = 0.01902
uparms(58) = 0.01902
uparms(59) = 0.0
uparms(60) = 0.0
uparms(61) = 0.0
uparms(62) = 0.0
uparms(63) = 3.1938
uparms(64) = 0.5041
uparms(65) = -0.0499
uparms(66) = 0.78384
uparms(67) = 0.68530
uparms(68) = 0.68530
uparms(69) = 0.0
uparms(70) = 0.0
uparms(71) = 0.0
uparms(72) = 0.0
uparms(73) = 0.68530
uparms(74) = 0.68530
uparms(75) = 0.0
uparms(76) = 0.0
uparms(77) = 0.0
uparms(78) = 0.0
uparms(79) = 0.0
uparms(80) = 0.31756
uparms(81) = 0.15151
uparms(82) = 0.78384
uparms(83) = 0.68530
uparms(84) = 0.68530
uparms(85) = 0.0
uparms(86) = 0.0
uparms(87) = 0.0
uparms(88) = 0.0
uparms(89) = 0.0
uparms(90) = 0.0
uparms(91) = -0.21854
uparms(92) = -0.41346
uparms(93) = 0.0
uparms(94) = 0.0
uparms(95) = 3
uparms(96) = 0.0
uparms(97) = 0.0
uparms(98) = 0.0
uparms(99) = -0.69708
uparms(100) = 0.0
OrigSLWalk = t
DestSLWalk = t
UseShort = t
/
```

Set zone-district equivalencies for exogenous modal factors  
based on 2191 zone system:  
HBW Transit:

Appendix B: Version 2.1 D Draft #50 Control Files

```

&ADJDST ADST=1,AZNE=1,-88 / dc core
&ADJDST ADST=2,AZNE=89,-319 / dc noncore
&ADJDST ADST=3,AZNE=320,-639 / mtg
&ADJDST ADST=4,AZNE=640,-1029 / pg
&ADJDST ADST=5,AZNE=1230,-1238 / arl core
&ADJDST ADST=6,AZNE=1239,-1329 / arl noncore
&ADJDST ADST=7,AZNE=1330,-1399 / alx
&ADJDST ADST=8,AZNE=1400,-1779 / ffx
&ADJDST ADST=9,AZNE=1780,-1919 / ldn
&ADJDST ADST=10,AZNE=1920,-2069 / pw
&ADJDST ADST=11,AZNE=1030,-1059 / frd
&ADJDST ADST=12,AZNE=1080,-1109 / how
&ADJDST ADST=13,AZNE=1110,-1149 / aa
&ADJDST ADST=14,AZNE=1200,-1229 / chs
&ADJDST ADST=15,AZNE=1060,-1079 / car
&ADJDST ADST=16,AZNE=1150,-1199 / cal,stm
&ADJDST ADST=17,AZNE=2070,-2114 / stf,kg,spts,fbrg
&ADJDST ADST=18,AZNE=2115,-2129 / fau
&ADJDST ADST=19,AZNE=2130,-2144 / clk,jef
&ADJDST ADST=20,AZNE=2145,-2191 / externals

Non-Work/NHB Transit: (These are not used)
&NWKDST NDST=1,NZNE=1,-88 / dc core
&NWKDST NDST=2,NZNE=89,-319 / dc noncore
&NWKDST NDST=3,NZNE=320,-639 / mtg
&NWKDST NDST=4,NZNE=640,-1029 / pg
&NWKDST NDST=5,NZNE=1230,-1238 / arl core
&NWKDST NDST=6,NZNE=1239,-1329 / arl noncore
&NWKDST NDST=7,NZNE=1330,-1399 / alx
&NWKDST NDST=8,NZNE=1400,-1779 / ffx
&NWKDST NDST=9,NZNE=1780,-1919 / ldn
&NWKDST NDST=10,NZNE=1920,-2069 / pw
&NWKDST NDST=11,NZNE=1030,-1059 / frd
&NWKDST NDST=12,NZNE=1080,-1109 / how
&NWKDST NDST=13,NZNE=1110,-1149 / aa
&NWKDST NDST=14,NZNE=1200,-1229 / chs
&NWKDST NDST=15,NZNE=1060,-1079 / car
&NWKDST NDST=16,NZNE=1150,-1199 / cal,stm
&NWKDST NDST=17,NZNE=2070,-2114 / stf,kg,spts,fbrg
&NWKDST NDST=18,NZNE=2115,-2129 / fau
&NWKDST NDST=19,NZNE=2130,-2144 / clk,jef
&NWKDST NDST=20,NZNE=2145,-2191 / externals

Car Occupancy:
&CARDST CDST=1,CZNE=1,-88 / dc core
&CARDST CDST=2,CZNE=89,-319 / dc noncore
&CARDST CDST=3,CZNE=320,-639 / mtg
&CARDST CDST=4,CZNE=640,-1029 / pg
&CARDST CDST=5,CZNE=1230,-1238 / arl core
&CARDST CDST=6,CZNE=1239,-1329 / arl noncore
&CARDST CDST=7,CZNE=1330,-1399 / alx
&CARDST CDST=8,CZNE=1400,-1779 / ffx
&CARDST CDST=9,CZNE=1780,-1919 / ldn
&CARDST CDST=10,CZNE=1920,-2069 / pw
&CARDST CDST=11,CZNE=1030,-1059 / frd
&CARDST CDST=12,CZNE=1080,-1109 / how
&CARDST CDST=13,CZNE=1110,-1149 / aa
&CARDST CDST=14,CZNE=1200,-1229 / chs
&CARDST CDST=15,CZNE=1060,-1079 / car
&CARDST CDST=16,CZNE=1150,-1199 / cal,stm
&CARDST CDST=17,CZNE=2070,-2114 / stf,kg,spts,fbrg
&CARDST CDST=18,CZNE=2115,-2129 / fau
&CARDST CDST=19,CZNE=2130,-2144 / clk,jef
&CARDST CDST=20,CZNE=2145,-2191 / externals

External Stations:
&XTERN EDST = 1, EZNE = 2145 /

```

```

&XTERN EDST = 2, EZNE = 2146 /
&XTERN EDST = 3, EZNE = 2147,-2191 /

```

## MC\_HBO30.ctf

mc\_hbo.ctf - Version 2.1D\_19 Mode Choice Model Control File 6/2/04  
 Purpose: HBO Year: 1994  
 Auto Operating Cost (UPARM(12)): 7.8 cents/mi in 1994\$

Auto operating costs to be used in Version 2.1D, 19 Travel Model

Year	Auto operating cost 1994 cents/mile
year	aoc1994

year aoc1994

1994	9.1
2000	8.5
2005	8.3
2010	8.2
2015	8.1
2020	8.0
2025	7.9
2030	7.8

Record of revisions:

Date	Psn	Adj	Description of change
06/03/04	msm	db	uparms 43-45 iter 0,1,2,3,4,5 stop
06/03/04	msm	mb	uparms 53-55,63-65 iter 0 (no new run)
06/03/04	msm	mb	uparms 53-55,63-65 iter 1,2,3 stop

Set file names:

&FILES

```

J1= 'hbomu.ptt',
J3= 'op_wk.skm',
J4= 'mf_op_wk.far',
J5= 'op_dr.skm',
J6= 'mf_op_dr.far',
J7= 'sovop .skm',
HOVA='hov2op .skm',
HOVB='hov3op .skm',
A1= 'hbov2.alf',
D1= '..\support\mctf_hbo.asc',
D2= '..\support\mccf_hbo.asc',
D3= '..\support\mc_fac.asc',

```

```

J9='mc_hbo.trp', LIST='mc_hbo.prn' /

```

Set user-coded parameters. Commonly modified UPARMS are:

- 1 : minimum carpool size - HOV "A" (or liberal carpool definition)
- 2 : intrazonal transit share
- 3 : intrazonal auto driver share
- 4 : I/X transit share
- 5 : I/X auto driver share
- 6 : minimum carpool size - HOV "B" (or stringent carpool definition)
- 11 : factor to scale input highway distance to whole miles
- 16 : apply parking cost model
- 17 : apply highway terminal time model
- 18 : model application option: 5=nwk per, 6=nwk adr, 7=no nwk
- 19 : un-transformed zonal data report switch (1=yes, 2=NO)
- 20 : transformed zonal data report switch (1=yes, 2=NO)
- 21 : run only MODAS & MODBS

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30 : calibration report switch (1=yes, 2=no)

Here is a list of the UPARMS values we will use in this run

```
&PARAM
zones          = 2191
uparms(1)     = 0
uparms(2)     = 0.0
uparms(3)     = 1.0
uparms(4)     = 0.0
uparms(5)     = 0.620
uparms(6)     = 0
uparms(10)    = 1.0
uparms(11)    = 0.1
uparms(12)    = 7.8
uparms(13)    = 82.5
uparms(14)    = 82.5
uparms(16)    = 2
uparms(17)    = 2
uparms(18)    = 7
uparms(19)    = 2
uparms(20)    = 1
uparms(21)    = 1
uparms(22)    = 0.75
uparms(23)    = 1.81
uparms(24)    = 3.71
uparms(26)    = 2.845
uparms(27)    = 3.703
uparms(28)    = 4.732
uparms(30)    = 1

uparms(15)    = 4.36
uparms(31)    = 0.04991
uparms(32)    = 0.04991
uparms(33)    = 0.04991
uparms(34)    = 0.01902
uparms(35)    = 0.01902
uparms(36)    = -2.585e-5
uparms(37)    = -2.171e-5
uparms(38)    = 0.0
uparms(39)    = 0.0
uparms(40)    = 0.0
uparms(41)    = 0.0
uparms(42)    = 0.01902
uparms(43)    = 2.9
uparms(44)    = 1.1
uparms(45)    = 0.65
uparms(46)    = -5.194e-5
uparms(47)    = 0.01902
uparms(48)    = 0.01902
uparms(49)    = 0.0
uparms(50)    = 0.0
uparms(51)    = 0.0
uparms(52)    = 0.0
uparms(53)    = 4.3573
uparms(54)    = -0.0047
uparms(55)    = -0.3111
uparms(56)    = -2.307e-5
uparms(57)    = 0.01902
uparms(58)    = 0.01902
uparms(59)    = 0.0
uparms(60)    = 0.0
uparms(61)    = 0.0
uparms(62)    = 0.0
uparms(63)    = 3.1938
uparms(64)    = 0.5041
uparms(65)    = -0.0499
uparms(66)    = 0.78384
uparms(67)    = 0.68530
```

```
uparms(68) = 0.68530
uparms(69) = 0.0
uparms(70) = 0.0
uparms(71) = 0.0
uparms(72) = 0.0
uparms(73) = 0.68530
uparms(74) = 0.68530
uparms(75) = 0.0
uparms(76) = 0.0
uparms(77) = 0.0
uparms(78) = 0.0
uparms(79) = 0.0
uparms(80) = 0.31756
uparms(81) = 0.15151
uparms(82) = 0.78384
uparms(83) = 0.68530
uparms(84) = 0.68530
uparms(85) = 0.0
uparms(86) = 0.0
uparms(87) = 0.0
uparms(88) = 0.0
uparms(89) = 0.0
uparms(90) = 0.0
uparms(91) = -0.21854
uparms(92) = -0.41346
uparms(93) = 0.0
uparms(94) = 0.0
uparms(95) = 3
uparms(96) = 0.0
uparms(97) = 0.0
uparms(98) = 0.0
uparms(99) = -0.69708
uparms(100) = 0.0
OrigSLWalk = t
PestSLWalk = t
UseShort = t
/
```

Set zone-district equivalencies for exogenous modal factors  
based on 2191 zone system:  
HBW Transit:

```
&ADJDST ADST=1,AZNE=1,-88 / dc core
&ADJDST ADST=2,AZNE=89,-319 / dc noncore
&ADJDST ADST=3,AZNE=320,-639 / mtg
&ADJDST ADST=4,AZNE=640,-1029 / pg
&ADJDST ADST=5,AZNE=1230,-1238 / arl core
&ADJDST ADST=6,AZNE=1239,-1329 / arl noncore
&ADJDST ADST=7,AZNE=1330,-1399 / alx
&ADJDST ADST=8,AZNE=1400,-1779 / ffx
&ADJDST ADST=9,AZNE=1780,-1919 / ldn
&ADJDST ADST=10,AZNE=1920,-2069 / pw
&ADJDST ADST=11,AZNE=1030,-1059 / frd
&ADJDST ADST=12,AZNE=1080,-1109 / how
&ADJDST ADST=13,AZNE=1110,-1149 / aa
&ADJDST ADST=14,AZNE=1200,-1229 / chs
&ADJDST ADST=15,AZNE=1060,-1079 / car
&ADJDST ADST=16,AZNE=1150,-1199 / cal,stm
&ADJDST ADST=17,AZNE=2070,-2114 / stf,kg,spts,fbrg
&ADJDST ADST=18,AZNE=2115,-2129 / fau
&ADJDST ADST=19,AZNE=2130,-2144 / clk,jef
&ADJDST ADST=20,AZNE=2145,-2191 / externals
```

Non-Work/NHB Transit: (These are not used)

```
&NWKDST NDST=1,NZNE=1,-88 / dc core
&NWKDST NDST=2,NZNE=89,-319 / dc noncore
&NWKDST NDST=3,NZNE=320,-639 / mtg
&NWKDST NDST=4,NZNE=640,-1029 / pg
```

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```

&NWKDST NDST=5,NZNE=1230,-1238 / arl core
&NWKDST NDST=6,NZNE=1239,-1329 / arl noncore
&NWKDST NDST=7,NZNE=1330,-1399 / alx
&NWKDST NDST=8,NZNE=1400,-1779 / ffx
&NWKDST NDST=9,NZNE=1780,-1919 / ldn
&NWKDST NDST=10,NZNE=1920,-2069 / pw
&NWKDST NDST=11,NZNE=1030,-1059 / frd
&NWKDST NDST=12,NZNE=1080,-1109 / how
&NWKDST NDST=13,NZNE=1110,-1149 / aa
&NWKDST NDST=14,NZNE=1200,-1229 / chs
&NWKDST NDST=15,NZNE=1060,-1079 / car
&NWKDST NDST=16,NZNE=1150,-1199 / cal,stm
&NWKDST NDST=17,NZNE=2070,-2114 / stf,kg,spts,fbrg
&NWKDST NDST=18,NZNE=2115,-2129 / fau
&NWKDST NDST=19,NZNE=2130,-2144 / clk,jef
&NWKDST NDST=20,NZNE=2145,-2191 / externals

```

### Car Occupancy:

```

&CARDST CDST=1,CZNE=1,-88 / dc core
&CARDST CDST=2,CZNE=89,-319 / dc noncore
&CARDST CDST=3,CZNE=320,-639 / mtg
&CARDST CDST=4,CZNE=640,-1029 / pg
&CARDST CDST=5,CZNE=1230,-1238 / arl core
&CARDST CDST=6,CZNE=1239,-1329 / arl noncore
&CARDST CDST=7,CZNE=1330,-1399 / alx
&CARDST CDST=8,CZNE=1400,-1779 / ffx
&CARDST CDST=9,CZNE=1780,-1919 / ldn
&CARDST CDST=10,CZNE=1920,-2069 / pw
&CARDST CDST=11,CZNE=1030,-1059 / frd
&CARDST CDST=12,CZNE=1080,-1109 / how
&CARDST CDST=13,CZNE=1110,-1149 / aa
&CARDST CDST=14,CZNE=1200,-1229 / chs
&CARDST CDST=15,CZNE=1060,-1079 / car
&CARDST CDST=16,CZNE=1150,-1199 / cal,stm
&CARDST CDST=17,CZNE=2070,-2114 / stf,kg,spts,fbrg
&CARDST CDST=18,CZNE=2115,-2129 / fau
&CARDST CDST=19,CZNE=2130,-2144 / clk,jef
&CARDST CDST=20,CZNE=2145,-2191 / externals

```

### External Stations:

```

&XTERN EDST = 1, EZNE = 2145 /
&XTERN EDST = 2, EZNE = 2146 /
&XTERN EDST = 3, EZNE = 2147,-2191 /

```

## MC\_HBO94.ctf

mc\_hbo.ctf - Version 2.1D\_19 Mode Choice Model Control File 6/2/04  
 Purpose: HBO Year: 1994  
 Auto Operating Cost (UPARM(12)): 9.1 cents/mi in 1994\$

Auto operating costs to be used in Version 2.1D, 19 Travel Model

Year	Auto operating cost 1994 cents/mile
year	aoc1994
1994	9.1
2000	8.5
2005	8.3
2010	8.2
2015	8.1

```

2020 8.0
2025 7.9
2030 7.8

```

### Record of revisions:

Date	Psn	Adj	Description of change
06/03/04	msm	db	uparms 43-45 iter 0,1,2,3,4,5 stop
06/03/04	msm	mb	uparms 53-55,63-65 iter 0 (no new run)
06/03/04	msm	mb	uparms 53-55,63-65 iter 1,2,3 stop

### Set file names:

#### &FILES

```

J1= 'hbomu.ptt',
J3= 'op_wk.skm',
J4= 'mf_op_wk.far',
J5= 'op_dr.skm',
J6= 'mf_op_dr.far',
J7= 'sovop.skm',
HOVA='hov2op.skm',
HOVB='hov3op.skm',
A1= 'hbov2.tif',
D1= '.\support\mctf_hbo.asc',
D2= '.\support\mcof_hbo.asc',
D3= '.\support\mc_fac.asc',
J9='mc_hbo.trp', LIST='mc_hbo.prn' /

```

### Set user coded parameters. Commonly modified UPARMS are:

```

1 : minimum carpool size - HOV "A" (or liberal carpool definition)
2 : intrazonal transit share
3 : intrazonal auto driver share
4 : I/X transit share
5 : I/X auto driver share
6 : minimum carpool size - HOV "B" (or stringent carpool definition)
11 : factor to scale input highway distance to whole miles
16 : apply parking cost model
17 : apply highway terminal time model
18 : model application option: 5=nwk per, 6=nwk adr, 7=no nwk
19 : un-transformed zonal data report switch (1=yes, 2=NO)
20 : transformed zonal data report switch (1=yes, 2=NO)
21 : run only MODAS & MODBS
30 : calibration report switch (1=yes, 2=no)

```

Here is a list of the UPARMS values we will use in this run

#### &PARAM

```

zones = 2191
uparms(1) = 0
uparms(2) = 0.0
uparms(3) = 1.0
uparms(4) = 0.0
uparms(5) = 0.620
uparms(6) = 0
uparms(10) = 1.0
uparms(11) = 0.1
uparms(12) = 9.1
uparms(13) = 82.5
uparms(14) = 82.5
uparms(16) = 2
uparms(17) = 2
uparms(18) = 7
uparms(19) = 2
uparms(20) = 1
uparms(21) = 1
uparms(22) = 0.75
uparms(23) = 1.81
uparms(24) = 3.71
uparms(26) = 2.845

```

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```

uparms(27) = 3.703
uparms(28) = 4.732
uparms(30) = 1

uparms(15) = 4.36
uparms(31) = 0.04991
uparms(32) = 0.04991
uparms(33) = 0.04991
uparms(34) = 0.01902
uparms(35) = 0.01902
uparms(36) = -2.585e-5
uparms(37) = -2.171e-5
uparms(38) = 0.0
uparms(39) = 0.0
uparms(40) = 0.0
uparms(41) = 0.0
uparms(42) = 0.01902
uparms(43) = 2.9
uparms(44) = 1.1
uparms(45) = 0.65
uparms(46) = -5.194e-5
uparms(47) = 0.01902
uparms(48) = 0.01902
uparms(49) = 0.0
uparms(50) = 0.0
uparms(51) = 0.0
uparms(52) = 0.0
uparms(53) = 4.3573
uparms(54) = -0.0047
uparms(55) = -0.3111
uparms(56) = -2.307e-5
uparms(57) = 0.01902
uparms(58) = 0.01902
uparms(59) = 0.0
uparms(60) = 0.0
uparms(61) = 0.0
uparms(62) = 0.0
uparms(63) = 3.1938
uparms(64) = 0.5041
uparms(65) = -0.0499
uparms(66) = 0.78384
uparms(67) = 0.68530
uparms(68) = 0.68530
uparms(69) = 0.0
uparms(70) = 0.0
uparms(71) = 0.0
uparms(72) = 0.0
uparms(73) = 0.68530
uparms(74) = 0.68530
uparms(75) = 0.0
uparms(76) = 0.0
uparms(77) = 0.0
uparms(78) = 0.0
uparms(79) = 0.0
uparms(80) = 0.31756
uparms(81) = 0.15151
uparms(82) = 0.78384
uparms(83) = 0.68530
uparms(84) = 0.68530
uparms(85) = 0.0
uparms(86) = 0.0
uparms(87) = 0.0
uparms(88) = 0.0
uparms(89) = 0.0
uparms(90) = 0.0
uparms(91) = -0.21854
uparms(92) = -0.41346
uparms(93) = 0.0

```

```

uparms(94) = 0.0
uparms(95) = 3
uparms(96) = 0.0
uparms(97) = 0.0
uparms(98) = 0.0
uparms(99) = -0.69708
uparms(100) = 0.0
OrigSLWalk = t
DestSLWalk = t
UseShort = t
/

```

Set zone-district equivalencies for exogenous modal factors based on 2191 zone system:

```

HBW Transit:

&ADJDST ADST=1,AZNE=1,-88 / dc core
&ADJDST ADST=2,AZNE=89,-319 / dc noncore
&ADJDST ADST=3,AZNE=320,-639 / mtg
&ADJDST ADST=4,AZNE=640,-1029 / pg
&ADJDST ADST=5,AZNE=1230,-1238 / arl core
&ADJDST ADST=6,AZNE=1239,-1329 / arl noncore
&ADJDST ADST=7,AZNE=1330,-1399 / alx
&ADJDST ADST=8,AZNE=1400,-1779 / ffx
&ADJDST ADST=9,AZNE=1780,-1919 / ldn
&ADJDST ADST=10,AZNE=1920,-2069 / pw
&ADJDST ADST=11,AZNE=1030,-1059 / frd
&ADJDST ADST=12,AZNE=1080,-1109 / how
&ADJDST ADST=13,AZNE=1110,-1149 / aa
&ADJDST ADST=14,AZNE=1200,-1229 / chs
&ADJDST ADST=15,AZNE=1060,-1079 / car
&ADJDST ADST=16,AZNE=1150,-1199 / cal,stm
&ADJDST ADST=17,AZNE=2070,-2114 / stf,kg,spts,fbrg
&ADJDST ADST=18,AZNE=2115,-2129 / fau
&ADJDST ADST=19,AZNE=2130,-2144 / clk,jef
&ADJDST ADST=20,AZNE=2145,-2191 / externals

```

```

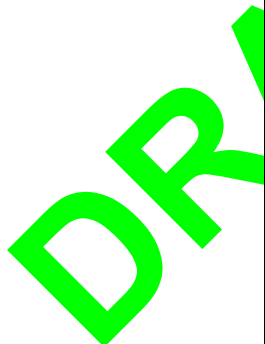
Non-Work/NHB Transit: (These are not used)
&NWKDST NDST=1,NZNE=1,-88 / dc core
&NWKDST NDST=2,NZNE=89,-319 / dc noncore
&NWKDST NDST=3,NZNE=320,-639 / mtg
&NWKDST NDST=4,NZNE=640,-1029 / pg
&NWKDST NDST=5,NZNE=1230,-1238 / arl core
&NWKDST NDST=6,NZNE=1239,-1329 / arl noncore
&NWKDST NDST=7,NZNE=1330,-1399 / alx
&NWKDST NDST=8,NZNE=1400,-1779 / ffx
&NWKDST NDST=9,NZNE=1780,-1919 / ldn
&NWKDST NDST=10,NZNE=1920,-2069 / pw
&NWKDST NDST=11,NZNE=1030,-1059 / frd
&NWKDST NDST=12,NZNE=1080,-1109 / how
&NWKDST NDST=13,NZNE=1110,-1149 / aa
&NWKDST NDST=14,NZNE=1200,-1229 / chs
&NWKDST NDST=15,NZNE=1060,-1079 / car
&NWKDST NDST=16,NZNE=1150,-1199 / cal,stm
&NWKDST NDST=17,NZNE=2070,-2114 / stf,kg,spts,fbrg
&NWKDST NDST=18,NZNE=2115,-2129 / fau
&NWKDST NDST=19,NZNE=2130,-2144 / clk,jef
&NWKDST NDST=20,NZNE=2145,-2191 / externals

```

```

Car Occupancy:
&CARDST CDST=1,CZNE=1,-88 / dc core
&CARDST CDST=2,CZNE=89,-319 / dc noncore
&CARDST CDST=3,CZNE=320,-639 / mtg
&CARDST CDST=4,CZNE=640,-1029 / pg
&CARDST CDST=5,CZNE=1230,-1238 / arl core
&CARDST CDST=6,CZNE=1239,-1329 / arl noncore
&CARDST CDST=7,CZNE=1330,-1399 / alx
&CARDST CDST=8,CZNE=1400,-1779 / ffx

```



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```

&CARDST CDST=9,CZNE=1780,-1919 / ldh
&CARDST CDST=10,CZNE=1920,-2069 / pw
&CARDST CDST=11,CZNE=1030,-1059 / frd
&CARDST CDST=12,CZNE=1080,-1109 / how
&CARDST CDST=13,CZNE=1110,-1149 / aa
&CARDST CDST=14,CZNE=1200,-1229 / chs
&CARDST CDST=15,CZNE=1060,-1079 / car
&CARDST CDST=16,CZNE=1150,-1199 / cal,stm
&CARDST CDST=17,CZNE=2070,-2114 / stf,kg,spts,fbgr
&CARDST CDST=18,CZNE=2115,-2129 / fau
&CARDST CDST=19,CZNE=2130,-2144 / clk,jef
&CARDST CDST=20,CZNE=2145,-2191 / externals

```

```

External Stations:
&XTERN EDST = 1, EZNE = 2145 /
&XTERN EDST = 2, EZNE = 2146 /
&XTERN EDST = 3, EZNE = 2147,-2191 /

```

### MC\_HBS00.ctl

```

mc_hbs.ctl - Version 2.1D_19 Mode Choice Model Control File 6/2/04
Purpose: HBS Year: 1994
Auto Operating Cost (UPARM(12)): 8.5 cents/mi in 1994$

```

Auto operating costs to be used in Version 2.1D, 19 Travel Model

Year	Auto operating cost 1994 cents/mile
1994	9.1
2000	8.5
2005	8.3
2010	8.2
2015	8.1
2020	8.0
2025	7.9
2030	7.8

Record of revisions:

Date	Psn	Adj	Description of change
06/03/04	msm	db	uparms 43-45 iter 0,1,2,3,4 stop
06/03/04	msm	mb	uparms 53-55,63-65 iter 0 (no new run)
06/03/04	msm	mb	uparms 53-55,63-65 iter 1,2,3,4,5
06/04/04	msm	db	uparms 43-45 iter 0 (values from 2002),1,2 stop
06/03/04	msm	mb	uparms 53-55,63-65 iter 7,8

Set file names:

```

&FILES
J1= 'hbsmu.ptt',
J3= 'op_wk.skm',
J4= 'mf_op_wk.far',
J5= 'op_dr.skm',
J6= 'mf_op_dr.far',
J7= 'sovop.skm',
HOVA='hov2op.skm',
HOVB='hov3op.skm',
A1= 'hbsv2.alf',
D1= '..\support\mctf_hbs.asc',
D2= '..\support\mccf_hbs.asc',

```

```
D3= '..\support\mc_fac.asc',
```

```
J9='mc_hbs.trp', LIST='mc_hbs.prn' /
```

```

Set user-coded parameters. Commonly modified UPARMS are:
1 : minimum carpool size - HOV "A" (or liberal carpool definition)
2 : intrazonal transit share
3 : intrazonal auto driver share
4 : I/X transit share
5 : I/X auto driver share
6 : minimum carpool size - HOV "B" (or stringent carpool definition)
11 : factor to scale input highway distance to whole miles
16 : apply parking cost model
17 : apply highway terminal time model
18 : model application option: 5=nwk per, 6=nwk adr, 7=no nwk
19 : un-transformed zonal data report switch (1=yes, 2=NO)
20 : transformed zonal data report switch (1=yes, 2=NO)
21 : run only MODAS & MODBS
30 : calibration report switch (1=yes, 2=no)

```

Here is a list of the UPARMS values we will use in this run

```

&PARAM
zones = 2191
uparms(1) = 0
uparms(2) = 0.0
uparms(3) = 1.0
uparms(4) = 0.0
uparms(5) = 0.610
uparms(6) = 0
uparms(10) = 1.0
uparms(11) = 0.1
uparms(12) = 8.5
uparms(13) = 82.5
uparms(14) = 82.5
uparms(16) = 2
uparms(17) = 2
uparms(18) = 7
uparms(19) = 2
uparms(20) = 1
uparms(21) = 1
uparms(22) = 0.27
uparms(23) = 0.72
uparms(24) = 1.11
uparms(26) = 2.845
uparms(27) = 3.703
uparms(28) = 4.732
uparms(30) = 1

uparms(15) = 4.36
uparms(31) = 0.02432
uparms(32) = 0.02432
uparms(33) = 0.02432
uparms(34) = 0.00912
uparms(35) = 0.00912
uparms(36) = -2.627e-5
uparms(37) = -2.438e-5
uparms(38) = 0.0
uparms(39) = 0.0
uparms(40) = 0.00416
uparms(41) = 0.0
uparms(42) = 0.00912
uparms(43) = 2.9
uparms(44) = 0.0
uparms(45) = -2.0
uparms(46) = 0.0
uparms(47) = 0.00912
uparms(48) = 0.00912
uparms(49) = 0.00416

```

# Appendix B: Version 2.1 D Draft #50 Control Files

```

uparms(50) = 0.00416
uparms(51) = 0.00416
uparms(52) = 0.0
uparms(53) = 3.037
uparms(54) = -2.272
uparms(55) = -3.751
uparms(56) = -4.869e-5
uparms(57) = 0.00912
uparms(58) = 0.00912
uparms(59) = 0.00416
uparms(60) = 0.00416
uparms(61) = 0.00416
uparms(62) = 0.0
uparms(63) = 0.888
uparms(64) = -1.929
uparms(65) = -3.507
uparms(66) = 0.0
uparms(67) = 0.45633
uparms(68) = 0.45633
uparms(69) = 0.0
uparms(70) = 0.0
uparms(71) = 0.0
uparms(72) = 0.0
uparms(73) = 0.45633
uparms(74) = 0.45633
uparms(75) = 0.0
uparms(76) = 0.0
uparms(77) = 0.0
uparms(78) = 0.0
uparms(79) = 0.0
uparms(80) = 0.92201
uparms(81) = 0.48966
uparms(82) = 0.0
uparms(83) = 0.45633
uparms(84) = 0.45633
uparms(85) = 0.0
uparms(86) = 0.0
uparms(87) = 0.0
uparms(88) = 0.0
uparms(89) = 0.0
uparms(90) = 1.51854
uparms(91) = 0.84071
uparms(92) = 0.0
uparms(93) = 0.0
uparms(94) = 0.0
uparms(95) = 3
uparms(96) = 0.0
uparms(97) = 0.0
uparms(98) = 0.0
uparms(99) = -0.84404
uparms(100) = 0.0
OrigSLWalk = t
DestSLWalk = t
UseShort = t
/

Set zone-district equivalencies for exogenous modal factors
based on 2191 zone system:
HBW Transit:

&ADJDST ADST=1,AZNE=1,-88 / dc core
&ADJDST ADST=2,AZNE=89,-319 / dc noncore
&ADJDST ADST=3,AZNE=320,-639 / mtg
&ADJDST ADST=4,AZNE=640,-1029 / pg
&ADJDST ADST=5,AZNE=1230,-1238 / arl core
&ADJDST ADST=6,AZNE=1239,-1329 / arl noncore
&ADJDST ADST=7,AZNE=1330,-1399 / alx
&ADJDST ADST=8,AZNE=1400,-1779 / ffx

```

```

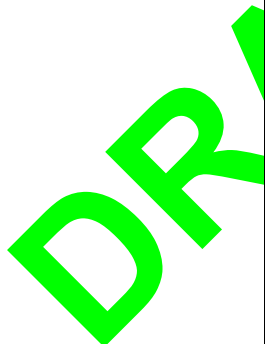
&ADJDST ADST=9,AZNE=1780,-1919 / ldn
&ADJDST ADST=10,AZNE=1920,-2069 / pw
&ADJDST ADST=11,AZNE=1030,-1059 / frd
&ADJDST ADST=12,AZNE=1080,-1109 / how
&ADJDST ADST=13,AZNE=1110,-1149 / aa
&ADJDST ADST=14,AZNE=1200,-1229 / chs
&ADJDST ADST=15,AZNE=1060,-1079 / car
&ADJDST ADST=16,AZNE=1150,-1199 / cal,stm
&ADJDST ADST=17,AZNE=2070,-2114 / stf,kg,spts,fbrg
&ADJDST ADST=18,AZNE=2115,-2129 / fau
&ADJDST ADST=19,AZNE=2130,-2144 / clk,jef
&ADJDST ADST=20,AZNE=2145,-2191 / externals

Non-Work/NHB Transit: (These are not used)
&NWKDST NDST=1,NZNE=1,-88 / dc core
&NWKDST NDST=2,NZNE=89,-319 / dc noncore
&NWKDST NDST=3,NZNE=320,-639 / mtg
&NWKDST NDST=4,NZNE=640,-1029 / pg
&NWKDST NDST=5,NZNE=1230,-1238 / arl core
&NWKDST NDST=6,NZNE=1239,-1329 / arl noncore
&NWKDST NDST=7,NZNE=1330,-1399 / alx
&NWKDST NDST=8,NZNE=1400,-1779 / ffx
&NWKDST NDST=9,NZNE=1780,-1919 / ldn
&NWKDST NDST=10,NZNE=1920,-2069 / pw
&NWKDST NDST=11,NZNE=1030,-1059 / frd
&NWKDST NDST=12,NZNE=1080,-1109 / how
&NWKDST NDST=13,NZNE=1110,-1149 / aa
&NWKDST NDST=14,NZNE=1200,-1229 / chs
&NWKDST NDST=15,NZNE=1060,-1079 / car
&NWKDST NDST=16,NZNE=1150,-1199 / cal,stm
&NWKDST NDST=17,NZNE=2070,-2114 / stf,kg,spts,fbrg
&NWKDST NDST=18,NZNE=2115,-2129 / fau
&NWKDST NDST=19,NZNE=2130,-2144 / clk,jef
&NWKDST NDST=20,NZNE=2145,-2191 / externals

Car Occupancy:
&CARDST CDST=1,CZNE=1,-88 / dc core
&CARDST CDST=2,CZNE=89,-319 / dc noncore
&CARDST CDST=3,CZNE=320,-639 / mtg
&CARDST CDST=4,CZNE=640,-1029 / pg
&CARDST CDST=5,CZNE=1230,-1238 / arl core
&CARDST CDST=6,CZNE=1239,-1329 / arl noncore
&CARDST CDST=7,CZNE=1330,-1399 / alx
&CARDST CDST=8,CZNE=1400,-1779 / ffx
&CARDST CDST=9,CZNE=1780,-1919 / ldn
&CARDST CDST=10,CZNE=1920,-2069 / pw
&CARDST CDST=11,CZNE=1030,-1059 / frd
&CARDST CDST=12,CZNE=1080,-1109 / how
&CARDST CDST=13,CZNE=1110,-1149 / aa
&CARDST CDST=14,CZNE=1200,-1229 / chs
&CARDST CDST=15,CZNE=1060,-1079 / car
&CARDST CDST=16,CZNE=1150,-1199 / cal,stm
&CARDST CDST=17,CZNE=2070,-2114 / stf,kg,spts,fbrg
&CARDST CDST=18,CZNE=2115,-2129 / fau
&CARDST CDST=19,CZNE=2130,-2144 / clk,jef
&CARDST CDST=20,CZNE=2145,-2191 / externals

External Stations:
&XTERN EDST = 1, EZNE = 2145 /
&XTERN EDST = 2, EZNE = 2146 /
&XTERN EDST = 3, EZNE = 2147,-2191 /

