

# **METADATA**

For the

**DRCOG Regional Travel Model  
Compass Version 1.0**

**Last Modified: April 12, 2004**

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# INPUT FILES

## I. NETWORK PRE-PROCESSING

**Xxx.dbd:** Combined peak & off-peak highway geographic file (note that this is the one we actually work on when doing coding).

**Link Layer:**

ID: link ID – unique - automatically created in TransCAD.

LENGTH: Length of a link – automatically created by TransCAD (miles).

DIR: link direction Values: -1, 0, 1 (B to A, two-way, A to B).

DIST: length of a link (miles)

May differ from LENGTH as specified by user, this is used to calculate travel times (not LENGTH).

TYPE: highway or transit links.

1: highway link – standard roadway segment.

2: transit link – transit-only link – bus or rail, not on roadway network.

98: Transit and walk only link (e.g. 16th Street mall).

99: Walk only (pedestrian overpasses).

FACILITY TYPE: road type.

1: freeway

2: major regional arterial

3: principal arterial

4: minor arterial

5: collector

6: ramp

8: zone connector

LANE: number of through lanes in each direction

LaneAB: number of through lanes in the AB direction (not currently used)

LaneBA: number of through lanes in the BA direction (not currently used)

TOLL: toll road

0: no toll

1: toll link

6: entrance ramp onto toll road (receives an additional 1 minute penalty)

USE: HOV codes.

0: general purpose (no HOV)

1: Continuous access – 2+ persons – AM peak, inbound direction.

2: Continuous access – 2+ persons – PM peak, outbound direction.

3: Continuous access – 2+ persons – Circumferential (no peak direction).

4: Continuous access – 3+ persons – AM peak, inbound direction.

5: Continuous access – 3+ persons – PM peak, outbound direction.

6: Continuous access – 3+ persons – Circumferential (no peak direction).

7: Barrier separated – 2+ persons – AM peak, inbound direction.

8: Barrier separated – 2+ persons – PM peak, outbound direction.

9: Barrier separated – 2+ persons – Circumferential (no peak direction)

10: Barrier separated – 3+ persons – AM peak, inbound direction.

11: Barrier separated – 3+ persons – PM peak, outbound direction.

12: Barrier separated – 3+ persons – Circumferential (no peak direction).

13: Bus only - AM peak – inbound direction.

14: Bus only – PM peak – outbound direction.

15: Bus only – Circumferential (no peak direction).

override\_FFSpeed: Free-Flow speed specified by user to override defaults (mph).

override\_CapPerLane: Capacity per lane specified by user to override defaults (vph).

override\_PenaltyMinutes: Penalty specified by user for specific links (min).

T\_SPEED: transit speed (mph) -- only needed for type 2 or 98 links.

AB\_AM\_SPEED: Driving speed for AB direction in AM peak.

Users can fill in starting speeds. The Speed balancing step will replace these speeds with each iteration.

BA\_AM\_SPEED: Driving speed for BA direction in AM peak.

Users can fill in starting speeds. The Speed balancing step will replace these speeds with each iteration.

AB\_MD\_SPEED: Driving speed for AB direction in Midday (off-peak 2 & 3).

Users can fill in starting speeds. the Speed balancing step will replace these speeds with each iteration.

BA\_MD\_SPEED: Driving speed for BA direction in Midday (off-peak 2 & 3).

Users can fill in starting speeds. The Speed balancing step will replace these speeds with each iteration.

SCREEN LINE: screen line ID codes.

XxxxAWDT: Daily weighted average traffic count data.

AWDT\_XXX\_GEOID: location ID for the links with AWDT (from traffic count dbase).

#### **Node Layer:**

ID: Node ID set by TransCAD.

Longitude: determined by TransCAD.

Latitude: determined by TransCAD.

PARKING: Flag indicating if a node is used as a Park-n-Ride lot.

1: Node is a Park-n-Ride.

Park\_n\_Ride\_Name: Name of the PNR lot, used only for reporting

LRT\_Station: Flag indicate if a node is at a light rail station. Used only for reporting.

1: Node is a rail station.

LRT\_Station\_Name: Name of rail station, used only for reporting.

**Xxxr.rts:** Combined peak & off-peak transit route system.

(This is the one we actually work on when doing coding).

#### **Route Layer:**

ROUTE\_ID: TransCAD ID – unique.

ROUTE\_NAME: Bus and rail route names with directions.

ROUTE: Bus and rail route names. (Same as above, but without direction and pattern).

Used only for reporting.

PATTERN: Different versions of a same route when following a slightly different path.

Used only for reporting.

A:

B:

C:  
D:  
E:  
F:

**DIRECTION:** bus route direction. Used only for reporting.

NB: north bound  
SB: south bound  
EB: east bound  
WB: west bound

**COMPANY:** bus maintenance company. Used only for reporting.

**MODE:** transit service type codes.

4: airport shuttle.  
5: local bus  
6: limited bus  
7: express bus  
8: regional bus  
9: light rail  
10: sky-ride  
11: Longmont local  
12: Boulder local

**SERVICE\_TYPE:** Transit services. Used only for reporting.

**EQUIPMENT\_TYPE:** Type of bus (i.e. Standard 40' bus, small 30' bus), used for RTD operations cost model.

**PEAK\_HEADWY:** Bus or rail headway during AM peak time (6-8AM) (min).

**OFF\_PEAK\_HEADWY:** Bus or rail headway during off-peak (10-2PM) (min).

**EARLY\_LATE\_HDWY:** bus or rail headway after off-peak time (min).

### **Stop Layer:**

**ID:** ID set by TransCAD.

**Longitude:** set by TransCAD.

**Latitude:** set by TransCAD.

**Route\_ID:** ID of the route that this stop applies to, set by TransCAD.

**Pass\_Count:** the number of times the route passes this stop, set by TransCAD.

**Milepost:** the location of this stop along the route (miles), set by TransCAD.

**STOP\_ID:** ID set by TransCAD.

**[Near Node]:** the closest node in the underlying geographic file, set by TransCAD when building the transit network (.tnw file)

**Xxxpk.dbd:** peak hour base database. The model copies it from main database into peak & off-peak, and adds fields.

### **Link Layer:**

Includes the same fields as above, with the following additions made by the model:

**ONE:** the value 1.

**SPDC:** Speed class (AT&FT) used to join in free-flow speeds.

**CAPC:** Capacity class (AT&FT) used to join in capacity values.

**CFNC:** Cost function class (AT &FT) used to join in volume-delay function parameters.

AREA TYPE: Area type produced by the area type model.

- 1: CBD
- 2: Fringe
- 3: Urban
- 4: Sub-Urban
- 5: Rural

ZONE: TAZ (1-2664)

FFSpeed: Free-flow speed (mph)

FFTime: Free-flow travel time (min), computed from FFSpeed and DIST.

Capacity: The total link capacity (vph).

Alpha: The alpha parameter in the BPR function.

Beta: The beta parameter in the BPR function.

TollCost: The monetary cost to traverse a toll link (1996 \$), computed by multiplying the toll rate by the DIST.

Penalty: Any penalty associated with traversing a link (1996 \$), computed as a 1 minute penalty on on-ramps to a toll road (TOLL = 6), and any values in override\_PenaltyMinutes.

AutoOpRate: Auto operating cost rate (1996 \$ per mile). Generally \$0.15/mile for surface streets, and \$0.20/mile for freeways and expressways.

SPEED: default speed in case "AB\_AM Speed" is missing.

SPD\_HOV: default HOV speed in case starting HOV speed is missing.

MODE: auxiliary mode for transit. For Transit assignment, this specifies walkable links.

Values: 2: not walkable.

98, 99: walkable.

T\_DIST: average walking distance: 0.1 mile maximum for centroid-connectors.

Everything else is the same as DIST. The centroid-connector limit is used because we assume that all walk-to transit trips are from within 0.3 miles of a stop, so the walking trips average length is 0.1 miles.

ABTime: Driving time in AB direction (value is 99999 for HOV link) (min).

BATime: Driving time in BA direction (value is 99999 for HOV link) (min).

ABTime\_HOV: Driving time on HOV link in AB direction.

BATime\_HOV: Driving time on HOV link in BA direction.

ABImp: Impedance in AB direction – used for highway skimming (1996 \$)

$=(\text{Value of time} * \text{time})+(\text{Value of distance} * \text{dist})$

BAImp: Impedance in BA direction – used for highway skimming (1996 \$)

$=(\text{Value of time} * \text{time})+(\text{Value of distance} * \text{dist})$

ABImp\_HOV: HOV Impedance in AB direction – used for highway skimming (1996 \$)

$=(\text{Value of time} * \text{time})+(\text{Value of distance} * \text{dist})$

BAImp\_HOV: HOV Impedance in BA direction – used for highway skimming (1996 \$)

$=(\text{Value of time} * \text{time})+(\text{Value of distance} * \text{dist})$

WALK\_TIME: walking time (assuming 3mph, and using T\_DIST)

MALL\_ABTIME: travel time for mall shuttle in AB direction.

MALL\_BATIME: travel time for mall shuttle in BA direction.

