



# Memorandum

Date: October 30, 2014

To: Ronald Milone, COG/TPB

From: Mark S. Moran, COG/TPB

Re: Errata in the User's Guide for the MWCOG/NCRTPB Travel Forecasting Model, Version 2.3, Build 57

CC: Meseret Seifu, COG/TPB

The Version 2.3, Build 57 Travel Model (a.k.a. Version 2.3.57 Travel Model) became the adopted, production-use model for regional travel demand modeling work in the Washington, D.C. metropolitan area on October 15, 2014 when the National Capital Region Transportation Planning Board (NCRTPB or TPB) approved both the 2014 CLRP and the air quality conformity determination of the 2014 CLRP and FY 2015-2020 TIP. This model is documented in a user's guide dated October 17, 2014, which is divided into two volumes.<sup>1 2</sup> This memo lists errata in the aforementioned user's guide. This memo will be updated in the future if other errata are found, and it is planned to incorporate the contents of this memo into the next release of the model user's guide.

## 1 Incorrect date

On page 1 of the user's guide, this sentence contained the wrong date: "The Version 2.3.57 Travel Model became the adopted, production-use model on October 14, 2014, when the TPB took the following two actions." The correct date is "October 15, 2014," as shown above and as mentioned in the abstract of the user's guide.

## 2 Page number references in flowcharts in Appendix A

The Version 2.3.57 Travel Model includes a new automated, integrated, Python/ArcPy process to develop transit walksheds and calculate the percent of each TAZ within walking distance to transit service. This change resulted in adding a new page (p. A-1) to the model flowcharts in Appendix A of the user's guide. When updating the flowchart, we neglected to update the page references found on pages

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<sup>1</sup> Ronald Milone, Mark Moran, and Meseret Seifu, *User's Guide for the MWCOG/NCRTPB Travel Forecasting Model, Version 2.3, Build 57: Volume 1 of 2: Main Report and Appendix A (Flowcharts)* (Washington, D.C.: Metropolitan Washington Council of Governments, National Capital Region Transportation Planning Board, October 17, 2014).

<sup>2</sup> Ronald Milone, Mark Moran, and Meseret Seifu, *User's Guide for the MWCOG/NCRTPB Travel Forecasting Model, Version 2.3, Build 57: Volume 2 of 2: Appendices B (Batch Files), C (Cube Voyager Scripts), and D (AEMS Fortran Control Files)* (Washington, D.C.: Metropolitan Washington Council of Governments, National Capital Region Transportation Planning Board, October 17, 2014).

A-2 to A-15 of the flowchart (e.g., on p. A-2, the text “To Page 11” should have read “To Page 12”). Also, on p. A-9 of the flowchart, a reference to speed feedback iteration 6, should have referred to speed feedback iteration 4, i.e., “i1 to i6 iter” should have read “i1 to i4 iter”. An updated flowchart with all of these corrections is attached to this memo.

## Appendix A. Flowcharts

Ref: Ver2.3.57\_flowchart\_v2.vsd

### *Flowchart Numbers associated with Flowchart Steps*

This Appendix contains detailed data processing flow charts showing the relationship of input and output files to the processing steps comprising the Version 2.3 travel model. The flowcharts are arranged on the basis of the 17 batch files used in the model application. Many of the batch files are reused during the application of the model. The table below describes the sequence of each batch file used by iteration. The flowcharts are numbered in accordance with the numbering system (1-17), shown in the table below.

| Batch File                                | Initial (Pump Prime) Iteration |   |    |    |       |
|---|--------------------------------|---|----|----|-------|
|   | PP                             | 1 | 2  | 3  | 4     |
| ArcPy_Walkshed_Process.bat                | 1                              |   |    |    |       |
| Set_CPI.bat                               | 2                              |   |    |    |       |
| PP_Highway_Build.bat                      | 3                              |   |    |    |       |
| PP_Highway_Skims.bat                      | 4                              |   |    |    |       |
| Transit_Skim_All_Modes_Parallel.bat       |                                |   |    |    |       |
| Transit_Skim_LineHaul_Parallel.bat        |                                |   | 5  |    |       |
| Trip_Generation.bat                       |                                |   | 6  |    |       |
| Trip_Distribution.bat                     |                                |   | 7  |    |       |
| PP_Auto_Drivers.bat                       | 8                              |   |    |    |       |
| Time-of-Day.bat                           |                                |   | 9  |    |       |
| Highway_Assignment_Parallel.bat           |                                |   | 10 |    |       |
| Highway_Skims.bat / HSR_Highway_Skims.bat |                                |   | 11 |    |       |
| Transit_Fare.bat                          |                                |   |    | 12 |       |
| Mode_Choice_Parallel.bat                  |                                |   |    |    |       |
| /Mode_Choice_TC_V23_Parallel.bat          |                                |   |    | 13 |       |
| Auto_Driver.bat                           |                                |   |    | 14 |       |
| Transit_Assignment_Parallel.bat           |                                |   |    |    |       |
| Transit_Assignment_LineHaul_Parallel.bat  |                                |   |    |    | 15    |
| Transum.bat                               |                                |   |    |    | 16-17 |