```





### MC\_HBS05.ctf

mc\_hbs.ctf1 - Version 2.1D\_19 Mode Choice Model Control File 6/2/04  
 Purpose: HBS Year: 2005  
 Auto Operating Cost (UPARM(12)): 8.3 cents/mi in 1994\$

Auto operating costs to be used in Version 2.1D, 19 Travel Model

Year Auto  
 operating  
 cost  
 1994  
 cents/mile

year aoc1994

1994	9.1
2000	8.5
2005	8.3
2010	8.2
2015	8.1
2020	8.0
2025	7.9
2030	7.8

Record of revisions:

Date	Psn	Adj	Description of change
06/03/04	msm	db	uparms 43-45 iter 0,1,2,3,4 stop
06/03/04	msm	mb	uparms 53-55,63-65 iter 0 (no new run)
06/03/04	msm	mb	uparms 53-55,63-65 iter 1,2,3,4,5
06/04/04	msm	db	uparms 43-45 iter 0 (values from 2002),1,2 stop
06/03/04	msm	mb	uparms 53-55,63-65 iter 7,8

Set file names:

&FILES

J1= 'hbsmu.ptt',  
 J3= 'op\_wk.skm',  
 J4= 'mf\_op\_wk.far',  
 J5= 'op\_dr.skm',  
 J6= 'mf\_op\_dr.far',  
 J7= 'sovop.skm',  
 HOVA='hov2op.skm',  
 HOVB='hov3op.skm',  
 A1= 'hbsv2.alf',  
 D1= '..\support\mctf\_hbs.asc',  
 D2= '..\support\mccf\_hbs.asc',  
 D3= '..\support\mc\_fac.asc',

J9='mc\_hbs.trp', LIST='mc\_hbs.prn' /

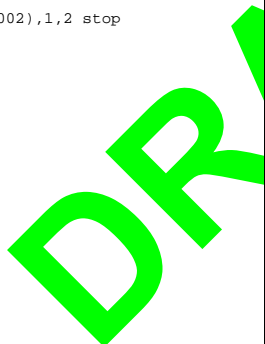
Set user-coded parameters. Commonly modified UPARMS are:

- 1 : minimum carpool size - HOV "A" (or liberal carpool definition)
- 2 : intrazonal transit share
- 3 : intrazonal auto driver share
- 4 : I/X transit share
- 5 : I/X auto driver share
- 6 : minimum carpool size - HOV "B" (or stringent carpool definition)
- 11 : factor to scale input highway distance to whole miles
- 16 : apply parking cost model
- 17 : apply highway terminal time model
- 18 : model application option: 5=nwk per, 6=nwk adr, 7=no nwk
- 19 : un-transformed zonal data report switch (1=yes, 2=NO)
- 20 : transformed zonal data report switch (1=yes, 2=NO)
- 21 : run only MODAS & MODBS
- 30 : calibration report switch (1=yes, 2=no)

Here is a list of the UPARMS values we will use in this run

```

&PARAM
zones = 2191
uparms(1) = 0
uparms(2) = 0.0
uparms(3) = 1.0
uparms(4) = 0.0
uparms(5) = 0.610
uparms(6) = 0
uparms(10) = 1.0
uparms(11) = 0.1
uparms(12) = 8.3
uparms(13) = 82.5
uparms(14) = 82.5
uparms(16) = 2
uparms(17) = 2
uparms(18) = 7
uparms(19) = 2
uparms(20) = 1
uparms(21) = 1
uparms(22) = 0.27
uparms(23) = 0.72
uparms(24) = 1.11
uparms(26) = 2.845
uparms(27) = 3.703
uparms(28) = 4.732
uparms(30) = 1
uparms(35) = 4.36
uparms(31) = 0.02432
uparms(32) = 0.02432
uparms(33) = 0.02432
uparms(34) = 0.00912
uparms(35) = 0.00912
uparms(36) = -2.627e-5
uparms(37) = -2.438e-5
uparms(38) = 0.0
uparms(39) = 0.0
uparms(40) = 0.00416
uparms(41) = 0.0
uparms(42) = 0.00912
uparms(43) = 2.9
uparms(44) = 0.0
uparms(45) = -2.0
uparms(46) = 0.0
uparms(47) = 0.00912
uparms(48) = 0.00912
uparms(49) = 0.00416
uparms(50) = 0.00416
uparms(51) = 0.00416
uparms(52) = 0.0
uparms(53) = 3.037
uparms(54) = -2.272
uparms(55) = -3.751
uparms(56) = -4.869e-5
uparms(57) = 0.00912
uparms(58) = 0.00912
uparms(59) = 0.00416
uparms(60) = 0.00416
uparms(61) = 0.00416
uparms(62) = 0.0
uparms(63) = 0.888
uparms(64) = -1.929
uparms(65) = -3.507
uparms(66) = 0.0
uparms(67) = 0.45633
uparms(68) = 0.45633
uparms(69) = 0.0
uparms(70) = 0.0
    
```



Appendix B: Version 2.1 D Draft #50 Control Files

```

uparms(71) = 0.0
uparms(72) = 0.0
uparms(73) = 0.45633
uparms(74) = 0.45633
uparms(75) = 0.0
uparms(76) = 0.0
uparms(77) = 0.0
uparms(78) = 0.0
uparms(79) = 0.0
uparms(80) = 0.92201
uparms(81) = 0.48966
uparms(82) = 0.0
uparms(83) = 0.45633
uparms(84) = 0.45633
uparms(85) = 0.0
uparms(86) = 0.0
uparms(87) = 0.0
uparms(88) = 0.0
uparms(89) = 0.0
uparms(90) = 1.51854
uparms(91) = 0.84071
uparms(92) = 0.0
uparms(93) = 0.0
uparms(94) = 0.0
uparms(95) = 3
uparms(96) = 0.0
uparms(97) = 0.0
uparms(98) = 0.0
uparms(99) = -0.84404
uparms(100) = 0.0
OrigSLWalk = t
DestSLWalk = t
UseShort = t
/

```

Set zone-district equivalencies for exogenous modal factors based on 2191 zone system:  
 HBW Transit:

```

&ADJDST ADST=1,AZNE=1,-88 / dc core
&ADJDST ADST=2,AZNE=89,-319 / dc noncore
&ADJDST ADST=3,AZNE=320,-639 / mtg
&ADJDST ADST=4,AZNE=640,-1029 / pg
&ADJDST ADST=5,AZNE=1230,-1238 / arl core
&ADJDST ADST=6,AZNE=1239,-1329 / arl noncore
&ADJDST ADST=7,AZNE=1330,-1399 / alx
&ADJDST ADST=8,AZNE=1400,-1779 / ffx
&ADJDST ADST=9,AZNE=1780,-1919 / ldn
&ADJDST ADST=10,AZNE=1920,-2069 / pw
&ADJDST ADST=11,AZNE=1030,-1059 / frd
&ADJDST ADST=12,AZNE=1080,-1109 / how
&ADJDST ADST=13,AZNE=1110,-1149 / aa
&ADJDST ADST=14,AZNE=1200,-1229 / chs
&ADJDST ADST=15,AZNE=1060,-1079 / car
&ADJDST ADST=16,AZNE=1150,-1199 / cal,stm
&ADJDST ADST=17,AZNE=2070,-2114 / stf,kg,spts,fbrg
&ADJDST ADST=18,AZNE=2115,-2129 / fau
&ADJDST ADST=19,AZNE=2130,-2144 / clk,jef
&ADJDST ADST=20,AZNE=2145,-2191 / externals

```

Non-Work/NHB Transit: (These are not used)

```

&NWKDST NDST=1,NZNE=1,-88 / dc core
&NWKDST NDST=2,NZNE=89,-319 / dc noncore
&NWKDST NDST=3,NZNE=320,-639 / mtg
&NWKDST NDST=4,NZNE=640,-1029 / pg
&NWKDST NDST=5,NZNE=1230,-1238 / arl core
&NWKDST NDST=6,NZNE=1239,-1329 / arl noncore
&NWKDST NDST=7,NZNE=1330,-1399 / alx

```

```

&NWKDST NDST=8,NZNE=1400,-1779 / ffx
&NWKDST NDST=9,NZNE=1780,-1919 / ldn
&NWKDST NDST=10,NZNE=1920,-2069 / pw
&NWKDST NDST=11,NZNE=1030,-1059 / frd
&NWKDST NDST=12,NZNE=1080,-1109 / how
&NWKDST NDST=13,NZNE=1110,-1149 / aa
&NWKDST NDST=14,NZNE=1200,-1229 / chs
&NWKDST NDST=15,NZNE=1060,-1079 / car
&NWKDST NDST=16,NZNE=1150,-1199 / cal,stm
&NWKDST NDST=17,NZNE=2070,-2114 / stf,kg,spts,fbrg
&NWKDST NDST=18,NZNE=2115,-2129 / fau
&NWKDST NDST=19,NZNE=2130,-2144 / clk,jef
&NWKDST NDST=20,NZNE=2145,-2191 / externals

```

Car Occupancy:

```

&CARDST CDST=1,CZNE=1,-88 / dc core
&CARDST CDST=2,CZNE=89,-319 / dc noncore
&CARDST CDST=3,CZNE=320,-639 / mtg
&CARDST CDST=4,CZNE=640,-1029 / pg
&CARDST CDST=5,CZNE=1230,-1238 / arl core
&CARDST CDST=6,CZNE=1239,-1329 / arl noncore
&CARDST CDST=7,CZNE=1330,-1399 / alx
&CARDST CDST=8,CZNE=1400,-1779 / ffx
&CARDST CDST=9,CZNE=1780,-1919 / ldn
&CARDST CDST=10,CZNE=1920,-2069 / pw
&CARDST CDST=11,CZNE=1030,-1059 / frd
&CARDST CDST=12,CZNE=1080,-1109 / how
&CARDST CDST=13,CZNE=1110,-1149 / aa
&CARDST CDST=14,CZNE=1200,-1229 / chs
&CARDST CDST=15,CZNE=1060,-1079 / car
&CARDST CDST=16,CZNE=1150,-1199 / cal,stm
&CARDST CDST=17,CZNE=2070,-2114 / stf,kg,spts,fbrg
&CARDST CDST=18,CZNE=2115,-2129 / fau
&CARDST CDST=19,CZNE=2130,-2144 / clk,jef
&CARDST CDST=20,CZNE=2145,-2191 / externals

```

External Stations:

```

&XTERN EDST = 1, EZNE = 2145 /
&XTERN EDST = 2, EZNE = 2146 /
&XTERN EDST = 3, EZNE = 2147,-2191 /

```

### MC\_HBS25.ctf

mc\_hbs.ctf - Version 2.1D\_19 Mode Choice Model Control File 6/2/04  
 Purpose: HBS Year: 1994  
 Auto Operating Cost (UPARM(12)): 7.9 cents/mi in 1994\$

Auto operating costs to be used in Version 2.1D, 19 Travel Model

Year	Auto operating cost 1994 cents/mile
year	aoc1994
1994	9.1
2000	8.5
2005	8.3
2010	8.2
2015	8.1
2020	8.0
2025	7.9
2030	7.8

## Appendix B: Version 2.1 D Draft #50 Control Files

### Record of revisions:

```
Date   Psn Adj Description of change
06/03/04 msm db uparms 43-45 iter 0,1,2,3,4 stop
06/03/04 msm mb uparms 53-55,63-65 iter 0 (no new run)
06/03/04 msm mb uparms 53-55,63-65 iter 1,2,3,4,5
06/04/04 msm db uparms 43-45 iter 0 (values from 2002),1,2 stop
06/03/04 msm mb uparms 53-55,63-65 iter 7,8
```

### Set file names:

#### &FILES

```
J1= 'hbsmu.ptt',
J3= 'op_wk.skm',
J4= 'mf_op_wk.far',
J5= 'op_dr.skm',
J6= 'mf_op_dr.far',
J7= 'sovop.skm',
HOVA='hov2op.skm',
HOVB='hov3op.skm',
A1= 'hbsv2.alf',
D1= '..\support\mctf_hbs.asc',
D2= '..\support\mccf_hbs.asc',
D3= '..\support\mc_fac.asc',
```

```
J9='mc_hbs.trp', LIST='mc_hbs.prn' /
```

### Set user-coded parameters. Commonly modified UPARMS are:

```
1 : minimum carpool size - HOV "A" (or liberal carpool definition)
2 : intrazonal transit share
3 : intrazonal auto driver share
4 : I/X transit share
5 : I/X auto driver share
6 : minimum carpool size - HOV "B" (or stringent carpool definition)
11 : factor to scale input highway distance to whole miles
16 : apply parking cost model
17 : apply highway terminal time model
18 : model application option: 5=nwk per, 6=nwk adr, 7=no nwk
19 : un-transformed zonal data report switch (1=yes, 2=NO)
20 : transformed zonal data report switch (1=yes, 2=NO)
21 : run only MODAS & MODBS
30 : calibration report switch (1=yes, 2=no)
```

### Here is a list of the UPARMS values we will use in this run

#### &PARAM

```
zones = 2191
uparms(1) = 0
uparms(2) = 0.0
uparms(3) = 1.0
uparms(4) = 0.0
uparms(5) = 0.610
uparms(6) = 0
uparms(10) = 1.0
uparms(11) = 0.1
uparms(12) = 7.9
uparms(13) = 82.5
uparms(14) = 82.5
uparms(16) = 2
uparms(17) = 2
uparms(18) = 7
uparms(19) = 2
uparms(20) = 1
uparms(21) = 1
uparms(22) = 0.27
uparms(23) = 0.72
uparms(24) = 1.11
uparms(26) = 2.845
uparms(27) = 3.703
```

```
uparms(28) = 4.732
uparms(30) = 1
uparms(15) = 4.36
uparms(31) = 0.02432
uparms(32) = 0.02432
uparms(33) = 0.02432
uparms(34) = 0.00912
uparms(35) = 0.00912
uparms(36) = -2.627e-5
uparms(37) = -2.438e-5
uparms(38) = 0.0
uparms(39) = 0.0
uparms(40) = 0.00416
uparms(41) = 0.0
uparms(42) = 0.00912
uparms(43) = 2.9
uparms(44) = 0.0
uparms(45) = -2.0
uparms(46) = 0.0
uparms(47) = 0.00912
uparms(48) = 0.00912
uparms(49) = 0.00416
uparms(50) = 0.00416
uparms(51) = 0.00416
uparms(52) = 0.0
uparms(53) = 3.037
uparms(54) = -2.272
uparms(55) = -3.751
uparms(56) = -4.869e-5
uparms(57) = 0.00912
uparms(58) = 0.00912
uparms(59) = 0.00416
uparms(60) = 0.00416
uparms(61) = 0.00416
uparms(62) = 0.0
uparms(63) = 0.888
uparms(64) = -1.929
uparms(65) = -3.507
uparms(66) = 0.0
uparms(67) = 0.45633
uparms(68) = 0.45633
uparms(69) = 0.0
uparms(70) = 0.0
uparms(71) = 0.0
uparms(72) = 0.0
uparms(73) = 0.45633
uparms(74) = 0.45633
uparms(75) = 0.0
uparms(76) = 0.0
uparms(77) = 0.0
uparms(78) = 0.0
uparms(79) = 0.0
uparms(80) = 0.92201
uparms(81) = 0.48966
uparms(82) = 0.0
uparms(83) = 0.45633
uparms(84) = 0.45633
uparms(85) = 0.0
uparms(86) = 0.0
uparms(87) = 0.0
uparms(88) = 0.0
uparms(89) = 0.0
uparms(90) = 1.51854
uparms(91) = 0.84071
uparms(92) = 0.0
uparms(93) = 0.0
uparms(94) = 0.0
```

DRAFT

# Appendix B: Version 2.1 D Draft #50 Control Files

```

uparms(95) = 3
uparms(96) = 0.0
uparms(97) = 0.0
uparms(98) = 0.0
uparms(99) = -0.84404
uparms(100) = 0.0
OrigSLWalk = t
DestSLWalk = t
UseShort = t
/

```

Set zone-district equivalencies for exogenous modal factors based on 2191 zone system:  
 HBW Transit:

```

&ADJDST ADST=1,AZNE=1,-88 / dc core
&ADJDST ADST=2,AZNE=89,-319 / dc noncore
&ADJDST ADST=3,AZNE=320,-639 / mtg
&ADJDST ADST=4,AZNE=640,-1029 / pg
&ADJDST ADST=5,AZNE=1230,-1238 / arl core
&ADJDST ADST=6,AZNE=1239,-1329 / arl noncore
&ADJDST ADST=7,AZNE=1330,-1399 / alx
&ADJDST ADST=8,AZNE=1400,-1779 / ffx
&ADJDST ADST=9,AZNE=1780,-1919 / ldn
&ADJDST ADST=10,AZNE=1920,-2069 / pw
&ADJDST ADST=11,AZNE=1030,-1059 / frd
&ADJDST ADST=12,AZNE=1080,-1109 / how
&ADJDST ADST=13,AZNE=1110,-1149 / aa
&ADJDST ADST=14,AZNE=1200,-1229 / chs
&ADJDST ADST=15,AZNE=1060,-1079 / car
&ADJDST ADST=16,AZNE=1150,-1199 / cal,stm
&ADJDST ADST=17,AZNE=2070,-2114 / stf,kg,spts,fbrg
&ADJDST ADST=18,AZNE=2115,-2129 / fau
&ADJDST ADST=19,AZNE=2130,-2144 / clk,jef
&ADJDST ADST=20,AZNE=2145,-2191 / externals

```

Non-Work/NHB Transit: (These are not used)

```

&NWKDST NDST=1,NZNE=1,-88 / dc core
&NWKDST NDST=2,NZNE=89,-319 / dc noncore
&NWKDST NDST=3,NZNE=320,-639 / mtg
&NWKDST NDST=4,NZNE=640,-1029 / pg
&NWKDST NDST=5,NZNE=1230,-1238 / arl core
&NWKDST NDST=6,NZNE=1239,-1329 / arl noncore
&NWKDST NDST=7,NZNE=1330,-1399 / alx
&NWKDST NDST=8,NZNE=1400,-1779 / ffx
&NWKDST NDST=9,NZNE=1780,-1919 / ldn
&NWKDST NDST=10,NZNE=1920,-2069 / pw
&NWKDST NDST=11,NZNE=1030,-1059 / frd
&NWKDST NDST=12,NZNE=1080,-1109 / how
&NWKDST NDST=13,NZNE=1110,-1149 / aa
&NWKDST NDST=14,NZNE=1200,-1229 / chs
&NWKDST NDST=15,NZNE=1060,-1079 / car
&NWKDST NDST=16,NZNE=1150,-1199 / cal,stm
&NWKDST NDST=17,NZNE=2070,-2114 / stf,kg,spts,fbrg
&NWKDST NDST=18,NZNE=2115,-2129 / fau
&NWKDST NDST=19,NZNE=2130,-2144 / clk,jef
&NWKDST NDST=20,NZNE=2145,-2191 / externals

```

Car Occupancy:

```

&CARDST CDST=1,CZNE=1,-88 / dc core
&CARDST CDST=2,CZNE=89,-319 / dc noncore
&CARDST CDST=3,CZNE=320,-639 / mtg
&CARDST CDST=4,CZNE=640,-1029 / pg
&CARDST CDST=5,CZNE=1230,-1238 / arl core
&CARDST CDST=6,CZNE=1239,-1329 / arl noncore
&CARDST CDST=7,CZNE=1330,-1399 / alx
&CARDST CDST=8,CZNE=1400,-1779 / ffx
&CARDST CDST=9,CZNE=1780,-1919 / ldn

```

```

&CARDST CDST=10,CZNE=1920,-2069 / pw
&CARDST CDST=11,CZNE=1030,-1059 / frd
&CARDST CDST=12,CZNE=1080,-1109 / how
&CARDST CDST=13,CZNE=1110,-1149 / aa
&CARDST CDST=14,CZNE=1200,-1229 / chs
&CARDST CDST=15,CZNE=1060,-1079 / car
&CARDST CDST=16,CZNE=1150,-1199 / cal,stm
&CARDST CDST=17,CZNE=2070,-2114 / stf,kg,spts,fbrg
&CARDST CDST=18,CZNE=2115,-2129 / fau
&CARDST CDST=19,CZNE=2130,-2144 / clk,jef
&CARDST CDST=20,CZNE=2145,-2191 / externals

```

External Stations:

```

&XTERN EDST = 1, EZNE = 2145 /
&XTERN EDST = 2, EZNE = 2146 /
&XTERN EDST = 3, EZNE = 2147,-2191 /

```

## MC\_HBS30.ctf

mc\_hbs.ctf - Version 2.1D\_19 Mode Choice Model Control File 6/2/04  
 Purpose: HBS Year: 1994  
 Auto Operating Cost (UPARM(12)): 7.8 cents/mi in 1994\$

Auto operating costs to be used in Version 2.1D, 19 Travel Model

Year	Auto operating cost 1994	cents/mile
1994	9.1	
2000	8.5	
2005	8.3	
2010	8.2	
2015	8.1	
2020	8.0	
2025	7.9	
2030	7.8	

Record of revisions:

Date	Psn	Adj	Description of change
06/03/04	msm	db	uparms 43-45 iter 0,1,2,3,4 stop
06/03/04	msm	mb	uparms 53-55,63-65 iter 0 (no new run)
06/03/04	msm	mb	uparms 53-55,63-65 iter 1,2,3,4,5
06/04/04	msm	db	uparms 43-45 iter 0 (values from 2002),1,2 stop
06/03/04	msm	mb	uparms 53-55,63-65 iter 7,8

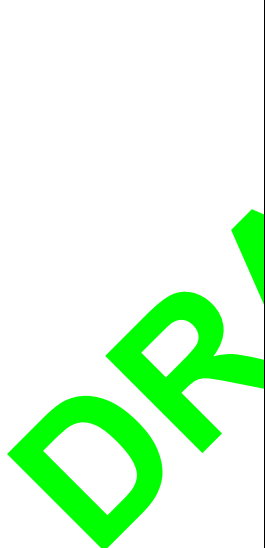
Set file names:

&FILES

```

J1= 'hbsmu.ptt',
J3= 'op_wk.skm',
J4= 'mf_op_wk.far',
J5= 'op_dr.skm',
J6= 'mf_op_dr.far',
J7= 'sovop.skm',
HOVA='hov2op.skm',
HOVB='hov3op.skm',
A1= 'hbsv2.alf',
D1= '..\support\mctf_hbs.asc',
D2= '..\support\mccf_hbs.asc',
D3= '..\support\mc_fac.asc',

```



## Appendix B: Version 2.1 D Draft #50 Control Files

```
J9='mc_hbs.trp',      LIST='mc_hbs.prn'      /

Set user-coded parameters.  Commonly modified UPARMS are:
1 : minimum carpool size - HOV "A" (or liberal carpool definition)
2 : intrazonal transit share
3 : intrazonal auto driver share
4 : I/X transit share
5 : I/X auto driver share
6 : minimum carpool size - HOV "B" (or stringent carpool definition)
11 : factor to scale input highway distance to whole miles
16 : apply parking cost model
17 : apply highway terminal time model
18 : model application option: 5=nwk per, 6=nwk adr, 7=no nwk
19 : un-transformed zonal data report switch (1=yes, 2=NO)
20 : transformed zonal data report switch (1=yes, 2=NO)
21 : run only MODAS & MODBS
30 : calibration report switch (1=yes, 2=no)

Here is a list of the UPARMS values we will use in this run
&PARAM
zones          = 2191
uparms(1)      = 0
uparms(2)      = 0.0
uparms(3)      = 1.0
uparms(4)      = 0.0
uparms(5)      = 0.610
uparms(6)      = 0
uparms(10)     = 1.0
uparms(11)     = 0.1
uparms(12)     = 7.8
uparms(13)     = 82.5
uparms(14)     = 82.5
uparms(16)     = 2
uparms(17)     = 2
uparms(18)     = 7
uparms(19)     = 2
uparms(20)     = 1
uparms(21)     = 1
uparms(22)     = 0.27
uparms(23)     = 0.72
uparms(24)     = 1.11
uparms(26)     = 2.845
uparms(27)     = 3.703
uparms(28)     = 4.732
uparms(30)     = 1

uparms(15)     = 4.36
uparms(31)     = 0.02432
uparms(32)     = 0.02432
uparms(33)     = 0.02432
uparms(34)     = 0.00912
uparms(35)     = 0.00912
uparms(36)     = -2.627e-5
uparms(37)     = -2.438e-5
uparms(38)     = 0.0
uparms(39)     = 0.0
uparms(40)     = 0.00416
uparms(41)     = 0.0
uparms(42)     = 0.00912
uparms(43)     = 2.9
uparms(44)     = 0.0
uparms(45)     = -2.0
uparms(46)     = 0.0
uparms(47)     = 0.00912
uparms(48)     = 0.00912
uparms(49)     = 0.00416
uparms(50)     = 0.00416
```

```
uparms(51) = 0.00416
uparms(52) = 0.0
uparms(53) = 3.037
uparms(54) = -2.272
uparms(55) = -3.751
uparms(56) = -4.869e-5
uparms(57) = 0.00912
uparms(58) = 0.00912
uparms(59) = 0.00416
uparms(60) = 0.00416
uparms(61) = 0.00416
uparms(62) = 0.0
uparms(63) = 0.888
uparms(64) = -1.929
uparms(65) = -3.507
uparms(66) = 0.0
uparms(67) = 0.45633
uparms(68) = 0.45633
uparms(69) = 0.0
uparms(70) = 0.0
uparms(71) = 0.0
uparms(72) = 0.0
uparms(73) = 0.45633
uparms(74) = 0.45633
uparms(75) = 0.0
uparms(76) = 0.0
uparms(77) = 0.0
uparms(78) = 0.0
uparms(79) = 0.0
uparms(80) = 0.92201
uparms(81) = 0.48966
uparms(82) = 0.0
uparms(83) = 0.45633
uparms(84) = 0.45633
uparms(85) = 0.0
uparms(86) = 0.0
uparms(87) = 0.0
uparms(88) = 0.0
uparms(89) = 0.0
uparms(90) = 1.51854
uparms(91) = 0.84071
uparms(92) = 0.0
uparms(93) = 0.0
uparms(94) = 0.0
uparms(95) = 3
uparms(96) = 0.0
uparms(97) = 0.0
uparms(98) = 0.0
uparms(99) = -0.84404
uparms(100) = 0.0
OrigSLWalk = t
DestSLWalk = t
UseShort = t
/
```

```
Set zone-district equivalencies for exogenous modal factors
based on 2191 zone system:
HBW Transit:
```

```
&ADJDST ADST=1,AZNE=1,-88           / dc core
&ADJDST ADST=2,AZNE=89,-319        / dc noncore
&ADJDST ADST=3,AZNE=320,-639       / mtg
&ADJDST ADST=4,AZNE=640,-1029      / pg
&ADJDST ADST=5,AZNE=1230,-1238     / arl core
&ADJDST ADST=6,AZNE=1239,-1329     / arl noncore
&ADJDST ADST=7,AZNE=1330,-1399     / alx
&ADJDST ADST=8,AZNE=1400,-1779     / ffx
&ADJDST ADST=9,AZNE=1780,-1919     / ldn
```

# Appendix B: Version 2.1 D Draft #50 Control Files

```

&ADJDST ADST=10,AZNE=1920,-2069 / pw
&ADJDST ADST=11,AZNE=1030,-1059 / frd
&ADJDST ADST=12,AZNE=1080,-1109 / how
&ADJDST ADST=13,AZNE=1110,-1149 / aa
&ADJDST ADST=14,AZNE=1200,-1229 / chs
&ADJDST ADST=15,AZNE=1060,-1079 / car
&ADJDST ADST=16,AZNE=1150,-1199 / cal,stm
&ADJDST ADST=17,AZNE=2070,-2114 / stf,kg,spts,fbrg
&ADJDST ADST=18,AZNE=2115,-2129 / fau
&ADJDST ADST=19,AZNE=2130,-2144 / clk,jef
&ADJDST ADST=20,AZNE=2145,-2191 / externals

```

```

Non-Work/NHB Transit: (These are not used)
&NWKDST NDST=1,NZNE=1,-88 / dc core
&NWKDST NDST=2,NZNE=89,-319 / dc noncore
&NWKDST NDST=3,NZNE=320,-639 / mtg
&NWKDST NDST=4,NZNE=640,-1029 / pg
&NWKDST NDST=5,NZNE=1230,-1238 / arl core
&NWKDST NDST=6,NZNE=1239,-1329 / arl noncore
&NWKDST NDST=7,NZNE=1330,-1399 / alx
&NWKDST NDST=8,NZNE=1400,-1779 / ffx
&NWKDST NDST=9,NZNE=1780,-1919 / ldn
&NWKDST NDST=10,NZNE=1920,-2069 / pw
&NWKDST NDST=11,NZNE=1030,-1059 / frd
&NWKDST NDST=12,NZNE=1080,-1109 / how
&NWKDST NDST=13,NZNE=1110,-1149 / aa
&NWKDST NDST=14,NZNE=1200,-1229 / chs
&NWKDST NDST=15,NZNE=1060,-1079 / car
&NWKDST NDST=16,NZNE=1150,-1199 / cal,stm
&NWKDST NDST=17,NZNE=2070,-2114 / stf,kg,spts,fbrg
&NWKDST NDST=18,NZNE=2115,-2129 / fau
&NWKDST NDST=19,NZNE=2130,-2144 / clk,jef
&NWKDST NDST=20,NZNE=2145,-2191 / externals

```

```

Car Occupancy:
&CARDST CDST=1,CZNE=1,-88 / dc core
&CARDST CDST=2,CZNE=89,-319 / dc noncore
&CARDST CDST=3,CZNE=320,-639 / mtg
&CARDST CDST=4,CZNE=640,-1029 / pg
&CARDST CDST=5,CZNE=1230,-1238 / arl core
&CARDST CDST=6,CZNE=1239,-1329 / arl noncore
&CARDST CDST=7,CZNE=1330,-1399 / alx
&CARDST CDST=8,CZNE=1400,-1779 / ffx
&CARDST CDST=9,CZNE=1780,-1919 / ldn
&CARDST CDST=10,CZNE=1920,-2069 / pw
&CARDST CDST=11,CZNE=1030,-1059 / frd
&CARDST CDST=12,CZNE=1080,-1109 / how
&CARDST CDST=13,CZNE=1110,-1149 / aa
&CARDST CDST=14,CZNE=1200,-1229 / chs
&CARDST CDST=15,CZNE=1060,-1079 / car
&CARDST CDST=16,CZNE=1150,-1199 / cal,stm
&CARDST CDST=17,CZNE=2070,-2114 / stf,kg,spts,fbrg
&CARDST CDST=18,CZNE=2115,-2129 / fau
&CARDST CDST=19,CZNE=2130,-2144 / clk,jef
&CARDST CDST=20,CZNE=2145,-2191 / externals

```

```

External Stations:
&XTERN EDST = 1, EZNE = 2145 /
&XTERN EDST = 2, EZNE = 2146 /
&XTERN EDST = 3, EZNE = 2147,-2191 /

```

## MC\_HBS94.ctf

mc\_hbs.ctf - Version 2.1D\_19 Mode Choice Model Control File 6/2/04  
 Purpose: HBS Year: 1994

Auto Operating Cost (UPARM(12)): 9.1 cents/mi in 1994\$  
 Auto operating costs to be used in Version 2.1D, 19 Travel Model

Year	Auto operating cost 1994 cents/mile
year	aoc1994

1994	9.1
2000	8.5
2005	8.3
2010	8.2
2015	8.1
2020	8.0
2025	7.9
2030	7.8

### Record of revisions:

Date	Pen	Adj	Description of change
06/03/04	msm	db	uparms 43-45 iter 0,1,2,3,4 stop
06/03/04	msm	mb	uparms 53-55,63-65 iter 0 (no new run)
06/03/04	msm	mb	uparms 53-55,63-65 iter 1,2,3,4,5
06/04/04	msm	db	uparms 43-45 iter 0 (values from 2002),1,2 stop
06/03/04	msm	mb	uparms 53-55,63-65 iter 7,8

### Set file names:

```

&FILES
J1= 'hbsmu.ptt',
J3= 'op_wk.skm',
J4= 'mf_op_wk.far',
J5= 'op_dr.skm',
J6= 'mf_op_dr.far',
J7= 'sovop.skm',
HOVA='hov2op.skm',
HOVB='hov3op.skm',
A1= 'hbsv2.alf',
D1= '..\support\mctf_hbs.asc',
D2= '..\support\mccf_hbs.asc',
D3= '..\support\mc_fac.asc',

```

```
J9='mc_hbs.trp', LIST='mc_hbs.prn' /
```

### Set user-coded parameters. Commonly modified UPARMS are:

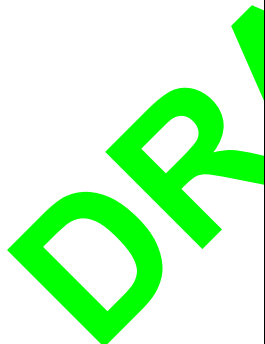
- 1 : minimum carpool size - HOV "A" (or liberal carpool definition)
- 2 : intrazonal transit share
- 3 : intrazonal auto driver share
- 4 : I/X transit share
- 5 : I/X auto driver share
- 6 : minimum carpool size - HOV "B" (or stringent carpool definition)
- 11 : factor to scale input highway distance to whole miles
- 16 : apply parking cost model
- 17 : apply highway terminal time model
- 18 : model application option: 5=nwk per, 6=nwk adr, 7=no nwk
- 19 : un-transformed zonal data report switch (1=yes, 2=NO)
- 20 : transformed zonal data report switch (1=yes, 2=NO)
- 21 : run only MODAS & MODBS
- 30 : calibration report switch (1=yes, 2=no)