LOC\_ABTIME: travel time for local bus in AB direction.

LOC\_BATIME: travel time for local bus in BA direction.

LIM\_ABTIME: travel time for limited bus in AB direction.

LIM\_BATIME: travel time for limited bus in BA direction.  
EXP\_ABTIME: travel time for express bus in AB direction.  
EXP\_BATIME: travel time for express bus in BA direction.  
REG\_ABTIME: travel time for regional bus in AB direction.  
REG\_BATIME: travel time for regional bus in BA direction.  
RAIL\_ABTIME: travel time for rail in AB direction.  
RAIL\_BATIME: travel time for rail in BA direction.  
SKY\_ABTIME: travel time for sky-ride bus in AB direction.  
SKY\_BATIME: travel time for sky-ride bus in BA direction.

**Node Layer:**

Includes the same fields as above.

**Xxxopk.dbf:** off-peak database. The model copies it from main database into peak & off-peak, and adds fields. Same as peak file above, but with off-peak travel times.

**Xxxpkr.rts:** peak hour transit route system. Routes are selected from the combined route System in General Preprocess where Peak\_Hdwy > 0, and exported to this file. The structure is the same.

**Xxxopkr.rts:** off-peak hour transit route system. Routes are selected from the combined route system in General Preprocess where Off\_Peak\_Hdwy > 0, and exported to this file. The structure is the same.

**Xxxpk.net:** peak hour highway network – compiled from geographic file in Peak DB Preprocess – used internally by TransCAD but cannot be viewed.

**Xxxop.net:** off-peak hour highway network – compiled from geographic file in Off-Peak DB Preprocess – used internally by TransCAD but cannot be viewed.

**Xxxpkr.tnw:** peak hour transit network compiled from route system file in Peak DB Preprocess – used internally by TransCAD but cannot be viewed.

**Xxxopkr.tnw:** off-peak hour transit network – compiled from route system file in Off-Peak DB Preprocess – used internally by TransCAD but cannot be viewed.

**Speed\_tb.dbf:** speed lookup table. Default speeds that are filled into “SPEED”, these are not used if link-specific speeds are present.

SPDC: speed-capacity codes (area type – facility type).

PEAK: speed on highway link during peak.

OFF\_PEAK: speed on highway link during off-peak time.

HOV\_USE1: speed on HOV link inbound (AM).

HOV\_USE2: speed on HOV link outbound (PM).

**Pintra\_r.dbf:** Peak hour intra-zonal travel time cross-class table

AREATYPE: Area type.

ACREAGE: Size of TAZ. Units are in acres.

R\_PINTRA\_T: Values from 1 to 8 (intra-zonal time – in minutes)

**Ointra\_r.dbf:** off-peak hour intra-zonal travel time cross-class table

AREATYPE: Area type.

ACREAGE: Size of TAZ. Units are in acres.

R\_OINTRA\_T: Values from 1 to 8 (intra-zonal time – in minutes)

**Pk\_term.mtx:** Peak terminal +intra-zonal time matrix (in minutes) Created in the Peak DB pre-process step. It is generated from the lookup table and considering the area type and size of the zone (for intrazonal times).

Matrix 1: Time

**Op\_term.mtx:** Off-peak terminal + intra-zonal time matrix (in minutes) Created in the Off-Peak DB pre-process step. It is generated from the lookup table and considering the area type and size of the zone (for intrazonal times).

Matrix 1: Time

**Intra\_tb.bin:** intrazonal travel time table. Created in DB Preprocess from the Area type and zone size lookup table.

ROW\_ID: “From” zone

COL\_ID: “To” zone

PEAK: peak intra-zonal time (min)

OFF\_PEAK: off-peak intra-zonal time (min)

**Modes.dbf:** transit mode table, containing transit parameters and path-building weights.

MODE\_NAME: name of the mode

MODE\_ID: ID of the mode, matching the mode field in the route table.

4: Mall Shuttle

5: Denver Local Bus

6: Denver Limited Bus

7: Express Bus

8: Regional Bus

9: Rail

10: SkyRide Bus

11: Longmont Local Bus

12: Boulder Local Bus

99: Walk

98: Transfer

TYPE: Values T, W, H: Transit, Walk, Highway.

IMP\_FIELD: Mode-specific link travel time field referring to the field in the .tnw file

Values: MALL\_TIME, LOC\_TIME, LIM\_TIME,  
EXP\_TIME, REG\_TIME, RAIL\_TIME,  
SKY\_TIME, NT\_TIME (walk & transfer).

FARE\_TYPE: Values: 1,2: (flat fare, zonal fare).

HEADWAY: bus frequencies (default headway values).

SPEED: default speed to use for mode in cases where travel times are missing.  
FARE: flat fare that is paid to board any route of this mode. (1996 \$)  
XFER\_FARE: the reduced fare (if any) that is paid when transferring to this route from another flat fare route. (1996 \$)  
PK\_DWELL: peak dwelling time at each station.  
OP\_DWELL: off-peak dwelling time at each station.  
MAX\_PT: values: null, 8 : maximum transfer penalty. (min)  
LK\_I\_W: in-vehicle (link) travel time pathbuilding weight.  
DWELL\_W: weight applied to the dwelling times.  
XFER\_W: weight applied to the transfer times.  
WAIT\_W: weight applied to waiting times.  
XFER\_P: the time penalty for transferring to this route.  
DWELL\_P: proportion of boarding time in total dwell time.  
MIN\_WAIT: minimum wait time by mode.  
MAX\_WAIT: maximum wait time by mode.  
MAX\_ACCESS: maximum total access time for mode.  
MAX\_EGRESS: maximum total egress time for mode.  
MAX\_TIME: maximum travel time (transit).

**Modexfer.dbf:** transit transfer cost table

FROM: mode ID  
TO: mode ID  
STOP: stop at which the transfer occurs. (all blank)  
PK\_COST: generalized cost penalty for peak. One minute transfer penalty.  
OP\_COST: generalized cost penalty for off-peak. One minute transfer penalty.  
FARE: fare to be paid at this transfer.

**Turnpen.dbf:** turn penalty table

FROM: link  
TO: link  
PENALTY: in minutes.

**Taz2660.dbd:** TAZ area geographic file

ID: model TAZ ID  
AREA: unit is in square mile.  
TAZ\_ID: GIS ID (will be used all except travel modelers. Example: The socio-economic forecast group will provide datasets in this zone system). The first 3 numbers are RSA\_ID. Last 2 numbers are in map direction when creating the TAZs (across then down).  
COUNTY\_ID: county codes.  
MODELAREA: Values 0, 1: not in model area, within model area.  
K-FactorDistrict: district codes used in applying k-factors.

**Smooth05mi.bin:** fraction of each TAZ within 0.5 mile of each centroid. Used in the area type model.

CENTROID\_ID: zone centroid ID

ZONE\_ID: TAZ ID

PERCENT: percent of ZONE\_ID within 0.5 miles of CENTROID\_ID.

HH\_POP1: Household population within that buffer, calculated by model.

TOT\_EMP1: Employment falls within that buffer, calculated by model.

AREA1: Area of the buffer covering each TAZ, calculated by model.

**ParkingInputs.bin:** (inputs to parking cost model)

ZONE ID: TAZ Id

ACRES: area of the TAZ.

PKG\_SPC\_2000: parking space in base year

PKG\_DEM\_2000: parking demand in base year

PKC\_COST\_2000: parking cost from survey (base year)

## II. TRIP GENERATION

**Zonexxx.bin:** zone attribute table

ZONE ID: TAZ ID

DISTRICT: district names used in k-factors.

DIATime: pseudo travel time used for distribution trips to DIA.

TAZ\_ID: TAZ\_ID by RSA\_ID (The 5 digit-ID used in economic modeling).

ACREAGE: zonal acreage (units of acres).

HH POP: total household population, not including population in group quarters.

LOW INC. HH: number of households low-income (bottom 11%)

MED. INC. HH: number of households medium-income (middle 64%)

HIGH INC. HH: number of households high-income (top 25%)

PROD./DIST. EMP: total employment in production and distribution

RETAIL EMP: total employment in retail.

SERVICE EMP: total employment in service.

### *These remaining fields are generated by the model:*

IE\_P: Internal –external production trips. A growth factor is applied to base year counts at external stations to generate this.

PkgCost\_LI: Parking cost for workers in low income HH, from the parking cost model.

PkgCost\_MI: Parking cost for workers in medium inc. HH, from the parking cost model.

PkgCost\_HI: Parking cost for workers in high income HH, from the parking cost model.

PkgCost\_Short: Short term parking cost for NHB & HBNW trips, from the parking cost model.

POP DEN: total Household population density (persons per square mile).

Pct\_LowIncHH: fraction of households in the TAZ that are low income.

HNWAAO: home-non-work average auto occupancy calculated from a lookup table based on the average household size, used in post-mode choice model non-work auto occupancy “model”.

HNWAAOInv: inverse of the previous field.

HNW\_DA: fraction of home-non-work drive trips produced by this zone that are drive-alone, produced by non-work auto occupancy “model”.