Ref: V23\_Flowchart\_Table\_V2.3.57\_v1.xls





**TITLE: Process flowchart: Application of the TPB Version 2.3 Travel Model (Build 57)**

**COMPANY: COG/TPB**

**CREATOR: RM, MS, MSM**

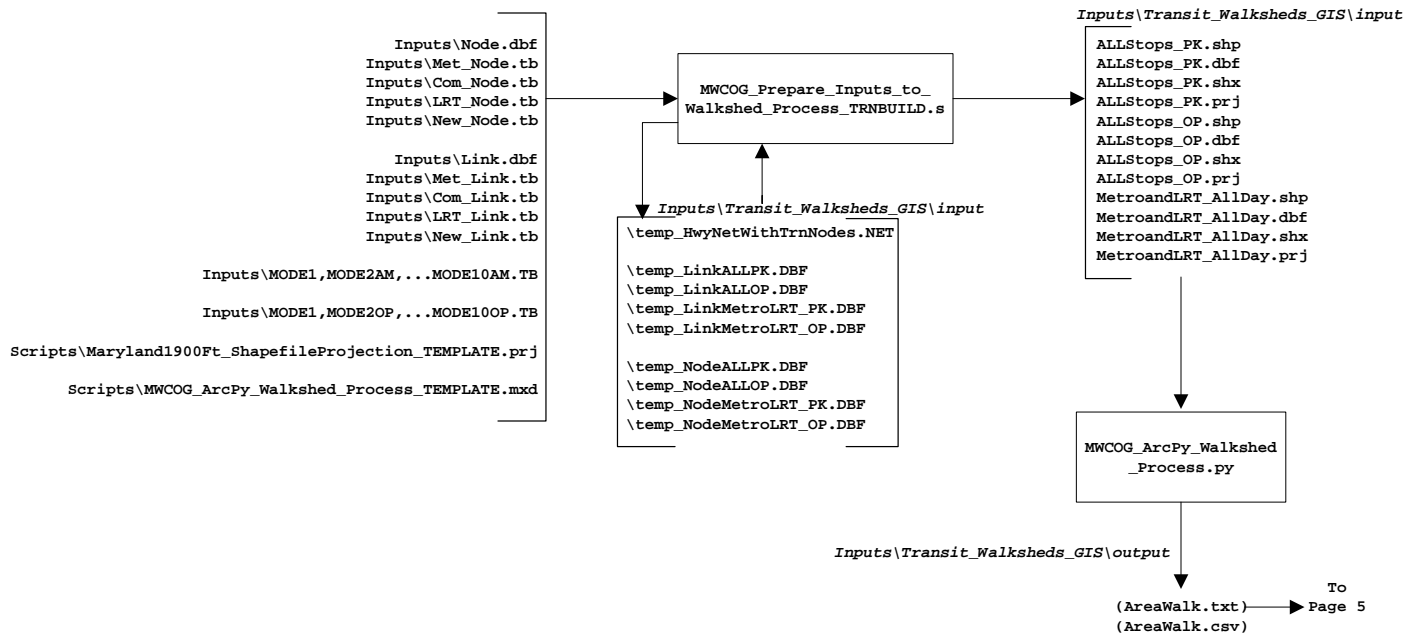
**DATE: 2014-10-30**

**PG: 1**

**OF 17**

**FILENAME: Ver2.3.57\_flowchart\_v2.vsd**

## ArcPy\_Walkshed\_Process.bat





**TITLE: Process flowchart: Application of the TPB Version 2.3 Travel Model (Build 57)**

**COMPANY: COG/TPB**

**CREATOR: RM, MS, MSM**

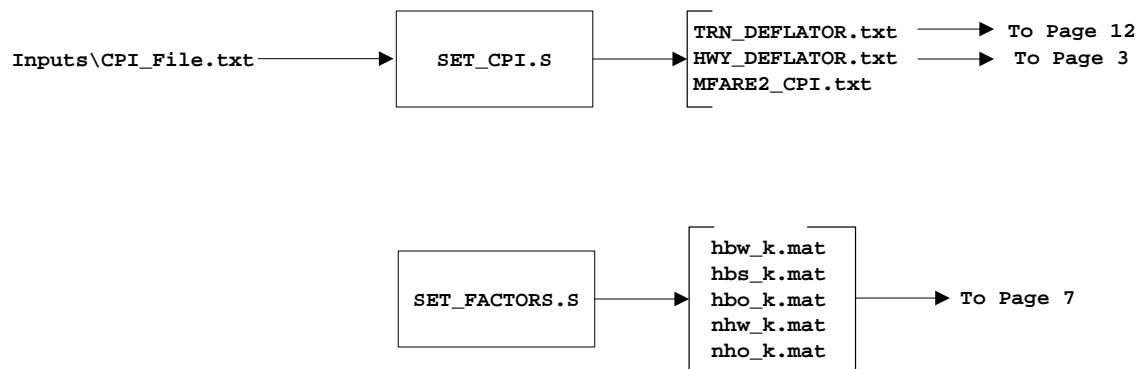
**DATE: 2014-10-30**

**PG: 2**

**OF 17**

**FILENAME: Ver2.3.57\_flowchart\_v2.vsd**

### Set\_CPI.bat: Develop CPI and K-factors



Report Files Generated by Set\_CPI.bat:

Set\_CPI.rpt  
Set\_Factors.rpt



**TITLE: Process flowchart: Application of the TPB Version 2.3 Travel Model (Build 57)**

**COMPANY: COG/TPB**

**CREATOR: RM, MS, MSM**

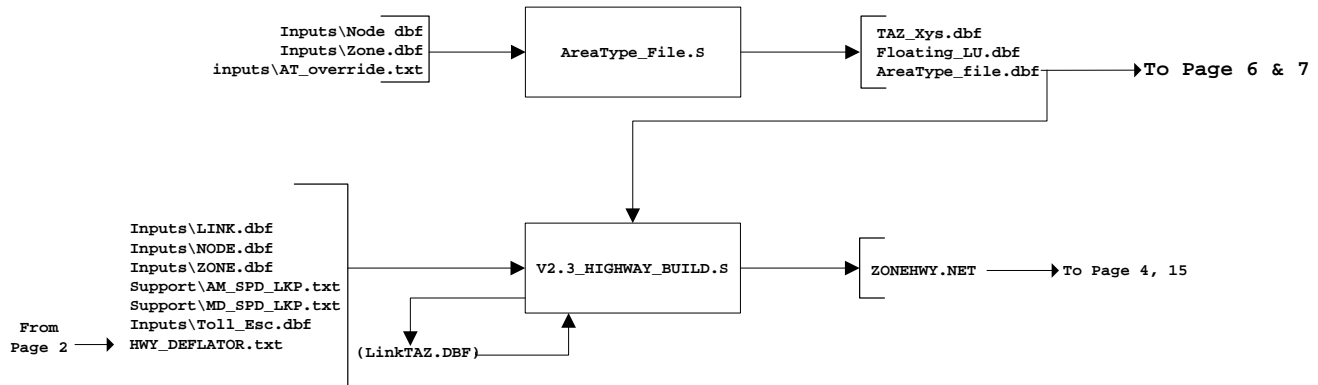
**DATE: 2014-10-30**

**PG: 3**

**OF 17**

**FILENAME: Ver2.3.57\_flowchart\_v2.vsd**

## PP\_Highway\_Build.bat



## Optional

### True shape display

In Cube Open:

ZONEHWY.NET  
i1..i4\_HWY.NET  
i4\_Assign\_Output.net

Open the "Layer Control"  
- Double Click on "Polyline"  
- browse to ..support\2007\_HwyNet.shp

From the "GIS Tools" pull down menu select "True shape display" and click the "ON" tab.

Save the project with the same file name as the network file (ZONEHWY.VPR,i1HWY.VPR..i4HWY.VPR) in the same subdirectory.

Report Files Generated by PP\_Highway\_Build.bat:

AreaType\_File.rpt  
V2.3\_highway\_build.rpt



**TITLE: Process flowchart: Application of the TPB Version 2.3 Travel Model (Build 57)**

**COMPANY: COG/TPB**

**CREATOR: RM, MS, MSM**

**DATE: 2014-10-30**

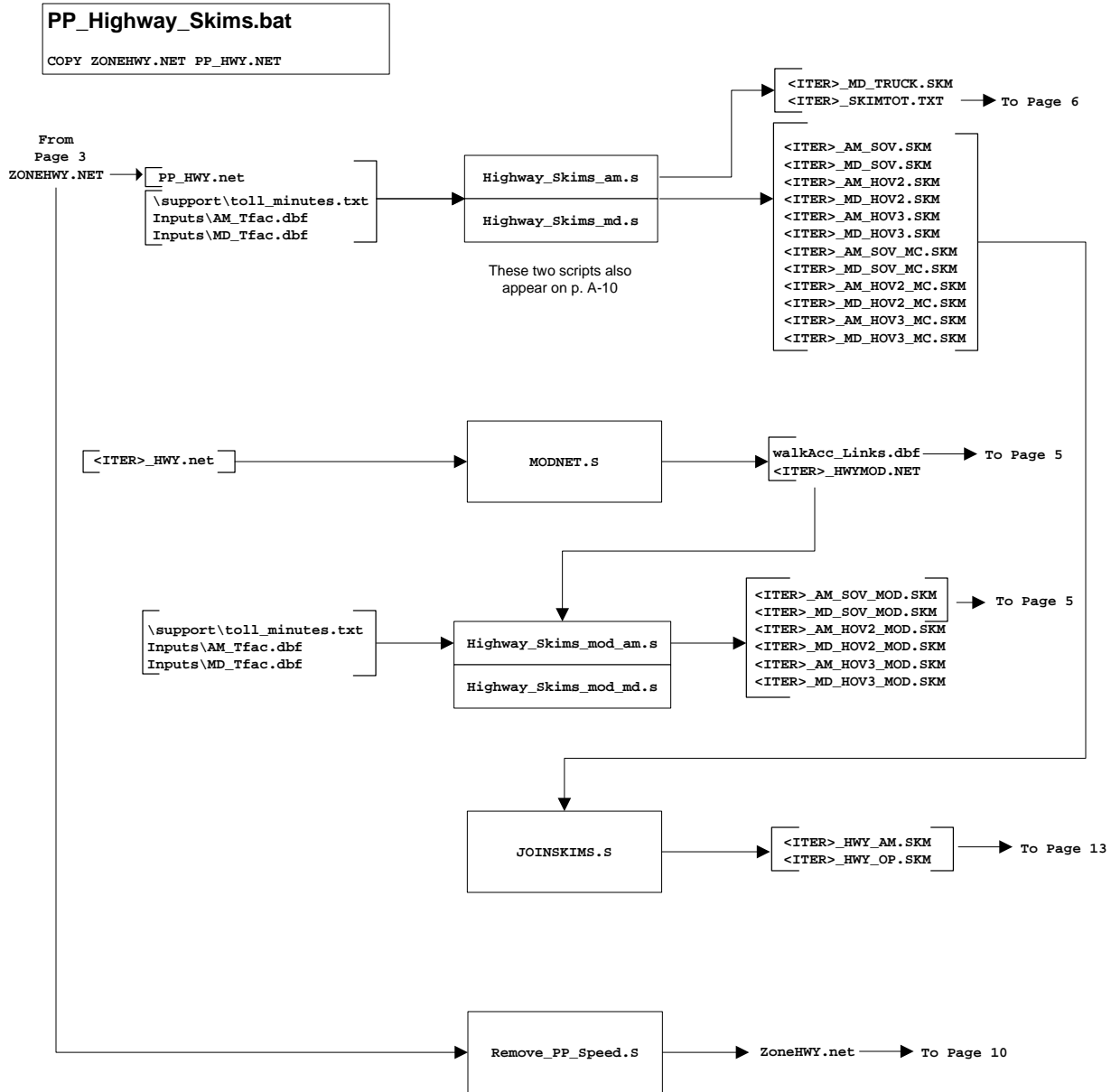
**PG: 4**

**OF 17**

**FILENAME: Ver2.3.57\_flowchart\_v2.vsd**

## PP\_Highway\_Skims.bat

(See also page A-11 for highway skimming process used in speed feedback iterations 1-4)



Report Files Generated by PP\_Highway\_Skims.bat:

pp\_Highway\_skims.rpt  
pp\_Joinskims.rpt  
pp\_Modnet.rpt  
pp\_Highway\_skims\_mod.rpt  
pp\_RemovePPSpeed.rpt





TITLE: Process flowchart: Application of the TPB Version 2.3 Travel Model (Build 57)