Here is a list of the UPARMS values we will use in this run

```

&PARAM
zones = 2191
uparms(1) = 0
uparms(2) = 0.0

```



Appendix B: Version 2.1 D Draft #50 Control Files

```

uparms(3) = 1.0
uparms(4) = 0.0
uparms(5) = 0.610
uparms(6) = 0
uparms(10) = 1.0
uparms(11) = 0.1
uparms(12) = 9.1
uparms(13) = 82.5
uparms(14) = 82.5
uparms(16) = 2
uparms(17) = 2
uparms(18) = 7
uparms(19) = 2
uparms(20) = 1
uparms(21) = 1
uparms(22) = 0.27
uparms(23) = 0.72
uparms(24) = 1.11
uparms(26) = 2.845
uparms(27) = 3.703
uparms(28) = 4.732
uparms(30) = 1

uparms(15) = 4.36
uparms(31) = 0.02432
uparms(32) = 0.02432
uparms(33) = 0.02432
uparms(34) = 0.00912
uparms(35) = 0.00912
uparms(36) = -2.627e-5
uparms(37) = -2.438e-5
uparms(38) = 0.0
uparms(39) = 0.0
uparms(40) = 0.00416
uparms(41) = 0.0
uparms(42) = 0.00912
uparms(43) = 2.9
uparms(44) = 0.0
uparms(45) = -2.0
uparms(46) = 0.0
uparms(47) = 0.00912
uparms(48) = 0.00912
uparms(49) = 0.00416
uparms(50) = 0.00416
uparms(51) = 0.00416
uparms(52) = 0.0
uparms(53) = 3.037
uparms(54) = -2.272
uparms(55) = -3.751
uparms(56) = -4.869e-5
uparms(57) = 0.00912
uparms(58) = 0.00912
uparms(59) = 0.00416
uparms(60) = 0.00416
uparms(61) = 0.00416
uparms(62) = 0.0
uparms(63) = 0.888
uparms(64) = -1.929
uparms(65) = -3.507
uparms(66) = 0.0
uparms(67) = 0.45633
uparms(68) = 0.45633
uparms(69) = 0.0
uparms(70) = 0.0
uparms(71) = 0.0
uparms(72) = 0.0
uparms(73) = 0.45633
uparms(74) = 0.45633

```

```

uparms(75) = 0.0
uparms(76) = 0.0
uparms(77) = 0.0
uparms(78) = 0.0
uparms(79) = 0.0
uparms(80) = 0.92201
uparms(81) = 0.48966
uparms(82) = 0.0
uparms(83) = 0.45633
uparms(84) = 0.45633
uparms(85) = 0.0
uparms(86) = 0.0
uparms(87) = 0.0
uparms(88) = 0.0
uparms(89) = 0.0
uparms(90) = 1.51854
uparms(91) = 0.84071
uparms(92) = 0.0
uparms(93) = 0.0
uparms(94) = 0.0
uparms(95) = 3
uparms(96) = 0.0
uparms(97) = 0.0
uparms(98) = 0.0
uparms(99) = -0.84404
uparms(100) = 0.0
OrigSLWalk = t
DestSLWalk = t
UseShort = t
/

```

Set zone district equivalencies for exogenous modal factors  
Based on 2191 zone system:  
HBW Transit:

```

&ADJDST ADST=1,AZNE=1,-88 / dc core
&ADJDST ADST=2,AZNE=89,-319 / dc noncore
&ADJDST ADST=3,AZNE=320,-639 / mtg
&ADJDST ADST=4,AZNE=640,-1029 / pg
&ADJDST ADST=5,AZNE=1230,-1238 / arl core
&ADJDST ADST=6,AZNE=1239,-1329 / arl noncore
&ADJDST ADST=7,AZNE=1330,-1399 / alx
&ADJDST ADST=8,AZNE=1400,-1779 / ffx
&ADJDST ADST=9,AZNE=1780,-1919 / ldn
&ADJDST ADST=10,AZNE=1920,-2069 / pw
&ADJDST ADST=11,AZNE=1030,-1059 / frd
&ADJDST ADST=12,AZNE=1080,-1109 / how
&ADJDST ADST=13,AZNE=1110,-1149 / aa
&ADJDST ADST=14,AZNE=1200,-1229 / chs
&ADJDST ADST=15,AZNE=1060,-1079 / car
&ADJDST ADST=16,AZNE=1150,-1199 / cal,stm
&ADJDST ADST=17,AZNE=2070,-2114 / stf,kg,spts,fbrg
&ADJDST ADST=18,AZNE=2115,-2129 / fau
&ADJDST ADST=19,AZNE=2130,-2144 / clk,jef
&ADJDST ADST=20,AZNE=2145,-2191 / externals

```

Non-Work/NHB Transit: (These are not used)

```

&NWKDST NDST=1,NZNE=1,-88 / dc core
&NWKDST NDST=2,NZNE=89,-319 / dc noncore
&NWKDST NDST=3,NZNE=320,-639 / mtg
&NWKDST NDST=4,NZNE=640,-1029 / pg
&NWKDST NDST=5,NZNE=1230,-1238 / arl core
&NWKDST NDST=6,NZNE=1239,-1329 / arl noncore
&NWKDST NDST=7,NZNE=1330,-1399 / alx
&NWKDST NDST=8,NZNE=1400,-1779 / ffx
&NWKDST NDST=9,NZNE=1780,-1919 / ldn
&NWKDST NDST=10,NZNE=1920,-2069 / pw
&NWKDST NDST=11,NZNE=1030,-1059 / frd

```

# Appendix B: Version 2.1 D Draft #50 Control Files

```

&NWKDST NDST=12,NZNE=1080,-1109 / how
&NWKDST NDST=13,NZNE=1110,-1149 / aa
&NWKDST NDST=14,NZNE=1200,-1229 / chs
&NWKDST NDST=15,NZNE=1060,-1079 / car
&NWKDST NDST=16,NZNE=1150,-1199 / cal,stm
&NWKDST NDST=17,NZNE=2070,-2114 / stf,kg,spts,fbrg
&NWKDST NDST=18,NZNE=2115,-2129 / fau
&NWKDST NDST=19,NZNE=2130,-2144 / clk,jef
&NWKDST NDST=20,NZNE=2145,-2191 / externals

```

```

Car Occupancy:
&CARDST CDST=1,CZNE=1,-88 / dc core
&CARDST CDST=2,CZNE=89,-319 / dc noncore
&CARDST CDST=3,CZNE=320,-639 / mtg
&CARDST CDST=4,CZNE=640,-1029 / pg
&CARDST CDST=5,CZNE=1230,-1238 / arl core
&CARDST CDST=6,CZNE=1239,-1329 / arl noncore
&CARDST CDST=7,CZNE=1330,-1399 / alx
&CARDST CDST=8,CZNE=1400,-1779 / ffx
&CARDST CDST=9,CZNE=1780,-1919 / ldn
&CARDST CDST=10,CZNE=1920,-2069 / pw
&CARDST CDST=11,CZNE=1030,-1059 / frd
&CARDST CDST=12,CZNE=1080,-1109 / how
&CARDST CDST=13,CZNE=1110,-1149 / aa
&CARDST CDST=14,CZNE=1200,-1229 / chs
&CARDST CDST=15,CZNE=1060,-1079 / car
&CARDST CDST=16,CZNE=1150,-1199 / cal,stm
&CARDST CDST=17,CZNE=2070,-2114 / stf,kg,spts,fbrg
&CARDST CDST=18,CZNE=2115,-2129 / fau
&CARDST CDST=19,CZNE=2130,-2144 / clk,jef
&CARDST CDST=20,CZNE=2145,-2191 / externals

```

```

External Stations:
&XTERN EDST = 1, EZNE = 2145 /
&XTERN EDST = 2, EZNE = 2146 /
&XTERN EDST = 3, EZNE = 2147,-2191 /

```

## MC\_HBW00.ct1

```

mc_hbw.ct1 - Version 2.1D_19 Mode Choice Model Control File 6/2/04
Purpose: HBW Year: 1994
Auto Operating Cost (UPARM(12)): 8.5 cents/mi in 1994

```

Auto operating costs to be used in Version 2.1D, 19 Travel Model

Year	Auto operating cost 1994 cents/mile
1994	9.1
2000	8.5
2005	8.3
2010	8.2
2015	8.1
2020	8.0
2025	7.9
2030	7.8

year aoc1994

1994	9.1
2000	8.5
2005	8.3
2010	8.2
2015	8.1
2020	8.0
2025	7.9
2030	7.8

Record of revisions:

Date	Psn	Adj	Description of change
06/03/04	msm	db	uparms 43-45 iter 0,1,2

```

06/03/04 msm mb uparms 53-55,63-65 iter 0 (no new run)
06/03/04 msm mb uparms 53-55,63-65 iter 1,2

```

Set file names:

```

&FILES
J1= 'hbwmu.ptt',
J3= 'am_wk.skm',
J4= 'mf_am_wk.far',
J5= 'am_dr.skm',
J6= 'mf_am_dr.far',
J7= 'sovam.skm ',
HOVA='hov2am.skm ',
HOVB='hov3am.skm ',
A1= 'hbvw2.alf',
D1= '..\support\mctf_hbw.asc',
D2= '..\support\mccf_hbw.asc',
D3= '..\support\mc_fac.asc',

```

```

J9='mc_hbw.trp', LIST='mc_hbw.prn' /

```

Set user-coded parameters. Commonly modified UPARMS are:

- 1 : minimum carpool size - HOV "A" (or liberal carpool definition)
- 2 : intrazonal transit share
- 3 : intrazonal auto driver share
- 4 : I/X transit share
- 5 : I/X auto driver share
- 6 : minimum carpool size - HOV "B" (or stringent carpool definition)
- 11 : factor to scale input highway distance to whole miles
- 16 : apply parking cost model
- 17 : apply highway terminal time model
- 18 : model application option: 5=nwk per, 6=nwk adr, 7=no nwk
- 19 : un-transformed zonal data report switch (1=yes, 2=NO)
- 20 : transformed zonal data report switch (1=yes, 2=NO)
- 21 : run only MODAS & MODBS
- 30 : calibration report switch (1=yes, 2=no)

Here is a list of the UPARMS values we will use in this run.

The first set of UPARMS are those that the user may change.

The second set of UPARMS should not be changed w/o re-calibration

```

&PARAM
zones = 2191
uparms(1) = 2
uparms(2) = 0.0
uparms(3) = 1.0
uparms(4) = 0.0
uparms(5) = 0.870
uparms(6) = 3
uparms(10) = 1.0
uparms(11) = 0.1
uparms(12) = 8.5
uparms(13) = 82.5
uparms(14) = 82.5
uparms(16) = 2
uparms(17) = 2
uparms(18) = 7
uparms(19) = 2
uparms(20) = 1
uparms(21) = 1
uparms(22) = 0.90
uparms(23) = 1.25
uparms(24) = 2.15
uparms(26) = 2.845
uparms(27) = 3.703
uparms(28) = 4.732
uparms(30) = 1

```

```

uparms(15) = 4.55

```



Appendix B: Version 2.1 D Draft #50 Control Files

```

uparms(31) = 0.075
uparms(32) = 0.075
uparms(33) = 0.075
uparms(34) = 0.03
uparms(35) = 0.03
uparms(36) = 0.0
uparms(37) = 2.518e-5
uparms(38) = 0.0
uparms(39) = 0.0
uparms(40) = 0.00425
uparms(41) = 0.0
uparms(42) = 0.03
uparms(43) = 2.0499
uparms(44) = 0.5876
uparms(45) = 0.3571
uparms(46) = -4.449e-5
uparms(47) = 0.03
uparms(48) = 0.03
uparms(49) = 0.00425
uparms(50) = 0.00425
uparms(51) = 0.00425
uparms(52) = 0.0
uparms(53) = 4.8310
uparms(54) = 0.8546
uparms(55) = -0.0824
uparms(56) = 0.0
uparms(57) = 0.03
uparms(58) = 0.03
uparms(59) = 0.00425
uparms(60) = 0.00425
uparms(61) = 0.00425
uparms(62) = 0.0
uparms(63) = 4.6175
uparms(64) = 2.4071
uparms(65) = 1.8979
uparms(66) = 0.0
uparms(67) = 0.0
uparms(68) = 0.0
uparms(69) = 0.01124
uparms(70) = 0.02318
uparms(71) = 0.05077
uparms(72) = 0.0
uparms(73) = 0.0
uparms(74) = 0.0
uparms(75) = 0.01124
uparms(76) = 0.02318
uparms(77) = 0.05077
uparms(78) = 0.0
uparms(79) = 0.0
uparms(80) = 1.47162
uparms(81) = 1.88085
uparms(82) = 0.0
uparms(83) = 0.0
uparms(84) = 0.0
uparms(85) = 0.01124
uparms(86) = 0.02318
uparms(87) = 0.05077
uparms(88) = 0.0
uparms(89) = 0.0
uparms(90) = 3.04973
uparms(91) = 2.54494
uparms(92) = 0.0
uparms(93) = 0.0
uparms(94) = 0.0
uparms(95) = 3
uparms(96) = 0.0
uparms(97) = 0.0
uparms(98) = -0.03611

```

```

uparms(99) = 0.
uparms(100) = 0.0
OrigSLWalk = t
DestSLWalk = t
UseShort = t
/

```

Set zone-district equivalencies for exogenous modal factors  
based on 2191 zone system:  
HBW Transit:

```

&ADJDST ADST=1,AZNE=1,-88 / dc core
&ADJDST ADST=2,AZNE=89,-319 / dc noncore
&ADJDST ADST=3,AZNE=320,-639 / mtg
&ADJDST ADST=4,AZNE=640,-1029 / pg
&ADJDST ADST=5,AZNE=1230,-1238 / arl core
&ADJDST ADST=6,AZNE=1239,-1329 / arl noncore
&ADJDST ADST=7,AZNE=1330,-1399 / alx
&ADJDST ADST=8,AZNE=1400,-1779 / ffx
&ADJDST ADST=9,AZNE=1780,-1919 / ldn
&ADJDST ADST=10,AZNE=1920,-2069 / pw
&ADJDST ADST=11,AZNE=1030,-1059 / frd
&ADJDST ADST=12,AZNE=1080,-1109 / how
&ADJDST ADST=13,AZNE=1110,-1149 / aa
&ADJDST ADST=14,AZNE=1200,-1229 / chs
&ADJDST ADST=15,AZNE=1060,-1079 / car
&ADJDST ADST=16,AZNE=1150,-1199 / cal,stm
&ADJDST ADST=17,AZNE=2070,-2114 / stf,kg,spts,fbrg
&ADJDST ADST=18,AZNE=2115,-2129 / fau
&ADJDST ADST=19,AZNE=2130,-2144 / clk,jef
&ADJDST ADST=20,AZNE=2145,-2191 / externals

```

Non-Work/NHB Transit: (These are not used)

```

&NWKDST NDST=1,NZNE=1,-88 / dc core
&NWKDST NDST=2,NZNE=89,-319 / dc noncore
&NWKDST NDST=3,NZNE=320,-639 / mtg
&NWKDST NDST=4,NZNE=640,-1029 / pg
&NWKDST NDST=5,NZNE=1230,-1238 / arl core
&NWKDST NDST=6,NZNE=1239,-1329 / arl noncore
&NWKDST NDST=7,NZNE=1330,-1399 / alx
&NWKDST NDST=8,NZNE=1400,-1779 / ffx
&NWKDST NDST=9,NZNE=1780,-1919 / ldn
&NWKDST NDST=10,NZNE=1920,-2069 / pw
&NWKDST NDST=11,NZNE=1030,-1059 / frd
&NWKDST NDST=12,NZNE=1080,-1109 / how
&NWKDST NDST=13,NZNE=1110,-1149 / aa
&NWKDST NDST=14,NZNE=1200,-1229 / chs
&NWKDST NDST=15,NZNE=1060,-1079 / car
&NWKDST NDST=16,NZNE=1150,-1199 / cal,stm
&NWKDST NDST=17,NZNE=2070,-2114 / stf,kg,spts,fbrg
&NWKDST NDST=18,NZNE=2115,-2129 / fau
&NWKDST NDST=19,NZNE=2130,-2144 / clk,jef
&NWKDST NDST=20,NZNE=2145,-2191 / externals

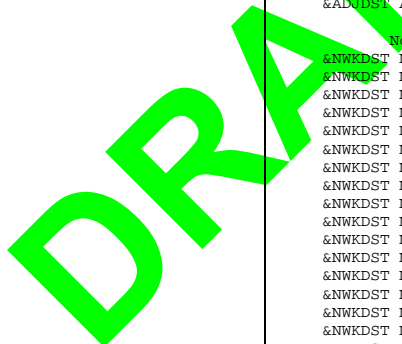
```

Car Occupancy:

```

&CARDST CDST=1,CZNE=1,-88 / dc core
&CARDST CDST=2,CZNE=89,-319 / dc noncore
&CARDST CDST=3,CZNE=320,-639 / mtg
&CARDST CDST=4,CZNE=640,-1029 / pg
&CARDST CDST=5,CZNE=1230,-1238 / arl core
&CARDST CDST=6,CZNE=1239,-1329 / arl noncore
&CARDST CDST=7,CZNE=1330,-1399 / alx
&CARDST CDST=8,CZNE=1400,-1779 / ffx
&CARDST CDST=9,CZNE=1780,-1919 / ldn
&CARDST CDST=10,CZNE=1920,-2069 / pw
&CARDST CDST=11,CZNE=1030,-1059 / frd
&CARDST CDST=12,CZNE=1080,-1109 / how
&CARDST CDST=13,CZNE=1110,-1149 / aa

```



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```
&CARDST CDST=14,CZNE=1200,-1229 / chs
&CARDST CDST=15,CZNE=1060,-1079 / car
&CARDST CDST=16,CZNE=1150,-1199 / cal,stm
&CARDST CDST=17,CZNE=2070,-2114 / stf,kg,spts,fbrg
&CARDST CDST=18,CZNE=2115,-2129 / fau
&CARDST CDST=19,CZNE=2130,-2144 / clk,jef
&CARDST CDST=20,CZNE=2145,-2191 / externals
```

```
External Stations:
&XTERN EDST = 1, EZNE = 2145 /
&XTERN EDST = 2, EZNE = 2146 /
&XTERN EDST = 3, EZNE = 2147,-2191 /
```

### MC\_HBW05.ctf

```
mc_hbw.ctf - Version 2.1D_19 Mode Choice Model Control File 6/2/04
Purpose: HBW Year: 2005
Auto Operating Cost (UPARM(12)): 8.3 cents/mi in 1994$
```

Auto operating costs to be used in Version 2.1D, 19 Travel Model

```
Year      Auto
operating
cost
1994
cents/mile
```

```
year      aoc1994
```

```
1994      9.1
2000      8.5
2005      8.3
2010      8.2
2015      8.1
2020      8.0
2025      7.9
2030      7.8
```

Record of revisions:

```
Date   Psn Adj Description of change
06/03/04 msm db uparms 43-45 iter 0,1,2
06/03/04 msm mb uparms 53-55,63-65 iter 0 (no new run)
06/03/04 msm mb uparms 53-55,63-65 iter 1,2
```

Set file names:

&FILES

```
J1= 'hbwmu.ptt',
J3= 'am_wk.skm',
J4= 'mf_am_wk.far',
J5= 'am_dr.skm',
J6= 'mf_am_dr.far',
J7= 'sovam.skm ',
HOVA='hov2am.skm ',
HOVB='hov3am.skm ',
A1= 'hbvw2.alf',
D1= '..\support\mctf_hbw.asc',
D2= '..\support\mccf_hbw.asc',
D3= '..\support\mc_fac.asc',
```

```
J9='mc_hbw.trp', LIST='mc_hbw.prn' /
```

Set user-coded parameters. Commonly modified UPARMS are:

```
1 : minimum carpool size - HOV "A" (or liberal carpool definition)
2 : intrazonal transit share
```

```
3 : intrazonal auto driver share
4 : I/X transit share
5 : I/X auto driver share
6 : minimum carpool size - HOV "B" (or stringent carpool definition)
11 : factor to scale input highway distance to whole miles
16 : apply parking cost model
17 : apply highway terminal time model
18 : model application option: 5=nwk per, 6=nwk adr, 7=no nwk
19 : un-transformed zonal data report switch (1=yes, 2=NO)
20 : transformed zonal data report switch (1=yes, 2=NO)
21 : run only MODAS & MODBS
30 : calibration report switch (1=yes, 2=no)
```

Here is a list of the UPARMS values we will use in this run.

The first set of UPARMS are those that the user may change.

The second set of UPARMS should not be changed w/o re-calibration

&PARAM

```
zones = 2191
uparms(1) = 2
uparms(2) = 0.0
uparms(3) = 1.0
uparms(4) = 0.0
uparms(5) = 0.870
uparms(6) = 3
uparms(10) = 1.0
uparms(11) = 0.1
uparms(12) = 8.3
uparms(13) = 82.5
uparms(14) = 82.5
uparms(16) = 2
uparms(17) = 2
uparms(18) = 7
uparms(19) = 2
uparms(20) = 1
uparms(21) = 1
uparms(22) = 0.90
uparms(23) = 1.25
uparms(24) = 2.15
uparms(26) = 2.845
uparms(27) = 3.703
uparms(28) = 4.732
uparms(30) = 1

uparms(15) = 4.55
uparms(31) = 0.075
uparms(32) = 0.075
uparms(33) = 0.075
uparms(34) = 0.03
uparms(35) = 0.03
uparms(36) = 0.0
uparms(37) = 2.518e-5
uparms(38) = 0.0
uparms(39) = 0.0
uparms(40) = 0.00425
uparms(41) = 0.0
uparms(42) = 0.03
uparms(43) = 2.0499
uparms(44) = 0.5876
uparms(45) = 0.3571
uparms(46) = -4.449e-5
uparms(47) = 0.03
uparms(48) = 0.03
uparms(49) = 0.00425
uparms(50) = 0.00425
uparms(51) = 0.00425
uparms(52) = 0.0
uparms(53) = 4.8310
uparms(54) = 0.8546
```

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```

uparms(55) = -0.0824
uparms(56) = 0.0
uparms(57) = 0.03
uparms(58) = 0.03
uparms(59) = 0.00425
uparms(60) = 0.00425
uparms(61) = 0.00425
uparms(62) = 0.0
uparms(63) = 4.6175
uparms(64) = 2.4071
uparms(65) = 1.8979
uparms(66) = 0.0
uparms(67) = 0.0
uparms(68) = 0.0
uparms(69) = 0.01124
uparms(70) = 0.02318
uparms(71) = 0.05077
uparms(72) = 0.0
uparms(73) = 0.0
uparms(74) = 0.0
uparms(75) = 0.01124
uparms(76) = 0.02318
uparms(77) = 0.05077
uparms(78) = 0.0
uparms(79) = 0.0
uparms(80) = 1.47162
uparms(81) = 1.88085
uparms(82) = 0.0
uparms(83) = 0.0
uparms(84) = 0.0
uparms(85) = 0.01124
uparms(86) = 0.02318
uparms(87) = 0.05077
uparms(88) = 0.0
uparms(89) = 0.0
uparms(90) = 3.04973
uparms(91) = 2.54494
uparms(92) = 0.0
uparms(93) = 0.0
uparms(94) = 0.0
uparms(95) = 3
uparms(96) = 0.0
uparms(97) = 0.0
uparms(98) = -0.03611
uparms(99) = 0.
uparms(100) = 0.0
OrigSLWalk = t
DestSLWalk = t
UseShort = t
/

Set zone-district equivalencies for exogenous modal factors
based on 2191 zone system:
HBW Transit:

&ADJDST ADST=1,AZNE=1,-88 / dc core
&ADJDST ADST=2,AZNE=89,-319 / dc noncore
&ADJDST ADST=3,AZNE=320,-639 / mtg
&ADJDST ADST=4,AZNE=640,-1029 / pg
&ADJDST ADST=5,AZNE=1230,-1238 / arl core
&ADJDST ADST=6,AZNE=1239,-1329 / arl noncore
&ADJDST ADST=7,AZNE=1330,-1399 / alx
&ADJDST ADST=8,AZNE=1400,-1779 / ffx
&ADJDST ADST=9,AZNE=1780,-1919 / ldn
&ADJDST ADST=10,AZNE=1920,-2069 / pw
&ADJDST ADST=11,AZNE=1030,-1059 / frd
&ADJDST ADST=12,AZNE=1080,-1109 / how
&ADJDST ADST=13,AZNE=1110,-1149 / aa

```

```

&ADJDST ADST=14,AZNE=1200,-1229 / chs
&ADJDST ADST=15,AZNE=1060,-1079 / car
&ADJDST ADST=16,AZNE=1150,-1199 / cal,stm
&ADJDST ADST=17,AZNE=2070,-2114 / stf,kg,spts,fbrg
&ADJDST ADST=18,AZNE=2115,-2129 / fau
&ADJDST ADST=19,AZNE=2130,-2144 / clk,jef
&ADJDST ADST=20,AZNE=2145,-2191 / externals

Non-Work/NHB Transit: (These are not used)
&NWKDST NDST=1,NZNE=1,-88 / dc core
&NWKDST NDST=2,NZNE=89,-319 / dc noncore
&NWKDST NDST=3,NZNE=320,-639 / mtg
&NWKDST NDST=4,NZNE=640,-1029 / pg
&NWKDST NDST=5,NZNE=1230,-1238 / arl core
&NWKDST NDST=6,NZNE=1239,-1329 / arl noncore
&NWKDST NDST=7,NZNE=1330,-1399 / alx
&NWKDST NDST=8,NZNE=1400,-1779 / ffx
&NWKDST NDST=9,NZNE=1780,-1919 / ldn
&NWKDST NDST=10,NZNE=1920,-2069 / pw
&NWKDST NDST=11,NZNE=1030,-1059 / frd
&NWKDST NDST=12,NZNE=1080,-1109 / how
&NWKDST NDST=13,NZNE=1110,-1149 / aa
&NWKDST NDST=14,NZNE=1200,-1229 / chs
&NWKDST NDST=15,NZNE=1060,-1079 / car
&NWKDST NDST=16,NZNE=1150,-1199 / cal,stm
&NWKDST NDST=17,NZNE=2070,-2114 / stf,kg,spts,fbrg
&NWKDST NDST=18,NZNE=2115,-2129 / fau
&NWKDST NDST=19,NZNE=2130,-2144 / clk,jef
&NWKDST NDST=20,NZNE=2145,-2191 / externals

Car Occupancy:
&CARDST CDST=1,CZNE=1,-88 / dc core
&CARDST CDST=2,CZNE=89,-319 / dc noncore
&CARDST CDST=3,CZNE=320,-639 / mtg
&CARDST CDST=4,CZNE=640,-1029 / pg
&CARDST CDST=5,CZNE=1230,-1238 / arl core
&CARDST CDST=6,CZNE=1239,-1329 / arl noncore
&CARDST CDST=7,CZNE=1330,-1399 / alx
&CARDST CDST=8,CZNE=1400,-1779 / ffx
&CARDST CDST=9,CZNE=1780,-1919 / ldn
&CARDST CDST=10,CZNE=1920,-2069 / pw
&CARDST CDST=11,CZNE=1030,-1059 / frd
&CARDST CDST=12,CZNE=1080,-1109 / how
&CARDST CDST=13,CZNE=1110,-1149 / aa
&CARDST CDST=14,CZNE=1200,-1229 / chs
&CARDST CDST=15,CZNE=1060,-1079 / car
&CARDST CDST=16,CZNE=1150,-1199 / cal,stm
&CARDST CDST=17,CZNE=2070,-2114 / stf,kg,spts,fbrg
&CARDST CDST=18,CZNE=2115,-2129 / fau
&CARDST CDST=19,CZNE=2130,-2144 / clk,jef
&CARDST CDST=20,CZNE=2145,-2191 / externals

```

```

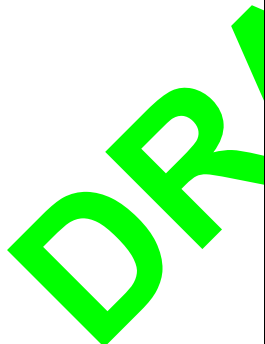
External Stations:
&XTERN EDST = 1, EZNE = 2145 /
&XTERN EDST = 2, EZNE = 2146 /
&XTERN EDST = 3, EZNE = 2147,-2191 /

```

**MC\_HBW25.ctf**

mc\_hbw.ctf - Version 2.1D\_19 Mode Choice Model Control File 6/2/04  
 Purpose: HBW Year: 1994  
 Auto Operating Cost (UPARM(12)): 7.9 cents/mi in 1994\$

Auto operating costs to be used in Version 2.1D, 19 Travel Model



## Appendix B: Version 2.1 D Draft #50 Control Files

```
Year      Auto
operating
cost
1994
cents/mile
```

```
year      aoc1994
```

```
1994      9.1
2000      8.5
2005      8.3
2010      8.2
2015      8.1
2020      8.0
2025      7.9
2030      7.8
```

### Record of revisions:

```
Date      Psn Adj Description of change
06/03/04 msm db  uparms 43-45      iter 0,1,2
06/03/04 msm mb  uparms 53-55,63-65 iter 0 (no new run)
06/03/04 msm mb  uparms 53-55,63-65 iter 1,2
```

### Set file names:

#### &FILES

```
J1= 'hbwmu.ptt',
J3= 'am_wk.skm',
J4= 'mf_am_wk.far',
J5= 'am_dr.skm',
J6= 'mf_am_dr.far',
J7= 'sovam.skm ',
HOVA='hov2am.skm ',
HOVB='hov3am.skm ',
A1= 'hbvw2.alf',
D1= '..\support\mctf_hbw.asc',
D2= '..\support\mccf_hbw.asc',
D3= '..\support\mc_fac.asc',
```

```
J9='mc_hbw.trp',      LIST='mc_hbw.prn' /
```

### Set user-coded parameters. Commonly modified UPARMS are:

```
1 : minimum carpool size - HOV "A" (or liberal carpool definition)
2 : intrazonal transit share
3 : intrazonal auto driver share
4 : I/X transit share
5 : I/X auto driver share
6 : minimum carpool size - HOV "B" (or stringent carpool definition)
11 : factor to scale input highway distance to whole miles
16 : apply parking cost model
17 : apply highway terminal time model
18 : model application option: 5=nwk per, 6=nwk adr, 7=no nwk
19 : un-transformed zonal data report switch (1=yes, 2=NO)
20 : transformed zonal data report switch (1=yes, 2=NO)
21 : run only MODAS & MODBS
30 : calibration report switch (1=yes, 2=no)
```

Here is a list of the UPARMS values we will use in this run.

The first set of UPARMS are those that the user may change.