HNW\_SR2: fraction of home-non-work drive trips produced by this zone that are shared-ride 2, produced by non-work auto occupancy “model”.

HNW\_SR3: fraction of home-non-work drive trips produced by this zone that are Shared-ride 3+, produced by non-work auto occupancy “model”.

TOT HH: total number of households.

AVG HH SIZE: average household size.

ACCE\_R\_P: fraction of zone with peak walk access (< 0.3 miles to transit stop).

EGRE\_R\_P: fraction of zone with peak walk egress (< 0.3 miles to transit stop).

ACCE\_R\_O: fraction of zone with off-peak walk access (< 0.3 miles to transit stop).

EGRE\_R\_O: fraction of zone with off-peak walk egress (< 0.3 miles to transit stop).

ONE: values are all 1.

District\_P: Used in calculating the mode choice market segment districts.

District\_A: Used in calculating the mode choice market segment districts.

TOT\_EMP: total number of employment in all types.

**Hhszlkup.asc:** Household size lookup table.

AVG\_HH\_SIZ: average household size  
R\_1P\_HH: fraction of one-person households  
R\_2P\_HH: fraction of two-persons households  
R\_3P\_HH: fraction of three-persons households  
R\_4P\_HH: fraction of four-persons households  
R\_5P\_HH: fraction of five-persons households

**Hh\_isz\_r.asc:** proportions of household groups by income and by size. Input base year data.

Match: Place holder.

R\_LI\_1P\_HH: ratio of one-person Low income households  
R\_LI\_2P\_HH: ratio of two-persons Low income households  
R\_LI\_3P\_HH: ratio of three-persons Low income households  
R\_LI\_4P\_HH: ratio of four-persons Low income households  
R\_LI\_5P\_HH: ratio of five-persons Low income households  
R\_MI\_1P\_HH: ratio of one-person Medium-income households  
R\_MI\_2P\_HH: ratio of two-persons Medium-income households  
R\_MI\_3P\_HH: ratio of three-persons Medium-income households  
R\_MI\_4P\_HH: ratio of four-persons Medium-income households  
R\_MI\_5P\_HH: ratio of five-persons Medium-income households  
R\_HI\_1P\_HH: ratio of one-person High-income households  
R\_HI\_2P\_HH: ratio of two-persons High-income households  
R\_HI\_3P\_HH: ratio of three-persons High-income households  
R\_HI\_4P\_HH: ratio of four-persons High-income households  
R\_HI\_5P\_HH: ratio of five-persons High-income households

**Prd\_hb\_r.asc:** production trip rates for hbw (low/med/high income), hnw, nhb productions.

ZONE TYPE: Values 0,1: not Boulder & Boulder.

INCOME GROUP: Values 1, 2, 3 (low, medium, high).

HH SIZE: 1 to 5 persons.

R\_HBW\_LI\_P: production trip rates of home-based-work low-income households.

R\_HBW\_MI\_P: production trip rates of home-based-work medium-income households.

R\_HBW\_HI\_P: production trip rates of home-based-work high-income households.

R\_HNW\_P: production trip rates for home-based-non-work.

R\_NHB\_P: production trip rates for non-home-based.

**Pa\_trk\_r.asc:** trip rates for truck prod and attractions, hnw, nhb attractions.

ZONE TYPE: values 0,1: not Boulder & Boulder.

EMP TYPE: values 1 to 4: total households, production/distribution, retail, service.

AREA TYPE: values 1 to 5.

R\_TRK\_P: production trips rates for trucks.

R\_TRK\_A: attraction trip rates for trucks.

R\_IE\_A: attraction trip rates for internal-external trips.

R\_HNW\_A: attraction trip rates for home-based-non-work trips.

R\_NHB\_A: attraction trip rates for non-home-based trips.

**Atthbw\_r.asc:** attraction trip rates for HBW.

ZONE TYPE: values 0, 1.

EMP GROUP: values 1 to 4: total households, production/distribution, retail, service.

R\_HBW\_LI\_A: attraction trip rates for home-based-work low income households.

R\_HBW\_MI\_A: attraction trip rates for home-based-work medium income households.

R\_HBW\_HI\_A: attraction trip rates for home-based-work high income households.

**DIAenplanement.asc:** enplanements and originating percent at DIA for all years.

YEAR:

ENPLANEMENTS: number of passengers enplane on listed year.

ORGINPERCENT: percent of enplanements originating in Denver (i.e. not transfer).

### III. TRIP DISTRIBUTION

**Ffacthbw.asc:** HBW friction factor table lookup table.

MIN TT: minutes of travel time.

LI FF: friction factor from low-income households.

MI FF: friction factor from medium-income households.

HI FF: friction factor from high-income households.

**Ffactnw1.asc:** friction factor table for non-work trips

MIN TT: minutes of travel time.

HNW FF: friction factor for home-based-non-work trips.

NHB FF: friction factor for home-non-based trips.

IE FF: friction factor for internal-external trips.

**Ffactcom.asc:** friction factor table for commercial vehicle trips.

MIN TT: minutes of travel time.

COM FF: friction factor for truck trips.

**Newwkk.mtx:** k-factor matrix for work trips.

Matrix 1: HBW K-factors – values: 0.5, 1, 2.

Matrix 2: COM K-factors – values: 0.5, 1, 2.

**Newnwkk.mtx:** k-factors for non-work trips.

Matrix 1: HNW K-factors – values 0.5, 1, 2.

Matrix 2: NHB K-factors – values 0.5, 1, 2.

Matrix 3: IE K-factors – values 0.5, 1, 2.

**Ee\_base.mtx:** external to external trips in base year- used as seed matrix for fratar method.

Matrix 1: trips.

**ExtStastions.asc:** external station counts and growth percentages.

ID: zone ID where external stations exist.

Count2001: actual traffic count in year 2001.

GrowthPercent: percent of growth to get to future year.

EEPercent: Percent of EE trips compare to the total of IE & EE trips.

Tot\_Trips: Total number of IE and EE trips.

IE\_Trips: number of internal-external trips.

EE\_Trips: number of external-external trips.

EE\_ROWSUM: external trips divide by 2.

EE\_COLSUM: external trips divide by 2.

## IV. MODE SPLIT

**Mod\_HBW.bin:** mnl utility function coefficient file for HBW trips.

Alternatives: Drive Alone, Share Ride 2, Share Ride 3+, Drive Access to Transit, Walk Access to Transit.

IVTT: in-vehicle time

TermTimeDA: Highway terminal time for Drive Alone.

TermTimeSR: Highway terminal time for Share Drive 2, 3+.

DIST\_DA: Highway distance for Drive Alone.

DIST\_SR2: Highway distance for Share Drive 2.

DIST\_SR3: Highway distance for Share Drive 3+.

SRSAVE: HOV time saved.

DrAccTime: Auto access time for Drive to Transit.

WalkTime: Walking time for Transit.

LowInWaitT: Initial Waiting Time up to 7 minutes.

HihgWaitT: Initial Waiting Time over 7 minutes.

TransferWaitT: Transfer Waiting Time.

Fare: Transit Fares.

LRT\_Flag\_DAT: Rail Flag for drive-to-transit

LRT\_Flag\_WAT: Rail Flag for walk-to-transit

PARKCOST\_LI\_DA: Parking Cost at attraction zones for Low income Drive-Alone

PARKCOST\_LI\_SR2: Parking Cost at attraction zones for Low income Shared-Ride 2

PARKCOST\_LI\_SR3: Parking Cost at attraction zones for Low income Shared-Ride 3+

PARKCOST\_MI\_DA: Parking Cost at attraction zones for Med. income Drive-Alone

PARKCOST\_MI\_SR2: Parking Cost at attraction zones for Med. income Shared-Ride 2

PARKCOST\_MI\_SR3: Parking Cost at attraction zones for Med. income Shared-Ride 3+

PARKCOST\_HI\_DA: Parking Cost at attraction zones for High income Drive-Alone

PARKCOST\_HI\_SR2: Parking Cost at attraction zones for High income Shared-Ride 2

PARKCOST\_HI\_SR3: Parking Cost at attraction zones for High income Shared-Ride 3+

ASC1: Alternative specific constant for Drive-Alone.

ASC2: Alternative specific constant for Shared-Drive 2.

ASC3: Alternative specific constant for Shared-Drive 3+.

ASC4: Alternative specific constant for Drive to Transit.

ASC5: Alternative specific constant for Walk to Transit.

CBD\_Market\_SR2: CBD attraction zone flag, applied to Shared-Ride 2.

CBD\_Market\_SR3: CBD attraction zone flag, applied to Shared-Ride 3+.

CBD\_Market\_DAccT: CBD attraction zone flag, applied to Drive to Transit.

CBD\_Market\_WAccT: CBD attraction zone flag, applied to Walk to Transit.

DIA\_Market\_SR2: DIA attraction zone flag, applied to Shared-Ride 2.

DIA\_Market\_SR3: DIA attraction zone flag, applied to Shared-Ride 3+.

DIA\_Market\_DAccT: DIA attraction zone flag, applied to Drive to Transit.