COMPANY: COG/TPB

CREATOR: RM, MS, MSM

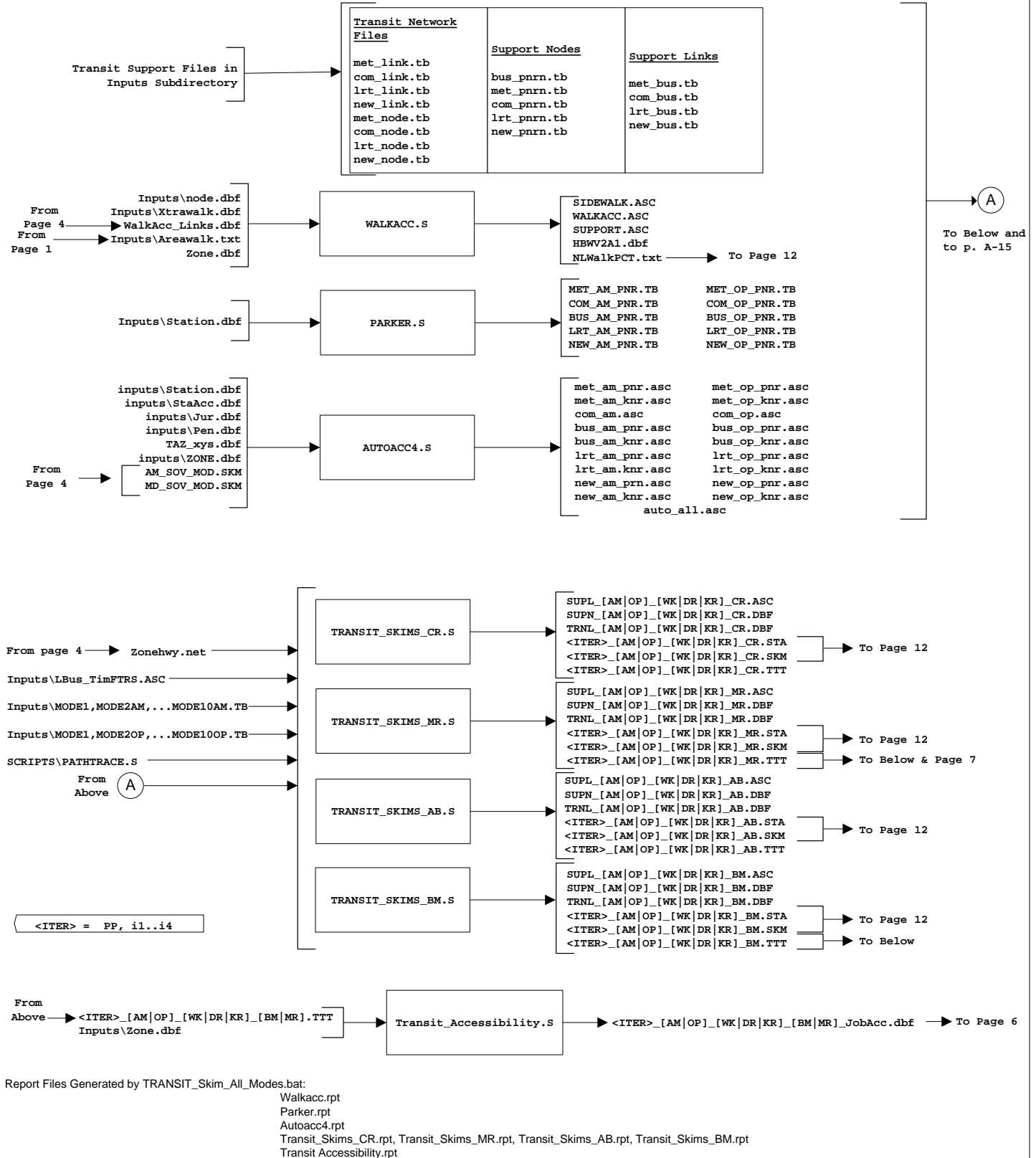
DATE: 2014-10-30

PG: 5

OF 17

FILENAME: Ver2.3.57\_flowchart\_v2.vsd

### Transit\_Skim\_All\_Modes\_Parallel.bat Transit\_Skim\_LineHaul\_Parallel.bat





**TITLE: Process flowchart: Application of the TPB Version 2.3 Travel Model (Build 57)**

**COMPANY: COG/TPB**

**CREATOR: RM, MS, MSM**

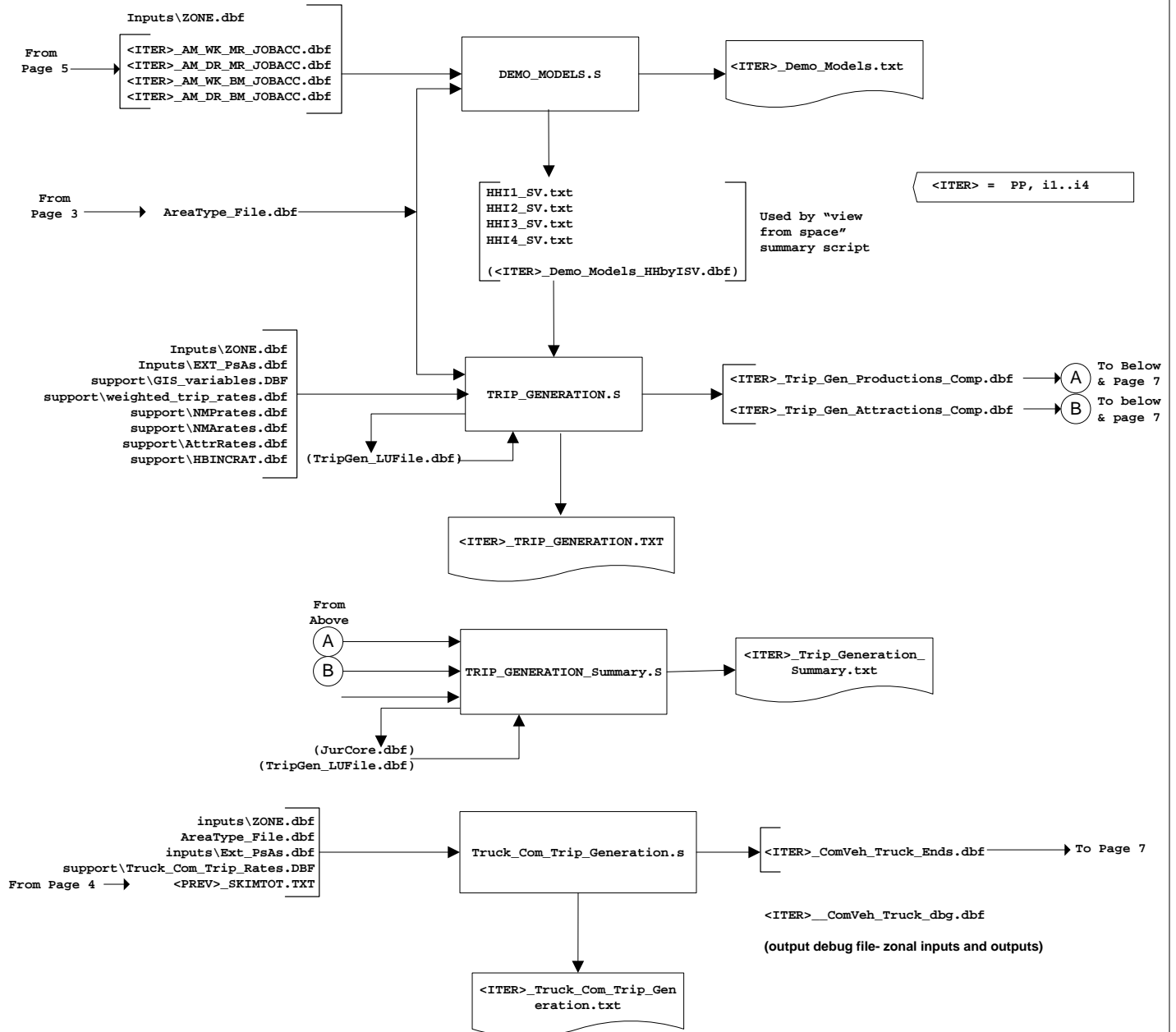
**DATE: 2014-10-30**

**PG: 6**

**OF 17**

**FILENAME: Ver2.3.57\_flowchart\_v2.vsd**

### Trip\_Generation.bat



Report Files Generated by Trip\_Generation.bat:

- <ITER>\_Demo\_Models.rpt
- <ITER>\_Trip\_Generation.rpt
- <ITER>\_Trip\_Generation\_Summary.rpt
- <ITER>\_Truck\_Com\_Trip\_Generation.rpt



TITLE: Process flowchart: Application of the TPB Version 2.3 Travel Model (Build 57)