The second set of UPARMS should not be changed w/o re-calibration

```
&PARAM
zones      = 2191
uparms(1)  = 2
uparms(2)  = 0.0
uparms(3)  = 1.0
uparms(4)  = 0.0
uparms(5)  = 0.870
uparms(6)  = 3
```

```
uparms(10) = 1.0
uparms(11) = 0.1
uparms(12) = 7.9
uparms(13) = 82.5
uparms(14) = 82.5
uparms(16) = 2
uparms(17) = 2
uparms(18) = 7
uparms(19) = 2
uparms(20) = 1
uparms(21) = 1
uparms(22) = 0.90
uparms(23) = 1.25
uparms(24) = 2.15
uparms(26) = 2.845
uparms(27) = 3.703
uparms(28) = 4.732
uparms(30) = 1

uparms(15) = 4.55
uparms(31) = 0.075
uparms(32) = 0.075
uparms(33) = 0.075
uparms(34) = 0.03
uparms(35) = 0.03
uparms(36) = 0.0
uparms(37) = 2.518e-5
uparms(38) = 0.0
uparms(39) = 0.0
uparms(40) = 0.00425
uparms(41) = 0.0
uparms(42) = 0.03
uparms(43) = 2.0499
uparms(44) = 0.5876
uparms(45) = 0.3571
uparms(46) = -4.449e-5
uparms(47) = 0.03
uparms(48) = 0.03
uparms(49) = 0.00425
uparms(50) = 0.00425
uparms(51) = 0.00425
uparms(52) = 0.0
uparms(53) = 4.8310
uparms(54) = 0.8546
uparms(55) = -0.0824
uparms(56) = 0.0
uparms(57) = 0.03
uparms(58) = 0.03
uparms(59) = 0.00425
uparms(60) = 0.00425
uparms(61) = 0.00425
uparms(62) = 0.0
uparms(63) = 4.6175
uparms(64) = 2.4071
uparms(65) = 1.8979
uparms(66) = 0.0
uparms(67) = 0.0
uparms(68) = 0.0
uparms(69) = 0.01124
uparms(70) = 0.02318
uparms(71) = 0.05077
uparms(72) = 0.0
uparms(73) = 0.0
uparms(74) = 0.0
uparms(75) = 0.01124
uparms(76) = 0.02318
uparms(77) = 0.05077
uparms(78) = 0.0
```

Appendix B: Version 2.1 D Draft #50 Control Files

```

uparms(79) = 0.0
uparms(80) = 1.47162
uparms(81) = 1.88085
uparms(82) = 0.0
uparms(83) = 0.0
uparms(84) = 0.0
uparms(85) = 0.01124
uparms(86) = 0.02318
uparms(87) = 0.05077
uparms(88) = 0.0
uparms(89) = 0.0
uparms(90) = 3.04973
uparms(91) = 2.54494
uparms(92) = 0.0
uparms(93) = 0.0
uparms(94) = 0.0
uparms(95) = 3
uparms(96) = 0.0
uparms(97) = 0.0
uparms(98) = -0.03611
uparms(99) = 0.
uparms(100) = 0.0
OrigSLWalk = t
DestSLWalk = t
UseShort = t
/

```

Set zone-district equivalencies for exogenous modal factors based on 2191 zone system:

HBW Transit:

```

&ADJDST ADST=1,AZNE=1,-88 / dc core
&ADJDST ADST=2,AZNE=89,-319 / dc noncore
&ADJDST ADST=3,AZNE=320,-639 / mtg
&ADJDST ADST=4,AZNE=640,-1029 / pg
&ADJDST ADST=5,AZNE=1230,-1238 / arl core
&ADJDST ADST=6,AZNE=1239,-1329 / arl noncore
&ADJDST ADST=7,AZNE=1330,-1399 / alx
&ADJDST ADST=8,AZNE=1400,-1779 / ffx
&ADJDST ADST=9,AZNE=1780,-1919 / ldn
&ADJDST ADST=10,AZNE=1920,-2069 / pw
&ADJDST ADST=11,AZNE=1030,-1059 / frd
&ADJDST ADST=12,AZNE=1080,-1109 / how
&ADJDST ADST=13,AZNE=1110,-1149 / aa
&ADJDST ADST=14,AZNE=1200,-1229 / chs
&ADJDST ADST=15,AZNE=1060,-1079 / car
&ADJDST ADST=16,AZNE=1150,-1199 / cal,stm
&ADJDST ADST=17,AZNE=2070,-2114 / stf,kg,spts,fbrg
&ADJDST ADST=18,AZNE=2115,-2129 / fau
&ADJDST ADST=19,AZNE=2130,-2144 / clk,jef
&ADJDST ADST=20,AZNE=2145,-2191 / externals

```

Non-Work/NHB Transit: (These are not used)

```

&NWKDST NDST=1,NZNE=1,-88 / dc core
&NWKDST NDST=2,NZNE=89,-319 / dc noncore
&NWKDST NDST=3,NZNE=320,-639 / mtg
&NWKDST NDST=4,NZNE=640,-1029 / pg
&NWKDST NDST=5,NZNE=1230,-1238 / arl core
&NWKDST NDST=6,NZNE=1239,-1329 / arl noncore
&NWKDST NDST=7,NZNE=1330,-1399 / alx
&NWKDST NDST=8,NZNE=1400,-1779 / ffx
&NWKDST NDST=9,NZNE=1780,-1919 / ldn
&NWKDST NDST=10,NZNE=1920,-2069 / pw
&NWKDST NDST=11,NZNE=1030,-1059 / frd
&NWKDST NDST=12,NZNE=1080,-1109 / how
&NWKDST NDST=13,NZNE=1110,-1149 / aa
&NWKDST NDST=14,NZNE=1200,-1229 / chs
&NWKDST NDST=15,NZNE=1060,-1079 / car

```

```

&NWKDST NDST=16,NZNE=1150,-1199 / cal,stm
&NWKDST NDST=17,NZNE=2070,-2114 / stf,kg,spts,fbrg
&NWKDST NDST=18,NZNE=2115,-2129 / fau
&NWKDST NDST=19,NZNE=2130,-2144 / clk,jef
&NWKDST NDST=20,NZNE=2145,-2191 / externals

```

Car Occupancy:

```

&CARDST CDST=1,CZNE=1,-88 / dc core
&CARDST CDST=2,CZNE=89,-319 / dc noncore
&CARDST CDST=3,CZNE=320,-639 / mtg
&CARDST CDST=4,CZNE=640,-1029 / pg
&CARDST CDST=5,CZNE=1230,-1238 / arl core
&CARDST CDST=6,CZNE=1239,-1329 / arl noncore
&CARDST CDST=7,CZNE=1330,-1399 / alx
&CARDST CDST=8,CZNE=1400,-1779 / ffx
&CARDST CDST=9,CZNE=1780,-1919 / ldn
&CARDST CDST=10,CZNE=1920,-2069 / pw
&CARDST CDST=11,CZNE=1030,-1059 / frd
&CARDST CDST=12,CZNE=1080,-1109 / how
&CARDST CDST=13,CZNE=1110,-1149 / aa
&CARDST CDST=14,CZNE=1200,-1229 / chs
&CARDST CDST=15,CZNE=1060,-1079 / car
&CARDST CDST=16,CZNE=1150,-1199 / cal,stm
&CARDST CDST=17,CZNE=2070,-2114 / stf,kg,spts,fbrg
&CARDST CDST=18,CZNE=2115,-2129 / fau
&CARDST CDST=19,CZNE=2130,-2144 / clk,jef
&CARDST CDST=20,CZNE=2145,-2191 / externals

```

External Stations:

```

&XTERN EDST = 1, EZNE = 2145 /
&XTERN EDST = 2, EZNE = 2146 /
&XTERN EDST = 3, EZNE = 2147,-2191 /

```

**MC\_HBW30.ctf**

mc\_hbw.ctf - Version 2.1D\_19 Mode Choice Model Control File 6/2/04  
 Purpose: HBW Year: 1994  
 Auto Operating Cost (UPARM(12)): 7.8 cents/mi in 1994\$

Auto operating costs to be used in Version 2.1D, 19 Travel Model

Year	Auto operating cost 1994 cents/mile
------	-------------------------------------

year	aoc1994
------	---------

1994	9.1
2000	8.5
2005	8.3
2010	8.2
2015	8.1
2020	8.0
2025	7.9
2030	7.8

Record of revisions:

Date	Psn	Adj	Description of change
06/03/04	msm	db	uparms 43-45 iter 0,1,2
06/03/04	msm	mb	uparms 53-55,63-65 iter 0 (no new run)
06/03/04	msm	mb	uparms 53-55,63-65 iter 1,2

Set file names:

## Appendix B: Version 2.1 D Draft #50 Control Files

```
&FILES
J1= 'hbwmu.ptt',
J3= 'am_wk.skm',
J4= 'mf_am_wk.far',
J5= 'am_dr.skm',
J6= 'mf_am_dr.far',
J7= 'sovam.skm ',
HOVA='hov2am.skm ',
HOVB='hov3am.skm ',
A1= 'hbvw2.alf',
D1= '..\support\mctf_hbw.asc',
D2= '..\support\mccf_hbw.asc',
D3= '..\support\mc_fac.asc',

J9='mc_hbw.trp',      LIST='mc_hbw.prn'      /

Set user-coded parameters.  Commonly modified UPARMS are:
1 : minimum carpool size - HOV "A" (or liberal carpool definition)
2 : intrazonal transit share
3 : intrazonal auto driver share
4 : I/X transit share
5 : I/X auto driver share
6 : minimum carpool size - HOV "B" (or stringent carpool definition)
11 : factor to scale input highway distance to whole miles
16 : apply parking cost model
17 : apply highway terminal time model
18 : model application option: 5=nwk per, 6=nwk adr, 7=no nwk
19 : un-transformed zonal data report switch (1=yes, 2=NO)
20 : transformed zonal data report switch (1=yes, 2=NO)
21 : run only MODAS & MODBS
30 : calibration report switch (1=yes, 2=no)

Here is a list of the UPARMS values we will use in this run.
The first set of UPARMS are those that the user may change.
The second set of UPARMS should not be changed w/o re-calibration
&PARAM
zones          = 2191
uparms(1)      = 2
uparms(2)      = 0.0
uparms(3)      = 1.0
uparms(4)      = 0.0
uparms(5)      = 0.870
uparms(6)      = 3
uparms(10)     = 1.0
uparms(11)     = 0.1
uparms(12)     = 7.8
uparms(13)     = 82.5
uparms(14)     = 82.5
uparms(16)     = 2
uparms(17)     = 2
uparms(18)     = 7
uparms(19)     = 2
uparms(20)     = 1
uparms(21)     = 1
uparms(22)     = 0.90
uparms(23)     = 1.25
uparms(24)     = 2.15
uparms(26)     = 2.845
uparms(27)     = 3.703
uparms(28)     = 4.732
uparms(30)     = 1

uparms(15)     = 4.55
uparms(31)     = 0.075
uparms(32)     = 0.075
uparms(33)     = 0.075
uparms(34)     = 0.03
```

```
uparms(35) = 0.03
uparms(36) = 0.0
uparms(37) = 2.518e-5
uparms(38) = 0.0
uparms(39) = 0.0
uparms(40) = 0.00425
uparms(41) = 0.0
uparms(42) = 0.03
uparms(43) = 2.0499
uparms(44) = 0.5876
uparms(45) = 0.3571
uparms(46) = -4.449e-5
uparms(47) = 0.03
uparms(48) = 0.03
uparms(49) = 0.00425
uparms(50) = 0.00425
uparms(51) = 0.00425
uparms(52) = 0.0
uparms(53) = 4.8310
uparms(54) = 0.8546
uparms(55) = -0.0824
uparms(56) = 0.0
uparms(57) = 0.03
uparms(58) = 0.03
uparms(59) = 0.00425
uparms(60) = 0.00425
uparms(61) = 0.00425
uparms(62) = 0.0
uparms(63) = 4.6175
uparms(64) = 2.4071
uparms(65) = 1.8979
uparms(66) = 0.0
uparms(67) = 0.0
uparms(68) = 0.0
uparms(69) = 0.01124
uparms(70) = 0.02318
uparms(71) = 0.05077
uparms(72) = 0.0
uparms(73) = 0.0
uparms(74) = 0.0
uparms(75) = 0.01124
uparms(76) = 0.02318
uparms(77) = 0.05077
uparms(78) = 0.0
uparms(79) = 0.0
uparms(80) = 1.47162
uparms(81) = 1.88085
uparms(82) = 0.0
uparms(83) = 0.0
uparms(84) = 0.0
uparms(85) = 0.01124
uparms(86) = 0.02318
uparms(87) = 0.05077
uparms(88) = 0.0
uparms(89) = 0.0
uparms(90) = 3.04973
uparms(91) = 2.54494
uparms(92) = 0.0
uparms(93) = 0.0
uparms(94) = 0.0
uparms(95) = 3
uparms(96) = 0.0
uparms(97) = 0.0
uparms(98) = -0.03611
uparms(99) = 0.
uparms(100) = 0.0
OrigSLWalk = t
DestSLWalk = t
```

# Appendix B: Version 2.1 D Draft #50 Control Files

```

UseShort   = t
/

Set zone-district equivalencies for exogenous modal factors
based on 2191 zone system:
HBW Transit:

&ADJDST ADST=1,AZNE=1,-88           / dc core
&ADJDST ADST=2,AZNE=89,-319        / dc noncore
&ADJDST ADST=3,AZNE=320,-639       / mtg
&ADJDST ADST=4,AZNE=640,-1029      / pg
&ADJDST ADST=5,AZNE=1230,-1238     / arl core
&ADJDST ADST=6,AZNE=1239,-1329     / arl noncore
&ADJDST ADST=7,AZNE=1330,-1399     / alx
&ADJDST ADST=8,AZNE=1400,-1779     / ffx
&ADJDST ADST=9,AZNE=1780,-1919     / ldn
&ADJDST ADST=10,AZNE=1920,-2069    / pw
&ADJDST ADST=11,AZNE=1030,-1059    / frd
&ADJDST ADST=12,AZNE=1080,-1109    / how
&ADJDST ADST=13,AZNE=1110,-1149    / aa
&ADJDST ADST=14,AZNE=1200,-1229    / chs
&ADJDST ADST=15,AZNE=1060,-1079    / car
&ADJDST ADST=16,AZNE=1150,-1199    / cal,stm
&ADJDST ADST=17,AZNE=2070,-2114    / stf,kg,spts,fbrg
&ADJDST ADST=18,AZNE=2115,-2129    / fau
&ADJDST ADST=19,AZNE=2130,-2144    / clk,jef
&ADJDST ADST=20,AZNE=2145,-2191    / externals

Non-Work/NHB Transit: (These are not used)
&NWKDST NDST=1,NZNE=1,-88         / dc core
&NWKDST NDST=2,NZNE=89,-319      / dc noncore
&NWKDST NDST=3,NZNE=320,-639     / mtg
&NWKDST NDST=4,NZNE=640,-1029    / pg
&NWKDST NDST=5,NZNE=1230,-1238   / arl core
&NWKDST NDST=6,NZNE=1239,-1329   / arl noncore
&NWKDST NDST=7,NZNE=1330,-1399   / alx
&NWKDST NDST=8,NZNE=1400,-1779   / ffx
&NWKDST NDST=9,NZNE=1780,-1919   / ldn
&NWKDST NDST=10,NZNE=1920,-2069  / pw
&NWKDST NDST=11,NZNE=1030,-1059  / frd
&NWKDST NDST=12,NZNE=1080,-1109  / how
&NWKDST NDST=13,NZNE=1110,-1149  / aa
&NWKDST NDST=14,NZNE=1200,-1229  / chs
&NWKDST NDST=15,NZNE=1060,-1079  / car
&NWKDST NDST=16,NZNE=1150,-1199  / cal,stm
&NWKDST NDST=17,NZNE=2070,-2114  / stf,kg,spts,fbrg
&NWKDST NDST=18,NZNE=2115,-2129  / fau
&NWKDST NDST=19,NZNE=2130,-2144  / clk,jef
&NWKDST NDST=20,NZNE=2145,-2191  / externals

Car Occupancy:
&CARDST CDST=1,CZNE=1,-88         / dc core
&CARDST CDST=2,CZNE=89,-319      / dc noncore
&CARDST CDST=3,CZNE=320,-639     / mtg
&CARDST CDST=4,CZNE=640,-1029    / pg
&CARDST CDST=5,CZNE=1230,-1238   / arl core
&CARDST CDST=6,CZNE=1239,-1329   / arl noncore
&CARDST CDST=7,CZNE=1330,-1399   / alx
&CARDST CDST=8,CZNE=1400,-1779   / ffx
&CARDST CDST=9,CZNE=1780,-1919   / ldn
&CARDST CDST=10,CZNE=1920,-2069  / pw
&CARDST CDST=11,CZNE=1030,-1059  / frd
&CARDST CDST=12,CZNE=1080,-1109  / how
&CARDST CDST=13,CZNE=1110,-1149  / aa
&CARDST CDST=14,CZNE=1200,-1229  / chs
&CARDST CDST=15,CZNE=1060,-1079  / car
&CARDST CDST=16,CZNE=1150,-1199  / cal,stm
&CARDST CDST=17,CZNE=2070,-2114  / stf,kg,spts,fbrg

```

```

&CARDST CDST=18,CZNE=2115,-2129 / fau
&CARDST CDST=19,CZNE=2130,-2144 / clk,jef
&CARDST CDST=20,CZNE=2145,-2191 / externals

```

```

External Stations:
&XTERN EDST = 1, EZNE = 2145 /
&XTERN EDST = 2, EZNE = 2146 /
&XTERN EDST = 3, EZNE = 2147,-2191 /

```

## MC\_HBW94.ct1

```

mc_hbw.ct1 - Version 2.1D.19 Mode Choice Model Control File 6/2/04
Purpose: HBW Year: 1994
Auto Operating Cost (UPARM(12)): 9.1 cents/mi in 1994$

```

Auto operating costs to be used in Version 2.1D, 19 Travel Model

Year	Auto operating cost 1994 cents/mile
1994	9.1
2000	8.5
2005	8.3
2010	8.2
2015	8.1
2020	8.0
2025	7.9
2030	7.8

year aoc1994

year	aoc1994
1994	9.1
2000	8.5
2005	8.3
2010	8.2
2015	8.1
2020	8.0
2025	7.9
2030	7.8

Record of revisions:

Date	Psn	Adj	Description of change
06/03/04	msm	db	uparms 43-45 iter 0,1,2
06/03/04	msm	mb	uparms 53-55,63-65 iter 0 (no new run)
06/03/04	msm	mb	uparms 53-55,63-65 iter 1,2

Set file names:

```

&FILES
J1= 'hbwmu.ptt',
J3= 'am_wk.skm',
J4= 'mf_am_wk.far',
J5= 'am_dr.skm',
J6= 'mf_am_dr.far',
J7= 'sovam.skm ',
HOVA='hov2am.skm ',
HOVB='hov3am.skm ',
A1= 'hbvw2.alf',
D1= '..\support\mctf_hbw.asc',
D2= '..\support\mccf_hbw.asc',
D3= '..\support\mc_fac.asc',

```

```

J9='mc_hbw.trp', LIST='mc_hbw.prn' /

```

Set user-coded parameters. Commonly modified UPARMS are:

- 1 : minimum carpool size - HOV "A" (or liberal carpool definition)
- 2 : intrazonal transit share
- 3 : intrazonal auto driver share
- 4 : I/X transit share
- 5 : I/X auto driver share
- 6 : minimum carpool size - HOV "B" (or stringent carpool definition)
- 11 : factor to scale input highway distance to whole miles

## Appendix B: Version 2.1 D Draft #50 Control Files

```

16 : apply parking cost model
17 : apply highway terminal time model
18 : model application option: 5=nwk per, 6=nwk adr, 7=no nwk
19 : un-transformed zonal data report switch (1=yes, 2=NO)
20 : transformed zonal data report switch (1=yes, 2=NO)
21 : run only MODAS & MODBS
30 : calibration report switch (1=yes, 2=no)

```

Here is a list of the UPARMS values we will use in this run.  
The first set of UPARMS are those that the user may change.  
The second set of UPARMS should not be changed w/o re-calibration

```

&PARAM
zones = 2191
uparms(1) = 2
uparms(2) = 0.0
uparms(3) = 1.0
uparms(4) = 0.0
uparms(5) = 0.870
uparms(6) = 3
uparms(10) = 1.0
uparms(11) = 0.1
uparms(12) = 9.1
uparms(13) = 82.5
uparms(14) = 82.5
uparms(16) = 2
uparms(17) = 2
uparms(18) = 7
uparms(19) = 2
uparms(20) = 1
uparms(21) = 1
uparms(22) = 0.90
uparms(23) = 1.25
uparms(24) = 2.15
uparms(26) = 2.845
uparms(27) = 3.703
uparms(28) = 4.732
uparms(30) = 1

uparms(15) = 4.55
uparms(31) = 0.075
uparms(32) = 0.075
uparms(33) = 0.075
uparms(34) = 0.03
uparms(35) = 0.03
uparms(36) = 0.0
uparms(37) = 2.518e-5
uparms(38) = 0.0
uparms(39) = 0.0
uparms(40) = 0.00425
uparms(41) = 0.0
uparms(42) = 0.03
uparms(43) = 2.0499
uparms(44) = 0.5876
uparms(45) = 0.3571
uparms(46) = -4.449e-5
uparms(47) = 0.03
uparms(48) = 0.03
uparms(49) = 0.00425
uparms(50) = 0.00425
uparms(51) = 0.00425
uparms(52) = 0.0
uparms(53) = 4.8310
uparms(54) = 0.8546
uparms(55) = -0.0824
uparms(56) = 0.0
uparms(57) = 0.03
uparms(58) = 0.03
uparms(59) = 0.00425

```

```

uparms(60) = 0.00425
uparms(61) = 0.00425
uparms(62) = 0.0
uparms(63) = 4.6175
uparms(64) = 2.4071
uparms(65) = 1.8979
uparms(66) = 0.0
uparms(67) = 0.0
uparms(68) = 0.0
uparms(69) = 0.01124
uparms(70) = 0.02318
uparms(71) = 0.05077
uparms(72) = 0.0
uparms(73) = 0.0
uparms(74) = 0.0
uparms(75) = 0.01124
uparms(76) = 0.02318
uparms(77) = 0.05077
uparms(78) = 0.0
uparms(79) = 0.0
uparms(80) = 1.47162
uparms(81) = 1.88085
uparms(82) = 0.0
uparms(83) = 0.0
uparms(84) = 0.0
uparms(85) = 0.01124
uparms(86) = 0.02318
uparms(87) = 0.05077
uparms(88) = 0.0
uparms(89) = 0.0
uparms(90) = 3.04973
uparms(91) = 2.54494
uparms(92) = 0.0
uparms(93) = 0.0
uparms(94) = 0.0
uparms(95) = 3
uparms(96) = 0.0
uparms(97) = 0.0
uparms(98) = -0.03611
uparms(99) = 0.0
uparms(100) = 0.0
OrigSLWalk = t
DestSLWalk = t
UseShort = t
/

```

Set zone-district equivalencies for exogenous modal factors  
based on 2191 zone system:  
HBW Transit:

```

&ADJDST ADST=1,AZNE=1,-88 / dc core
&ADJDST ADST=2,AZNE=89,-319 / dc noncore
&ADJDST ADST=3,AZNE=320,-639 / mtg
&ADJDST ADST=4,AZNE=640,-1029 / pg
&ADJDST ADST=5,AZNE=1230,-1238 / arl core
&ADJDST ADST=6,AZNE=1239,-1329 / arl noncore
&ADJDST ADST=7,AZNE=1330,-1399 / alx
&ADJDST ADST=8,AZNE=1400,-1779 / ffx
&ADJDST ADST=9,AZNE=1780,-1919 / ldn
&ADJDST ADST=10,AZNE=1920,-2069 / pw
&ADJDST ADST=11,AZNE=1030,-1059 / frd
&ADJDST ADST=12,AZNE=1080,-1109 / how
&ADJDST ADST=13,AZNE=1110,-1149 / aa
&ADJDST ADST=14,AZNE=1200,-1229 / chs
&ADJDST ADST=15,AZNE=1060,-1079 / car
&ADJDST ADST=16,AZNE=1150,-1199 / cal,stm
&ADJDST ADST=17,AZNE=2070,-2114 / stf,kg,spts,fbrg
&ADJDST ADST=18,AZNE=2115,-2129 / fau

```



# Appendix B: Version 2.1 D Draft #50 Control Files

```

&ADJDST ADST=19,AZNE=2130,-2144 / clk,jef
&ADJDST ADST=20,AZNE=2145,-2191 / externals

Non-Work/NHB Transit: (These are not used)
&NWKDST NDST=1,NZNE=1,-88 / dc core
&NWKDST NDST=2,NZNE=89,-319 / dc noncore
&NWKDST NDST=3,NZNE=320,-639 / mtg
&NWKDST NDST=4,NZNE=640,-1029 / pg
&NWKDST NDST=5,NZNE=1230,-1238 / arl core
&NWKDST NDST=6,NZNE=1239,-1329 / arl noncore
&NWKDST NDST=7,NZNE=1330,-1399 / alx
&NWKDST NDST=8,NZNE=1400,-1779 / ffx
&NWKDST NDST=9,NZNE=1780,-1919 / ldn
&NWKDST NDST=10,NZNE=1920,-2069 / pw
&NWKDST NDST=11,NZNE=1030,-1059 / frd
&NWKDST NDST=12,NZNE=1080,-1109 / how
&NWKDST NDST=13,NZNE=1110,-1149 / aa
&NWKDST NDST=14,NZNE=1200,-1229 / chs
&NWKDST NDST=15,NZNE=1060,-1079 / car
&NWKDST NDST=16,NZNE=1150,-1199 / cal,stm
&NWKDST NDST=17,NZNE=2070,-2114 / stf,kg,spts,fbrg
&NWKDST NDST=18,NZNE=2115,-2129 / fau
&NWKDST NDST=19,NZNE=2130,-2144 / clk,jef
&NWKDST NDST=20,NZNE=2145,-2191 / externals

Car Occupancy:
&CARDST CDST=1,CZNE=1,-88 / dc core
&CARDST CDST=2,CZNE=89,-319 / dc noncore
&CARDST CDST=3,CZNE=320,-639 / mtg
&CARDST CDST=4,CZNE=640,-1029 / pg
&CARDST CDST=5,CZNE=1230,-1238 / arl core
&CARDST CDST=6,CZNE=1239,-1329 / arl noncore
&CARDST CDST=7,CZNE=1330,-1399 / alx
&CARDST CDST=8,CZNE=1400,-1779 / ffx
&CARDST CDST=9,CZNE=1780,-1919 / ldn
&CARDST CDST=10,CZNE=1920,-2069 / pw
&CARDST CDST=11,CZNE=1030,-1059 / frd
&CARDST CDST=12,CZNE=1080,-1109 / how
&CARDST CDST=13,CZNE=1110,-1149 / aa
&CARDST CDST=14,CZNE=1200,-1229 / chs
&CARDST CDST=15,CZNE=1060,-1079 / car
&CARDST CDST=16,CZNE=1150,-1199 / cal,stm
&CARDST CDST=17,CZNE=2070,-2114 / stf,kg,spts,fbrg
&CARDST CDST=18,CZNE=2115,-2129 / fau
&CARDST CDST=19,CZNE=2130,-2144 / clk,jef
&CARDST CDST=20,CZNE=2145,-2191 / externals

External Stations:
&XTERN EDST = 1, EZNE = 2145 /
&XTERN EDST = 2, EZNE = 2146 /
&XTERN EDST = 3, EZNE = 2147,-2191 /

```

## MC\_NHB00.ctf

mc\_nhb.ctf - Version 2.1D\_19 Mode Choice Model Control File 6/2/04  
 Purpose: NHB Year: 1994  
 Auto Operating Cost (UPARM(12)): 8.5 cents/mi in 1994\$

Auto operating costs to be used in Version 2.1D, 19 Travel Model

Year	Auto operating cost
1994	cents/mile

```

year aoc1994
1994 9.1
2000 8.5
2005 8.3
2010 8.2
2015 8.1
2020 8.0
2025 7.9
2030 7.8

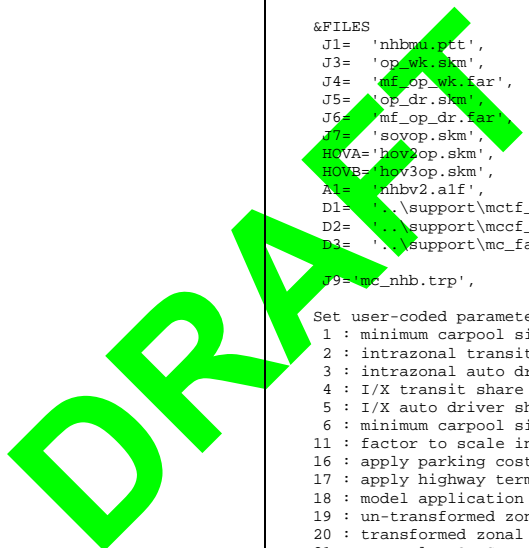
Record of revisions:
Date Psn Adj Description of change
06/04/04 msm db uparms 43 iter 0 (started w/ value of 0.85)
06/04/04 msm db uparms 43 iter 1,2 stop
06/04/04 msm mb uparms 53,63 iter 0 (no new run),1,2 stop

Set file names:
&FILES
J1= 'nhbmu.ptt',
J3= 'op_wk.skm',
J4= 'mf_op_wk_far',
J5= 'op_dr.skm',
J6= 'mf_op_dr_far',
J7= 'sovop.skm',
HOVA='hov2op.skm',
HOVB='hov3op.skm',
A1= 'nhbv2.alf',
D1= '...\support\mctf_nhb.asc',
D2= '...\support\mccf_nhb.asc',
D3= '...\support\mc_fac.asc',
J9='mc_nhb.trp', LIST='mc_nhb.prn' /

Set user-coded parameters. Commonly modified UPARMS are:
1 : minimum carpool size - HOV "A" (or liberal carpool definition)
2 : intrazonal transit share
3 : intrazonal auto driver share
4 : I/X transit share
5 : I/X auto driver share
6 : minimum carpool size - HOV "B" (or stringent carpool definition)
11 : factor to scale input highway distance to whole miles
16 : apply parking cost model
17 : apply highway terminal time model
18 : model application option: 5=nwk per, 6=nwk adr, 7=no nwk
19 : un-transformed zonal data report switch (1=yes, 2=NO)
20 : transformed zonal data report switch (1=yes, 2=NO)
21 : run only MODAS & MODBS
30 : calibration report switch (1=yes, 2=no)

Here is a list of the UPARMS values we will use in this run
&PARAM
zones = 2191
uparms(1) = 0
uparms(2) = 0.0
uparms(3) = 1.0
uparms(4) = 0.0
uparms(5) = 0.780
uparms(6) = 0
uparms(10) = 1.0
uparms(11) = 0.1
uparms(12) = 8.5
uparms(13) = 82.5
uparms(14) = 82.5
uparms(16) = 2
uparms(17) = 2

```



```

uparms(18) = 7
uparms(19) = 2
uparms(20) = 1
uparms(21) = 1
uparms(22) = 1.00
uparms(23) = 0.00
uparms(24) = 0.00
uparms(26) = 2.845
uparms(27) = 0.0
uparms(28) = 0.0
uparms(30) = 1

uparms(15) = 4.38
uparms(31) = 0.06695
uparms(32) = 0.06695
uparms(33) = 0.06695
uparms(34) = 0.03242
uparms(35) = 0.03242
uparms(36) = -1.369e-5
uparms(37) = -1.300e-5
uparms(38) = 0.0
uparms(39) = 0.0
uparms(40) = 0.0
uparms(41) = 0.0
uparms(42) = 0.03242
uparms(43) = 1.4
uparms(44) = 0.0
uparms(45) = 0.0
uparms(46) = 0.0
uparms(47) = 0.03242
uparms(48) = 0.03242
uparms(49) = 0.0
uparms(50) = 0.0
uparms(51) = 0.0
uparms(52) = 0.0
uparms(53) = -0.8541
uparms(54) = 0.0
uparms(55) = 0.0
uparms(56) = -1.659e-5
uparms(57) = 0.03242
uparms(58) = 0.03242
uparms(59) = 0.0
uparms(60) = 0.0
uparms(61) = 0.0
uparms(62) = 0.0
uparms(63) = 0.0760
uparms(64) = 0.0
uparms(65) = 0.0
uparms(66) = 0.86043
uparms(67) = 0.00709
uparms(68) = 0.00709
uparms(69) = 0.0
uparms(70) = 0.0
uparms(71) = 0.0
uparms(72) = 0.00187
uparms(73) = 0.00709
uparms(74) = 0.00709
uparms(75) = 0.0
uparms(76) = 0.0
uparms(77) = 0.0
uparms(78) = 0.00187
uparms(79) = 0.92477
uparms(80) = 0.0
uparms(81) = 0.0
uparms(82) = 0.86043
uparms(83) = 0.00709
uparms(84) = 0.00709
uparms(85) = 0.0

```

```

uparms(86) = 0.0
uparms(87) = 0.0
uparms(88) = 0.0
uparms(89) = 1.41003
uparms(90) = 0.0
uparms(91) = 0.0
uparms(92) = -0.76998
uparms(93) = 0.0
uparms(94) = 0.0
uparms(95) = 1
uparms(96) = 0.0
uparms(97) = 0.0
uparms(98) = 0.0
uparms(99) = -1.47447
uparms(100) = 0.0
OrigSLWalk = t
DestSLWalk = t
UseShort = t
/

```

Set zone-district equivalencies for exogenous modal factors  
based on 2191 zone system:  
HBW Transit:

```

&ADJDST ADST=1,AZNE=1,-88 / dc core
&ADJDST ADST=2,AZNE=89,-319 / dc noncore
&ADJDST ADST=3,AZNE=320,-639 / mtg
&ADJDST ADST=4,AZNE=640,-1029 / pg
&ADJDST ADST=5,AZNE=1230,-1238 / arl core
&ADJDST ADST=6,AZNE=1239,-1329 / arl noncore
&ADJDST ADST=7,AZNE=1330,-1399 / alx
&ADJDST ADST=8,AZNE=1400,-1779 / ffx
&ADJDST ADST=9,AZNE=1780,-1919 / ldn
&ADJDST ADST=10,AZNE=1920,-2069 / pw
&ADJDST ADST=11,AZNE=1030,-1059 / frd
&ADJDST ADST=12,AZNE=1080,-1109 / how
&ADJDST ADST=13,AZNE=1110,-1149 / aa
&ADJDST ADST=14,AZNE=1200,-1229 / chs
&ADJDST ADST=15,AZNE=1060,-1079 / car
&ADJDST ADST=16,AZNE=1150,-1199 / cal,stm
&ADJDST ADST=17,AZNE=2070,-2114 / stf,kg,spts,fbrg
&ADJDST ADST=18,AZNE=2115,-2129 / fau
&ADJDST ADST=19,AZNE=2130,-2144 / clk,jef
&ADJDST ADST=20,AZNE=2145,-2191 / externals

```

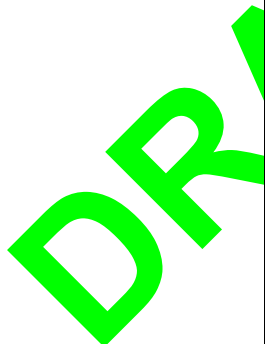
Non-Work/NHB Transit: (These are not used)

```

&NWKDST NDST=1,NZNE=1,-88 / dc core
&NWKDST NDST=2,NZNE=89,-319 / dc noncore
&NWKDST NDST=3,NZNE=320,-639 / mtg
&NWKDST NDST=4,NZNE=640,-1029 / pg
&NWKDST NDST=5,NZNE=1230,-1238 / arl core
&NWKDST NDST=6,NZNE=1239,-1329 / arl noncore
&NWKDST NDST=7,NZNE=1330,-1399 / alx
&NWKDST NDST=8,NZNE=1400,-1779 / ffx
&NWKDST NDST=9,NZNE=1780,-1919 / ldn
&NWKDST NDST=10,NZNE=1920,-2069 / pw
&NWKDST NDST=11,NZNE=1030,-1059 / frd
&NWKDST NDST=12,NZNE=1080,-1109 / how
&NWKDST NDST=13,NZNE=1110,-1149 / aa
&NWKDST NDST=14,NZNE=1200,-1229 / chs
&NWKDST NDST=15,NZNE=1060,-1079 / car
&NWKDST NDST=16,NZNE=1150,-1199 / cal,stm
&NWKDST NDST=17,NZNE=2070,-2114 / stf,kg,spts,fbrg
&NWKDST NDST=18,NZNE=2115,-2129 / fau
&NWKDST NDST=19,NZNE=2130,-2144 / clk,jef
&NWKDST NDST=20,NZNE=2145,-2191 / externals

```

Car Occupancy:



## Appendix B: Version 2.1 D Draft #50 Control Files

```

&CARDST CDST=1,CZNE=1,-88 / dc core
&CARDST CDST=2,CZNE=89,-319 / dc noncore
&CARDST CDST=3,CZNE=320,-639 / mtg
&CARDST CDST=4,CZNE=640,-1029 / pg
&CARDST CDST=5,CZNE=1230,-1238 / arl core
&CARDST CDST=6,CZNE=1239,-1329 / arl noncore
&CARDST CDST=7,CZNE=1330,-1399 / alx
&CARDST CDST=8,CZNE=1400,-1779 / ffx
&CARDST CDST=9,CZNE=1780,-1919 / ldn
&CARDST CDST=10,CZNE=1920,-2069 / pw
&CARDST CDST=11,CZNE=1030,-1059 / frd
&CARDST CDST=12,CZNE=1080,-1109 / how
&CARDST CDST=13,CZNE=1110,-1149 / aa
&CARDST CDST=14,CZNE=1200,-1229 / chs
&CARDST CDST=15,CZNE=1060,-1079 / car
&CARDST CDST=16,CZNE=1150,-1199 / cal,stm
&CARDST CDST=17,CZNE=2070,-2114 / stf,kg,spts,fbgr
&CARDST CDST=18,CZNE=2115,-2129 / fau
&CARDST CDST=19,CZNE=2130,-2144 / clk,jef
&CARDST CDST=20,CZNE=2145,-2191 / externals

```

### External Stations:

```

&XTERN EDST = 1, EZNE = 2145 /
&XTERN EDST = 2, EZNE = 2146 /
&XTERN EDST = 3, EZNE = 2147,-2191 /

```

## MC\_NHB05.ct1

mc\_nhb.ct1 - Version 2.1D\_19 Mode Choice Model Control File 6/2/04  
 Purpose: NHB Year: 2005  
 Auto Operating Cost (UPARM(12)): 8.3 cents/mi in 1994\$

Auto operating costs to be used in Version 2.1D, 19 Travel Model

Year	Auto operating cost 1994 cents/mile
1994	9.1
2000	8.5
2005	8.3
2010	8.2
2015	8.1
2020	8.0
2025	7.9
2030	7.8