DIA\_Market\_WAccT: DIA attraction zone flag, applied to Walk to Transit.

BOULDER\_Market\_SR2: production zone flag, applied to Shared-Drive 2.

BOULDER\_Market\_SR3: production zone flag, applied to Shared-Drive3+.

BOULDER\_Market\_DAccT: production zone flag, applied to Drive to Transit.

BOULDER\_Market\_WAccT: production zone flag, applied to Walk to Transit.

NonCBD\_Market\_SR2: Other flag for Shared-Drive 2.  
NonCBD\_Market\_SR3: Other flag for Shared-Drive 3+.  
NonCBD\_Market\_DAccT: Other flag for Drive to Transit.  
NonCBD\_Market\_WAccT: Other flag for Walk to Transit.

**Mod\_hbnw.bin:** mnl utility function coefficient file for HBNW trips.

Alternatives: Auto, Drive Access to Transit, Walk Access to Transit

IVTT: In-vehicle time.

Dist\_Auto: Highway distance.

PARKCOST\_Auto: Short term parking cost.

PopDensity\_Auto: Population density of the production zones.

TermTime\_Auto: Auto terminal time.

PercentLowInc: Percent of Households in Production zones that are low-income (applied to Transit).

DriveAccessTime: Auto access time for Drive to Transit.

WalkTime: Total walking time for transit modes.

LowInWaitT: Initial Waiting Time up to 7 minutes.

HihgWaitT: Initial Waiting Time over 7 minutes.

TransferWaitT: Transfer Waiting Time.

Fare: Transit Fares.

LRT\_Flag\_DAT: Rail Flag for drive-to-transit.

LRT\_Flag\_WAT: Rail Flag for walk-to-transit.

FARE: transit fares.

ASC1: Alternative specific constant for Auto.

ASC2: Alternative specific constant for Drive to Transit.

ASC3: Alternative specific constant for Walk to Transit.

CBD\_Market\_DAccT: CBD attraction zone flag, applied to Drive to Transit.

CBD\_Market\_WAccT: CBD attraction zone flag, applied to Walk to Transit.

DIA\_Market\_DAccT: DIA attraction zone flag, applied to Drive to Transit.

DIA\_Market\_WAccT: DIA attraction zone flag, applied to Walk to Transit.

BOULDER\_Market\_DAccT: production zone flag, applied to Drive to Transit.

BOULDER\_Market\_WAccT: production zone flag, applied to Walk to Transit.

NonCBD\_Market\_DAccT: Other flag for Drive to Transit.

NonCBD\_Market\_WAccT: Other flag for Walk to Transit.

**Mod\_NHB.bin:** mnl utility function coefficient file for NHB trips. Alternatives: Auto, Transit.

IVTT: In-vehicle time.

Dist\_Auto: Highway distance.

PARKCOST: Short term parking cost.

TermTime: Auto terminal time.

WalkTime: Total walking time for transit modes.

LowInWaitT: Initial Waiting Time up to 7 minutes.

HihgWaitT: Initial Waiting Time over 7 minutes.

TransferWaitT: Transfer Waiting Time.

Fare: Transit Fares.

LRT\_Flag\_WAT: Rail Flag for walk-to-transit

FARE: transit fares.

ASC1: Alternative specific constant for Auto.

ASC2: Alternative specific constant for Walk to Transit.

CBD\_Market\_WAccT: CBD attraction zone flag, applied to Walk to Transit.

DIA\_Market\_WAccT: DIA attraction zone flag, applied to Walk to Transit.

BOULDER\_Market\_WAccT: production zone flag, applied to Walk to Transit.

NonCBD\_Market\_WAccT: Other flag for Walk to Transit.

**Market\_Seg.mtx:** Market segment masks, generated by Market Segment Mask step, from the District field in the zone.bin file.

Matrix 1: CBD Market Segment,

1 if the attraction zone is in the Denver CBD, 0 otherwise.

Matrix 2: DIA Market Segment,

1 if the attraction zone is at DIA, 0 otherwise.

Matrix 3: Boulder Market Segment,

1 if the attraction zone is in Boulder Valley and the production zone is not,  
0 otherwise.

Matrix 4: NonCBD Market Segment,

1 if none of the previous criteria is met, 0 otherwise

## V. ASSIGNMENT

### **Hourly.asc:** PA to OD hourly rate table

This is the factor table that goes from daily P-A to AM, PM, Off-Peak O-D.

HOURLY: Values 0 (AM-peak), 1 (PM peak), 2 (Off-peak).

% FLOW NHB: percent of total daily non-home-based trips in time period.

% FLOW COM: percent of total daily commercial vehicle trips in time period.

% FLOW EE: percent of total daily external-external trips in time period.

DEP\_HBW: Percent of work trips going from home to work in time period.

RET\_HBW: Percent of work trips going from work to home in time period.

DEP\_HBNW: Percent of home based non-work trips in P-A direction in time period.

RET\_HBNW: Percent of home based non-work trips in A-P direction in time period.

DEP\_IE: Percent of Internal-external trips going in P-A direction in time period.

RET\_IE: Percent of Internal –External trips going in A-P direction in time period.

**SpdComTb.asc:** Commercial vehicle default speed table. Used only if link-specific speeds are not present.

CLASS: area type & facility type

SPEED: truck speeds.

**SpdFF\_Tb.asc:** free-flow speed table (note that this is static, produced during the calibration/validation process).

CLASS: area type & facility type

SPEED: free flow speeds based on capacity class

**SpdOPkTb.asc:** Off-peak default speed table. Used only if link-specific speeds are not present.

CLASS: area type & facility type

SPEED: off-peak speed

**Cap\_tb1.asc:** capacity table (note that this is static, produced during the calibration/validation process).

CLASS: area type & facility type

LANES\_L: Lower bound of lanes.

LANES\_H: Upper bound of lanes.

CAPA: Capacity (vehicle/hour/lane).

**Cfn\_tb1.asc:** Cost function parameter table. (also produced during the calibration/validation process).

CLASS: area type & facility type

ALPHA: Alpha parameter in BPR function.

BETA: Beta parameter in BPR function.

FIX\_COST: time penalty for going through a toll booth.

TIME\_W: Weight of travel time (in minutes).

TOLL\_W: Weight of tolls (in minute/mile).

TOLL\_FLD: Determine cost of toll (in mile).

## OUTPUT FILES

### I. NETWORK PRE-PROCESSING

**Pintra\_t.bin:** Peak hour intrazonal travel times, this is the result of the table lookup using the file pintra\_r.dbf.

ID: zone ID

PINTRA\_T: Values from 1 to 5 (min), based on Area Type and size of each zone.

**Ointra\_t.bin:** Off-peak hour intrazonal travel times (this is the result of the table lookup using the file ointra\_r.dbf ).

ID: zone ID

OINTRA\_T: Values from 1 to 5 (min), based on Area Type and size of each zone.

**Pkg\_district.bin:** parking cost results at sub-districts.

DIST: interger ID of the sub-districts (input field).

DESC: District shorten names (input field).

DESCRIPTION: Districts full names (input field).

PS\_2000: number of parking spaces available in year 2000 (input field).

PD\_2000: number of HBW trip attractions in year 2000 (input field).

PC\_2000: weighted average posted parking cost in year 2000 (input field).

HBW\_LI\_A: total number of low income HBW trip attractions in the sub-districts (calculated from the Trip-Gen output).

HBW\_MI\_A: total number of medium income HBW trip attractions in the sub-districts (calculated from the Trip-Gen output).

HBW\_HI\_A: total number of high income HBW trip attractions in the sub-districts (calculated from the Trip-Gen output).

HBW\_TOT\_MC: Total person trips attraction in sub-district (total of hbw Low, Med, High Income Attractions). Calculated from the Mode Choice output.

HBW\_VEH\_MC: (HBW\_TOT\_MC subtracted by transit trips) then divided by auto occupancy. Calculated from the Mode Choice output.

HBW\_PVA\_MC: person trips in automobiles (HBW\_TOT\_MC subtracted by transit trips). Calculated from the Mode Choice output.

ACRES: number of acres comprising sub-district (output from the Parking Cost model).

EMPLOYEES: total number of employees in the future year (output from the Parking Cost model).

EMP\_DENS: Employees per acre in the sub-district (output from the Parking Cost model).

PARK\_DENS: parking density in spaces per acre (output from the Parking Cost model).

PS\_F\_INIT: initial estimate of parking spaces (output from the Parking Cost model).

PS\_F\_SCALE: the initial estimate of spaces scaled to the future total. Spaces (output from the Parking Cost model).

PS\_F\_FINAL: final estimated parking spaces (output from the Parking Cost model).

PCAVG1: weighted average parking cost in 1996 \$ for the sub-district (output from the Parking Cost model).

COST1: total parking cost for the sub-district (output from the Parking Cost model).

PCAVG2: scaled average parking cost for the sub-district . Scaled to be consistent with the 2000 base year values (output from the Parking Cost model).

PC\_CHANGE: average parking cost change for the sub-district based on 2000 parking costs (output from the Parking Cost model).