COMPANY: COG/TPB

CREATOR: RM, MS, MSM

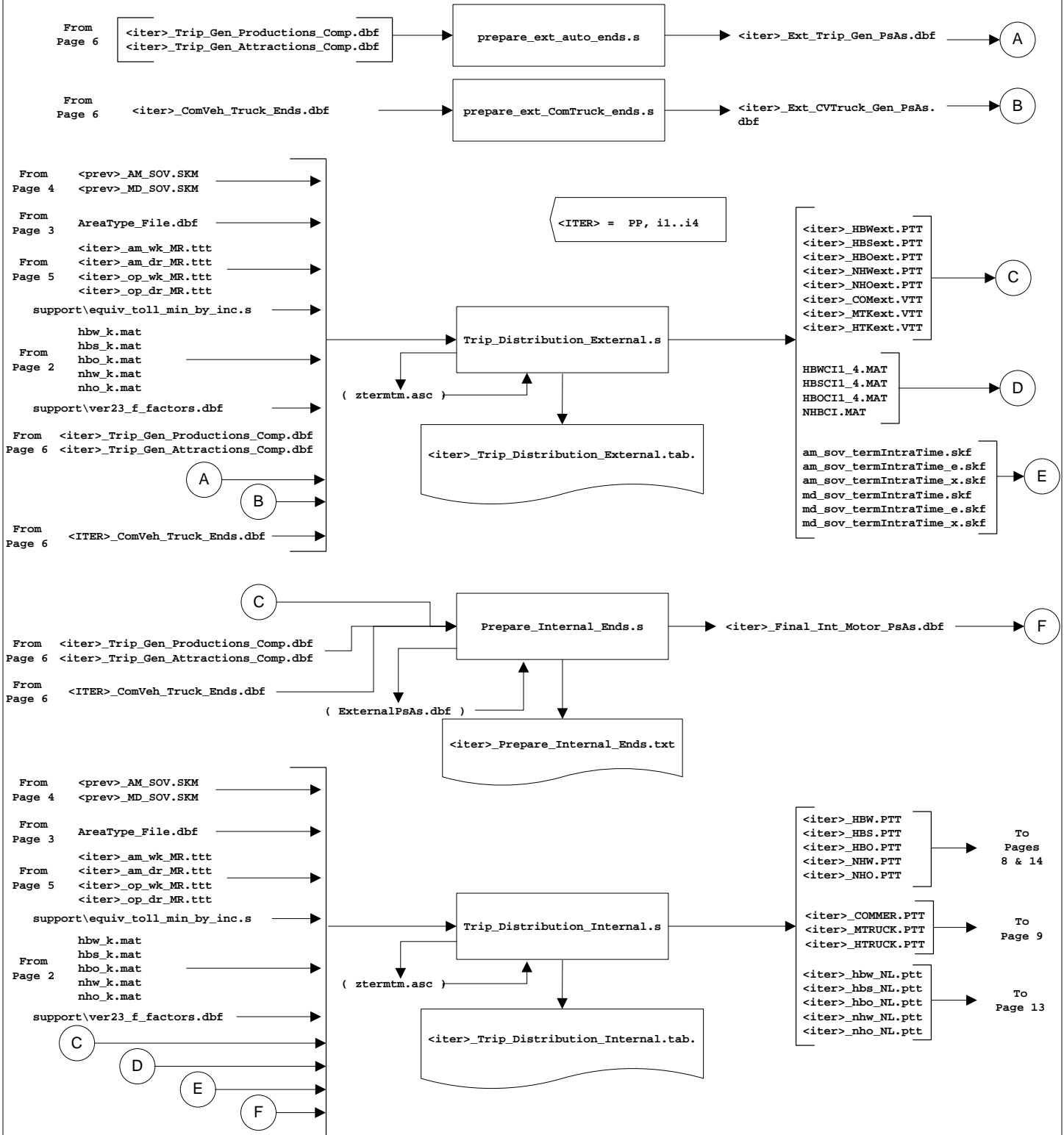
DATE: 2014-10-30

PG: 7

OF 17

FILENAME: Ver2.3.57\_flowchart\_v2.vsd

### Trip\_Distribution.bat



Report Files Generated by Trip\_Distribution.bat:  
Trip\_Distribution.rpt



**TITLE: Process flowchart: Application of the TPB Version 2.3 Travel Model (Build 57)**

**COMPANY: COG/TPB**

**CREATOR: RM, MS, MSM**

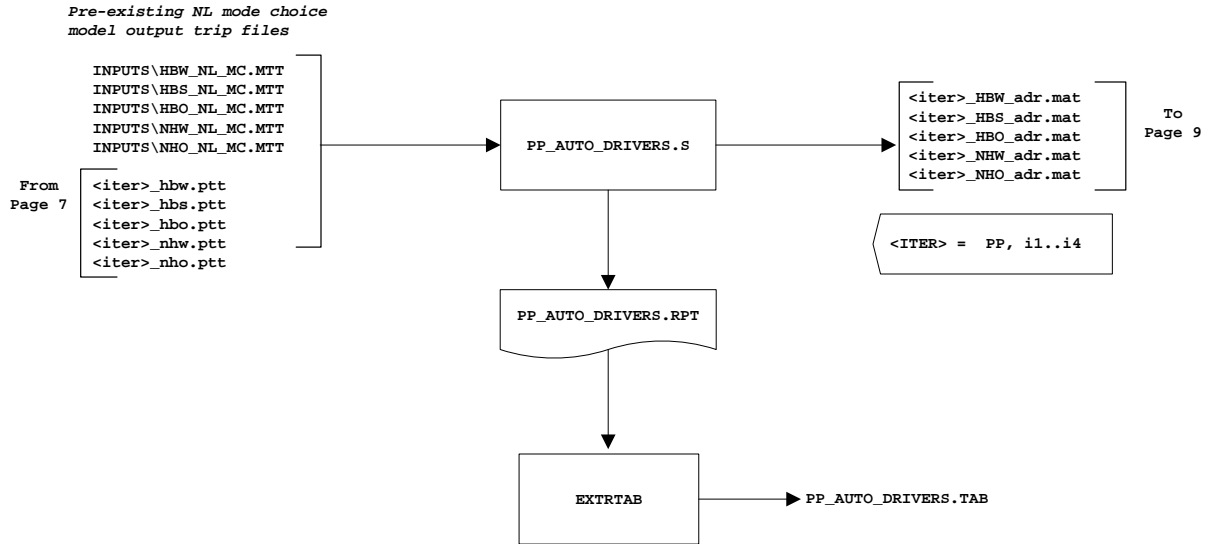
**DATE: 2014-10-30**

**PG: 8**

**OF 17**

**FILENAME: Ver2.3.57\_flowchart\_v2.vsd**

## PP\_Auto\_Drivers.bat



Report Files Generated by PP\_Auto\_Drivers.bat:  
PP\_Auto\_Drivers.rpt



TITLE: Process flowchart: Application of the TPB Version 2.3 Travel Model (Build 57)

COMPANY: COG/TPB

CREATOR: RM, MS, MSM

DATE: 2014-10-30

PG: 9

OF 17

FILENAME: Ver2.3.57\_flowchart\_v2.vsd

## Time-of-Day.bat

From Page 8 (pp Iter)  
From Page 14  
(i1 to i4 iter)

```
<iter>_HBW_adr.mat  
<iter>_HBS_adr.mat  
<iter>_HBO_adr.mat  
<iter>_NHW_adr.mat  
<iter>_NHO_adr.mat
```

..\support\todcomp\_2008HTS.dbf

TIME-OF-DAY.S

```
<ITER>_AM_ADR.MAT  
<ITER>_PM_ADR.MAT  
<ITER>_MD_ADR.MAT  
<ITER>_NT_ADR.MAT
```

A

<ITER> = PP, i1..i4

<ITER>\_TIME-OF-DAY.  
RPT

EXTRTAB

<ITER>\_TIME-OF-DAY.TAB

From  
Page 7

```
Inputs\XXCVT.VTT  
Inputs\XXAUT.VTT  
Inputs\TAXI.ADR  
Inputs\SCHL.ADR  
Inputs\VISI.ADR  
Inputs\AIRPAX.ADR
```

```
<iter>_COMMER.PTT  
<iter>_MTRUCK.PTT  
<iter>_HTRUCK.PTT
```

..\Support\cvdelta\_3722.trp  
..\Support\tkdelta\_3722.trp

MISC\_TIME-OF-DAY.S

Time period specific  
miscellaneous trip table

```
<ITER>_AM_MISC.TT  
<ITER>_MD_MISC.TT  
<ITER>_PM_MISC.TT  
<ITER>_NT_MISC.TT
```

Each miscellaneous trip table  
includes:  
T1: XX Medium Truck  
T2: XX Heavy Truck  
T3: XX Auto Driver & Com. Vehs.  
T4: Taxi Auto Driver  
T5: Visitor Auto Driver  
T6: School Auto Driver  
T7: Internal/ External Med. Truck  
T8: Internal/ External Hvy. Truck  
T9: Air Passenger Auto Driver  
T10: Internal/ External Com. Veh.

MISC\_TIME-OF-DAY.RPT

A

PREPARE\_TRIP\_TABLES\_FOR\_ASSIGNMENT.S

EXTRTAB

```
<ITER>_AM.VTT  
<ITER>_MD.VTT  
<ITER>_PM.VTT  
<ITER>_NT.VTT
```

To Page 10

<ITER>\_MISC\_TIME-OF-DAY.TAB

Report Files Generated by Time-of-Day.bat:

<ITER>\_Time-of-Day.rpt

<ITER>\_Misc\_Time-of-Day.rpt



TITLE: Process flowchart: Application of the TPB Version 2.3 Travel Model (Build 57)

COMPANY: COG/TPB

CREATOR: RM, MS, MSM

DATE: 2014-10-30

PG: 10

OF 17

FILENAME: Ver2.3.57\_flowchart\_v2.vsd

## Highway\_Assignment\_parallel.bat

<ITER> = PP, i1..i4

```
..\support\hwy_assign_Conical_VDF.s  
..\support\hwy_assign_capSpeedLookup.s  
  
Support\toll_minutes.txt  
Inputs\AM_Tfac.dbf  
Inputs\PM_Tfac.dbf  
Inputs\MD_Tfac.dbf  
Inputs\NT_Tfac.dbf
```

Zonehwy.net

```
<ITER>_AM.VTT  
<ITER>_MD.VTT  
<ITER>_PM.VTT  
<ITER>_NT.VTT
```

From  
Page 9

HIGHWAY\_ASSIGNMENT\_parallel.s

```
<ITER>_am_load_link.asc  
<ITER>_md_load_link.asc  
<ITER>_pm_load_link.asc  
<ITER>_nt_load_link.asc  
<ITER>_HWY.NET
```

To Page 11  
For iter PP, i1

<ITER>\_HIGHWAY\_ASSIGNMENT.  
RPT

UE convergence report files:

```
<iter>_ue_iteration_report_AM_nonHov.txt  
<iter>_ue_iteration_report_AM_hov.txt  
<iter>_ue_iteration_report_PM_nonHov.txt  
<iter>_ue_iteration_report_PM_hov.txt  
<iter>_ue_iteration_report_MD.txt  
<iter>_ue_iteration_report_NT.txt
```

Temporary files:

```
temp1_@prd@.net  
temp2_@prd@.net  
temp_@prd@.net  
temp_AM.net  
temp_MD.net  
temp_PM.net  
temp_NT.net
```



## Average\_Link\_Speeds.bat

A

```
COPY  
<ITER>_HWY.NET  
For iterations  
i2..i4
```

```
<iter>_Assign_Output.net  
"Current" iteration assignment  
output
```

```
<iter>_HWY.tem1  
"Previous" iteration loaded  
network
```

Average\_Link\_Speeds.s

Final loaded-link network is  
i4\_Assign\_Output.net

<ITER>\_HWY.net

To  
Page 11  
For iterations  
i2..i4

Report Files Generated by Highway\_Assignment.bat:

```
<ITER>_Highway_assignment.rpt  
Average_Link_Speeds.rpt
```



TITLE: Process flowchart: Application of the TPB Version 2.3 Travel Model (Build 57)