### Record of revisions:

Date	Psn	Adj	Description of change
06/04/04	msm	db	uparms 43 iter 0 (started w/ value of 0.85)
06/04/04	msm	db	uparms 43 iter 1,2 stop
06/04/04	msm	mb	uparms 53,63 iter 0 (no new run),1,2 stop

### Set file names:

```

&FILES
J1= 'nhbmu.ptt',
J3= 'op_wk.skm',
J4= 'mf_op_wk.far',
J5= 'op_dr.skm',
J6= 'mf_op_dr.far',

```

```

J7= 'sovop.skm',
HOVA='hov2op.skm',
HOVB='hov3op.skm',
A1= 'nhbv2.alf',
D1= '..\support\mctf_nhb.asc',
D2= '..\support\mccf_nhb.asc',
D3= '..\support\mc_fac.asc',

J9='mc_nhb.trp', LIST='mc_nhb.prn' /

```

### Set user-coded parameters. Commonly modified UPARMS are:

```

1 : minimum carpool size - HOV "A" (or liberal carpool definition)
2 : intrazonal transit share
3 : intrazonal auto driver share
4 : I/X transit share
5 : I/X auto driver share
6 : minimum carpool size - HOV "B" (or stringent carpool definition)
11 : factor to scale input highway distance to whole miles
16 : apply parking cost model
17 : apply highway terminal time model
18 : model application option: 5=nwk per, 6=nwk adr, 7=no nwk
19 : un-transformed zonal data report switch (1=yes, 2=NO)
20 : transformed zonal data report switch (1=yes, 2=NO)
21 : run only MODAS & MODBS
30 : calibration report switch (1=yes, 2=no)

```

### Here is a list of the UPARMS values we will use in this run

```

&PARAM
zones = 2191
uparms(1) = 0
uparms(2) = 0.0
uparms(3) = 1.0
uparms(4) = 0.0
uparms(5) = 0.780
uparms(6) = 0
uparms(10) = 1.0
uparms(11) = 0.1
uparms(12) = 8.3
uparms(13) = 82.5
uparms(14) = 82.5
uparms(16) = 2
uparms(17) = 2
uparms(18) = 7
uparms(19) = 2
uparms(20) = 1
uparms(21) = 1
uparms(22) = 1.00
uparms(23) = 0.00
uparms(24) = 0.00
uparms(26) = 2.845
uparms(27) = 0.0
uparms(28) = 0.0
uparms(30) = 1

uparms(15) = 4.38
uparms(31) = 0.06695
uparms(32) = 0.06695
uparms(33) = 0.06695
uparms(34) = 0.03242
uparms(35) = 0.03242
uparms(36) = -1.369e-5
uparms(37) = -1.300e-5
uparms(38) = 0.0
uparms(39) = 0.0
uparms(40) = 0.0
uparms(41) = 0.0
uparms(42) = 0.03242
uparms(43) = 1.4

```

Appendix B: Version 2.1 D Draft #50 Control Files

```

uparms(44) = 0.0
uparms(45) = 0.0
uparms(46) = 0.0
uparms(47) = 0.03242
uparms(48) = 0.03242
uparms(49) = 0.0
uparms(50) = 0.0
uparms(51) = 0.0
uparms(52) = 0.0
uparms(53) = -0.8541
uparms(54) = 0.0
uparms(55) = 0.0
uparms(56) = -1.659e-5
uparms(57) = 0.03242
uparms(58) = 0.03242
uparms(59) = 0.0
uparms(60) = 0.0
uparms(61) = 0.0
uparms(62) = 0.0
uparms(63) = 0.0760
uparms(64) = 0.0
uparms(65) = 0.0
uparms(66) = 0.86043
uparms(67) = 0.00709
uparms(68) = 0.00709
uparms(69) = 0.0
uparms(70) = 0.0
uparms(71) = 0.0
uparms(72) = 0.00187
uparms(73) = 0.00709
uparms(74) = 0.00709
uparms(75) = 0.0
uparms(76) = 0.0
uparms(77) = 0.0
uparms(78) = 0.00187
uparms(79) = 0.92477
uparms(80) = 0.0
uparms(81) = 0.0
uparms(82) = 0.86043
uparms(83) = 0.00709
uparms(84) = 0.00709
uparms(85) = 0.0
uparms(86) = 0.0
uparms(87) = 0.0
uparms(88) = 0.0
uparms(89) = 1.41003
uparms(90) = 0.0
uparms(91) = 0.0
uparms(92) = -0.76998
uparms(93) = 0.0
uparms(94) = 0.0
uparms(95) = 1
uparms(96) = 0.0
uparms(97) = 0.0
uparms(98) = 0.0
uparms(99) = -1.47447
uparms(100) = 0.0
OrigSLWalk = t
DestSLWalk = t
UseShort = t
/

Set zone-district equivalencies for exogenous modal factors
based on 2191 zone system:
HBW Transit:

&ADJDST ADST=1,AZNE=1,-88 / dc core
&ADJDST ADST=2,AZNE=89,-319 / dc noncore

```

DRAFT

```

&ADJDST ADST=3,AZNE=320,-639 / mtg
&ADJDST ADST=4,AZNE=640,-1029 / pg
&ADJDST ADST=5,AZNE=1230,-1238 / arl core
&ADJDST ADST=6,AZNE=1239,-1329 / arl noncore
&ADJDST ADST=7,AZNE=1330,-1399 / alx
&ADJDST ADST=8,AZNE=1400,-1779 / ffx
&ADJDST ADST=9,AZNE=1780,-1919 / ldn
&ADJDST ADST=10,AZNE=1920,-2069 / pw
&ADJDST ADST=11,AZNE=1030,-1059 / frd
&ADJDST ADST=12,AZNE=1080,-1109 / how
&ADJDST ADST=13,AZNE=1110,-1149 / aa
&ADJDST ADST=14,AZNE=1200,-1229 / chs
&ADJDST ADST=15,AZNE=1060,-1079 / car
&ADJDST ADST=16,AZNE=1150,-1199 / cal,stm
&ADJDST ADST=17,AZNE=2070,-2114 / stf,kg,spts,fbrg
&ADJDST ADST=18,AZNE=2115,-2129 / fau
&ADJDST ADST=19,AZNE=2130,-2144 / clk,jef
&ADJDST ADST=20,AZNE=2145,-2191 / externals

Non-Work/NHB Transit: (These are not used)
&NWKDST NDST=1,NZNE=1,-88 / dc core
&NWKDST NDST=2,NZNE=89,-319 / dc noncore
&NWKDST NDST=3,NZNE=320,-639 / mtg
&NWKDST NDST=4,NZNE=640,-1029 / pg
&NWKDST NDST=5,NZNE=1230,-1238 / arl core
&NWKDST NDST=6,NZNE=1239,-1329 / arl noncore
&NWKDST NDST=7,NZNE=1330,-1399 / alx
&NWKDST NDST=8,NZNE=1400,-1779 / ffx
&NWKDST NDST=9,NZNE=1780,-1919 / ldn
&NWKDST NDST=10,NZNE=1920,-2069 / pw
&NWKDST NDST=11,NZNE=1030,-1059 / frd
&NWKDST NDST=12,NZNE=1080,-1109 / how
&NWKDST NDST=13,NZNE=1110,-1149 / aa
&NWKDST NDST=14,NZNE=1200,-1229 / chs
&NWKDST NDST=15,NZNE=1060,-1079 / car
&NWKDST NDST=16,NZNE=1150,-1199 / cal,stm
&NWKDST NDST=17,NZNE=2070,-2114 / stf,kg,spts,fbrg
&NWKDST NDST=18,NZNE=2115,-2129 / fau
&NWKDST NDST=19,NZNE=2130,-2144 / clk,jef
&NWKDST NDST=20,NZNE=2145,-2191 / externals

Car Occupancy:
&CARDST CDST=1,CZNE=1,-88 / dc core
&CARDST CDST=2,CZNE=89,-319 / dc noncore
&CARDST CDST=3,CZNE=320,-639 / mtg
&CARDST CDST=4,CZNE=640,-1029 / pg
&CARDST CDST=5,CZNE=1230,-1238 / arl core
&CARDST CDST=6,CZNE=1239,-1329 / arl noncore
&CARDST CDST=7,CZNE=1330,-1399 / alx
&CARDST CDST=8,CZNE=1400,-1779 / ffx
&CARDST CDST=9,CZNE=1780,-1919 / ldn
&CARDST CDST=10,CZNE=1920,-2069 / pw
&CARDST CDST=11,CZNE=1030,-1059 / frd
&CARDST CDST=12,CZNE=1080,-1109 / how
&CARDST CDST=13,CZNE=1110,-1149 / aa
&CARDST CDST=14,CZNE=1200,-1229 / chs
&CARDST CDST=15,CZNE=1060,-1079 / car
&CARDST CDST=16,CZNE=1150,-1199 / cal,stm
&CARDST CDST=17,CZNE=2070,-2114 / stf,kg,spts,fbrg
&CARDST CDST=18,CZNE=2115,-2129 / fau
&CARDST CDST=19,CZNE=2130,-2144 / clk,jef
&CARDST CDST=20,CZNE=2145,-2191 / externals

External Stations:
&XTERN EDST = 1, EZNE = 2145 /
&XTERN EDST = 2, EZNE = 2146 /
&XTERN EDST = 3, EZNE = 2147,-2191 /

```

### MC\_NHB25.ctf

mc\_nhb.ctf - Version 2.1D\_19 Mode Choice Model Control File 6/2/04  
 Purpose: NHB Year: 1994  
 Auto Operating Cost (UPARM(12)): 7.9 cents/mi in 1994\$

Auto operating costs to be used in Version 2.1D, 19 Travel Model

Year	Auto operating cost 1994 cents/mile
year	aoc1994
1994	9.1
2000	8.5
2005	8.3
2010	8.2
2015	8.1
2020	8.0
2025	7.9
2030	7.8

Record of revisions:

Date	Psn	Adj	Description of change
06/04/04	msm	db	uparms 43 iter 0 (started w/ value of 0.85)
06/04/04	msm	db	uparms 43 iter 1,2 stop
06/04/04	msm	mb	uparms 53,63 iter 0 (no new run),1,2 stop

Set file names:

&FILES

J1= 'nhbmu.ptt',  
 J3= 'op\_wk.skm',  
 J4= 'mf\_op\_wk.far',  
 J5= 'op\_dr.skm',  
 J6= 'mf\_op\_dr.far',  
 J7= 'sovop.skm',  
 HOVA='hov2op.skm',  
 HOVB='hov3op.skm',  
 A1= 'nhbv2.alf',  
 D1= '..\support\mctf\_nhb.asc',  
 D2= '..\support\mccf\_nhb.asc',  
 D3= '..\support\mc\_fac.asc',

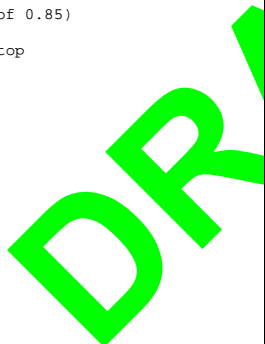
J9='mc\_nhb.trp', LIST='mc\_nhb.prn' /

Set user-coded parameters. Commonly modified UPARMS are:

- 1 : minimum carpool size - HOV "A" (or liberal carpool definition)
- 2 : intrazonal transit share
- 3 : intrazonal auto driver share
- 4 : I/X transit share
- 5 : I/X auto driver share
- 6 : minimum carpool size - HOV "B" (or stringent carpool definition)
- 11 : factor to scale input highway distance to whole miles
- 16 : apply parking cost model
- 17 : apply highway terminal time model
- 18 : model application option: 5=nwk per, 6=nwk adr, 7=no nwk
- 19 : un-transformed zonal data report switch (1=yes, 2=NO)
- 20 : transformed zonal data report switch (1=yes, 2=NO)
- 21 : run only MODAS & MODBS
- 30 : calibration report switch (1=yes, 2=no)

Here is a list of the UPARMS values we will use in this run

```
&PARAM
zones      = 2191
uparms(1)  = 0
uparms(2)  = 0.0
uparms(3)  = 1.0
uparms(4)  = 0.0
uparms(5)  = 0.780
uparms(6)  = 0
uparms(10) = 1.0
uparms(11) = 0.1
uparms(12) = 7.9
uparms(13) = 82.5
uparms(14) = 82.5
uparms(16) = 2
uparms(17) = 2
uparms(18) = 7
uparms(19) = 2
uparms(20) = 1
uparms(21) = 1
uparms(22) = 1.00
uparms(23) = 0.00
uparms(24) = 0.00
uparms(26) = 2.845
uparms(27) = 0.0
uparms(28) = 0.0
uparms(30) = 1
uparms(15) = 4.38
uparms(31) = 0.06695
uparms(32) = 0.06695
uparms(33) = 0.06695
uparms(34) = 0.03242
uparms(35) = 0.03242
uparms(36) = -1.369e-5
uparms(37) = -1.300e-5
uparms(38) = 0.0
uparms(39) = 0.0
uparms(40) = 0.0
uparms(41) = 0.0
uparms(42) = 0.03242
uparms(43) = 1.4
uparms(44) = 0.0
uparms(45) = 0.0
uparms(46) = 0.0
uparms(47) = 0.03242
uparms(48) = 0.03242
uparms(49) = 0.0
uparms(50) = 0.0
uparms(51) = 0.0
uparms(52) = 0.0
uparms(53) = -0.8541
uparms(54) = 0.0
uparms(55) = 0.0
uparms(56) = -1.659e-5
uparms(57) = 0.03242
uparms(58) = 0.03242
uparms(59) = 0.0
uparms(60) = 0.0
uparms(61) = 0.0
uparms(62) = 0.0
uparms(63) = 0.0760
uparms(64) = 0.0
uparms(65) = 0.0
uparms(66) = 0.86043
uparms(67) = 0.00709
uparms(68) = 0.00709
uparms(69) = 0.0
```



Appendix B: Version 2.1 D Draft #50 Control Files

```

uparms(70) = 0.0
uparms(71) = 0.0
uparms(72) = 0.00187
uparms(73) = 0.00709
uparms(74) = 0.00709
uparms(75) = 0.0
uparms(76) = 0.0
uparms(77) = 0.0
uparms(78) = 0.00187
uparms(79) = 0.92477
uparms(80) = 0.0
uparms(81) = 0.0
uparms(82) = 0.86043
uparms(83) = 0.00709
uparms(84) = 0.00709
uparms(85) = 0.0
uparms(86) = 0.0
uparms(87) = 0.0
uparms(88) = 0.0
uparms(89) = 1.41003
uparms(90) = 0.0
uparms(91) = 0.0
uparms(92) = -0.76998
uparms(93) = 0.0
uparms(94) = 0.0
uparms(95) = 1
uparms(96) = 0.0
uparms(97) = 0.0
uparms(98) = 0.0
uparms(99) = -1.47447
uparms(100) = 0.0
OrigSLWalk = t
DestSLWalk = t
UseShort = t
/

```

Set zone-district equivalencies for exogenous modal factors based on 2191 zone system:

HBW Transit:

```

&ADJDST ADST=1,AZNE=1,-88 / dc core
&ADJDST ADST=2,AZNE=89,-319 / dc noncore
&ADJDST ADST=3,AZNE=320,-639 / mtg
&ADJDST ADST=4,AZNE=640,-1029 / pg
&ADJDST ADST=5,AZNE=1230,-1238 / arl core
&ADJDST ADST=6,AZNE=1239,-1329 / arl noncore
&ADJDST ADST=7,AZNE=1330,-1399 / alx
&ADJDST ADST=8,AZNE=1400,-1779 / ffx
&ADJDST ADST=9,AZNE=1780,-1919 / ldn
&ADJDST ADST=10,AZNE=1920,-2069 / pw
&ADJDST ADST=11,AZNE=1030,-1059 / frd
&ADJDST ADST=12,AZNE=1080,-1109 / how
&ADJDST ADST=13,AZNE=1110,-1149 / aa
&ADJDST ADST=14,AZNE=1200,-1229 / chs
&ADJDST ADST=15,AZNE=1060,-1079 / car
&ADJDST ADST=16,AZNE=1150,-1199 / cal,stm
&ADJDST ADST=17,AZNE=2070,-2114 / stf,kg,spts,fbrg
&ADJDST ADST=18,AZNE=2115,-2129 / fau
&ADJDST ADST=19,AZNE=2130,-2144 / clk,jef
&ADJDST ADST=20,AZNE=2145,-2191 / externals

```

Non-Work/NHB Transit: (These are not used)

```

&NWKDST NDST=1,NZNE=1,-88 / dc core
&NWKDST NDST=2,NZNE=89,-319 / dc noncore
&NWKDST NDST=3,NZNE=320,-639 / mtg
&NWKDST NDST=4,NZNE=640,-1029 / pg
&NWKDST NDST=5,NZNE=1230,-1238 / arl core
&NWKDST NDST=6,NZNE=1239,-1329 / arl noncore

```

```

&NWKDST NDST=7,NZNE=1330,-1399 / alx
&NWKDST NDST=8,NZNE=1400,-1779 / ffx
&NWKDST NDST=9,NZNE=1780,-1919 / ldn
&NWKDST NDST=10,NZNE=1920,-2069 / pw
&NWKDST NDST=11,NZNE=1030,-1059 / frd
&NWKDST NDST=12,NZNE=1080,-1109 / how
&NWKDST NDST=13,NZNE=1110,-1149 / aa
&NWKDST NDST=14,NZNE=1200,-1229 / chs
&NWKDST NDST=15,NZNE=1060,-1079 / car
&NWKDST NDST=16,NZNE=1150,-1199 / cal,stm
&NWKDST NDST=17,NZNE=2070,-2114 / stf,kg,spts,fbrg
&NWKDST NDST=18,NZNE=2115,-2129 / fau
&NWKDST NDST=19,NZNE=2130,-2144 / clk,jef
&NWKDST NDST=20,NZNE=2145,-2191 / externals

```

Car Occupancy:

```

&CARDST CDST=1,CZNE=1,-88 / dc core
&CARDST CDST=2,CZNE=89,-319 / dc noncore
&CARDST CDST=3,CZNE=320,-639 / mtg
&CARDST CDST=4,CZNE=640,-1029 / pg
&CARDST CDST=5,CZNE=1230,-1238 / arl core
&CARDST CDST=6,CZNE=1239,-1329 / arl noncore
&CARDST CDST=7,CZNE=1330,-1399 / alx
&CARDST CDST=8,CZNE=1400,-1779 / ffx
&CARDST CDST=9,CZNE=1780,-1919 / ldn
&CARDST CDST=10,CZNE=1920,-2069 / pw
&CARDST CDST=11,CZNE=1030,-1059 / frd
&CARDST CDST=12,CZNE=1080,-1109 / how
&CARDST CDST=13,CZNE=1110,-1149 / aa
&CARDST CDST=14,CZNE=1200,-1229 / chs
&CARDST CDST=15,CZNE=1060,-1079 / car
&CARDST CDST=16,CZNE=1150,-1199 / cal,stm
&CARDST CDST=17,CZNE=2070,-2114 / stf,kg,spts,fbrg
&CARDST CDST=18,CZNE=2115,-2129 / fau
&CARDST CDST=19,CZNE=2130,-2144 / clk,jef
&CARDST CDST=20,CZNE=2145,-2191 / externals

```

External Stations:

```

&XTERN EDST = 1, EZNE = 2145 /
&XTERN EDST = 2, EZNE = 2146 /
&XTERN EDST = 3, EZNE = 2147,-2191 /

```

## MC\_NHB30.ctl

mc\_nhb.ctl - Version 2.1D\_19 Mode Choice Model Control File 6/2/04  
 Purpose: NHB Year: 1994  
 Auto Operating Cost (UPARM(12)): 7.8 cents/mi in 1994\$

Auto operating costs to be used in Version 2.1D, 19 Travel Model

Year	Auto operating cost 1994 cents/mile
year	aoc1994
1994	9.1
2000	8.5
2005	8.3
2010	8.2
2015	8.1
2020	8.0
2025	7.9

## Appendix B: Version 2.1 D Draft #50 Control Files

2030 7.8

### Record of revisions:

Date	Psn	Adj	Description of change
06/04/04	msm	db	uparms 43 iter 0 (started w/ value of 0.85)
06/04/04	msm	db	uparms 43 iter 1,2 stop
06/04/04	msm	mb	uparms 53,63 iter 0 (no new run),1,2 stop

### Set file names:

#### &FILES

```
J1= 'nhbmu.ptt',
J3= 'op_wk.skm',
J4= 'mf_op_wk.far',
J5= 'op_dr.skm',
J6= 'mf_op_dr.far',
J7= 'sovop.skm',
HOVA='hov2op.skm',
HOVB='hov3op.skm',
A1= 'nhbv2.alf',
D1= '..\support\mctf_nhb.asc',
D2= '..\support\mccf_nhb.asc',
D3= '..\support\mc_fac.asc',
```

```
J9='mc_nhb.trp', LIST='mc_nhb.prn' /
```

### Set user-coded parameters. Commonly modified UPARMS are:

```
1 : minimum carpool size - HOV "A" (or liberal carpool definition)
2 : intrazonal transit share
3 : intrazonal auto driver share
4 : I/X transit share
5 : I/X auto driver share
6 : minimum carpool size - HOV "B" (or stringent carpool definition)
11 : factor to scale input highway distance to whole miles
16 : apply parking cost model
17 : apply highway terminal time model
18 : model application option: 5=nwk per, 6=nwk adr, 7=no nwk
19 : un-transformed zonal data report switch (1=yes, 2=NO)
20 : transformed zonal data report switch (1=yes, 2=NO)
21 : run only MODAS & MODBS
30 : calibration report switch (1=yes, 2=no)
```

### Here is a list of the UPARMS values we will use in this run

#### &PARAM

```
zones = 2191
uparms(1) = 0
uparms(2) = 0.0
uparms(3) = 1.0
uparms(4) = 0.0
uparms(5) = 0.780
uparms(6) = 0
uparms(10) = 1.0
uparms(11) = 0.1
uparms(12) = 7.8
uparms(13) = 82.5
uparms(14) = 82.5
uparms(16) = 2
uparms(17) = 2
uparms(18) = 7
uparms(19) = 2
uparms(20) = 1
uparms(21) = 1
uparms(22) = 1.00
uparms(23) = 0.00
uparms(24) = 0.00
uparms(26) = 2.845
uparms(27) = 0.0
uparms(28) = 0.0
```

```
uparms(30) = 1
```

```
uparms(15) = 4.38
uparms(31) = 0.06695
uparms(32) = 0.06695
uparms(33) = 0.06695
uparms(34) = 0.03242
uparms(35) = 0.03242
uparms(36) = -1.369e-5
uparms(37) = -1.300e-5
uparms(38) = 0.0
uparms(39) = 0.0
uparms(40) = 0.0
uparms(41) = 0.0
uparms(42) = 0.03242
uparms(43) = 1.4
uparms(44) = 0.0
uparms(45) = 0.0
uparms(46) = 0.0
uparms(47) = 0.03242
uparms(48) = 0.03242
uparms(49) = 0.0
uparms(50) = 0.0
uparms(51) = 0.0
uparms(52) = 0.0
uparms(53) = -0.8541
uparms(54) = 0.0
uparms(55) = 0.0
uparms(56) = -1.659e-5
uparms(57) = 0.03242
uparms(58) = 0.03242
uparms(59) = 0.0
uparms(60) = 0.0
uparms(61) = 0.0
uparms(62) = 0.0
uparms(63) = 0.0760
uparms(64) = 0.0
uparms(65) = 0.0
uparms(66) = 0.86043
uparms(67) = 0.00709
uparms(68) = 0.00709
uparms(69) = 0.0
uparms(70) = 0.0
uparms(71) = 0.0
uparms(72) = 0.00187
uparms(73) = 0.00709
uparms(74) = 0.00709
uparms(75) = 0.0
uparms(76) = 0.0
uparms(77) = 0.0
uparms(78) = 0.00187
uparms(79) = 0.92477
uparms(80) = 0.0
uparms(81) = 0.0
uparms(82) = 0.86043
uparms(83) = 0.00709
uparms(84) = 0.00709
uparms(85) = 0.0
uparms(86) = 0.0
uparms(87) = 0.0
uparms(88) = 0.0
uparms(89) = 1.41003
uparms(90) = 0.0
uparms(91) = 0.0
uparms(92) = -0.76998
uparms(93) = 0.0
uparms(94) = 0.0
uparms(95) = 1
```

# Appendix B: Version 2.1 D Draft #50 Control Files

```

uparms(96) = 0.0
uparms(97) = 0.0
uparms(98) = 0.0
uparms(99) = -1.47447
uparms(100) = 0.0
OrigSLWalk = t
DestSLWalk = t
UseShort = t
/

```

Set zone-district equivalencies for exogenous modal factors based on 2191 zone system:  
 HBW Transit:

```

&ADJDST ADST=1,AZNE=1,-88 / dc core
&ADJDST ADST=2,AZNE=89,-319 / dc noncore
&ADJDST ADST=3,AZNE=320,-639 / mtg
&ADJDST ADST=4,AZNE=640,-1029 / pg
&ADJDST ADST=5,AZNE=1230,-1238 / arl core
&ADJDST ADST=6,AZNE=1239,-1329 / arl noncore
&ADJDST ADST=7,AZNE=1330,-1399 / alx
&ADJDST ADST=8,AZNE=1400,-1779 / ffx
&ADJDST ADST=9,AZNE=1780,-1919 / ldn
&ADJDST ADST=10,AZNE=1920,-2069 / pw
&ADJDST ADST=11,AZNE=1030,-1059 / frd
&ADJDST ADST=12,AZNE=1080,-1109 / how
&ADJDST ADST=13,AZNE=1110,-1149 / aa
&ADJDST ADST=14,AZNE=1200,-1229 / chs
&ADJDST ADST=15,AZNE=1060,-1079 / car
&ADJDST ADST=16,AZNE=1150,-1199 / cal,stm
&ADJDST ADST=17,AZNE=2070,-2114 / stf,kg,spts,fbrg
&ADJDST ADST=18,AZNE=2115,-2129 / fau
&ADJDST ADST=19,AZNE=2130,-2144 / clk,jef
&ADJDST ADST=20,AZNE=2145,-2191 / externals

```

Non-Work/NHB Transit: (These are not used)

```

&NWKDST NDST=1,NZNE=1,-88 / dc core
&NWKDST NDST=2,NZNE=89,-319 / dc noncore
&NWKDST NDST=3,NZNE=320,-639 / mtg
&NWKDST NDST=4,NZNE=640,-1029 / pg
&NWKDST NDST=5,NZNE=1230,-1238 / arl core
&NWKDST NDST=6,NZNE=1239,-1329 / arl noncore
&NWKDST NDST=7,NZNE=1330,-1399 / alx
&NWKDST NDST=8,NZNE=1400,-1779 / ffx
&NWKDST NDST=9,NZNE=1780,-1919 / ldn
&NWKDST NDST=10,NZNE=1920,-2069 / pw
&NWKDST NDST=11,NZNE=1030,-1059 / frd
&NWKDST NDST=12,NZNE=1080,-1109 / how
&NWKDST NDST=13,NZNE=1110,-1149 / aa
&NWKDST NDST=14,NZNE=1200,-1229 / chs
&NWKDST NDST=15,NZNE=1060,-1079 / car
&NWKDST NDST=16,NZNE=1150,-1199 / cal,stm
&NWKDST NDST=17,NZNE=2070,-2114 / stf,kg,spts,fbrg
&NWKDST NDST=18,NZNE=2115,-2129 / fau
&NWKDST NDST=19,NZNE=2130,-2144 / clk,jef
&NWKDST NDST=20,NZNE=2145,-2191 / externals

```

Car Occupancy:

```

&CARDST CDST=1,CZNE=1,-88 / dc core
&CARDST CDST=2,CZNE=89,-319 / dc noncore
&CARDST CDST=3,CZNE=320,-639 / mtg
&CARDST CDST=4,CZNE=640,-1029 / pg
&CARDST CDST=5,CZNE=1230,-1238 / arl core
&CARDST CDST=6,CZNE=1239,-1329 / arl noncore
&CARDST CDST=7,CZNE=1330,-1399 / alx
&CARDST CDST=8,CZNE=1400,-1779 / ffx
&CARDST CDST=9,CZNE=1780,-1919 / ldn
&CARDST CDST=10,CZNE=1920,-2069 / pw

```

```

&CARDST CDST=11,CZNE=1030,-1059 / frd
&CARDST CDST=12,CZNE=1080,-1109 / how
&CARDST CDST=13,CZNE=1110,-1149 / aa
&CARDST CDST=14,CZNE=1200,-1229 / chs
&CARDST CDST=15,CZNE=1060,-1079 / car
&CARDST CDST=16,CZNE=1150,-1199 / cal,stm
&CARDST CDST=17,CZNE=2070,-2114 / stf,kg,spts,fbrg
&CARDST CDST=18,CZNE=2115,-2129 / fau
&CARDST CDST=19,CZNE=2130,-2144 / clk,jef
&CARDST CDST=20,CZNE=2145,-2191 / externals

```

External Stations:

```

&XTERN EDST = 1, EZNE = 2145 /
&XTERN EDST = 2, EZNE = 2146 /
&XTERN EDST = 3, EZNE = 2147,-2191 /

```

## MC\_NHB94.ctf

mc\_nhb.ctf Version 2.1D\_19 Mode Choice Model Control File 6/2/04  
 Purpose: NHB Year: 1994  
 Auto Operating Cost (UPARM(12)): 9.1 cents/mi in 1994\$  
 Auto operating costs to be used in Version 2.1D, 19 Travel Model

Year	Auto Operating Cost	cents/mile
1994	9.1	
2000	8.5	
2005	8.3	
2010	8.2	
2015	8.1	
2020	8.0	
2025	7.9	
2030	7.8	

Record of revisions:

Date	Psn	Adj	Description of change
06/04/04	msm	db	uparms 43 iter 0 (started w/ value of 0.85)
06/04/04	msm	db	uparms 43 iter 1,2 stop
06/04/04	msm	mb	uparms 53,63 iter 0 (no new run),1,2 stop

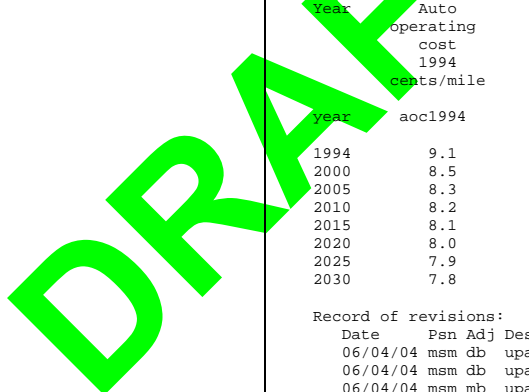
Set file names:

```

&FILES
J1= 'nhbmu.ptt',
J3= 'op_wk.skm',
J4= 'mf_op_wk.far',
J5= 'op_dr.skm',
J6= 'mf_op_dr.far',
J7= 'sovop.skm',
HOVA='hov2op.skm',
HOVB='hov3op.skm',
A1= 'nhbv2.aif',
D1= '..\support\mctf_nhb.asc',
D2= '..\support\mccf_nhb.asc',
D3= '..\support\mc_fac.asc',

J9='mc_nhb.trp', LIST='mc_nhb.prn' /

```





## Appendix B: Version 2.1 D Draft #50 Control Files

Set user-coded parameters. Commonly modified UPARMS are:  
1 : minimum carpool size - HOV "A" (or liberal carpool definition)  
2 : intrazonal transit share  
3 : intrazonal auto driver share  
4 : I/X transit share  
5 : I/X auto driver share  
6 : minimum carpool size - HOV "B" (or stringent carpool definition)  
11 : factor to scale input highway distance to whole miles  
16 : apply parking cost model  
17 : apply highway terminal time model  
18 : model application option: 5=nwk per, 6=nwk adr, 7=no nwk  
19 : un-transformed zonal data report switch (1=yes, 2=NO)  
20 : transformed zonal data report switch (1=yes, 2=NO)  
21 : run only MODAS & MODBS  
30 : calibration report switch (1=yes, 2=no)

Here is a list of the UPARMS values we will use in this run  
&PARAM

```
zones = 2191
uparms(1) = 0
uparms(2) = 0.0
uparms(3) = 1.0
uparms(4) = 0.0
uparms(5) = 0.780
uparms(6) = 0
uparms(10) = 1.0
uparms(11) = 0.1
uparms(12) = 9.1
uparms(13) = 82.5
uparms(14) = 82.5
uparms(16) = 2
uparms(17) = 2
uparms(18) = 7
uparms(19) = 2
uparms(20) = 1
uparms(21) = 1
uparms(22) = 1.00
uparms(23) = 0.00
uparms(24) = 0.00
uparms(26) = 2.845
uparms(27) = 0.0
uparms(28) = 0.0
uparms(30) = 1

uparms(15) = 4.38
uparms(31) = 0.06695
uparms(32) = 0.06695
uparms(33) = 0.06695
uparms(34) = 0.03242
uparms(35) = 0.03242
uparms(36) = -1.369e-5
uparms(37) = -1.300e-5
uparms(38) = 0.0
uparms(39) = 0.0
uparms(40) = 0.0
uparms(41) = 0.0
uparms(42) = 0.03242
uparms(43) = 1.4
uparms(44) = 0.0
uparms(45) = 0.0
uparms(46) = 0.0
uparms(47) = 0.03242
uparms(48) = 0.03242
uparms(49) = 0.0
uparms(50) = 0.0
uparms(51) = 0.0
uparms(52) = 0.0
uparms(53) = -0.8541
```

```
uparms(54) = 0.0
uparms(55) = 0.0
uparms(56) = -1.659e-5
uparms(57) = 0.03242
uparms(58) = 0.03242
uparms(59) = 0.0
uparms(60) = 0.0
uparms(61) = 0.0
uparms(62) = 0.0
uparms(63) = 0.0760
uparms(64) = 0.0
uparms(65) = 0.0
uparms(66) = 0.86043
uparms(67) = 0.00709
uparms(68) = 0.00709
uparms(69) = 0.0
uparms(70) = 0.0
uparms(71) = 0.0
uparms(72) = 0.00187
uparms(73) = 0.00709
uparms(74) = 0.00709
uparms(75) = 0.0
uparms(76) = 0.0
uparms(77) = 0.0
uparms(78) = 0.00187
uparms(79) = 0.92477
uparms(80) = 0.0
uparms(81) = 0.0
uparms(82) = 0.86043
uparms(83) = 0.00709
uparms(84) = 0.00709
uparms(85) = 0.0
uparms(86) = 0.0
uparms(87) = 0.0
uparms(88) = 0.0
uparms(89) = 1.41003
uparms(90) = 0.0
uparms(91) = 0.0
uparms(92) = -0.76998
uparms(93) = 0.0
uparms(94) = 0.0
uparms(95) = 1
uparms(96) = 0.0
uparms(97) = 0.0
uparms(98) = 0.0
uparms(99) = -1.47447
uparms(100) = 0.0
OrigSLWalk = t
DestSLWalk = t
UseShort = t
/
```

Set zone-district equivalencies for exogenous modal factors  
based on 2191 zone system:

HBW Transit:

```
&ADJDST ADST=1,AZNE=1,-88 / dc core
&ADJDST ADST=2,AZNE=89,-319 / dc noncore
&ADJDST ADST=3,AZNE=320,-639 / mtg
&ADJDST ADST=4,AZNE=640,-1029 / pg
&ADJDST ADST=5,AZNE=1230,-1238 / arl core
&ADJDST ADST=6,AZNE=1239,-1329 / arl noncore
&ADJDST ADST=7,AZNE=1330,-1399 / alx
&ADJDST ADST=8,AZNE=1400,-1779 / ffx
&ADJDST ADST=9,AZNE=1780,-1919 / ldn
&ADJDST ADST=10,AZNE=1920,-2069 / pw
&ADJDST ADST=11,AZNE=1030,-1059 / frd
&ADJDST ADST=12,AZNE=1080,-1109 / how
```

## Appendix B: Version 2.1 D Draft #50 Control Files

```

&ADJDST ADST=13,AZNE=1110,-1149 / aa
&ADJDST ADST=14,AZNE=1200,-1229 / chs
&ADJDST ADST=15,AZNE=1060,-1079 / car
&ADJDST ADST=16,AZNE=1150,-1199 / cal,stm
&ADJDST ADST=17,AZNE=2070,-2114 / stf,kg,spts,fbrg
&ADJDST ADST=18,AZNE=2115,-2129 / fau
&ADJDST ADST=19,AZNE=2130,-2144 / clk,jef
&ADJDST ADST=20,AZNE=2145,-2191 / externals

```

```

Non-Work/NHB Transit: (These are not used)
&NWKDST NDST=1,NZNE=1,-88 / dc core
&NWKDST NDST=2,NZNE=89,-319 / dc noncore
&NWKDST NDST=3,NZNE=320,-639 / mtg
&NWKDST NDST=4,NZNE=640,-1029 / pg
&NWKDST NDST=5,NZNE=1230,-1238 / arl core
&NWKDST NDST=6,NZNE=1239,-1329 / arl noncore
&NWKDST NDST=7,NZNE=1330,-1399 / alx
&NWKDST NDST=8,NZNE=1400,-1779 / ffx
&NWKDST NDST=9,NZNE=1780,-1919 / ldn
&NWKDST NDST=10,NZNE=1920,-2069 / pw
&NWKDST NDST=11,NZNE=1030,-1059 / frd
&NWKDST NDST=12,NZNE=1080,-1109 / how
&NWKDST NDST=13,NZNE=1110,-1149 / aa
&NWKDST NDST=14,NZNE=1200,-1229 / chs
&NWKDST NDST=15,NZNE=1060,-1079 / car
&NWKDST NDST=16,NZNE=1150,-1199 / cal,stm
&NWKDST NDST=17,NZNE=2070,-2114 / stf,kg,spts,fbrg
&NWKDST NDST=18,NZNE=2115,-2129 / fau
&NWKDST NDST=19,NZNE=2130,-2144 / clk,jef
&NWKDST NDST=20,NZNE=2145,-2191 / externals

```

```

Car Occupancy:
&CARDST CDST=1,CZNE=1,-88 / dc core
&CARDST CDST=2,CZNE=89,-319 / dc noncore
&CARDST CDST=3,CZNE=320,-639 / mtg
&CARDST CDST=4,CZNE=640,-1029 / pg
&CARDST CDST=5,CZNE=1230,-1238 / arl core
&CARDST CDST=6,CZNE=1239,-1329 / arl noncore
&CARDST CDST=7,CZNE=1330,-1399 / alx
&CARDST CDST=8,CZNE=1400,-1779 / ffx
&CARDST CDST=9,CZNE=1780,-1919 / ldn
&CARDST CDST=10,CZNE=1920,-2069 / pw
&CARDST CDST=11,CZNE=1030,-1059 / frd
&CARDST CDST=12,CZNE=1080,-1109 / how
&CARDST CDST=13,CZNE=1110,-1149 / aa
&CARDST CDST=14,CZNE=1200,-1229 / chs
&CARDST CDST=15,CZNE=1060,-1079 / car
&CARDST CDST=16,CZNE=1150,-1199 / cal,stm
&CARDST CDST=17,CZNE=2070,-2114 / stf,kg,spts,fbrg
&CARDST CDST=18,CZNE=2115,-2129 / fau
&CARDST CDST=19,CZNE=2130,-2144 / clk,jef
&CARDST CDST=20,CZNE=2145,-2191 / externals

```

```

External Stations:
&XTERN EDST = 1, EZNE = 2145 /
&XTERN EDST = 2, EZNE = 2146 /
&XTERN EDST = 3, EZNE = 2147,-2191 /

```

### mf1am00.ctf

```

Set user-coded parameters:
MF1AM00.CTL - AM PEAK Fare 1 control file / VERSION 2 MODELS

```

```

METRORAIL STATION-TO-STATION FARE MATRIX REFLECTING WMATA TARIFF #19
EFFECTIVE 6/99.