**Pkg\_taz.bin:** parking cost results at TAZ levels.

ZONE ID: TAZ ID

DIST: sub-district ID codes

ACRES: number of acres comprising sub-district.

EMPLOYEES: total number of employees in the future year.

HBW\_LI: total number of low-income HBW trip attractions in the sub-district.

HBW\_MI: total number of medium-income HBW trip attractions in the sub-district.

HBW\_HI: total number of high-income HBW trip attractions in the sub-district.

HBW\_TOT\_MC: Total person trips attraction in sub-district (total of HBW Low, Med, High Income Attractions).

HBW\_PVA\_MC: HBW person trips in automobiles (HBW\_TOT\_MC subtracted from transit trips).

HBW\_VEH\_MC: HBW vehicle trips (HBW\_TOT\_MC subtracted from transit trips then divided by auto occupancy).

POSTED\_PKG: forecast posted parking cost.

PPC\_LI: paid parking cost for low-income workers, taking into account free and subsidized parking.

PPC\_MI: paid parking cost for med income workers, taking into account free and subsidized parking.

PPC\_HI: paid parking cost for high income workers, taking into account free and subsidized parking.

PC\_SHORT: short term parking costs (used for non-work models).

EMP\_DENS: employees per acre in the sub-district.

**Pkgmodel\_check.txt:** parking cost model report file

## II. TRIP GENERATION

**Hh\_by\_sz.bin:** Households by size.

ID: Zone ID

1P\_HH: number of households with one person.

2P\_HH: number of households with two persons.

3P\_HH: number of households with three persons.

4P\_HH: number of households with four persons.

5P\_HH: number of households with five persons.

**HH\_balan.bin:** household by income and by size.

Zone ID:

LI\_1P\_HH: Low income one-person households.

LI\_2P\_HH: Low income two-person households.

LI\_3P\_HH: Low income three-person households.

LI\_4P\_HH: Low income four-person households.

LI\_5P\_HH: Low income five-person households.

MI\_1P\_HH: Medium income one-person households.

MI\_2P\_HH: Medium income two-person households.

MI\_3P\_HH: Medium income three-person households.

MI\_4P\_HH: Medium income four-person households.

MI\_5P\_HH: Medium income five-person households.

HI\_1P\_HH: High income one-person households.

HI\_2P\_HH: High income two-person households.

HI\_3P\_HH: High income three-person households.

HI\_4P\_HH: High income four-person households.

HI\_5P\_HH: High income five-person households.

**Prd\_hb\_o.bin:** Productions of HBW (Low, Medium, High Income), HNW, and NHB (before balancing).

ID: zone ID.

HBW\_LI\_P: Home-based-work production trips from low income households.

HBW\_MI\_P: Home-based-work production trips from medium income households.

HBW\_HI\_P: home-base-work production trips from high income households.

HNW\_P: home-based-non-work production trips.

NHB\_P: non-home-based production trips.

**Pa\_trk\_o.bin:** truck production and attraction, IE, HNW & NHB attractions (before balancing to Productions).

ID: zone ID

TRK\_P: truck production trips.

TRK\_A: truck attraction trips.

IE\_A: internal-external attraction trips.

HNW\_A: home-based-non-work attraction trips.

NHB\_A: non-home-base attraction trips.

**Atthbw\_o.bin:** HBW attractions (before balancing to Productions).

ID: zone ID

HBW\_LI\_A: home-based-work attraction trips from low income households.

HBW\_MI\_A: home-based-work attraction trips from medium income households.

HBW\_HI\_A: home-based-work attraction trips from high income households.

**Pa\_balanc.bin:** balanced productions and attractions of all purposes.

(Total attractions balanced to total productions)

ID1: Zone ID.

HBW\_LI\_P: home-based-work production trips from low income households.

HBW\_LI\_A: home-based-work attraction trips from low income households.

HBW\_MI\_P: home-based-work production trips from medium income households.

HBW\_HI\_P: home-based-work production trips from high income households.

HBW\_HI\_A: home-based-work attraction trips from high income households.

HNW\_P: home-based-non-work production trips.

HNW\_A: home-base-non-work attraction trips.

NHB\_P: non-home-based production trips.

NHB\_A: non-home-based attraction trips.

TRK\_P: truck production trips.

TRK\_A: truck attraction trips.

IE\_P: internal-external production trips.

IE\_A: internal-external attraction trips.

### III. DB SKIMMING

**Hskm\_pk.mtx:** highway peak\_hour skim matrix

Matrix 1: DIST (miles)

Matrix 2: TIME (min), includes terminal and intra-zonal time.

Matrix 3: IVTT = In-vehicle time (min), does not include terminal and intrazonal time

**Hskm\_hov.mtx:** highway HOV skim matrix

Matrix 1: DIST (miles)

Matrix 2: TIME\_HOV (min), does not include terminal and intrazonal time

**Hskm\_op.mtx:** highway off-peak hour skim matrix

Matrix 1: DIST (miles)

Matrix 2: TIME (min), includes terminal and intra-zonal time.

Matrix 3: IVTT = In-vehicle time (min), does not include terminal and intrazonal time

**Hskm\_air.mtx:** highway off-peak hour with corrected DIA skim matrix

Matrix 1: DIST (miles)

Matrix 2: TIME (min) Matrix cells for airport zones are given an artificial travel time to match where air travelers actually come from. This is necessary because people living close to the airport are not likely to fly more often than people live far from the airport.

**Tskm\_tpw.mtx:** transit peak-hour walk-access skim matrix.

All times in minutes, all distances in miles

Matrix 1: Fare (1996 \$)

Matrix 2: In-vehicle time

Matrix 3: Initial Wait Time

Matrix 4: Transfer Wait Time

Matrix 5: Transfer Time

Matrix 6: Access Time

Matrix 7: Egress Time

Matrix 8: Dwell Time (counted in IVTT)

Matrix 9: Length (Mall Shuttle)

Matrix 10: Length (Denver Local Bus)

Matrix 11: Length (Denver Limited Bus)

Matrix 12: Length (Express Bus)

Matrix 13: Length (Regional Bus)

Matrix 14: Length (Rail)

Matrix 15: Length (SkyRide Bus)

Matrix 16: Length (Longmont Local Bus)

Matrix 16: Length (Boulder Local Bus)

Matrix 17: Total Walk Time (Sum of Access, Egress, Transfer Time)

Matrix 18: Low Init Wait (Initial Waiting time up to 7 minutes)

Matrix 19: High Init Wait (Initial Waiting time beyond 7 minutes)

Matrix 20: Wait & Walk Time  
Matrix 21: Link Time (counted in IVTT)  
Matrix 22: Valid\_Path, 1 if the total walking distance is less than 50% of the distance to drive straight from the production to attraction zone  
Matrix 23: LRT\_Flag, 1 if the total distance on rail is at least 1/3 the total distance on Transit  
Matrix 24: PremiumDist, the total distance on rail, regional bus, and SkyRide bus, used for computing distance based fares

**Tskm\_tpd.mtx:** transit peak-hour drive access skim matrix

All times in minutes, all distances in miles

Matrix 1: Fare (1996 \$)

Matrix 2: In-vehicle time

Matrix 3: Initial Wait Time

Matrix 4: Transfer Wait Time

Matrix 5: Transfer Time

Matrix 6: Access Time

Matrix 7: Egress Time

Matrix 8: Dwell Time (counted in IVTT)

Matrix 9: Length (Mall Shuttle)

Matrix 10: Length (Denver Local Bus)

Matrix 11: Length (Denver Limited Bus)

Matrix 12: Length (Express Bus)

Matrix 13: Length (Regional Bus)

Matrix 14: Length (Rail)

Matrix 15: Length (SkyRide Bus)

Matrix 16: Length (Longmont Local Bus)

Matrix 16: Length (Boulder Local Bus)

Matrix 17: Total Walk Time (Sum of Access, Egress, Transfer Time)

Matrix 18: Low Init Wait (Initial Waiting time up to 7 minutes)

Matrix 19: High Init Wait (Initial Waiting time beyond 7 minutes)

Matrix 20: Wait & Walk Time

Matrix 21: Link Time (counted in IVTT)

Matrix 22: Valid\_Path, 1 if distance to drive to the PNR is less than 80% of the distance to drive straight from the production to attraction zone

Matrix 23: LRT\_Flag, 1 if the total distance on rail is at least 1/3 the total distance on Transit

Matrix 24: PremiumDist, the total distance on rail, regional bus, and SkyRide bus, used for computing distance based fares

**Tskm\_tow.mtx:** transit off-peak hour walk-access skim matrix

All times in minutes, all distances in miles.