COMPANY: COG/TPB

CREATOR: RM, MS, MSM

DATE: 2014-10-30

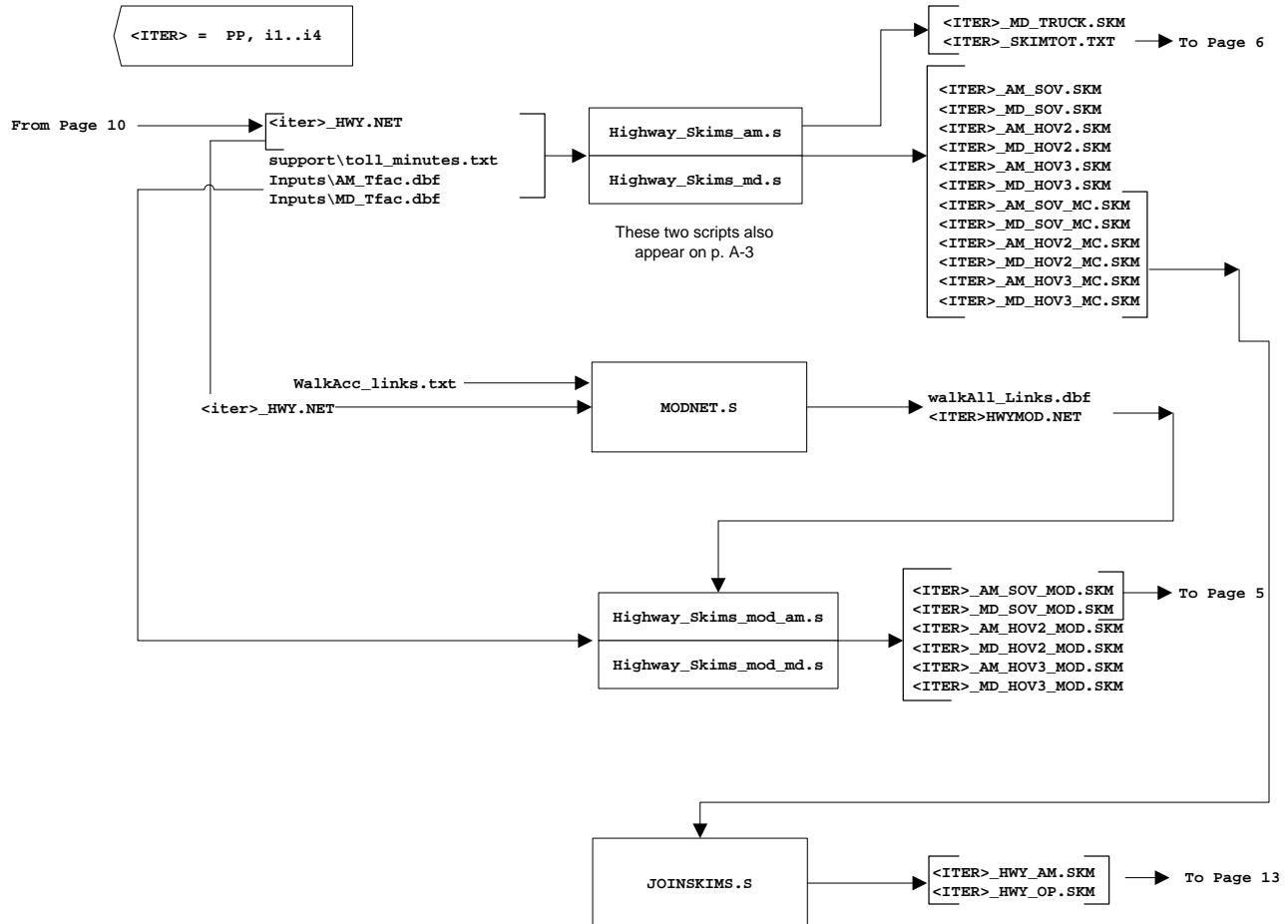
PG: 11

OF 17

FILENAME: Ver2.3.57\_flowchart\_v2.vsd

## Highway\_Skims.bat (or HSR\_Highway\_Skims.bat for analysis years with HOT lanes)

(See also page A-4 for highway skimming process used in the "pump prime" speed feedback iteration)



Report Files Generated by Highway\_Skims.bat:

<ITER>\_Highway\_skims.rpt  
<ITER>\_Joinskims.rpt  
<ITER>\_Modnet.rpt  
<ITER>\_Highway\_skims\_mod.rpt



TITLE: Process flowchart: Application of the TPB Version 2.3 Travel Model (Build 57)

COMPANY: COG/TPB

CREATOR: RM, MS, MSM

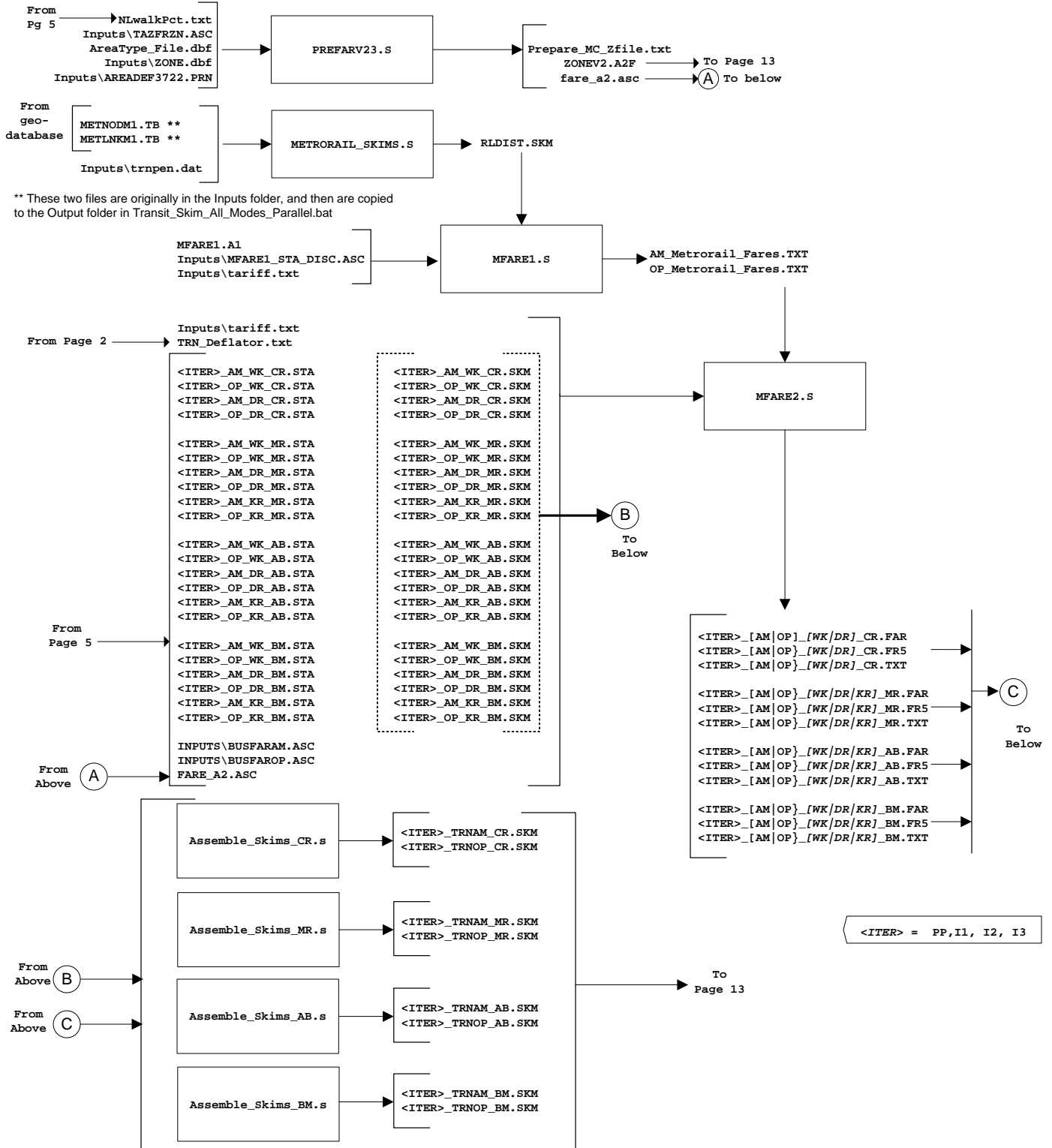
DATE: 2014-10-30

PG: 12

OF 17

FILENAME: Ver2.3.57\_flowchart\_v2.vsd

### Transit\_Fare.bat



Report Files Generated by Transit\_Fare.bat:

- <ITER>\_prefarV23.rpt
- <ITER>\_Metrorail\_Skims.rpt
- <ITER>\_Mfare1.rpt
- <ITER>\_Mfare2.rpt
- <ITER>\_Assemble\_Skims\_CR.rpt, Assemble\_Skims\_MR.rpt, Assemble\_Skims\_AB.rpt, Assemble\_Skims\_BM.rpt





TITLE: Process flowchart: Application of the TPB Version 2.3 Travel Model (Build 57)