```

```

STATION NUMBERING FOLLOWS LAST TWO DIGITS IN TRANSIT NETWORK
DESIGNATION OF STATION
SET FILE NAMES:
INPUT FILES:
J1 - METRORAIL STATION-TO-STATION DISTANCE MATRIX.
A1 - METRORAIL STATION X-Y COORDINATES
OUTPUT FILES:
J2 - METRORAIL STATION-TO-STATION FARE MATRIX IN CURRENT CENTS
LIST - LISTING FILE

```

```

&FILES
J1 = 'rldist.skm',
A1 = 'inputs\mfare1.ala',
J2 = 'MF1_AM.ASC',
LIST = 'MF1_AM.rpt' /

```

Set user-coded parameters:

```

&PARAM
ZONES=116,
UPARMS(1)=110.0,
UPARMS(2)=19.0,
UPARMS(3)=325.0,
UPARMS(4)=0.6,
UPARMS(5)=0,
UPARMS(6)=0,
UPARMS(7)=3.0,
UPARMS(8)=3.0,
UPARMS(9)=16.5,
UPARMS(50)=0.0,
UPARMS(86)=0.0,
UPARMS(87)=0.0,
UPARMS(91)=0.0 /

```

### mf1am05.ctf

```

MF1AM05.CTL - AM PEAK Fare 1 control file / VERSION 2 MODELS
(7/1/04)

```

```

METRORAIL STATION-TO-STATION FARE MATRIX REFLECTING WMATA
TARIFF #22, EFFECTIVE 6/27/04. All fares in 2004 cents.

```

```

STATION NUMBERING FOLLOWS LAST TWO DIGITS IN TRANSIT NETWORK
DESIGNATION OF STATION
SET FILE NAMES:
INPUT FILES:
J1 - METRORAIL STATION-TO-STATION DISTANCE MATRIX.
A1 - METRORAIL STATION X-Y COORDINATES
OUTPUT FILES:
J2 - METRORAIL STATION-TO-STATION FARE MATRIX IN CURRENT CENTS
LIST - LISTING FILE

```

```

&FILES
J1 = 'rldist.skm',
A1 = 'inputs\mfare1.ala',
J2 = 'MF1_AM.ASC',
LIST = 'MF1_AM.rpt' /

```

Set user-coded parameters:

```

&PARAM
ZONES=116,
UPARMS(1)=135.,
UPARMS(2)=22.0,
UPARMS(3)=390.0,
UPARMS(4)=0.6,

```

```
UPARMS(5)=0,
UPARMS(6)=0,
UPARMS(7)=3.0,
UPARMS(8)=3.0,
UPARMS(9)=19.5 /
```

### mf1am94.ctl

MF1AM94.CTL - AM PEAK Fare 1 control file / VERSION 2 MODELS

```
METRORAIL STATION-TO-STATION FARE MATRIX REFLECTING WMATA TARIFF #16
EFFECTIVE 6/92.
STATION NUMBERING FOLLOWS LAST TWO DIGITS IN TRANSIT NETWORK
DESIGNATION OF STATION
SET FILE NAMES:
INPUT FILES:
  J1 - METRORAIL STATION-TO-STATION DISTANCE MATRIX.
  A1 - METRORAIL STATION X-Y COORDINATES
OUTPUT FILES:
  J2 - METRORAIL STATION-TO-STATION FARE MATRIX IN CURRENT CENTS
  LIST - LISTING FILE
```

```
&FILES
J1 = 'rldist.skm',
A1 = 'inputs\mfarel.ala',
J2 = 'MF1_AM.ASC',
LIST = 'MF1_AM.rpt' /
```

Set user-coded parameters:

```
&PARAM
ZONES=116,
UPARMS(1)=100.,
UPARMS(2)=19.0,
UPARMS(3)=315.0,
UPARMS(4)=0.6,
UPARMS(5)=0,
UPARMS(6)=0,
UPARMS(7)=3.0,
UPARMS(8)=3.0,
UPARMS(9)=16.5,
UPARMS(50)=0.0,
UPARMS(86)=0.0,
UPARMS(87)=0.0,
UPARMS(91)=0.0 /
```

### mf1op00.ctl

MF1OP00.CTL - OFFPEAK Fare 1 control file / VERSION 2 MODELS  
NOTE: This setup uses  
mfarelop.exe the off peak version of MFARE1

Whereas UPARMS 2,9 were per mile incremental charges for the secondary and tertiary distance ranges, these values are now considered as flat charges (not per mile charges).

METRORAIL STATION-TO-STATION FARE MATRIX REFLECTING WMATA TARIFF #19  
EFFECTIVE 6/99.

```
specifics of tarrif #19:
boarding fare(cents):      UPARMS(1)=110.,
flat secondary fare increment: UPARMS(2)=50.0,
```

```
max fare:                UPARMS(3)=210.0,
boarding fare distance(mi): UPARMS(7)=7.0,
secondary fare distance:  UPARMS(8)=3.0,
flat tertiary fare increment: UPARMS(9)=50.0,
```

STATION NUMBERING FOLLOWS LAST TWO DIGITS IN TRANSIT NETWORK  
DESIGNATION OF STATION

```
SET FILE NAMES:
INPUT FILES:
  J1 - METRORAIL STATION-TO-STATION DISTANCE MATRIX.
  A1 - METRORAIL STATION X-Y COORDINATES
OUTPUT FILES:
  J2 - METRORAIL STATION-TO-STATION FARE MATRIX IN CURRENT CENTS
  LIST - LISTING FILE
```

```
&FILES
J1 = 'rldist.skm',
A1 = 'inputs\mfarel.ala',
J2 = 'MF1_OP.ASC',
LIST = 'MF1_OP.rpt' /
```

Set user-coded parameters:

```
&PARAM
ZONES=116,
UPARMS(1)=110.,
UPARMS(2)=50.0,
UPARMS(3)=210.0,
UPARMS(4)=0.6,
UPARMS(5)=0,
UPARMS(6)=0,
UPARMS(7)=7.0,
UPARMS(8)=3.0,
UPARMS(9)=50.0,
UPARMS(50)=0.0,
UPARMS(86)=0.0,
UPARMS(87)=0.0,
UPARMS(91)=0.0 /
```

### mf1op05.ctl

MF1OP05.CTL - OFF-PEAK Fare 1 control file / VERSION 2 MODELS  
(7/1/04)

NOTE: This setup uses  
mfarelop.exe the off peak version of MFARE1

Whereas UPARMS 2,9 were per mile incremental charges for the secondary and tertiary distance ranges, these values are now considered as flat charges (not per mile charges).

METRORAIL STATION-TO-STATION FARE MATRIX REFLECTING WMATA  
TARIFF No. 22, FFECTIVE 6/27/04. All fares in 2004 cents.

```
specifics of WMATA Tariff No. 22:
boarding fare(cents):      UPARMS(1)=135.0,
flat secondary fare increment: UPARMS(2)=50.0,
max fare:                UPARMS(3)=235.0,
boarding fare distance(mi): UPARMS(7)=7.0,
secondary fare distance:  UPARMS(8)=3.0,
flat tertiary fare increment: UPARMS(9)=50.0,
```

STATION NUMBERING FOLLOWS LAST TWO DIGITS IN TRANSIT NETWORK  
DESIGNATION OF STATION.



## Appendix B: Version 2.1 D Draft #50 Control Files

```
SET FILE NAMES:
INPUT FILES:
  J1 - METRORAIL STATION-TO-STATION DISTANCE MATRIX.
  A1 - METRORAIL STATION X-Y COORDINATES
OUTPUT FILES:
  J2 - METRORAIL STATION-TO-STATION FARE MATRIX IN CURRENT CENTS
  LIST - LISTING FILE
```

```
&FILES
J1 = 'rldist.skm',
A1 = 'inputs\mfarel.ala',
J2 = 'MF1_OP.ASC',
LIST = 'MF1_OP.rpt' /
```

Set user-coded parameters:

```
&PARAM
ZONES=116,
UPARMS(1)=135.0,
UPARMS(2)=50.0,
UPARMS(3)=235.0,
UPARMS(4)=0.6,
UPARMS(5)=0,
UPARMS(6)=0,
UPARMS(7)=7.0,
UPARMS(8)=3.0,
UPARMS(9)=50.0 /
```

### mf1op94.ctf

MF1OP94.CTL - OFFPEAK Fare 1 control file / VERSION 2 MODELS  
NOTE: This setup uses  
mfarelop.exe the off peak version of MFARE1

Whereas UPARMS 2,9 were per mile incremental charges for the secondary and tertiary distance ranges, these values are now considered as flat charges (not per mile charges).

METRORAIL STATION-TO-STATION FARE MATRIX REFLECTING WMATA TARIFF #16  
EFFECTIVE 6/92.

specifics of tarrif #16:  
boarding fare(cents): UPARMS(1)=100.,  
flat secondary fare increment: UPARMS(2)=50.0,  
max fare: UPARMS(3)=200.0,  
boarding fare distance(mi): UPARMS(7)=7.0,  
secondary fare distance: UPARMS(8)=3.0,  
flat tertiary fare increment: UPARMS(9)=50.0,

STATION NUMBERING FOLLOWS LAST TWO DIGITS IN TRANSIT NETWORK  
DESIGNATION OF STATION

```
SET FILE NAMES:
INPUT FILES:
  J1 - METRORAIL STATION-TO-STATION DISTANCE MATRIX.
  A1 - METRORAIL STATION X-Y COORDINATES
OUTPUT FILES:
  J2 - METRORAIL STATION-TO-STATION FARE MATRIX IN CURRENT CENTS
  LIST - LISTING FILE
```

```
&FILES
J1 = 'rldist.skm',
A1 = 'inputs\mfarel.ala',
J2 = 'MF1_OP.ASC',
```

```
LIST = 'MF1_OP.rpt' /
```

Set user-coded parameters:

```
&PARAM
ZONES=116,
UPARMS(1)=100.,
UPARMS(2)=50.0,
UPARMS(3)=200.0,
UPARMS(4)=0.6,
UPARMS(5)=0,
UPARMS(6)=0,
UPARMS(7)=7.0,
UPARMS(8)=3.0,
UPARMS(9)=50.0,
UPARMS(50)=0.0,
UPARMS(86)=0.0,
UPARMS(87)=0.0,
UPARMS(91)=0.0 /
```

### mfamdr00.ctf

MFAMDR00.CTL - AM Ek Drive Access Fare2 Control

MFARE2 2191-ZONE TRANSIT NETWORK-AUTO ACCESS

Year: 2000  
BUILD BUS FARE AND TOTAL FARE MATRICES-BASED ON WMATA TARIFF NO.19  
OF 6/99

Deflator - based on Base Year: 1994 (148.2/172.2 = 0.860627)

```
SET FILE NAMES:
INPUT FILES:
  A1, A2, A3, J1
OUTPUT FILES:
  J2, LIST
```

```
&FILES
A1 = 'mf1_am.asc',
A2 = 'fare_a2.asc',
A3 = 'inputs\busfaram.asc',
J1 = 'am_dr.sta',
J2 = 'MF_AM_DR.SKM',
LIST = 'MF_AM_DR.RPT', /
```

```
FILE NAME DEFINITION:
A1 METRORAIL station to station fare matrix
A2 Zone/Station data file (UTPS RPFARE2 A1 DECK)
A3 Bus fare lookup table
J1 Access/Egress station matrix, AUTO ACCESS NETWORK
J2 OUTPUT zonal fare matrix
List OUTPUT listing file
```

SET USER-CODED PARAMETERS:

```
&PARAM
zones=2191,
uparms(1)=116.0,
uparms(2)=0.860627,
uparms(4)=85.0,
uparms(5)=85.0,
uparms(6)=85.0,
uparms(7)=85.0,
uparms(8)=1.0, /
```

### **mfamdr05.ctl**

MFAMDR05.CTL - AM PEAK DRIVE ACCESS Fare2 Control (7/1/04)

MFARE2 2191-ZONE TRANSIT NETWORK-AUTO ACCESS

BUILD BUS FARE AND TOTAL FARE MATRICES-BASED ON WMATA TARIFF NO.22  
EFFECTIVE 6/27/04. All fares in 2004 cents.

```
SET FILE NAMES:
  INPUT FILES:
    A1, A2, A3, J1
  OUTPUT FILES:
    J2, LIST
&FILES
A1 = 'mf1_am.asc',
A2 = 'fare_a2.asc',
A3 = 'inputs\busfaram.asc',
J1 = 'am_dr.sta',
J2 = 'MF_AM_DR.SKM',
LIST = 'MF_AM_DR.RPT' /
```

```
FILE NAME DEFINITION:
A1 METRORAIL station to station fare matrix
A2 Zone/Station data file (UTPS RPFARE2 A1 DECK)
A3 Bus fare lookup table
J1 Access/Egress station matrix, AUTO ACCESS NETWORK
J2 OUTPUT zonal fare matrix
List OUTPUT listing file
```

```
SET USER-CODED PARAMETERS:
&PARAM
zones=2191,
uparms(1)=116.0,
uparms(2)=0.78998,
uparms(3)=0.0,
uparms(4)=90.0,
uparms(5)=90.0,
uparms(6)=90.0,
uparms(7)=90.0,
uparms(8)=1.0 /
```

### **mfamdr94.ctl**

MFAMDR94.CTL - AM Pk Drive Access Fare2 Control

MFARE2 2191-ZONE TRANSIT NETWORK-AUTO ACCESS

BUILD BUS FARE AND TOTAL FARE MATRICES-BASED ON WMATA TARIFF NO.16  
OF 6/92

US Dept. of Labor CPI for Wasington DC-MD-VA Year Avg.

```
SET FILE NAMES:
  INPUT FILES:
    A1, A2, A3, J1
  OUTPUT FILES:
    J2, LIST
&FILES
A1 = 'mf1_am.asc',
```

```
A2 = 'fare_a2.asc',
A3 = 'inputs\busfaram.asc',
J1 = 'am_dr.sta',
J2 = 'MF_AM_DR.SKM',
LIST = 'MF_AM_DR.RPT', /
```

```
FILE NAME DEFINITION:
A1 METRORAIL station to station fare matrix
A2 Zone/Station data file (UTPS RPFARE2 A1 DECK)
A3 Bus fare lookup table
J1 Access/Egress station matrix, AUTO ACCESS NETWORK
J2 OUTPUT zonal fare matrix
List OUTPUT listing file
```

```
SET USER-CODED PARAMETERS:
&PARAM
zones = 2191,
uparms(1) = 116.0,
uparms(2) = 1.0000,
uparms(4) = 100.0,
uparms(5) = 0.0,
uparms(6) = 25.0,
uparms(7) = 25.0,
uparms(8) = 1.0, /
```

### **mfamwk00.ctl**

MFAMWK00.CTL - AM PK Walk Access Fare2 Control

MFARE2 2191-ZONE TRANSIT NETWORK-WALK ACCESS

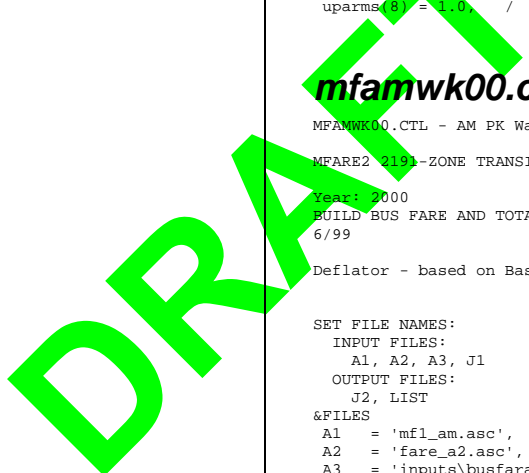
Year: 2000  
BUILD BUS FARE AND TOTAL FARE MATRICES-BASED ON WMATA TARIFF NO.19,  
6/99

Deflator - based on Base Year: 1994 (148.2/172.2 = 0.860627)

```
SET FILE NAMES:
  INPUT FILES:
    A1, A2, A3, J1
  OUTPUT FILES:
    J2, LIST
&FILES
A1 = 'mf1_am.asc',
A2 = 'fare_a2.asc',
A3 = 'inputs\busfaram.asc',
J1 = 'am_wk.sta',
J2 = 'MF_AM_WK.SKM',
LIST = 'MF_AM_WK.RPT', /
```

```
FILE NAME DEFINITION:
A1 METRORAIL station to station fare matrix
A2 Zone/Station data file (UTPS RPFARE2 A1 DECK)
A3 Bus fare lookup table
J1 Access/Egress station matrix, WALK ACCESS NETWORK
J2 OUTPUT zonal fare matrix
List OUTPUT listing file
```

```
SET USER-CODED PARAMETERS:
&PARAM
zones=2191,
uparms(1)=116.0,
uparms(2)=0.860627,
uparms(4)=85.0,
uparms(5)=85.0,
```



## Appendix B: Version 2.1 D Draft #50 Control Files

```
uparms(6)=85.0,  
uparms(7)=85.0,  
uparms(8)=1.0, /
```

### **mfamwk05.ctl**

MFAMWK05.CTL - AM PEAK WALK ACCESS Fare2 Control (7/1/04)

MFARE2 2191-ZONE TRANSIT NETWORK-WALK ACCESS

BUILD BUS FARE AND TOTAL FARE MATRICES-BASED ON WMATA TARIFF NO.22,  
EFFECTIVE 6/27/04. All fares in 2004 cents.

SET FILE NAMES:

```
INPUT FILES:  
  A1, A2, A3, J1  
OUTPUT FILES:  
  J2, LIST
```

&FILES

```
A1 = 'mf1_am.asc',  
A2 = 'fare_a2.asc',  
A3 = 'inputs\busfaram.asc',  
J1 = 'am_wk.sta',  
J2 = 'MF_AM_WK.SKM',  
LIST = 'MF_AM_WK.RPT' /
```

FILE NAME DEFINITION:

```
A1 METRORAIL station to station fare matrix  
A2 Zone/Station data file (UTPS RPFARE2 A1 DECK)  
A3 Bus fare lookup table  
J1 Access/Egress station matrix, WALK ACCESS NETWORK  
J2 OUTPUT zonal fare matrix  
List OUTPUT listing file
```

SET USER-CODED PARAMETERS:

```
&PARAM  
zones=2191,  
uparms(1)=116.0,  
uparms(2)=0.78998,  
uparms(3)=0.0,  
uparms(4)=90.0,  
uparms(5)=90.0,  
uparms(6)=90.0,  
uparms(7)=90.0,  
uparms(8)=1.0 /
```

### **mfamwk94.ctl**

MFAMWK94.CTL - AM PK Walk Access Fare2 Control

MFARE2 2191-ZONE TRANSIT NETWORK-WALK ACCESS

BUILD BUS FARE AND TOTAL FARE MATRICES-BASED ON WMATA TARIFF NO.16,  
6/92

Based on US Dept. of Labor CPI for DC-MD-VA year Avg

SET FILE NAMES:

```
INPUT FILES:  
  A1, A2, A3, J1  
OUTPUT FILES:  
  J2, LIST
```

&FILES

```
A1 = 'mf1_am.asc',  
A2 = 'fare_a2.asc',  
A3 = 'inputs\busfaram.asc',  
J1 = 'am_wk.sta',  
J2 = 'MF_AM_WK.SKM',  
LIST = 'MF_AM_WK.RPT', /
```

FILE NAME DEFINITION:

```
A1 METRORAIL station to station fare matrix  
A2 Zone/Station data file (UTPS RPFARE2 A1 DECK)  
A3 Bus fare lookup table  
J1 Access/Egress station matrix, WALK ACCESS NETWORK  
J2 OUTPUT zonal fare matrix  
List OUTPUT listing file
```

SET USER-CODED PARAMETERS:

```
&PARAM  
zones = 2191,  
uparms(1) = 116.0,  
uparms(2) = 1.00000,  
uparms(4) = 100.0,  
uparms(5) = 0.0,  
uparms(6) = 25.0,  
uparms(7) = 25.0,  
uparms(8) = 1.0, /
```

### **mfopdr00.ctl**

MFOPDR00.CTL - Off-pk Drive Access Fare2 Control

MFARE2 2191-ZONE TRANSIT NETWORK-AUTO ACCESS

Year: 2000

BUILD BUS FARE AND TOTAL FARE MATRICES-BASED ON WMATA TARIFF NO.19  
OF 6/99

Deflator - based on Base Year: 1994 (148.2/172.2 = 0.860627)

SET FILE NAMES:

```
INPUT FILES:  
  A1, A2, A3, J1  
OUTPUT FILES:  
  J2, LIST
```

&FILES

```
A1 = 'mf1_op.asc',  
A2 = 'fare_a2.asc',  
A3 = 'inputs\busfarop.asc',  
J1 = 'op_dr.sta',  
J2 = 'MF_OP_DR.SKM',  
LIST = 'MF_OP_DR.RPT', /
```

FILE NAME DEFINITION:

```
A1 METRORAIL station to station fare matrix  
A2 Zone/Station data file (UTPS RPFARE2 A1 DECK)  
A3 Bus fare lookup table  
J1 Access/Egress station matrix, AUTO ACCESS NETWORK  
J2 OUTPUT zonal fare matrix  
List OUTPUT listing file
```

SET USER-CODED PARAMETERS:

SET USER-CODED PARAMETERS:

&PARAM

## Appendix B: Version 2.1 D Draft #50 Control Files

```
zones=2191,  
uparms(1)=116.0,  
uparms(2)=0.860627,  
uparms(4)=85.0,  
uparms(5)=85.0,  
uparms(6)=85.0,  
uparms(7)=85.0,  
uparms(8)=1.0, /
```

### **mfopdr05.ctf**

MFOPDR05.CTL - OFF-PEAK DRIVE ACCESS Fare2 Control (7/1/04)

MFARE2 2191-ZONE TRANSIT NETWORK-AUTO ACCESS

BUILD BUS FARE AND TOTAL FARE MATRICES-BASED ON WMATA TARIFF NO.22  
EFFECTIVE 6/27/04. All fares in 2004 cents.

NOTE: BUS FARE MATRIX USED IS SAME AS THAT USED FOR AM PEAK.

```
SET FILE NAMES:  
INPUT FILES:  
  A1, A2, A3, J1  
OUTPUT FILES:  
  J2, LIST  
&FILES  
A1 = 'mf1_op.asc',  
A2 = 'fare_a2.asc',  
A3 = 'inputs\busfarop.asc',  
J1 = 'op_dr.sta',  
J2 = 'MF_OP_DR.SKM',  
LIST = 'MF_OP_DR.RPT' /
```

```
FILE NAME DEFINITION:  
A1 METRORAIL station to station fare matrix from MFARE1.  
A2 Zone/Station data file (UTPS RPFARE2 A1 DECK)  
A3 Bus fare lookup table  
J1 Access/Egress station matrix, AUTO ACCESS NETWORK  
J2 OUTPUT zonal fare matrix  
List OUTPUT listing file
```

SET USER-CODED PARAMETERS:

```
SET USER-CODED PARAMETERS:  
&PARAM  
zones=2191,  
uparms(1)=116.0,  
uparms(2)=0.78998,  
uparms(3)=0.0,  
uparms(4)=90.0,  
uparms(5)=90.0,  
uparms(6)=90.0,  
uparms(7)=90.0,  
uparms(8)=1.0 /
```

### **mfopdr94.ctf**

MFOPDR94.CTL - Off-pk Drive Access Fare2 Control

MFARE2 2191-ZONE TRANSIT NETWORK-AUTO ACCESS

BUILD BUS FARE AND TOTAL FARE MATRICES-BASED ON WMATA TARIFF NO.16  
OF 6/92

US Dept. of Labor CPI DC-MD-VA Year Avg.

```
SET FILE NAMES:  
INPUT FILES:  
  A1, A2, A3, J1  
OUTPUT FILES:  
  J2, LIST  
&FILES  
A1 = 'mf1_op.asc',  
A2 = 'fare_a2.asc',  
A3 = 'inputs\busfarop.asc',  
J1 = 'op_dr.sta',  
J2 = 'MF_OP_DR.SKM',  
LIST = 'MF_OP_DR.RPT', /
```

```
FILE NAME DEFINITION:  
A1 METRORAIL station to station fare matrix  
A2 Zone/Station data file (UTPS RPFARE2 A1 DECK)  
A3 Bus fare lookup table  
J1 Access/Egress station matrix, AUTO ACCESS NETWORK  
J2 OUTPUT zonal fare matrix  
List OUTPUT listing file
```

SET USER-CODED PARAMETERS:

```
&PARAM  
zones = 2191,  
uparms(1) = 116.0,  
uparms(2) = 1.00000,  
uparms(4) = 100.0,  
uparms(5) = 0.0,  
uparms(6) = 25.0,  
uparms(7) = 25.0,  
uparms(8) = 1.0, /
```

### **mfopwk00.ctf**

MFOPWK00.CTL - Off-pk Walk Access Fare2 Control

MFARE2 2191-ZONE TRANSIT NETWORK-WALK ACCESS

Year: 2000

BUILD BUS FARE AND TOTAL FARE MATRICES-BASED ON WMATA TARIFF NO.19,  
6/99

NOTE: BUS FARE MATRIX USED IS SAME AS THAT USED FOR AM PK

Deflator - based on Base Year: 1994 (148.2/172.2 = 0.860627)

```
SET FILE NAMES:  
INPUT FILES:  
  A1, A2, A3, J1  
OUTPUT FILES:  
  J2, LIST  
&FILES  
A1 = 'mf1_op.asc',  
A2 = 'fare_a2.asc',  
A3 = 'inputs\busfarop.asc',  
J1 = 'op_wk.sta',  
J2 = 'MF_OP_WK.SKM',  
LIST = 'MF_OP_WK.RPT', /
```

```
FILE NAME DEFINITION:
A1 METRORAIL station to station fare matrix
A2 Zone/Station data file (UTPS RPFARE2 A1 DECK)
A3 Bus fare lookup table
J1 Access/Egress station matrix, WALK ACCESS NETWORK
J2 OUTPUT zonal fare matrix
List OUTPUT listing file
```

SET USER-CODED PARAMETERS:

```
&PARAM
zones=2191,
uparms(1)=116.0,
uparms(2)=0.860627,
uparms(4)=85.0,
uparms(5)=85.0,
uparms(6)=85.0,
uparms(7)=85.0,
uparms(8)=1.0, /
```

### mfopwk05.ctl

MFOPWK05.CTL - OFF-PEAK WALK ACCESS Fare2 Control (7/1/04)

MFARE2 2191-ZONE TRANSIT NETWORK-WALK ACCESS

BUILD BUS FARE AND TOTAL FARE MATRICES-BASED ON WMATA TARIFF NO.22, EFFECTIVE 6/27/04. All fares in 2004 cents.

NOTE: BUS FARE MATRIX USED IS SAME AS THAT USED FOR AM PEAK.