Matrix 1: Fare (1996 \$)

Matrix 2: In-vehicle time

Matrix 3: Initial Wait Time

Matrix 4: Transfer Wait Time

Matrix 5: Transfer Time

Matrix 6: Access Time

Matrix 7: Egress Time

Matrix 8: Dwell Time (counted in IVTT)

Matrix 9: Length (Mall Shuttle)

Matrix 10: Length (Denver Local Bus)

Matrix 11: Length (Denver Limited Bus)

Matrix 12: Length (Express Bus)

Matrix 13: Length (Regional Bus)

Matrix 14: Length (Rail)

Matrix 15: Length (SkyRide Bus)

Matrix 16: Length (Longmont Local Bus)

Matrix 16: Length (Boulder Local Bus)

Matrix 17: Total Walk Time (Sum of Access, Egress, Transfer Time)

Matrix 18: Low Init Wait (Initial Waiting time up to 7 minutes)

Matrix 19: High Init Wait (Initial Waiting time beyond 7 minutes)

Matrix 20: Wait & Walk Time

Matrix 21: Link Time (counted in IVTT)

Matrix 22: Valid\_Path, 1 if the total walking distance is less than 50% of the distance to drive straight from the production to attraction zone.

Matrix 23: LRT\_Flag, 1 if the total distance on rail is at least 1/3 the total distance on transit.

Matrix 24: PremiumDist, the total distance on rail, regional bus, and SkyRide bus, used for computing distance based fares.

**Tskm\_tod.mtx:** transit off-peak-hour drive-access skim matrix.

All times in minutes, all distances in miles.

Matrix 1: Fare (1996 \$)

Matrix 2: In-vehicle time

Matrix 3: Initial Wait Time

Matrix 4: Transfer Wait Time

Matrix 5: Transfer Time

Matrix 6: Access Time

Matrix 7: Egress Time

Matrix 8: Dwell Time (counted in IVTT)

Matrix 9: Length (Mall Shuttle)

Matrix 10: Length (Denver Local Bus)

Matrix 11: Length (Denver Limited Bus)

Matrix 12: Length (Express Bus)

Matrix 13: Length (Regional Bus)

Matrix 14: Length (Rail)  
Matrix 15: Length (SkyRide Bus)  
Matrix 16: Length (Longmont Local Bus)  
Matrix 16: Length (Boulder Local Bus)  
Matrix 17: Total Walk Time (Sum of Access, Egress, Transfer Time)  
Matrix 18: Low Init Wait (Initial Waiting time up to 7 minutes)  
Matrix 19: High Init Wait (Initial Waiting time beyond 7 minutes)  
Matrix 20: Wait & Walk Time  
Matrix 21: Link Time (counted in IVTT)  
Matrix 22: Valid\_Path, 1 if distance to drive to the PNR is less than 80% of the distance to drive straight from the production to attraction zone  
Matrix 23: LRT\_Flag, 1 if the total distance on rail is at least 1/3 the total distance on transit  
Matrix 24: PremiumDist, the total distance on rail, regional bus, and SkyRide bus, used for computing distance based fares

**Hsr\_save.mtx:** highway share-ride saving matrix (regular – HOV)

Matrix 1: TIME (peak IVTT minus peak HOV time)

**Skim\_pnr\_pk.mtx:** peak-hour highway skim matrix from production zone to PNR node.

Matrix 1: DIST

Matrix 2: TIME

**Pnr\_node\_peak.mtx:** peak-hour PNR lots used from each production zone to each attraction zone. These are calculated when TC creates Transit skim.

Matrix 1: Parking Nodes

**skim\_pnr\_op.mtx:** Off-peak-hour highway skim matrix for production zone to PNR node.

Matrix 1: DIST

Matrix 2: TIME

**Pnr\_node\_op.mtx:** Off-peak-hour PNR lots used from each production zone to each attraction zone. These are calculated when TC creates Transit skim.

Matrix 1: Parking Nodes

#### **IV. TRIP DISTRIBUTION**

**Dst\_hbw.mtx:** daily hbw person trips matrix from distribution (P-A format).

Matrix 1: HBW\_LI (Home-based-work Low income person trips)

Matrix 2: HBW\_MI (Home-based-work Medium income person trips)

Matrix 3: HBW\_HI (Home-based-work High income person trips)

**Dst\_nwk.mtx:** daily non-work person trips matrix from distribution (P-A format).

Matrix 1: HNW (Home-based-non-work)

Matrix 2: NHB (Non-home-based)

Matrix 3: IE (Internal-External)

**Dst\_com.mtx:** daily commercial vehicle trips matrix from distribution (P-A format).

Matrix 1: COM (commercial vehicle trips)

**Dst\_ee.mtx:** daily external-to-external trips matrix from distribution (P-A format).

Matrix 1: EE (external-external vehicle trips)

## V. MODE SPLIT

**Hbwtripl.mtx:** hbw mode share matrix for low-income (P-A format)

- Matrix 1: Drive Alone Share
- Matrix 2: Shared-Ride 2 Share
- Matrix 3: Shared-Ride 3+ Share
- Matrix 4: DACC transit Share
- Matrix 5: WACC transit Share

**Hbwtripm.mtx:** hbw mode share matrix for medium-income (P-A format)

- Matrix 1: Drive Alone Share
- Matrix 2: Shared-Ride 2 Share
- Matrix 3: Shared-Ride 3+ Share
- Matrix 4: DACC transit Share
- Matrix 5: WACC transit Share

**Hbwtriph.mtx:** hbw mode share matrix for high-income (P-A format)

- Matrix 1: Drive Alone Share
- Matrix 2: Shared-Ride 2 Share
- Matrix 3: Shared-Ride 3+ Share
- Matrix 4: DACC transit Share
- Matrix 5: WACC transit Share

**Mod\_hbw.mtx:** hbw person trips table from mode split (P-A format)

- Matrix 1: Drive Alone (Sum of the 3 files above)
- Matrix 2: Shared-Ride 2 (Sum of the 3 files above)
- Matrix 3: Shared-Ride 3+ (Sum of the 3 files above)
- Matrix 4: DACC transit (Sum of the 3 files above)
- Matrix 5: WACC transit (Sum of the 3 files above)

**Modhbnw.mtx:** hbnw matrix from mode split (P-A format)

- Matrix 1: Auto\_Shares: Share of trips choosing auto.
- Matrix 2: DriveAccTransit\_Shares: Share of trips choosing drive-to-transit.
- Matrix 3: WalkAccTransit\_Shares: Share of trips choosing walk-to-transit.
- Matrix 4: Drive Alone: Drive Alone vehicle trips
- Matrix 5: Ride 2: Shared-Ride 2 vehicle trips
- Matrix 6: Ride 3+: Shared-Ride 3+ vehicle trips
- Matrix 7: Auto: Auto person trips
- Matrix 8: DriveAccTransit: drive-to-transit person trips
- Matrix 9: WalkAccTransit: walk-to-transit person trips

**Mod\_nhb.mtx:** nhb matrix from mode split (P-A format)

Matrix 1: Auto\_Shares: Share of trips choosing auto.

Matrix 2: Transit\_Shares: Share of trips choosing walk-to-transit.

Matrix 3: Drive Alone: Drive Alone vehicle trips

Matrix 4: Ride 2: Shared-Ride 2 vehicle trips

Matrix 5: Ride 3+: Shared-Ride 3+ vehicle trips

Matrix 6: Auto: Auto person trips

Matrix 7: Transit: walk-to-transit person trips

**Mod\_mall.mtx:** mall shuttle person trips matrix (P-A format) added in separately after mode choice to hit mall shuttle boarding targets.

Matrix 1: trips

## VI. ASSIGNMENT

**Tr\_pa.mtx:** Transit P-A demand. This is an output of the transit time-of day model, which divides daily transit trips by purpose into time-of-day tables.

Matrix 1: Walk\_Pk

Matrix 2: Drive\_Pk

Matrix 3: Walk\_Op

Matrix 4: Drive\_Op

**Tasnt\_pw.bin:** peak walk-access assignment transit flow. This is the portion of the trips riding in transit vehicles.

ROUTE: Bus route ID.

FROM\_STOP: from Stop ID

TO\_STOP: to Stop ID

CENTROID: Not relevant.

FROM\_MP: from Mile Post

TO\_MP: to Mile Post

FLOW: transit flow on that route between the From and To milepost. (i.e., persons on the vehicles)

BaseIVTT: not relevant

COST: not relevant

VOC: not relevant

**Tasnt\_pd.bin:** peak drive-access assignment transit flow. This is the portion of the trips riding in transit vehicle.

ROUTE: Bus route ID.

FROM\_STOP: from Stop ID

TO\_STOP: to Stop ID

CENTROID: Not relevant.

FROM\_MP: from Mile Post

TO\_MP: to Mile Post

FLOW: transit flow on that route between the From and To milepost.

BaseIVTT: not relevant

COST: not relevant

VOC: not relevant

**Tasnt\_ow.bin:** off-peak walk-access assignment transit flow. This is the portion of the trips riding in transit vehicle.

ROUTE: Bus route ID.

FROM\_STOP: from Stop ID

TO\_STOP: to Stop ID

CENTROID: Not relevant.

FROM\_MP: from Mile Post

TO\_MP: to Mile Post

FLOW: transit flow on that route between the From and To milepost.

BaseIVTT: not relevant

COST: not relevant

VOC: not relevant

**Tasnt\_od.bin:** off-peak drive-access assignment transit flow. This is the portion of the trips riding in transit vehicle.

ROUTE: Bus route ID.

FROM\_STOP: from Stop ID

TO\_STOP: to Stop ID

CENTROID: not relevant.