COMPANY: COG/TPB

CREATOR: RM, MS, MSM

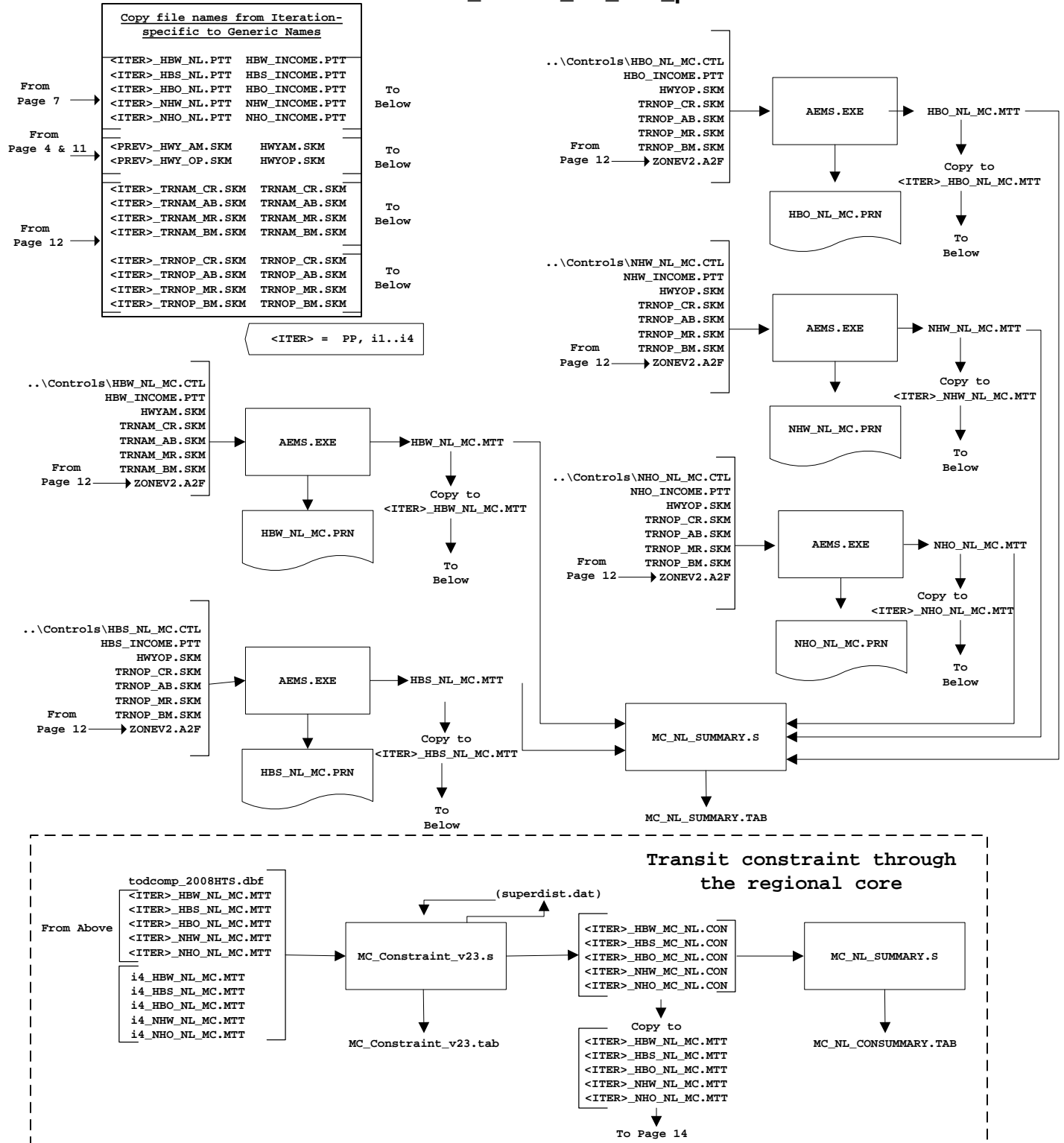
DATE: 2014-10-30

PG: 13

OF 17

FILENAME: Ver2.3.57\_flowchart\_v2.vsd

### Mode\_Choice\_parallel.bat/ Mode\_Choice\_TC\_V23\_parallel.bat



Report Files Generated by Mode\_Choice.bat/Mode\_Choice\_TC\_V23.bat:

- <ITER>\_MC\_NL\_Summary.rpt
- <ITER>\_MC\_Constraint\_v23.rpt
- <ITER>\_mc\_NL\_CONSUMMARY.rpt



**TITLE: Process flowchart: Application of the TPB Version 2.3 Travel Model (Build 57)**

**COMPANY: COG/TPB**

**CREATOR: RM, MS, MSM**

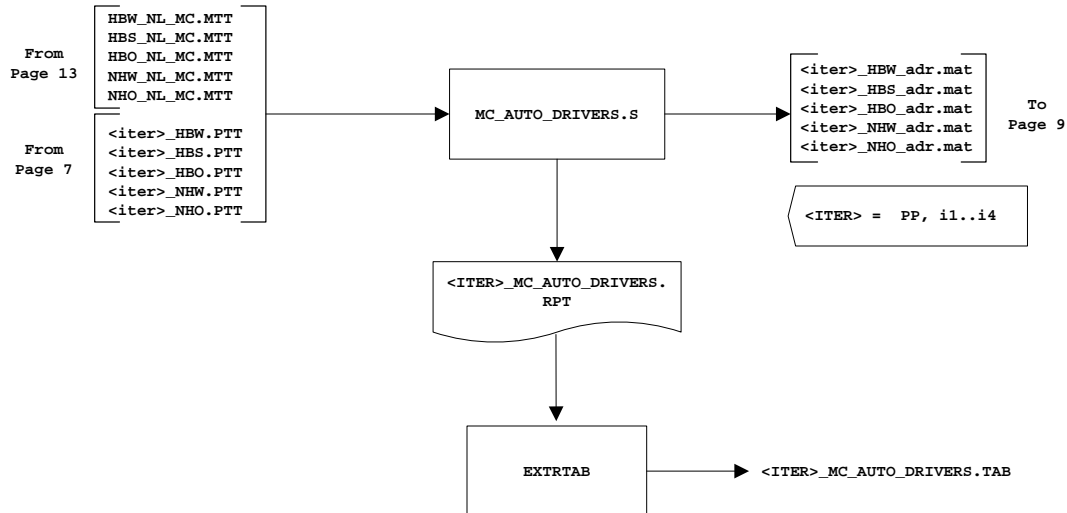
**DATE: 2014-10-30**

**PG: 14**

**OF 17**

**FILENAME: Ver2.3.57\_flowchart\_v2.vsd**

### Auto\_Driver.bat



Report Files Generated by Auto\_driver.bat:  
<ITER>\_MC\_Auto\_Drivers.rpt



TITLE: Process flowchart: Application of the TPB Version 2.3 Travel Model (Build 57)