SET FILE NAMES:

```
INPUT FILES:
A1, A2, A3, J1
OUTPUT FILES:
J2, LIST
```

```
&FILES
A1 = 'mf1_op.asc',
A2 = 'fare_a2.asc',
A3 = 'inputs\busfarop.asc',
J1 = 'op_wk.sta',
J2 = 'MF_OP_WK.SKM',
LIST = 'MF_OP_WK.RPT' /
```

FILE NAME DEFINITION:

```
A1 METRORAIL station to station fare matrix
A2 Zone/Station data file
A3 Bus fare lookup table
J1 Access/Egress station matrix, WALK ACCESS NETWORK
J2 OUTPUT zonal fare matrix
List OUTPUT listing file
```

SET USER-CODED PARAMETERS:

```
&PARAM
zones=2191,
uparms(1)=116.0,
uparms(2)=0.78998,
uparms(3)=0.0,
uparms(4)=90.0,
uparms(5)=90.0,
uparms(6)=90.0,
uparms(7)=90.0,
uparms(8)=1.0 /
```

### mfopwk94.ctl

MFOPWK94.CTL - Off-pk Walk Access Fare2 Control

MFARE2 2191-ZONE TRANSIT NETWORK-WALK ACCESS

BUILD BUS FARE AND TOTAL FARE MATRICES-BASED ON WMATA TARIFF NO.16, 6/92

NOTE: BUS FARE MATRIX USED IS SAME AS THAT USED FOR AM PK

US Dept. of Labor CPI DC-MD-VA year Avg

SET FILE NAMES:

```
INPUT FILES:
A1, A2, A3, J1
OUTPUT FILES:
J2, LIST
&FILES
A1 = 'mf1_op.asc',
A2 = 'fare_a2.asc',
A3 = 'inputs\busfarop.asc',
J1 = 'op_wk.sta',
J2 = 'MF_OP_WK.SKM',
LIST = 'MF_OP_WK.RPT', /
```

FILE NAME DEFINITION:

```
A1 METRORAIL station to station fare matrix
A2 Zone/Station data file (UTPS RPFARE2 A1 DECK)
A3 Bus fare lookup table
J1 Access/Egress station matrix, WALK ACCESS NETWORK
J2 OUTPUT zonal fare matrix
List OUTPUT listing file
```

SET USER-CODED PARAMETERS:

```
&PARAM
zones = 2191,
uparms(1) = 116.0,
uparms(2) = 1.00000,
uparms(4) = 100.0,
uparms(5) = 0.0,
uparms(6) = 25.0,
uparms(7) = 25.0,
uparms(8) = 1.0, /
```

### mtk\_tg.ctl

File: MTK\_TG.CTL  
MwCOG Version 2 Trip Generation Model Run(CGTGV2TP)  
Purpose: Med. Truck

Trip purpose (purp) MUST be one of the following choices:  
'HBW' 'HBS' 'HBO' 'NHB' 'MTK' 'HTK'

```
&tpurp
purp='MTK'
/
```

```
&param
zones = 2191
lastizn = 2144
dcclo = 1
```

DRAFT



Appendix B: Version 2.1 D Draft #50 Control Files

```

dcchi = 88
dcnlo = 89
dcnhi = 319
vaclo = 1230
vachi = 1238
val0lo = 1239
val0hi = 1360
/

&files
zhhi1sv='hhi1_sv.dat'
zhhi2sv='hhi2_sv.dat'
zhhi3sv='hhi3_sv.dat'
zhhi4sv='hhi4_sv.dat'

zonelu='inputs\zone.asc'
ext_ps='inputs\pext.asc'
ext_as='inputs\aext.asc'
basezn='basezon.dat'
znmod='..\support\adjznpaf.mtk'

outp1='mtk_pro.i1'
outp2='dummy.i2'
outp3='dummy.i3'
outp4='dummy.i4'
outp5='mtk_pro.all'

outa1='mtk_att.i1'
outa2='dummy.i2'
outa3='dummy.i3'
outa4='dummy.i4'
outa5='mtk_att.all'
/
production rates:
array structure: 4 income groups (across) by size/va groups (down)
inc,siz,veh:
   111,   211,   311,   411
   121,   221,   321,   421
   131,   231,   331,   431
   141,   241,   341,   441
   .     .     .     .
   144   244   344   444
&prates
prate= 0.000, 0.000, 0.000, 0.000,
        0.000, 0.000, 0.000, 0.000,
        0.000, 0.000, 0.000, 0.000,
        0.000, 0.000, 0.000, 0.000,
        0.000, 0.000, 0.000, 0.000,
        0.000, 0.000, 0.000, 0.000,
        0.000, 0.000, 0.000, 0.000,
        0.000, 0.000, 0.000, 0.000,
        0.000, 0.000, 0.000, 0.000,
        0.000, 0.000, 0.000, 0.000,
        0.000, 0.000, 0.000, 0.000,
        0.000, 0.000, 0.000, 0.000,
        0.000, 0.000, 0.000, 0.000,
        0.000, 0.000, 0.000, 0.000,
        0.000, 0.000, 0.000, 0.000,
/
area type-based attraction rates:
array structure: 10 land use variables (across) by 7 area types (down)
   1         2         3         4         5         6         7         8         (9 10)
   HH      HHPOP     EMP      IndEmp  RetEMP  OffEMP  OthEMP  NRetEmp  Unused

```

```

Atype 1
.
7

location-based attraction rates:
array structure: 5 land use variables (across) by 4 locations (down)
Locations are: 1)Reg Core, 2)DC NonCore, 3)VA 10 Mi Sq, 4)Other
   1         2         3         4         5
   IndEmp  RetEMP  OffEMP  OthEMP  HH
Locat 1
.
4

&arates
arat= 0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,
      0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,
      0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,
      0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,
      0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,
      0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,
      0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00

lrat= 0.09,0.17,0.01,0.04,0.04,
      0.19,0.17,0.01,0.04,0.04,
      0.14,0.17,0.01,0.04,0.04,
      0.11,0.17,0.01,0.04,0.04

prod_att jurisdiction adjustment rates for each jurisdiction(1-24)
juris. codes 1-24 are:
1-dc  2-mtg  3-pg  4-arl  5-alx  6-ffx  7-ldn  8-pw  9 -  10-frd
11-how 12-aa 13-chs 14 -  15-car 16-cal 17-stm 18-kge 19-fbg 20-stf
21-spt 22-fau 23-clk 24-jef
&juradj
pjuradj =1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,
        1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,
        1.00,1.00,1.00,1.00,1.00

ajuradj =1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,
        1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,
        1.00,1.00,1.00,1.00,1.00

/global purpose adjustment array
&puradj
purpadj =1.000

/

Netswam.ctl

9
MODE1AM.TP  MODE1AM.TB
MODE2AM.TP  MODE2AM.TB
MODE3AM.TP  MODE3AM.TB
MODE4AM.TP  MODE4AM.TB
MODE5AM.TP  MODE5AM.TB
MODE6AM.TP  MODE6AM.TB
MODE7AM.TP  MODE7AM.TB
MODE8AM.TP  MODE8AM.TB
MODE9AM.TP  MODE9AM.TB

```

### Netswop.ctf

```

9
MODE1OP.TP MODE1OP.TB
MODE2OP.TP MODE2OP.TB
MODE3OP.TP MODE3OP.TB
MODE4OP.TP MODE4OP.TB
MODE5OP.TP MODE5OP.TB
MODE6OP.TP MODE6OP.TB
MODE7OP.TP MODE7OP.TB
MODE8OP.TP MODE8OP.TB
MODE9OP.TP MODE9OP.TB
    
```

### NHB\_TG.ctf

```

File: NHB_TG.CTL
MwCOG Version 2 Trip Generation Model Run(CGTGV2TP)
Purpose: NHB
    
```

Trip purpose (purp) MUST be one of the following choices:  
 'HBM' 'HBS' 'HBO' 'NHB' 'MTK' 'HTK'

```

&tpurp
purp='NHB'
/
    
```

```

&param
zones = 2191
lastizn = 2144
dccllo = 1
dcchi = 88
dcnlo = 89
dcnhi = 319
vaclo = 1230
vachi = 1238
val0lo = 1239
val0hi = 1360
/
    
```

```

&files
zhhi1sv='hhi1_sv.dat'
zhhi2sv='hhi2_sv.dat'
zhhi3sv='hhi3_sv.dat'
zhhi4sv='hhi4_sv.dat'

zonelu='inputs\zone.asc'
ext_ps='inputs\pext.asc'
ext_as='inputs\axet.asc'
basezn='basezon.dat'
znmod='..\support\adjzpf7.upn'
    
```

```

outp1='nhb_pro.i1'
outp2='dummy.i2'
outp3='dummy.i3'
outp4='dummy.i4'
outp5='nhb_pro.all'

outal='nhb_att.i1'
    
```

```

outa2='dummy.i2'
outa3='dummy.i3'
outa4='dummy.i4'
outa5='nhb_att.all'
/
    
```

production rates:  
 array structure: 4 income groups (across) by size/va groups (down)

```

inc,siz,veh: 111, 211, 311, 411
             121, 221, 321, 421
             131, 231, 331, 431
             141, 241, 341, 441
             .
             .
             .
             144 244 344 444
    
```

```

&prates
prat= 0.200, 0.300, 0.400, 0.600,
       0.300, 0.400, 0.500, 0.700,
       0.400, 0.500, 0.600, 0.800,
       0.500, 0.600, 0.609, 0.900,
       1.258, 1.258, 1.524, 1.760,
       1.258, 1.258, 1.625, 1.760,
       1.430, 1.762, 2.479, 2.720,
       1.500, 1.983, 2.188, 1.536,
       1.258, 1.400, 1.565, 1.760,
       1.430, 2.197, 2.330, 2.405,
       1.430, 2.600, 2.892, 2.812,
       1.600, 2.800, 2.925, 3.348,
       1.258, 1.490, 1.565, 2.405,
       1.430, 2.197, 2.536, 2.691,
       1.430, 2.800, 2.891, 3.100,
       1.700, 2.967, 4.202, 4.376
    
```

area type-based attraction rates:  
 array structure: 10 land use variables (across) by 7 area types (down)

	1	2	3	4	5	6	7	8	9	10
	HH	HHPOP	EMP	IndEmp	RetEMP	OffEMP	OthEMP	NRetEmp	Unused	
Atype 1	.	.	.	.	.	.	.	.	.	.
Atype 7	.	.	.	.	.	.	.	.	.	.

location-based attraction rates:  
 array structure: 5 land use variables (across) by 4 locations (down)  
 Locations are: 1)Reg. Core, 2)DC NonCore, 3)VA 10 Mi Sq, 4)Other

	1	2	3	4	5
	IndEmp	RetEMP	OffEMP	OthEMP	HH
Locat 1	.	.	.	.	.
Locat 4	.	.	.	.	.

```

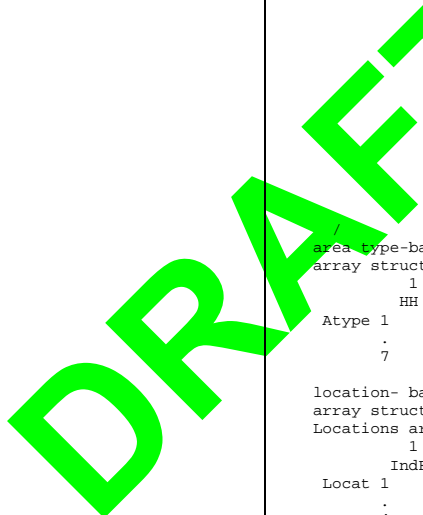
&arates
arat= 0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.42,0.00,0.00,
       0.00,0.28,0.00,0.00,2.77,0.00,0.00,0.49,0.00,0.00,
       0.00,0.28,0.00,0.00,2.77,0.00,0.00,0.49,0.00,0.00,
       0.00,0.28,0.00,0.00,2.77,0.00,0.00,0.49,0.00,0.00,
       0.00,0.28,0.00,0.00,2.77,0.00,0.00,0.49,0.00,0.00,
       0.00,0.28,0.00,0.00,2.77,0.00,0.00,0.49,0.00,0.00,
       0.00,0.28,0.00,0.00,2.77,0.00,0.00,0.49,0.00,0.00
    
```

```

lrat =0.00,0.00,0.00,0.00,0.00,
      0.00,0.00,0.00,0.00,0.00,
      0.00,0.00,0.00,0.00,0.00,
      0.00,0.00,0.00,0.00,0.00
    
```

```

/
prod, att jurisdiction adjustment rates for each jurisdiction(1-24)
juris. codes 1-24 are:
    
```



## Appendix B: Version 2.1 D Draft #50 Control Files

```
1-dc 2-mtg 3-pg 4-ar1 5-alx 6-ffx 7-ldn 8-pw 9 - 10-frd
11-how 12-aa 13-chs 14 - 15-car 16-cal 17-stm 18-kge 19-fbg 20-stf
21-spt 22-fau 23-clk 24-jef
```

NOTE: Make sure the pjur \ ajur factors are symmetrical

```
&juradj
  pjuradj =1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,
            1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,
            1.00,1.00,1.00,1.00
  ajuradj =1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,
            1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,1.00,
            1.00,1.00,1.00,1.00,1.00
/
global purpose adjustment array
&puradj
  purpadj =1.50
/
```

### NT\_AM.ctf

NT\_AM.CTL - Control File for the NODESTB program (by J.Bruggeman)  
The program creates a fixed format stop nodes file  
using TRNBUILD line files.

Time Period: AM Peak Hour

```
&FILES
  fline(1)='MODE1AM.TB'
  fline(2)='MODE2AM.TB'
  fline(3)='MODE3AM.TB'
  fline(4)='MODE4AM.TB'
  fline(5)='MODE6AM.TB'
  fline(6)='MODE7AM.TB'
  fline(7)='MODE8AM.TB'
  fline(8)='MODE9AM.TB'
  FNODES  ='nt_am.asc'
  FRPT    ='nt_am.rpt' /
&PARAMS
  PERIOD=0 /
&OPTIONS
  STONLY=T,
  plain=T /
&FACILS /
```

### NT\_OP.ctf

NT\_OP.CTL - Control File for the NODESTB program (by J.Bruggeman)  
The program creates a fixed format stop nodes file  
using TRNBUILD line files.

Time Period: Off-Peak

```
&FILES
  fline(1)='MODE1OP.TB'
  fline(2)='MODE2OP.TB'
  fline(3)='MODE3OP.TB'
  fline(4)='MODE4OP.TB'
  fline(5)='MODE6OP.TB'
  fline(6)='MODE7OP.TB'
  fline(7)='MODE8OP.TB'
  fline(8)='MODE9OP.TB'
  FNODES  ='nt_op.asc'
  FRPT    ='nt_op.rpt' /
```

```
&PARAMS
  PERIOD=0 /
&OPTIONS
  STONLY=T,
  plain=T /
&FACILS /
```

### Prefartp.ctf

prefartp.ctf  
Control File for prefaretp.EXE Program

FILES section refers to INPUT FILE references  
The 2 INPUT files are:  
unit 7 gismetf - GIS file with sh/lng metro walk pcts, distances  
unit 8 bfarezf - zone/station to bus fare zone equivalencies  
unit 9 fwkpcctf - final (wklnktp-based) zonal walk pct file

The 1 OUTPUT file is:  
unit 11 a2deckf - final A2 deck for MFARE2 Program

```
&files
  gismetf = 'inputs\giswkaam.asc'
  bfarezf = 'inputs\tazfrzn.asc'
  fwkpcctf = 'shlgam.fin'
  a2deckf = 'FARE_A2.ASC'
/
```

### staprotp.ctf

staprotp.ctf  
Control File for STAPROTP.EXE Program

The 2 INPUT files are:  
unit 7 statf - the consolidated station file  
unit 8 rlnkf - the metrorail/commuter rail link file

The 14 OUTPUT files are:

unit 11 metlnkf - metrorail link file  
unit 28 metlnkml - metrorail link file for metro sta. net building  
unit 12 comlnkf - commuter rail link file

unit 13 metnodf - metrorail station nodes  
unit 29 metnodml - metrorail station nodes for metro sta. net. building  
unit 14 comnodf - commuter rail nodes

unit 15 metpnrf - metrorail PNR nodes  
unit 16 compnrf - commuter rail PNR nodes  
unit 17 buspnrf - bus PNR Nodes

unit 18 mpnrlf - metrorail PNR Connector Links  
unit 19 cpnrlf - commuter rail PNR Connector Links  
unit 20 bpnrlf - bus PNR Connector Links

unit 21 metblf - metrorail/bus connector Links  
unit 22 comblf - comm.rail/bus connector Links

unit 23 tazpnrf - TAZ-PNR Node equiv file (for MATRIX Run)  
unit 24 mflal - A1 Deck Input file to MFARE1 program  
unit 25 s\_pxyf - station and pnr lot xys (unformatted)

```
&files
  statf = 'inputs\sta_tpp.bse'
  rlnkf = 'inputs\rail_lnk.bse'

  metlnkf = 'MET_LINK.TB'
  metlnkml = 'METLNKML.TB'
  comlnkf = 'COM_LINK.TB'
  metnodf = 'MET_NODE.TB'
  metnodml = 'METNODML.TB'
  comnodf = 'COM_NODE.TB'
  metpnrf = 'MET_PNRN.TB'
  compnrf = 'COM_PNRN.TB'
  buspnrf = 'BUS_PNRN.TB'
  mpnrf = 'MET_PNRL.TB'
  cpnrf = 'COM_PNRL.TB'
  bpnrf = 'BUS_PNRL.TB'
  metblf = 'MET_BUS.TB'
  comblf = 'COM_BUS.TB'
  tazpnrf = 'TAZPNR.asc'
  mflal = 'mfarel.al'
  s_pxyf = 'stapnr.xls'
/
```

## VEHAVTP.CTL

VEHAVTP.CTL  
Control File for VEHAVTP.EXE Program  
Version 2/TP+ Vehicle Availability Program

NOTE: This control file has been updated 8/8/02 using Moran/Humeida updates of ALOGIT model 06d

The 3 INPUT files are:  
hhsizinc - HH by size, income groups (produced by hhsizinc program)  
zon\_dat - land use file containing area type variable (1-7)  
amtrnemp - file with jobs reached within 40 min using AM Pk Transit

The 5 OUTPUT files are:  
hhi1\_sv - Households of Income Grp 1 allocated by HH Size(4)&VehsAvail.(4)  
hhi2\_sv - Households of Income Grp 2 allocated by HH Size(4)&VehsAvail.(4)  
hhi3\_sv - Households of Income Grp 3 allocated by HH Size(4)&VehsAvail.(4)  
hhi4\_sv - Households of Income Grp 4 allocated by HH Size(4)&VehsAvail.(4)  
hh\_va - Totals Households by 3 VehsAvail. Levels 0,1,2+

```
&files
  hhsizinc = 'hhsizinc.dat'
  zon_dat = 'basezon.dat'
  trn_acc = 'jobacc.asc'
  lu_file = 'inputs\zone.asc'
```

```
  hhi1_sv = 'hhi1_sv.dat'
  hhi2_sv = 'hhi2_sv.dat'
  hhi3_sv = 'hhi3_sv.dat'
  hhi4_sv = 'hhi4_sv.dat'
```

```
  hh_va = 'HH_veh.dat'
/
```

```
&param
  const_v0 = 0.0000
  hhsiz_v0 = 0.0000
  i1dum_v0 = 0.0000
  i2dum_v0 = 0.0000
  i3dum_v0 = 0.0000
  i4dum_v0 = 0.0000
```

```
  tr40e_v0 = 0.0000
  atype_v0 = 0.0000
  dcdum_v0 = 0.0000
```

```
  const_v1 = 1.5988
  hhsiz_v1 = 0.0000
  i1dum_v1 = 0.0000
  i2dum_v1 = 1.2376
  i3dum_v1 = 1.3285
  i4dum_v1 = 1.9991
  tr40e_v1 = -1.095e-6
  atype_v1 = 0.0668
  dcdum_v1 = -0.9246
```

```
  const_v2 = -1.4608
  hhsiz_v2 = 0.8700
  i1dum_v2 = 0.0000
  i2dum_v2 = 1.7892
  i3dum_v2 = 2.4831
  i4dum_v2 = 2.7372
  tr40e_v2 = -1.815e-6
  atype_v2 = 0.2783
  dcdum_v2 = -1.0751
```

```
  const_v3 = -4.3021
  hhsiz_v3 = 1.3026
  i1dum_v3 = 0.0000
  i2dum_v3 = 1.8221
  i3dum_v3 = 2.7395
  i4dum_v3 = 4.1987
  tr40e_v3 = -2.053e-6
  atype_v3 = 0.4093
  dcdum_v3 = -1.6334
```

## Walk\_AM.CTL

walk\_am.ctl  
Control File for WLKLNKtp.EXE Program

FILES section refers to INPUT FILE references  
The 2 INPUT files are:  
unit 7 gisslf - GIS file with short/long walk pcts, distances  
unit 8 cntconnf - walk access links from cnt conn pgm  
unit 9 gisconnf - GIS Rail related Walk access links

The 1 OUTPUT file is:  
unit 11 finwlkf - final walk access links file in TRNBUILD format

PARAMS section refers to node ranges of Rail (Metrorail&Commuter)  
Node range(s). Range 1 is from railnr11 to railnr12.  
Range 2 is from railnr21 to railnr22

```
&files
  gisslf = 'shlgam.asc'
  cntconnf = 'ct2_am.asc'
  gisconnf = 'inputs\giswklam.asc'
  finwlkf = 'walk_am.tb'
  fwlpctf = 'shlgam.fin'
/
```

```
&params
  railnr11 = 7301
  railnr12 = 7999
  railnr21 = 0
  railnr22 = 0
/
```

## **Walk\_OP.CTL**

```
walk_op.ctl
Control File for WLKLNKtp.EXE Program

FILES section refers to INPUT FILE references
The 2 INPUT files are:
unit 7 gisslf - GIS file with short/long walk pcts, distances
unit 8 cntconnf- walk access links from cnt conn pgm
unit 9 gisconnf - GIS Rail related Walk access links

The 1 OUTPUT file is:
unit 11 finwlkf - final walk access links file in TRNBUILD format

PARAMS section refers to node ranges of Rail (Metrorail&Commuter)
Node range(s). Range 1 is from railnr11 to railnr12.
```

```
Range 2 is from railnr21 to railnr22
&files
  gisslf = 'shlgop.asc'
  cntconnf = 'ct2_op.asc'
  gisconnf = 'inputs\giswklop.asc'
  finwlkf = 'walk_op.tb'
  fwlkpctf = 'shlgop.fin'
/

&params
  railnr11 = 7301
  railnr12 = 7999
  railnr21 = 0
  railnr22 = 0
/
```

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## Appendix C. Version 2.1 D Draft #50 Batch Files

runall_1994.bat .....	C-1
runall_2000.bat .....	C-3
runall_2030_tc.bat .....	C-5
SetFactors.bat.....	C-7
<u>'Pump-Prime' Iterations</u> .....	C-7
PP_Highway_Build.bat.....	C-7
PP_Highway_PNR.bat.....	C-7
PP_Transit_Prep.bat.....	C-7
CLRP_PLUS_pp_Transit_Prep.bat .....	C-8
PP_Transit_Skim.bat .....	C-9
PP_Trip_Generation.bat.....	C-9
PP_Trip_Distribution.bat.....	C-9
PP_Auto_Drivers.bat .....	C-10
Misc_Time-of-Day.bat.....	C-10
PP_Time-of-Day.bat .....	C-10
PP_Highway_Assignment.bat .....	C-10
PP_Highway_Skims.bat .....	C-10
<u>'Standard' Iterations (1-6)</u> .....	C-11
Highway_PNR.bat .....	C-11
Transit_Skim.bat.....	C-11
Transit_Fare.bat .....	C-11
Trip_Generation.bat .....	C-12
Trip_Distribution.bat .....	C-12
Mode_Choice.bat .....	C-12
Mode_Choice_tc.bat .....	C-13
Auto_Driver.bat .....	C-14
Time-of-Day.bat.....	C-14
Highway_Assignment.bat.....	C-14
Highway_Skims.bat .....	C-14

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**runall\_1994.bat**

```

:: runall_1994.bat
:: TPB Travel Model, Version 2.1D 50

set _year_=1994
set _alt_=Base

rem ===== Pump Prime Iteration =====

set _iter_=pp
set _prev_=pp

call Set_Factors.bat %1

call PP_Highway_Build.bat %1
call PP_Highway_PNR.bat %1
call PP_Transit_Prep.bat %1
call PP_Transit_Skim.bat %1
call PP_Trip_Generation.bat %1
call PP_Trip_Distribution.bat %1
call PP_Auto_Drivers.bat %1
call Misc_Time-of-Day.bat %1
call PP_Time-of-Day.bat %1
call PP_Highway_Assignment.bat %1
call PP_Highway_Skims.bat %1

rem ===== Iteration 1 =====
REM (Copy year/alt specific mfare program controls to generic names)
copy controls\mf1am94.ct1 controls\mf1_am.ct1
copy controls\mf1op94.ct1 controls\mf1_op.ct1
copy controls\mfamwk94.ct1 controls\mf_am_wk.ct1
copy controls\mfamdr94.ct1 controls\mf_am_dr.ct1
copy controls\mfopwk94.ct1 controls\mf_op_wk.ct1
copy controls\mfopdr94.ct1 controls\mf_op_dr.ct1

REM (copy year/alt specific mode ch. controls to generic filenames)
copy controls\mc_hbw94.ct1 controls\mc_hbw.ct1
copy controls\mc_hbs94.ct1 controls\mc_hbs.ct1
copy controls\mc_hbo94.ct1 controls\mc_hbo.ct1
copy controls\mc_nhb94.ct1 controls\mc_nhb.ct1

set _iter_=i1
set _prev_=pp

call Highway_PNR.bat %1

:: Transit_Prep.bat This has already been run in the PP iteration

call Transit_Skim.bat %1

```

```

call Transit_Fare.bat %1
call Trip_Generation.bat %1
call Trip_Distribution.bat %1
call Mode_Choice.bat %1
call Auto_Driver.bat %1
call Time-of-Day.bat %1
call Highway_Assignment.bat %1
call Highway_Skims.bat %1

rem ===== Iteration 2 =====

set _iter_=i2
set _prev_=i1

call Highway_PNR.bat %1

:: Transit_Prep.bat This has already been run in the PP iteration
call Transit_Skim.bat %1
call Transit_Fare.bat %1
call Trip_Generation.bat %1
call Trip_Distribution.bat %1
call Mode_Choice.bat %1
call Auto_Driver.bat %1
call Time-of-Day.bat %1
call Highway_Assignment.bat %1
call Highway_Skims.bat %1

rem ===== Iteration 3 =====

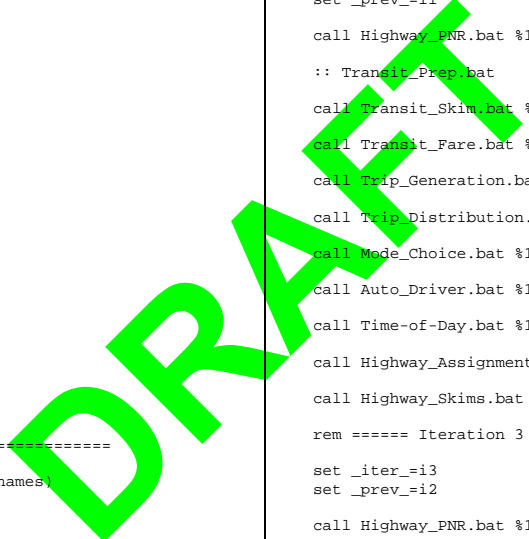
set _iter_=i3
set _prev_=i2

call Highway_PNR.bat %1

:: Transit_Prep.bat This has already been run in the PP iteration

call Transit_Skim.bat %1
call Transit_Fare.bat %1
call Trip_Generation.bat %1
call Trip_Distribution.bat %1
call Mode_Choice.bat %1
call Auto_Driver.bat %1
call Time-of-Day.bat %1
call Highway_Assignment.bat %1

```



## Appendix C: Version 2.1 D Draft #50 Batch Files

---

```
call Highway_Skims.bat %1

rem ===== Iteration 4 =====
set _iter_=i4
set _prev_=i3

call Highway_PNR.bat %1

:: Transit_Prep.bat This has already been run in the PP iteration

call Transit_Skim.bat %1

call Transit_Fare.bat %1

call Trip_Generation.bat %1

call Trip_Distribution.bat %1

call Mode_Choice.bat %1

call Auto_Driver.bat %1

call Time-of-Day.bat %1

call Highway_Assignment.bat %1

call Highway_Skims.bat %1

rem ===== Iteration 5 =====

set _iter_=i5
set _prev_=i4

call Highway_PNR.bat %1

:: Transit_Prep.bat This has already been run in the PP iteration

call Transit_Skim.bat %1

call Transit_Fare.bat %1

call Trip_Generation.bat %1

call Trip_Distribution.bat %1

call Mode_Choice.bat %1

call Auto_Driver.bat %1

call Time-of-Day.bat %1

call Highway_Assignment.bat %1

call Highway_Skims.bat %1

rem ===== Iteration 6 =====

set _iter_=i6
set _prev_=i5

call Highway_PNR.bat %1

:: Transit_Prep.bat This has already been run in the PP iteration

call Transit_Skim.bat %1
```

```
call Transit_Fare.bat %1

call Trip_Generation.bat %1

call Trip_Distribution.bat %1

call Mode_Choice.bat %1

call Auto_Driver.bat %1

call Time-of-Day.bat %1

call Highway_Assignment.bat %1

call Highway_Skims.bat %1

rem ===== End of batch file =====

set _year_=
set _alt_=
set _iter_=
set _prev_="
```

**DRAFT**

### **runall\_2000.bat**

```

:: runall_2000.bat
:: TPB Travel Model, Version 2.1D 50
set _year_=2000
set _alt_=Base

rem ===== Pump Prime Iteration =====
set _iter_=pp
set _prev_=pp

call Set_Factors.bat %1

call PP_Highway_Build.bat %1
call PP_Highway_PNR.bat %1
call PP_Transit_Prep.bat %1
call PP_Transit_Skim.bat %1
call PP_Trip_Generation.bat %1
call PP_Trip_Distribution.bat %1
call PP_Auto_Drivers.bat %1
call Misc_Time-of-Day.bat %1
call PP_Time-of-Day.bat %1
call PP_Highway_Assignment.bat %1
call PP_Highway_Skims.bat %1

rem ===== Iteration 1 =====
REM (Copy year/alt specific mfare program controls to generic names)
copy controls\mflam00.ct1 controls\mfl_am.ct1
copy controls\mflop00.ct1 controls\mfl_op.ct1
copy controls\mfamwk00.ct1 controls\mf_am_wk.ct1
copy controls\mfamdr00.ct1 controls\mf_am_dr.ct1
copy controls\mfopwk00.ct1 controls\mf_op_wk.ct1
copy controls\mfopdr00.ct1 controls\mf_op_dr.ct1

REM (copy year/alt specific mode ch. controls to generic filenames)
copy controls\mc_hbw00.ct1 controls\mc_hbw.ct1
copy controls\mc_hbs00.ct1 controls\mc_hbs.ct1
copy controls\mc_hbo00.ct1 controls\mc_hbo.ct1
copy controls\mc_nhb00.ct1 controls\mc_nhb.ct1

set _iter_=i1
set _prev_=pp

call Highway_PNR.bat %1

:: Transit_Prep.bat This has already been run in the PP iteration

call Transit_Skim.bat %1
call Transit_Fare.bat %1

```

```

call Trip_Generation.bat %1
call Trip_Distribution.bat %1
call Mode_Choice.bat %1
call Auto_Driver.bat %1
call Time-of-Day.bat %1
call Highway_Assignment.bat %1
call Highway_Skims.bat %1

rem ===== Iteration 2 =====

set _iter_=i2
set _prev_=i1

call Highway_PNR.bat %1

:: Transit_Prep.bat This has already been run in the PP iteration

call Transit_Skim.bat %1
call Transit_Fare.bat %1
call Trip_Generation.bat %1
call Trip_Distribution.bat %1
call Mode_Choice.bat %1
call Auto_Driver.bat %1
call Time-of-Day.bat %1
call Highway_Assignment.bat %1
call Highway_Skims.bat %1

rem ===== Iteration 3 =====

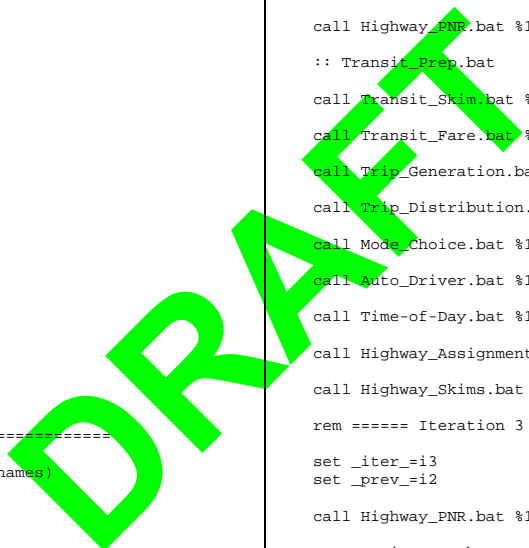
set _iter_=i3
set _prev_=i2

call Highway_PNR.bat %1

:: Transit_Prep.bat This has already been run in the PP iteration

call Transit_Skim.bat %1
call Transit_Fare.bat %1
call Trip_Generation.bat %1
call Trip_Distribution.bat %1
call Mode_Choice.bat %1
call Auto_Driver.bat %1
call Time-of-Day.bat %1
call Highway_Assignment.bat %1
call Highway_Skims.bat %1

```



## Appendix C: Version 2.1 D Draft #50 Batch Files

---

```
rem ===== Iteration 4 =====
set _iter_=i4
set _prev_=i3

call Highway_PNR.bat %1

:: Transit_Prep.bat This has already been run in the PP iteration

call Transit_Skim.bat %1

call Transit_Fare.bat %1

call Trip_Generation.bat %1

call Trip_Distribution.bat %1

call Mode_Choice.bat %1

call Auto_Driver.bat %1

call Time-of-Day.bat %1

call Highway_Assignment.bat %1

call Highway_Skims.bat %1

rem ===== Iteration 5 =====

set _iter_=i5
set _prev_=i4

call Highway_PNR.bat %1

:: Transit_Prep.bat This has already been run in the PP iteration

call Transit_Skim.bat %1

call Transit_Fare.bat %1

call Trip_Generation.bat %1

call Trip_Distribution.bat %1

call Mode_Choice.bat %1

call Auto_Driver.bat %1

call Time-of-Day.bat %1

call Highway_Assignment.bat %1

call Highway_Skims.bat %1

rem ===== Iteration 6 =====

set _iter_=i6
set _prev_=i5

call Highway_PNR.bat %1

:: Transit_Prep.bat This has already been run in the PP iteration

call Transit_Skim.bat %1

call Transit_Fare.bat %1
```

```
call Trip_Generation.bat %1

call Trip_Distribution.bat %1

call Mode_Choice.bat %1

call Auto_Driver.bat %1

call Time-of-Day.bat %1

call Highway_Assignment.bat %1

call Highway_Skims.bat %1

rem ===== End of batch file =====

set _year_=
set _alt_=
set _iter_=
set _prev_=
```

**DRAFT**

## runall\_2030\_tc.bat

```

:: runall_2030_tc.bat Transit Constraint
:: TPB Travel Model, Version 2.1D 50

set _year_=2030
set _alt_=CLRP

:: Enter the name of the path and file of pre-existing 2005 MC run
set _path05_=C:\user\cgv21d_50\2005base

if not exist %_path05%\mc_hbw.fin goto err
set _path05hbw=%_path05%\mc_hbw.fin
set _path05hbs=%_path05%\mc_hbs.fin
set _path05hbo=%_path05%\mc_hbo.fin
set _path05nhb=%_path05%\mc_nhb.fin

rem ===== Pump Prime Iteration =====

set _iter_=pp
set _prev_=pp

call Set_Factors.bat %1

call PP_Highway_Build.bat %1

call PP_Highway_PNR.bat %1

call PP_Transit_Prep.bat %1

call PP_Transit_Skim.bat %1

call PP_Trip_Generation.bat %1

call PP_Trip_Distribution.bat %1

call PP_Auto_Drivers.bat %1

call Misc_Time-of-Day.bat %1

call PP_Time-of-Day.bat %1

call PP_Highway_Assignment.bat %1

call PP_Highway_Skims.bat %1

rem ===== Iteration 1 =====

REM (Copy year/alt specific mfare program controls to generic names)
copy controls\mfiam05.ct1 controls\mf1_am.ct1
copy controls\mflop05.ct1 controls\mf1_op.ct1
copy controls\mfamwk05.ct1 controls\mf_am_wk.ct1
copy controls\mfamdr05.ct1 controls\mf_am_dr.ct1
copy controls\mfopwk05.ct1 controls\mf_op_wk.ct1
copy controls\mfopdr05.ct1 controls\mf_op_dr.ct1

REM (copy year/alt specific mode ch. controls to generic filenames)
copy controls\mc_hbw30.ct1 controls\mc_hbw.ct1
copy controls\mc_hbs30.ct1 controls\mc_hbs.ct1
copy controls\mc_hbo30.ct1 controls\mc_hbo.ct1
copy controls\mc_nhb30.ct1 controls\mc_nhb.ct1

set _iter_=i1