FROM\_MP: from Milepost

TO\_MP: to Milepost

FLOW: transit flow on that route between the From and To milepost.

BaseIVTT: not relevant

COST: not relevant

VOC: not relevant

**Tasnw\_pw.bin:** peak walk-access assignment walk flow. This is portion of the trips walking on links.

ID1: Link ID

AB\_FLOW: Walk volume for the AB direction

BA\_FLOW: Walk volume for the BA direction

TOT\_FLOW: Total walk volume

**Tasnw\_pd.bin:** peak drive-access assignment walk flow. This is portion of the trips walking on links.

ID1: Link ID

AB\_FLOW: Walk volume for the AB direction

BA\_FLOW: Walk volume for the BA direction

TOT\_FLOW: Total walk volume

**Tasnw\_ow.bin:** off-peak walk-access assignment walk flow. This is portion of the trips walking on links

ID1: Link ID

AB\_FLOW: Walk volume for the AB direction

BA\_FLOW: Walk volume for the BA direction

TOT\_FLOW: Total walk volume

**Tasnw\_od.bin:** off-peak drive-access assignment walk flow. This is portion of the trips walking on links.

ID1: Link ID

AB\_FLOW: Walk volume for the AB direction

BA\_FLOW: Walk volume for the BA direction

TOT\_FLOW: Total walk volume

**T\_onf\_pw.bin:** peak transit walk-access boarding counts.

STOP: Stop ID

ROUTE: Route ID

ON: Passengers boardings for this route and stop.

OFF: Passengers alighting for this route and stop.

**T\_onf\_pd.bin:** peak transit drive-access boarding counts.

STOP: Stop ID

ROUTE: Route ID

ON: Passengers boardings for this route and stop

OFF: Passengers alighting for this route and stop.

**T\_onf\_ow.bin:** off-peak transit walk-access boarding counts.

STOP: Stop ID

ROUTE: Route ID

ON: Passengers boardings for this route and stop

OFF: Passengers alighting for this route and stop.

**T\_onf\_od.bin:** off-peak transit drive-access boarding counts

STOP: Stop ID

ROUTE: Route ID

ON: Passengers boardings for this route and stop

OFF: Passengers alighting for this route and stop.

**H\_hbw\_od.mtx:** HBW OD vehicle trips by Time-of-Day

DA (AM):

DA (PM):

DA (Off-peak):

SR2 (AM)

SR2 (PM)

SR2 (Off-peak)

SR3+ (AM)

SR3+ (PM)

SR3+ (Off-peak)

**H\_hnw\_od.mtx:** HBNW OD vehicle trips by Time-of-Day

DA (AM):  
DA (PM):  
DA (Off-peak):  
SR2 (AM)  
SR2 (PM)  
SR2 (Off-peak)  
SR3+ (AM)  
SR3+ (PM)  
SR3+ (Off-peak)

**H\_nhb\_od.mtx:** NHB OD vehicle trips by Time-of-Day

DA (AM):  
DA (PM):  
DA (Off-peak):  
SR2 (AM)  
SR2 (PM)  
SR2 (Off-peak)  
SR3+ (AM)  
SR3+ (PM)  
SR3+ (Off-peak)

**H\_com\_od.mtx:** commercial OD (PCE=1) vehicle trips by Time-of-Day

Matrix 1: COM (AM)  
Matrix 2: COM (PM)  
Matrix 3: COM (Off-peak)

**H\_ie\_od.mtx:** I-E OD vehicle trips by Time-of-Day

Matrix 1: IE (AM)  
Matrix 2: IE (PM)  
Matrix 3: IE (Off-peak)

**H\_ee\_od.mtx:** E-E OD vehicle trips by Time-of-Day

Matrix 1: EE (AM)  
Matrix 2: EE (PM)  
Matrix 3: EE (Off-peak)

**Am\_od.mtx:** AM OD (vehicle trips -All Purposes)

Matrix 1: DA  
Matrix 2: SR2  
Matrix 3: SR3+  
Matrix 4: COM3 (Commercial vehicles with PCE=3)

**Pm\_od.mtx:** PM OD (vehicle trips -All Purposes)

Matrix 1: DA

Matrix 2: SR2

Matrix 3: SR3+

Matrix 4: COM3 (Commercial vehicles with PCE=3)

**op\_od.mtx:** off-peak OD (vehicle trips -All Purposes)

Matrix 1: GVS (Passenger vehicles)

Matrix 2: COM3 (Commercial vehicles with PCE=3)

**Am\_com1.bin:** AM Period 1 (6:30-7:00AM) commercial trip assigned link volume table

Id1: Link ID

AB\_FLOW: Commercial vehicle PCEs in the AB direction per hour (PCEs / hour)

BA\_FLOW: Commercial vehicle PCEs in the BA direction per hour (PCEs / hour)

TOT\_FLOW: Total commercial vehicle PCEs per hour (PCEs / hour)

AB\_TIME: not relevant

BA\_TIME: not relevant

MAX\_TIME: not relevant

AB\_VOC: not relevant

BA\_VOC: not relevant

MAX\_VOC: not relevant

AB\_SPEED: not relevant

BA\_SPEED: not relevant

**Am\_com2.bin:** AM Period 2 (7:00-8:00AM) commercial trip assigned link volume table

Id1: Link ID

AB\_FLOW: Commercial vehicle PCEs in the AB direction per hour (PCEs / hour)

BA\_FLOW: Commercial vehicle PCEs in the BA direction per hour (PCEs / hour)

TOT\_FLOW: Total commercial vehicle PCEs per hour (PCEs / hour)

AB\_TIME: not relevant

BA\_TIME: not relevant

MAX\_TIME: not relevant

AB\_VOC: not relevant

BA\_VOC: not relevant

MAX\_VOC: not relevant

AB\_SPEED: not relevant

BA\_SPEED: not relevant

**Am\_com3.bin:** AM Period 3 (8:00-9:00AM) commercial trip assigned link volume table

Id1: Link ID

AB\_FLOW: Commercial vehicle PCEs in the AB direction per hour (PCEs / hour)

BA\_FLOW: Commercial vehicle PCEs in the BA direction per hour (PCEs / hour)

TOT\_FLOW: Total commercial vehicle PCEs per hour (PCEs / hour)

AB\_TIME: not relevant

BA\_TIME: not relevant

MAX\_TIME: not relevant

AB\_VOC: not relevant

BA\_VOC: not relevant

MAX\_VOC: not relevant

AB\_SPEED: not relevant

BA\_SPEED: not relevant

**Am\_pss1.bin:** AM period 1 (6:30-7:00AM) - passenger trips assigned link volume table.

ID1: Link ID

AB\_FLOW: Hourly passenger vehicles in the AB direction (vehicles / hour)

BA\_FLOW: Hourly passenger vehicles in the BA direction (vehicles / hour)

TOT\_FLOW: Hourly passenger vehicles in both directions (vehicles / hour)

AB\_TIME: travel time in the AB direction

BA\_TIME: travel time in the BA direction

MAX\_TIME: max of AB & BA time

AB\_VOC: AB volume-capacity ratio

BA\_VOC: BA volume-capacity ratio

MAX\_VOC: max of AB & BA volume-capacities.

AB\_SPEED: Speed in AB direction

BA\_SPEED: Speed in BA direction

**Am\_pss2.bin:** AM period 2 (7:00- 8:00AM) - passenger trips assigned link volume table.

ID1: Link ID

AB\_FLOW: Hourly passenger vehicles in the AB direction (vehicles / hour)

BA\_FLOW: Hourly passenger vehicles in the BA direction (vehicles / hour)

TOT\_FLOW: Hourly passenger vehicles in both directions (vehicles / hour)

AB\_TIME: travel time in the AB direction

BA\_TIME: travel time in the BA direction

MAX\_TIME: max of AB & BA time

AB\_VOC: AB volume-capacity ratio

BA\_VOC: BA volume-capacity ratio

MAX\_VOC: max of AB & BA volume-capacities.