COMPANY: COG/TPB

CREATOR: RM, MS, MSM

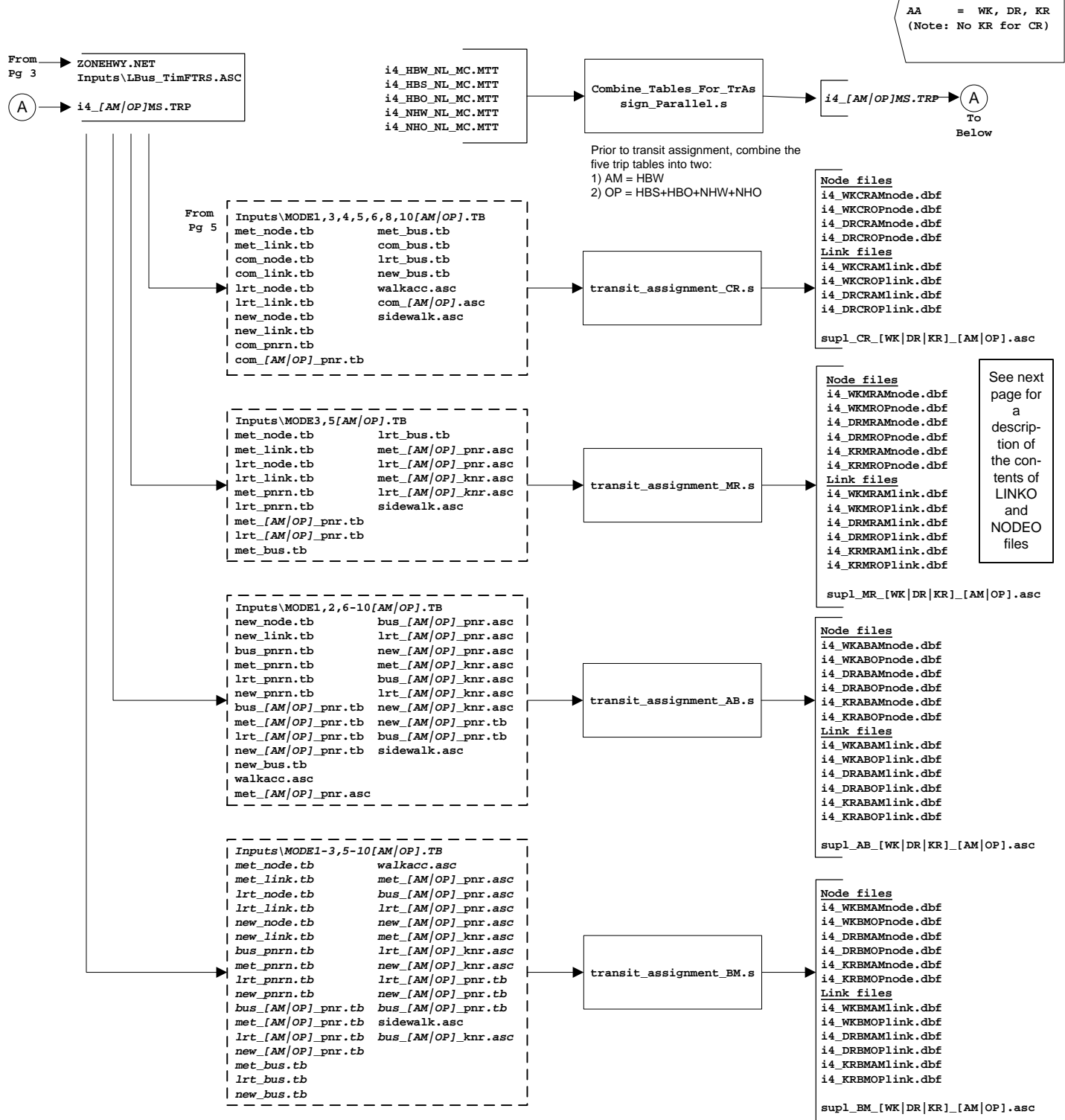
DATE: 2014-10-30

PG: 15

OF 17

FILENAME: Ver2.3.57\_flowchart\_v2.vsd

### Transit\_Assignment\_Parallel.bat Transit\_Assignment\_LineHaul\_Parallel.bat



Report Files Generated by Transit\_Assignment.bat:

Combine\_Tables\_For\_TrAssign\_Parallel.rpt

transit\_assignment\_CR.rpt, transit\_assignment\_MR.rpt, transit\_assignment\_AB.rpt, transit\_assignment\_BM.rpt



**TITLE: Process flowchart: Application of the TPB Version 2.3 Travel Model (Build 57)**

**COMPANY: COG/TPB**

**CREATOR: RM, MS, MSM**

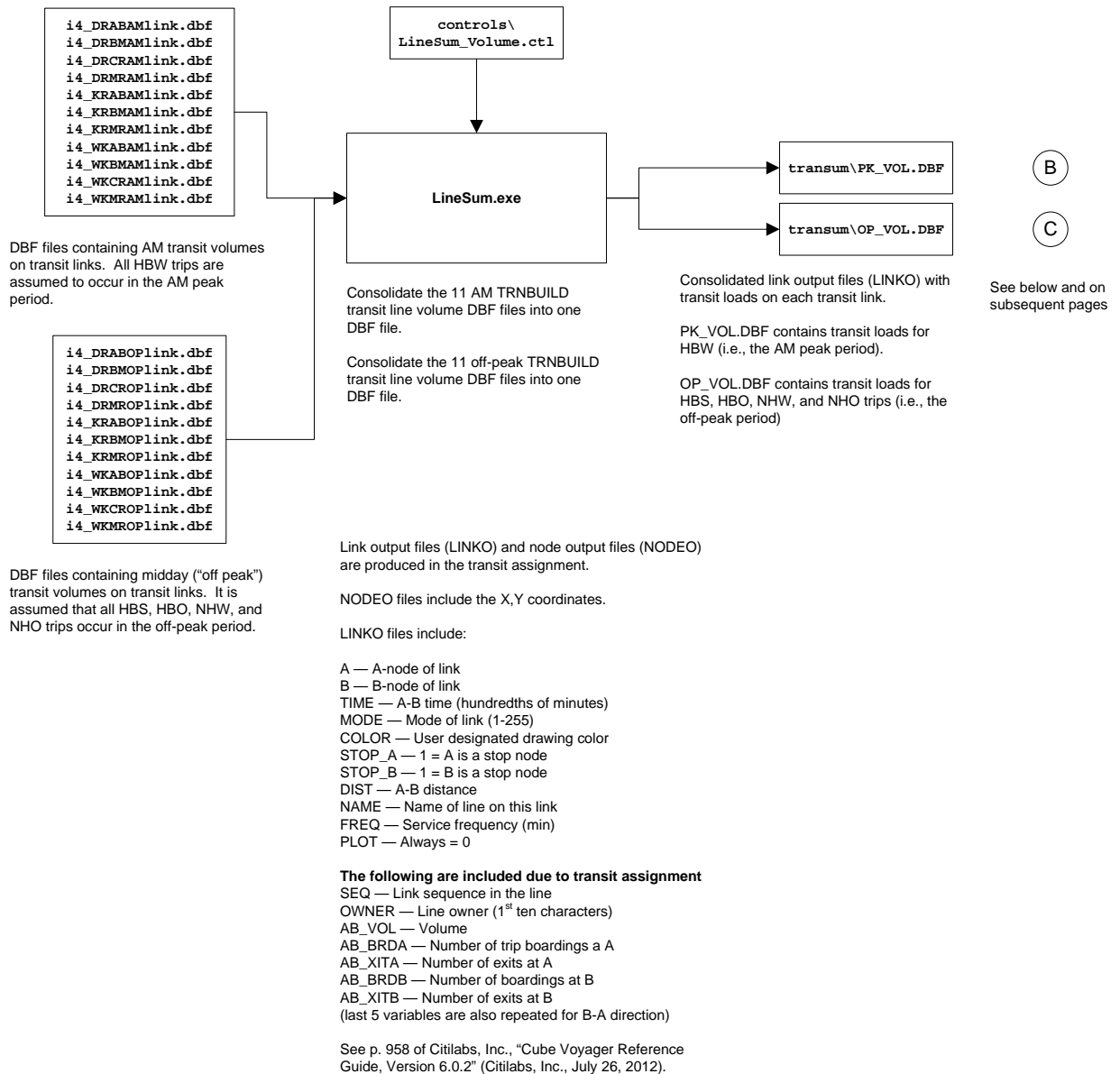
**DATE: 2014-10-30**

**PG: 16**

**OF 17**

**FILENAME: Ver2.3.57\_flowchart\_v2.vsd**

## Transum.bat (page 1 of 2)





**TITLE: Process flowchart: Application of the TPB Version 2.3 Travel Model (Build 57)**

**COMPANY: COG/TPB**

**CREATOR: RM, MS, MSM**

**DATE: 2014-10-30**

**PG: 17**

**OF 17**

**FILENAME: Ver2.3.57\_flowchart\_v2.vsd**

### Transum.bat (page 2 of 3)