```

```

set _prev_=pp

call Highway_PNR.bat %1

:: Transit_Prep.bat This has already been run in the PP iteration

call Transit_Skim.bat %1

call Transit_Fare.bat %1

call Trip_Generation.bat %1

call Trip_Distribution.bat %1

call Mode_Choice_TC.bat %1

call Auto_Driver.bat %1

call Time-of-Day.bat %1

call Highway_Assignment.bat %1

call Highway_Skims.bat %1

rem ===== Iteration 2 =====

set _iter_=i2
set _prev_=i1

call Highway_PNR.bat %1

:: Transit_Prep.bat This has already been run in the PP iteration

call Transit_Skim.bat %1

call Transit_Fare.bat %1

call Trip_Generation.bat %1

call Trip_Distribution.bat %1

call Mode_Choice_TC.bat %1

call Auto_Driver.bat %1

call Time-of-Day.bat %1

call Highway_Assignment.bat %1

call Highway_Skims.bat %1

rem ===== Iteration 3 =====

set _iter_=i3
set _prev_=i2

call Highway_PNR.bat %1

:: Transit_Prep.bat This has already been run in the PP iteration

call Transit_Skim.bat %1

call Transit_Fare.bat %1

call Trip_Generation.bat %1

call Trip_Distribution.bat %1

```

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# Appendix C: Version 2.1 D Draft #50 Batch Files

```
call Mode_Choice_TC.bat %1
call Auto_Driver.bat %1
call Time-of-Day.bat %1
call Highway_Assignment.bat %1
call Highway_Skims.bat %1

rem ===== Iteration 4 =====
set _iter_=i4
set _prev_=i3

call Highway_PNR.bat %1
:: Transit_Prep.bat This has already been run in the PP iteration
call Transit_Skim.bat %1
call Transit_Fare.bat %1
call Trip_Generation.bat %1
call Trip_Distribution.bat %1
call Mode_Choice_TC.bat %1
call Auto_Driver.bat %1
call Time-of-Day.bat %1
call Highway_Assignment.bat %1
call Highway_Skims.bat %1

rem ===== Iteration 5 =====
set _iter_=i5
set _prev_=i4

call Highway_PNR.bat %1
:: Transit_Prep.bat This has already been run in the PP iteration
call Transit_Skim.bat %1
call Transit_Fare.bat %1
call Trip_Generation.bat %1
call Trip_Distribution.bat %1
call Mode_Choice_TC.bat %1
call Auto_Driver.bat %1
call Time-of-Day.bat %1
call Highway_Assignment.bat %1
call Highway_Skims.bat %1

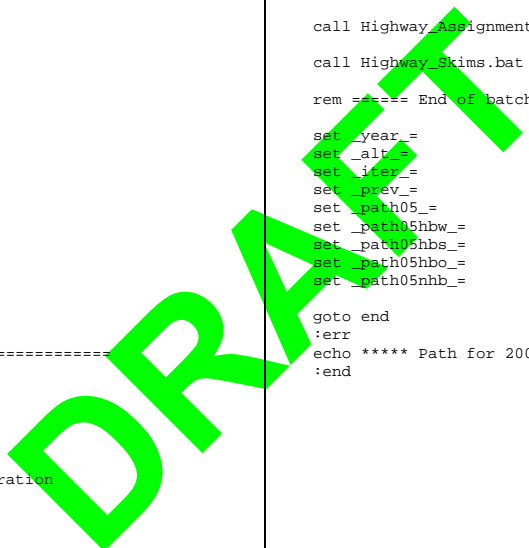
rem ===== Iteration 6 =====
set _iter_=i6
```

```
set _prev_=i5
call Highway_PNR.bat %1
:: Transit_Prep.bat This has already been run in the PP iteration
call Transit_Skim.bat %1
call Transit_Fare.bat %1
call Trip_Generation.bat %1
call Trip_Distribution.bat %1
call Mode_Choice_TC.bat %1
call Auto_Driver.bat %1
call Time-of-Day.bat %1
call Highway_Assignment.bat %1
call Highway_Skims.bat %1

rem ===== End of batch file =====

set _year =
set _all_ =
set _iter_ =
set _prev_ =
set _path05_ =
set _path05hbw_ =
set _path05hbs_ =
set _path05hbo_ =
set _path05nhb_ =

goto end
:err
echo ***** Path for 2005 mode choice trip tables incorrect! *****
:end
```



## SetFactors.bat

```
cd support

del tppl*. *
del set_factors.rpt

start /w TPPLUS.EXE ..\scripts\Set_Factors.s /start -Ptppl -S..\support
if errorlevel 1 goto error
    copy tppl*.prn set_factors.rpt
goto end
:error
REM Processing Error
PAUSE
:end
cd..
```

## 'Pump-Prime' Iterations

### PP\_Highway\_Build.bat

```
cd %1

REM Highway Network Building

..\software\STAPROTP ..\controls\staprotpt.ctl
if errorlevel 1 goto error
del temp.dat
    del staprotpt.tem

    del trn_node.asc
copy inputs\node.asc + stapnr.xls TRN_NODE.ASC

del tppl*. *
del highway_build.rpt
start /w TPPLUS.EXE ..\scripts\highway_build_toll.s /start -Ptppl -S..\%1
if errorlevel 1 goto error
    copy tppl*.prn %_iter_%_highway_build.rpt
goto end

:error
REM Processing Error.....
PAUSE
:end
cd..
```

### PP\_Highway\_PNR.bat

```
CD %1
REM Auto Access PNR Link Updating (Based on previous iter Assignment)
```

```
del tppl*. *
del %_iter_%_Auto_Access.rpt
start /w TPPLUS.EXE ..\scripts\Auto_Access.s /start -Ptppl -S..\%1
if errorlevel 1 goto error
copy tppl*.prn %_iter_%_Auto_Access.rpt
goto end

:error
REM Processing Error....
PAUSE
:end
CD..
```

### PP\_Transit\_Prep.bat

```
CD %1

REM Transit Network Building (Initial)

del MODE*.TP
del MODE*.TB

copy inputs\MODE*.TP

copy ..\controls\netswam.ctl netsw.ctl
..\software\netsw2
if errorlevel 1 goto error
del netsw.ctl

copy ..\controls\netwop.ctl netsw.ctl
..\software\netsw2
if errorlevel 1 goto error

del netsw.ctl

..\software\NODESTB ..\controls\nt_am.ctl
if errorlevel 1 goto error
..\software\SORTLINE nt_am.asc

copy nt_am.rpt %_iter_%_nt_am.rpt
del nt_am.rpt

..\software\NODESTB ..\controls\nt_op.ctl
if errorlevel 1 goto error
..\software\SORTLINE nt_op.asc

copy nt_op.rpt %_iter_%_nt_op.rpt
del nt_op.rpt

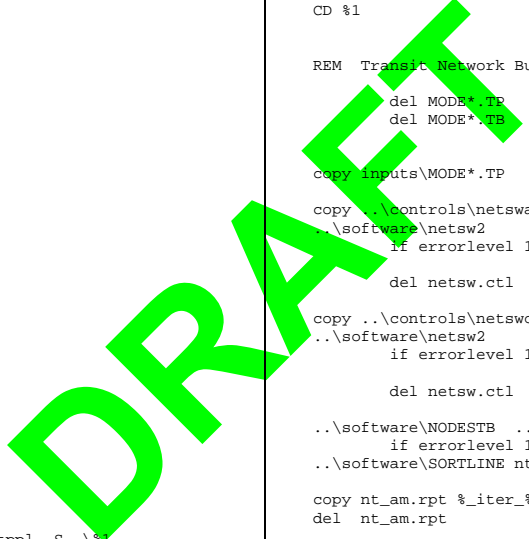
del nodestb.tem

..\software\CNTCONN2 ..\controls\ct2_am.ctl
if errorlevel 1 goto error

copy ct2_am.rpt %_iter_%_ct2_am.rpt
del ct2_am.rpt

..\software\CNTCONN2 ..\controls\ct2_op.ctl
if errorlevel 1 goto error

copy ct2_op.rpt %_iter_%_ct2_op.rpt
```



## Appendix C: Version 2.1 D Draft #50 Batch Files

```
del ct2_op.rpt

..\software\GIS_PROC ..\controls\gis.ct1
if errorlevel 1 goto error
del gis_proc.tem

copy gis_proc.rpt %_iter_%_gis_proc.rpt
del gis_proc.rpt

del wlklntkp.rpt
del walk_am.rpt
..\software\WLKLNKTP ..\controls\walk_am.ct1
if errorlevel 1 goto error
copy wlklntkp.rpt %_iter_%_walk_am.rpt
del wlklntkp.rpt

del wlklntkp.rpt
del walk_op.rpt
..\software\WLKLNKTP ..\controls\walk_op.ct1
if errorlevel 1 goto error
copy wlklntkp.rpt %_iter_%_walk_op.rpt
del wlklntkp.rpt

rem ////////////////////////////////// START walk link update section //////////////////////////////////
if not exist inputs\walk_am.old goto SKPWKUP
if not exist inputs\walk_op.old goto SKPWKUP

del tppl*. *
del Update_WkLinks.rpt
start /w TPPLUS.EXE ..\scripts\Update_WkLinks.s /start -Ptppl -S-.\%1
if errorlevel 1 goto error
copy tppl*.prn Update_Wklinks.rpt

del walk_?.tb
copy walk_?.upd walk_?.tb

rem ////////////////////////////////// END walk link update section //////////////////////////////////
:SKPWKUP

..\software\PREfartp ..\controls\prefartp.ct1
if errorlevel 1 goto error
del pre_fare.tem
copy prefartp.rpt %_iter_%_prefartp.rpt
del prefartp.rpt

goto end
:error
REM Processing Error.....
PAUSE
:end
CD..
```

### CLRP\_PLUS\_pp\_Transit\_Prep.bat

```
CD %1
```

```
REM Transit Network Building (Initial)
```

```
REM ** NOTE: Modified for Special CLRP+ model run -
```

```
REM ** Special *.TB transit line files in the \INPUTS subdir. with
REM ** 'SPEED=' commands will overwrite the standard *.TB that are
REM ** normally created. The NODESTB program can not handle this
REM ** type of coding.
```

```
del MODE*.TP
del MODE*.TB

copy inputs\MODE*.TP

copy ..\controls\netswam.ct1 netsw.ct1
..\software\netsw2
if errorlevel 1 goto error

del netsw.ct1

copy ..\controls\netswop.ct1 netsw.ct1
..\software\netsw2
if errorlevel 1 goto error

del netsw.ct1

..\software\NODESTB ..\controls\nt_am.ct1
if errorlevel 1 goto error
..\software\SORTLINE nt_am.asc

copy nt_am.rpt %_iter_%_nt_am.rpt
del nt_am.rpt

..\software\NODESTB ..\controls\nt_op.ct1
if errorlevel 1 goto error
..\software\SORTLINE nt_op.asc

copy nt_op.rpt %_iter_%_nt_op.rpt
del nt_op.rpt

del nodestb.tem

..\software\CNTCONN2 ..\controls\ct2_am.ct1
if errorlevel 1 goto error

copy ct2_am.rpt %_iter_%_ct2_am.rpt
del ct2_am.rpt

..\software\CNTCONN2 ..\controls\ct2_op.ct1
if errorlevel 1 goto error

copy ct2_op.rpt %_iter_%_ct2_op.rpt
del ct2_op.rpt

..\software\GIS_PROC ..\controls\gis.ct1
if errorlevel 1 goto error
del gis_proc.tem

copy gis_proc.rpt %_iter_%_gis_proc.rpt
del gis_proc.rpt

del wlklntkp.rpt
del walk_am.rpt
..\software\WLKLNKTP ..\controls\walk_am.ct1
if errorlevel 1 goto error
copy wlklntkp.rpt %_iter_%_walk_am.rpt
del wlklntkp.rpt

del wlklntkp.rpt
del walk_op.rpt
..\software\WLKLNKTP ..\controls\walk_op.ct1
if errorlevel 1 goto error
copy wlklntkp.rpt %_iter_%_walk_op.rpt
del wlklntkp.rpt
```



## Appendix C: Version 2.1 D Draft #50 Batch Files

```
REM ** Overwrite Std. *.TB files here

copy inputs\MODE*.TB

REM **

rem ////////////////////////////////// START walk link update section //////////////////////////////////
if not exist inputs\walk_am.old goto SKPWKUP
if not exist inputs\walk_op.old goto SKPWKUP

del tppl*. *
del Update_WkLinks.rpt
start /w TPPLUS.EXE ..\scripts\Update_WkLinks.s /start -Ptpp1 -S..\%1
if errorlevel 1 goto error
copy tppl*.prn Update_Wklinks.rpt

del walk_???.tb
copy walk_???.upd walk_???.tb

rem ////////////////////////////////// END walk link update section //////////////////////////////////
:SKPWKUP

..\software\PREfartp ..\controls\prefartp.ct1
if errorlevel 1 goto error
del pre_fare.tem
copy prefartp.rpt %_iter_%_prefartp.rpt
del prefartp.rpt

goto end
:error
REM Processing Error.....
PAUSE
:end
CD..
```

### **PP\_Transit\_Skim.bat**

```
CD %1

REM Transit Network Building (initial)

del tppl*. *
del transit_skims.rpt
start /w TPPLUS.EXE ..\scripts\transit_skims.s /start -Ptpp1 -S..\%1
if errorlevel 2 goto error
copy tppl*.prn %_iter_%_TRANSIT_SKIMS.RPT
goto end
:error
REM Processing Error.....
PAUSE
:end
CD..
```

### **PP\_Trip\_Generation.bat**

```
CD %1

REM Pump Prime Trip Generation

..\software\HHSIZINC inputs\zone.asc
if errorlevel 1 goto error

copy hhsizinc.rpt %_iter_%_hhsizinc.rpt
```

```
del hhsizinc.rpt

..\software\VEHAVTP ..\controls\vehavtp.ct1
if errorlevel 1 goto error

copy vehavtp.rpt %_iter_%_vehavtp.rpt
del vehavtp.rpt

..\software\CGTGV2TP ..\controls\hbw_tg.ct1
if errorlevel 1 goto error
del %_iter_%_hbw_tg.rpt
ren cgtgv2tp.rpt %_iter_%_hbw_tg.rpt
del cgtgv2tp.*

..\software\CGTGV2TP ..\controls\hbs_tg.ct1
if errorlevel 1 goto error
del %_iter_%_hbs_tg.rpt
ren cgtgv2tp.rpt %_iter_%_hbs_tg.rpt
del cgtgv2tp.*

..\software\CGTGV2TP ..\controls\hbo_tg.ct1
if errorlevel 1 goto error
del %_iter_%_hbo_tg.rpt
ren cgtgv2tp.rpt %_iter_%_hbo_tg.rpt
del cgtgv2tp.*

..\software\CGTGV2TP ..\controls\nhb_tg.ct1
if errorlevel 1 goto error
del %_iter_%_nhb_tg.rpt
ren cgtgv2tp.rpt %_iter_%_nhb_tg.rpt
del cgtgv2tp.*

..\software\CGTGV2TP ..\controls\mtk_tg.ct1
if errorlevel 1 goto error
del %_iter_%_mtk_tg.rpt
ren cgtgv2tp.rpt %_iter_%_mtk_tg.rpt
del cgtgv2tp.*

..\software\CGTGV2TP ..\controls\htk_tg.ct1
if errorlevel 1 goto error
del %_iter_%_htk_tg.rpt
ren cgtgv2tp.rpt %_iter_%_htk_tg.rpt
del cgtgv2tp.*

..\software\COGMCAL ..\controls\COGMCAL.CTL
if errorlevel 1 goto error

copy cogmcal.rpt %_iter_%_cogmcal.rpt
del cogmcal.rpt

goto end
:error
REM Processing Error....
PAUSE
:end
CD..
```

### **PP\_Trip\_Distribution.bat**

```

CD %1

REM Pump Prime Trip Distribution

del tppl*.*
del          %_iter_%_TrpDst.rpt
start /w TPPLUS.EXE ..\scripts\trip_distribution.s /start -Ptppl -S..\%1
if errorlevel 1 goto error
copy tppl*.prn %_iter_%_TrpDst.rpt
copy          %_iter_%_TrpDst.rpt temp.rpt
copy          %_iter_%_TrpDst.rpt temp.rpt
copy          %_iter_%_TrpDst.rpt temp.rpt
copy extrtab.out %_iter_%_TrpDst.tab
del extrtab.out
del temp.rpt
goto end

:error
REM Processing Error....
PAUSE
:end
CD..
    
```

### PP\_Auto\_Drivers.bat

```

CD %1

REM Pump Prime Auto Driver Trips

del tppl*.*
del          %_iter_%_Auto_Drivers.rpt
start /w TPPLUS.EXE ..\scripts\PP_Auto_Drivers.s /start -Ptppl -S..\%1
if errorlevel 1 goto error
copy tppl*.prn %_iter_%_Auto_Drivers.rpt
copy          %_iter_%_Auto_Drivers.rpt temp.dat
copy          %_iter_%_Auto_Drivers.rpt temp.dat
copy          %_iter_%_Auto_Drivers.rpt temp.dat
copy extrtab.out %_iter_%_Auto_Drivers.tab
del extrtab.out
del temp.out

goto end
:error
REM Processing Error....
PAUSE
:end
CD..
    
```

### Misc\_Time-of-Day.bat

```

CD %1

REM Non-Modeled Time-of-Day Trips

del tppl*.*
del          Misc_Time-of-Day.rpt
start /w TPPLUS.EXE ..\scripts\Misc_Time-of-Day.s /start -Ptppl -S..\%1
if errorlevel 1 goto error
copy tppl*.prn Misc_Time-of-Day.rpt
copy          Misc_Time-of-Day.rpt temp.dat
copy          Misc_Time-of-Day.rpt temp.dat
copy          Misc_Time-of-Day.rpt temp.dat
copy extrtab.out Misc_Time-of-Day.tab
del extrtab.out
del temp.out
    
```

```

goto end
:error
REM Processing Error....
PAUSE
:end
CD..
    
```

### PP\_Time-of-Day.bat

```

CD %1

REM Pump Prime Modeled Time-of-Day Trips

del tppl*.*
del          %_iter_%_Time-of-Day.rpt
start /w TPPLUS.EXE ..\scripts\Time-of-Day.s /start -Ptppl -S..\%1
if errorlevel 1 goto error
copy tppl*.prn %_iter_%_Time-of-Day.rpt
copy          %_iter_%_Time-of-Day.rpt temp.dat
copy          %_iter_%_Time-of-Day.rpt temp.dat
copy          %_iter_%_Time-of-Day.rpt temp.dat
copy extrtab.out %_iter_%_Time-of-Day.tab
del extrtab.out
del temp.dat
goto end

:error
REM Processing Error....
PAUSE
:end
CD..
    
```

### PP\_Highway\_Assignment.bat

```

CD %1

REM Highway Assignment - Pump Prime Iteration

del tppl*.*
del          %_iter_%_Highway_Assignment.rpt
start /w TPPLUS.EXE ..\scripts\Highway_Assignment.s /start -Ptppl -S..\%1
if errorlevel 1 goto error

copy tppl*.prn %_iter_%_Highway_Assignment.rpt
copy          %_iter_%_Highway_Assignment.rpt temp.dat
copy          %_iter_%_Highway_Assignment.rpt temp.dat
copy          %_iter_%_Highway_Assignment.rpt temp.dat
copy extrtab.out %_iter_%_Highway_Assignment.tab

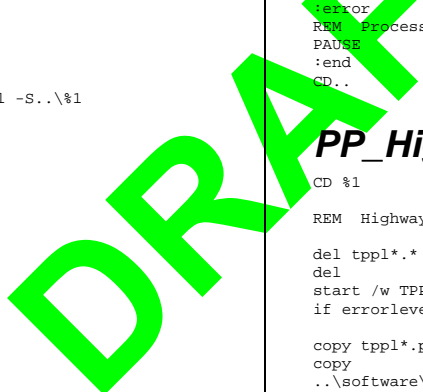
goto end
:error
REM Processing Error....
PAUSE
:end
CD..
    
```

### PP\_Highway\_Skims.bat

```

CD %1

REM Pump Prime Highway Skims
    
```



```
del tppl*.*
del      %_iter_%_Highway_Skims.rpt
start /w TPPLUS.EXE ..\scripts\Highway_Skims.s /start -Ptppl -S..\%1
if errorlevel 1 goto error
copy tppl*.prn %_iter_%_Highway_Skims.rpt
goto end
:error
REM Processing Error....
PAUSE
:end
CD..
```

## 'Standard' Iterations (1-6)

### **Highway\_PNR.bat**

```
CD %1
REM Auto Access PNR Link Updating (Based on previous iter Assignment)

del tppl*.*
del      %_iter_%_Auto_Access.rpt
start /w TPPLUS.EXE ..\scripts\Auto_Access.s /start -Ptppl -S..\%1
if errorlevel 1 goto error
copy tppl*.prn %_iter_%_Auto_Access.rpt
goto end

:error
REM Processing Error....
PAUSE
:end
CD..
```

### **Transit\_Skim.bat**

```
CD %1
REM Transit Network Building (Final)

del tppl*.*
del transit_skims.rpt
start /w TPPLUS.EXE ..\scripts\transit_skims.s /start -Ptppl -S..\%1
if errorlevel 2 goto error
copy tppl*.prn %_iter_%_TRANSIT_SKIMS.RPT
goto end
:error
REM Processing Error.....
PAUSE
:end
CD..
```

### **Transit\_Fare.bat**

```
CD %1
```

```
REM Transit Fares

:: Copy iteration-specific USTOS files to generic file names for MFARE2
copy %_iter_%_am_wk.sta am_wk.sta
copy %_iter_%_am_dr.sta am_dr.sta
copy %_iter_%_op_wk.sta op_wk.sta
copy %_iter_%_op_dr.sta op_dr.sta

del tppl*.*
del metrorail_skims.rpt
start /w TPPLUS.EXE ..\scripts\metrorail_skims.s /start -Ptppl -S..\%1
if errorlevel 1 goto error
copy tppl*.prn %_iter_%_metrorail_skims.rpt

del mfl_am.*
..\software\MFARE1 ..\controls\mfl_am.ct1
if errorlevel 1 goto error

copy mfl_am.rpt %_iter_%_mfl_am.rpt
del mfl_am.rpt

del mfl_op.*
..\software\MFARE1OP ..\controls\mfl_op.ct1
if errorlevel 1 goto error

copy mfl_op.rpt %_iter_%_mfl_op.rpt
del mfl_op.rpt

del fare.eqv
copy inputs\FARE.EQV

del mfl_am.prn
..\software\MTXIJTP mfl_am.asc
if errorlevel 1 goto error
ren mtxijtp.out mfl_am.prn

del mfl_op.prn
..\software\MTXIJTP mfl_op.asc
if errorlevel 1 goto error
ren mtxijtp.out mfl_op.prn

del mf_am_wk.*
..\software\MFARE2TP ..\controls\mf_am_wk.ct1
if errorlevel 1 goto error

copy mf_am_wk.rpt %_iter_%_mf_am_wk.rpt
del mf_am_wk.rpt

del mf_am_dr.*
..\software\MFARE2TP ..\controls\mf_am_dr.ct1
if errorlevel 1 goto error

copy mf_am_dr.rpt %_iter_%_mf_am_dr.rpt
del mf_am_dr.rpt

del mf_op_wk.*
..\software\MFARE2TP ..\controls\mf_op_wk.ct1
if errorlevel 1 goto error

copy mf_op_wk.rpt %_iter_%_mf_op_wk.rpt
del mf_op_wk.rpt

del mf_op_dr.*
..\software\MFARE2TP ..\controls\mf_op_dr.ct1
if errorlevel 1 goto error
```

```
copy mf_op_dr.rpt %_iter_%mf_op_dr.rpt
del mf_op_dr.rpt

del ttpl*. *
start /w TPPLUS.EXE ..\scripts\export_fares.s /start -Ptpl -S..\%1
if errorlevel 1 goto error
copy ttpl*.prn %_iter_%export_fares.rpt

goto end
:error
REM Processing Error....
PAUSE
:end
CD..
```

## Trip\_Generation.bat

```
CD %1

REM Trip Generation

..\software\HHSIZINC inputs\zone.asc
if errorlevel 1 goto error

copy hhsizinc.rpt %_iter_%hhsizinc.rpt
del hhsizinc.rpt

..\software\VEHAVTP ..\controls\vehavtp.ct1
if errorlevel 1 goto error

copy vehavtp.rpt %_iter_%vehavtp.rpt
del vehavtp.rpt

..\software\CGTGV2TP ..\controls\hbw_tg.ct1
if errorlevel 1 goto error
del %_iter_%hbw_tg.rpt
ren cgtgv2tp.rpt %_iter_%hbw_tg.rpt

..\software\CGTGV2TP ..\controls\hbs_tg.ct1
if errorlevel 1 goto error
del %_iter_%hbs_tg.rpt
ren cgtgv2tp.rpt %_iter_%hbs_tg.rpt
del cgtgv2tp.*

..\software\CGTGV2TP ..\controls\hbo_tg.ct1
if errorlevel 1 goto error
del %_iter_%hbo_tg.rpt
ren cgtgv2tp.rpt %_iter_%hbo_tg.rpt
del cgtgv2tp.*

..\software\CGTGV2TP ..\controls\nhb_tg.ct1
if errorlevel 1 goto error
del %_iter_%nhb_tg.rpt
ren cgtgv2tp.rpt %_iter_%nhb_tg.rpt
del cgtgv2tp.*

..\software\CGTGV2TP ..\controls\mtk_tg.ct1
if errorlevel 1 goto error
del %_iter_%mtk_tg.rpt
ren cgtgv2tp.rpt %_iter_%mtk_tg.rpt
```

```
del cgtgv2tp.*

..\software\CGTGV2TP ..\controls\htk_tg.ct1
if errorlevel 1 goto error
del %_iter_%htk_tg.rpt
ren cgtgv2tp.rpt %_iter_%htk_tg.rpt
del cgtgv2tp.*

..\software\COGMCA1 ..\controls\COGMCA1.CTL
if errorlevel 1 goto error

copy cogmcal.rpt %_iter_%cogmcal.rpt

goto end
:error
REM Processing Error....
PAUSE
:end
CD..
```

## Trip\_Distribution.bat

```
REM Trip Distribution

CD %1

copy sov%_prev_%am.skm %_prev_%_am.skm
copy sov%_prev_%op.skm %_prev_%_op.skm

del ttpl*. *
del %_iter_%_TrpDst.rpt
start /w TPPLUS.EXE ..\scripts\trip_distribution.s /start -Ptpl -S..\%1
if errorlevel 1 goto error
copy ttpl*.prn %_iter_%_TrpDst.rpt
copy %_iter_%_TrpDst.rpt temp.rpt
..\software\extrtab temp.rpt
copy extrtab.out %_iter_%_TrpDst.tab
del extrtab.out
del temp.rpt
goto end

:error
REM Processing Error....
PAUSE
:end
CD..
```

## Mode\_Choice.bat

```
REM Mode Choice Model Application

CD %1

copy %_iter_%_hbwmu.ptt hbwmu.ptt
copy %_iter_%_hbsmu.ptt hbsmu.ptt
copy %_iter_%_hbomu.ptt hbomu.ptt
copy %_iter_%_nhbmu.ptt nhbmu.ptt
```

```

copy %_iter_%_am_wk.skm am_wk.skm
copy %_iter_%_am_dr.skm am_dr.skm
copy %_iter_%_op_wk.skm op_wk.skm
copy %_iter_%_op_dr.skm op_dr.skm

copy %_iter_%_am_wk.far mf_am_wk.far
copy %_iter_%_am_dr.far mf_am_dr.far
copy %_iter_%_op_wk.far mf_op_wk.far
copy %_iter_%_op_dr.far mf_op_dr.far

copy sov%_prev_%am.skm sovam.skm
copy hov2%_prev_%am.skm hov2am.skm
copy hov3%_prev_%am.skm hov3am.skm

copy sov%_prev_%op.skm sovop.skm
copy hov2%_prev_%op.skm hov2op.skm
copy hov3%_prev_%op.skm hov3op.skm

del mc_hbw.*
..\software\COGMC ..\controls\mc_hbw.ct1
if errorlevel 1 goto error

del mc_hbs.*
..\software\COGMC ..\controls\mc_hbs.ct1
if errorlevel 1 goto error

del mc_hbo.*
..\software\COGMC ..\controls\mc_hbo.ct1
if errorlevel 1 goto error

del mc_nhb.*
..\software\COGMC ..\controls\mc_nhb.ct1
if errorlevel 1 goto error

del tppl*.prn
del mc_summary.rpt
start /w TPPLUS.EXE ..\scripts\mc_summary.s /start -Ptpp1 -S..\%1
if errorlevel 1 goto error
copy tppl*.prn %_iter_%_mc_summary.rpt
copy tppl*.prn temp.rpt
..\software\extrtab temp.rpt
copy extrtab.out %_iter_%_mc_summary.tab
del extrtab.out
del temp.rpt
goto end

:error
REM Processing Error....
PAUSE
:end
CD..

```

### Mode\_Choice\_tc.bat

```

REM GET MODE CHOICE INPUT FILES FROM 2005

CD %1

copy %_iter_%_hbwmu.ptt hbwmu.ptt
copy %_iter_%_hbsmu.ptt hbsmu.ptt
copy %_iter_%_hbomu.ptt hbomu.ptt
copy %_iter_%_nhbmu.ptt nhbmu.ptt

```

```

copy %_iter_%_am_wk.skm am_wk.skm
copy %_iter_%_am_dr.skm am_dr.skm
copy %_iter_%_op_wk.skm op_wk.skm
copy %_iter_%_op_dr.skm op_dr.skm

copy %_iter_%_am_wk.far mf_am_wk.far
copy %_iter_%_am_dr.far mf_am_dr.far
copy %_iter_%_op_wk.far mf_op_wk.far
copy %_iter_%_op_dr.far mf_op_dr.far

copy sov%_prev_%am.skm sovam.skm
copy hov2%_prev_%am.skm hov2am.skm
copy hov3%_prev_%am.skm hov3am.skm

copy sov%_prev_%op.skm sovop.skm
copy hov2%_prev_%op.skm hov2op.skm
copy hov3%_prev_%op.skm hov3op.skm

REM Step 17TC: Mode Choice Model Application w/ Transit Constraint
REM This Batch File REPLACES Step17.Mode_Choice.bat if the transit
REM constraint process is utilized

REM Check that the 2005 mode ch. model output files are correctly spec'd
if not exist %_path05hbw_% goto error
if not exist %_path05hbs_% goto error
if not exist %_path05hbo_% goto error
if not exist %_path05nhb_% goto error

REM Run Mode Choice Model to get unconstrained transit trips
del mc_hbw.*
..\software\COGMC ..\controls\mc_hbw.ct1
if errorlevel 1 goto error

del mc_hbs.*
..\software\COGMC ..\controls\mc_hbs.ct1
if errorlevel 1 goto error

del mc_hbo.*
..\software\COGMC ..\controls\mc_hbo.ct1
if errorlevel 1 goto error

del mc_nhb.*
..\software\COGMC ..\controls\mc_nhb.ct1
if errorlevel 1 goto error

del tppl*.prn
del %_iter_%_mc_summary.rpt
start /w TPPLUS.EXE ..\scripts\mc_summary.s /start -Ptpp1 -S..\%1
if errorlevel 1 goto error
copy tppl*.prn %_iter_%_mc_summary.rpt
copy tppl*.prn temp.rpt
..\software\extrtab temp.rpt
copy extrtab.out %_iter_%_mc_summary.tab
del extrtab.out
del temp.rpt

REM End of Mode Choice Model
REM Execute Transit Constraint process
del tppl*.prn
del %_iter_%_mc_constraint.rpt
start /w TPPLUS.EXE ..\scripts\mc_constraint.s /start -Ptpp1 -S..\%1
if errorlevel 1 goto error
copy tppl*.prn %_iter_%_mc_constraint.rpt
copy tppl*.prn temp.rpt
..\software\extrtab temp.rpt
copy extrtab.out %_iter_%_mc_constraint.tab

```



```
del extrtab.out
del temp.rpt

REM Delete unconstrained Mode Choice Output files
REM & replace with constrained versions, and summarize

del mc_hbw%iter%.fin
del mc_hbs%iter%.fin
del mc_hbo%iter%.fin
del mc_nhb%iter%.fin

copy mc_hbw%iter%.con mc_hbw%iter%.fin
copy mc_hbs%iter%.con mc_hbs%iter%.fin
copy mc_hbo%iter%.con mc_hbo%iter%.fin
copy mc_nhb%iter%.con mc_nhb%iter%.fin

REM Execute Summary of Constrained Transit Trips
del tppl*.prn
del %iter%mc_consumsummary.rpt
start /w TPPLUS.EXE ..\scripts\mc_consumsummary.s /start -Ptpp1 -S..\%1
if errorlevel 1 goto error
copy tppl*.prn %iter%mc_consumsummary.rpt
copy tppl*.prn temp.rpt
..\software\extrtab temp.rpt
copy extrtab.out %iter%mc_consumsummary.tab
del extrtab.out
del temp.rpt

goto end

:error
REM Processing Error or Misspecified 2005 transit file path...
PAUSE
:end
CD..
```

### Auto\_Driver.bat

```
CD %1

REM Auto Driver Trips

del tppl*.*
del %iter%_mc_Auto_Drivers.rpt
start /w TPPLUS.EXE ..\scripts\mc_Auto_Drivers.s /start -Ptpp1 -S..\%1
if errorlevel 1 goto error
copy tppl*.prn %iter%_mc_Auto_Drivers.rpt
copy %iter%_mc_Auto_Drivers.rpt temp.dat
..\software\extrtab temp.dat
copy extrtab.out %iter%_mc_Auto_Drivers.tab
del extrtab.out
del temp.out

goto end
:error
REM Processing Error....
PAUSE
:end
CD..
```

### Time-of-Day.bat

```
CD %1

REM Time-of-Day Trips

del tppl*.*
del %iter%_Time-of-Day.rpt
start /w TPPLUS.EXE ..\scripts\Time-of-Day.s /start -Ptpp1 -S..\%1
if errorlevel 1 goto error
copy tppl*.prn %iter%_Time-of-Day.rpt
copy %iter%_Time-of-Day.rpt temp.dat
..\software\extrtab temp.dat
copy extrtab.out %iter%_Time-of-Day.tab
del temp.dat
goto end

:error
REM Processing Error....
PAUSE
:end
CD..
```

### Highway\_Assignment.bat

```
CD %1

REM Highway Assignment

del tppl*.*
del %iter%_Highway_Assignment.rpt
start /w TPPLUS.EXE ..\scripts\Highway_Assignment.s /start -Ptpp1 -S..\%1
if errorlevel 1 goto error
copy tppl*.prn %iter%_Highway_Assignment.rpt
copy %iter%_Highway_Assignment.rpt temp.dat
..\software\extrtab temp.dat
copy extrtab.out %iter%_Highway_Assignment.tab

goto end
:error
REM Processing Error....
PAUSE
:end
CD..
```

### Highway\_Skims.bat

```
CD %1

REM Highway Skims

del tppl*.*
del %iter%_Highway_Skims.rpt
start /w TPPLUS.EXE ..\scripts\Highway_Skims.s /start -Ptpp1 -S..\%1
if errorlevel 1 goto error
copy tppl*.prn %iter%_Highway_Skims.rpt
goto end
:error
REM Processing Error....
PAUSE
:end
CD..
```