AB\_SPEED: Speed in AB direction

BA\_SPEED: Speed in BA direction

**Am\_pss3.bin:** AM period 3 (8:00-9:00 AM) - passenger trips assigned link volume table.

ID1: Link ID

AB\_FLOW: Hourly passenger vehicles in the AB direction (vehicles / hour)

BA\_FLOW: Hourly passenger vehicles in the BA direction (vehicles / hour)

TOT\_FLOW: Hourly passenger vehicles in both directions (vehicles / hour)  
AB\_TIME: travel time in the AB direction  
BA\_TIME: travel time in the BA direction  
MAX\_TIME: max of AB & BA time  
AB\_VOC: AB volume-capacity ratio  
BA\_VOC: BA volume-capacity ratio  
MAX\_VOC: max of AB & BA volume-capacities.  
AB\_SPEED: Speed in AB direction  
BA\_SPEED: Speed in BA direction

**Pm\_com1.bin:** PM period 1 (3:00-5:00PM) - commercial trips assigned link volume table

Id1: Link ID

AB\_FLOW: Commercial vehicle PCEs in the AB direction per hour (PCEs / hour)  
BA\_FLOW: Commercial vehicle PCEs in the BA direction per hour (PCEs / hour)  
TOT\_FLOW: Total commercial vehicle PCEs per hour (PCEs / hour)  
AB\_TIME: not relevant  
BA\_TIME: not relevant  
MAX\_TIME: not relevant  
AB\_VOC: not relevant  
BA\_VOC: not relevant  
MAX\_VOC: not relevant  
AB\_SPEED: not relevant  
BA\_SPEED: not relevant

**Pm\_com2.bin:** PM period 2 (5:00-6:00PM) - commercial trips assigned link volume table

Id1: Link ID

AB\_FLOW: Commercial vehicle PCEs in the AB direction per hour (PCEs / hour)  
BA\_FLOW: Commercial vehicle PCEs in the BA direction per hour (PCEs / hour)  
TOT\_FLOW: Total commercial vehicle PCEs per hour (PCEs / hour)  
AB\_TIME: not relevant  
BA\_TIME: not relevant  
MAX\_TIME: not relevant  
AB\_VOC: not relevant  
BA\_VOC: not relevant  
MAX\_VOC: not relevant  
AB\_SPEED: not relevant  
BA\_SPEED: not relevant

**Pm\_com3.bin:** PM period 3 (6:00-7:00PM) - commercial trips assigned link volume table

Id1: Link ID

AB\_FLOW: Commercial vehicle PCEs in the AB direction per hour (PCEs / hour)

BA\_FLOW: Commercial vehicle PCEs in the BA direction per hour (PCEs / hour)

TOT\_FLOW: Total commercial vehicle PCEs per hour (PCEs / hour)

AB\_TIME: not relevant

BA\_TIME: not relevant

MAX\_TIME: not relevant

AB\_VOC: not relevant

BA\_VOC: not relevant

MAX\_VOC: not relevant

AB\_SPEED: not relevant

BA\_SPEED: not relevant

**Pm\_pss1.bin:** PM period 1 (3:00-5:00PM) - passenger trips assigned link volume table

ID1: Link ID

AB\_FLOW: Hourly passenger vehicles in the AB direction (vehicles / hour)

BA\_FLOW: Hourly passenger vehicles in the BA direction (vehicles / hour)

TOT\_FLOW: Hourly passenger vehicles in both directions (vehicles / hour)

AB\_TIME: travel time in the AB direction

BA\_TIME: travel time in the BA direction

MAX\_TIME: max of AB & BA time

AB\_VOC: AB volume-capacity ratio

BA\_VOC: BA volume-capacity ratio

MAX\_VOC: max of AB & BA volume-capacities.

AB\_SPEED: Speed in AB direction

BA\_SPEED: Speed in BA direction

**Pm\_pss2.bin:** PM period 2 (5:00-6:00PM) - passenger trips assigned link volume table

ID1: Link ID

AB\_FLOW: Hourly passenger vehicles in the AB direction (vehicles / hour)

BA\_FLOW: Hourly passenger vehicles in the BA direction (vehicles / hour)

TOT\_FLOW: Hourly passenger vehicles in both directions (vehicles / hour)

AB\_TIME: travel time in the AB direction

BA\_TIME: travel time in the BA direction

MAX\_TIME: max of AB & BA time

AB\_VOC: AB volume-capacity ratio

BA\_VOC: BA volume-capacity ratio

MAX\_VOC: max of AB & BA volume-capacities.

AB\_SPEED: Speed in AB direction

BA\_SPEED: Speed in BA direction

**Pm\_pss3.bin:** PM period 3 (6:00-7:00PM) - passenger trips assigned link volume table

Id1: Link ID

AB\_FLOW: Hourly passenger vehicles in the AB direction (vehicles / hour)

BA\_FLOW: Hourly passenger vehicles in the BA direction (vehicles / hour)

TOT\_FLOW: Hourly passenger vehicles in both directions (vehicles / hour)

AB\_TIME: travel time in the AB direction

BA\_TIME: travel time in the BA direction

MAX\_TIME: max of AB & BA time

AB\_VOC: AB volume-capacity ratio

BA\_VOC: BA volume-capacity ratio

MAX\_VOC: max of AB & BA volume-capacities.

AB\_SPEED: Speed in AB direction

BA\_SPEED: Speed in BA direction

**op\_com1.bin:** off-peak period 1 (11:00PM –6:30AM) - commercial trips assigned link volume table.

Id1: Link ID

AB\_FLOW: Commercial vehicle PCEs in the AB direction per hour (PCEs / hour)

BA\_FLOW: Commercial vehicle PCEs in the BA direction per hour (PCEs / hour)

TOT\_FLOW: Total commercial vehicle PCEs per hour (PCEs / hour)

AB\_TIME: not relevant

BA\_TIME: not relevant

MAX\_TIME: not relevant

AB\_VOC: not relevant

BA\_VOC: not relevant

MAX\_VOC: not relevant

AB\_SPEED: not relevant

BA\_SPEED: not relevant

**op\_com2.bin:** off-peak period 2 (9AM-11:30AM) - commercial trips assigned link volume table.

Id1: Link ID

AB\_FLOW: Commercial vehicle PCEs in the AB direction per hour (PCEs / hour)

BA\_FLOW: Commercial vehicle PCEs in the BA direction per hour (PCEs / hour)

TOT\_FLOW: Total commercial vehicle PCEs per hour (PCEs / hour)

AB\_TIME: not relevant

BA\_TIME: not relevant

MAX\_TIME: not relevant

AB\_VOC: not relevant

BA\_VOC: not relevant

MAX\_VOC: not relevant

AB\_SPEED: not relevant

BA\_SPEED: not relevant

**op\_com3.bin:** of-peak period 3 (11:30AM-3:00PM) - commercial trips assigned link volume table.

Id1: Link ID

AB\_FLOW: Commercial vehicle PCEs in the AB direction per hour (PCEs / hour)

BA\_FLOW: Commercial vehicle PCEs in the BA direction per hour (PCEs / hour)

TOT\_FLOW: Total commercial vehicle PCEs per hour (PCEs / hour)

AB\_TIME: not relevant

BA\_TIME: not relevant

MAX\_TIME: not relevant

AB\_VOC: not relevant

BA\_VOC: not relevant

MAX\_VOC: not relevant

AB\_SPEED: not relevant

BA\_SPEED: not relevant

**op\_com4.bin:** off-peak period 4 (7:00PM-11:00PM) - commercial trips assigned link volume table.

Id1: Link ID

AB\_FLOW: Commercial vehicle PCEs in the AB direction per hour (PCEs / hour)

BA\_FLOW: Commercial vehicle PCEs in the BA direction per hour (PCEs / hour)

TOT\_FLOW: Total commercial vehicle PCEs per hour (PCEs / hour)

AB\_TIME: not relevant

BA\_TIME: not relevant

MAX\_TIME: not relevant

AB\_VOC: not relevant

BA\_VOC: not relevant

MAX\_VOC: not relevant

AB\_SPEED: not relevant

BA\_SPEED: not relevant

**op\_pss1.bin:** off-peak period 1 (11:00PM-6:30AM) - passenger trips assigned link volume table.

ID1: Link ID

AB\_FLOW: Hourly passenger vehicles in the AB direction (vehicles / hour)

BA\_FLOW: Hourly passenger vehicles in the BA direction (vehicles / hour)

TOT\_FLOW: Hourly passenger vehicles in both directions (vehicles / hour)

AB\_TIME: travel time in the AB direction

BA\_TIME: travel time in the BA direction

MAX\_TIME: max of AB & BA time

AB\_VOC: AB volume-capacity ratio

BA\_VOC: BA volume-capacity ratio

MAX\_VOC: max of AB & BA volume-capacities.

AB\_SPEED: Speed in AB direction

BA\_SPEED: Speed in BA direction

**op\_pss2.bin:** off-peak period 2 (9:00AM – 11:30AM) - passenger trips assigned link volume table.

ID1: Link ID

AB\_FLOW: Hourly passenger vehicles in the AB direction (vehicles / hour)

BA\_FLOW: Hourly passenger vehicles in the BA direction (vehicles / hour)

TOT\_FLOW: Hourly passenger vehicles in both directions (vehicles / hour)

AB\_TIME: travel time in the AB direction

BA\_TIME: travel time in the BA direction

MAX\_TIME: max of AB & BA time

AB\_VOC: AB volume-capacity ratio

BA\_VOC: BA volume-capacity ratio

MAX\_VOC: max of AB & BA volume-capacities.

AB\_SPEED: Speed in AB direction

BA\_SPEED: Speed in BA direction

**op\_pss3.bin:** off-peak period 3 (11:30AM-3:00PM) - passenger trips assigned link volume table.

ID1: Link ID

AB\_FLOW: Hourly passenger vehicles in the AB direction (vehicles / hour)

BA\_FLOW: Hourly passenger vehicles in the BA direction (vehicles / hour)

TOT\_FLOW: Hourly passenger vehicles in both directions (vehicles / hour)

AB\_TIME: travel time in the AB direction

BA\_TIME: travel time in the BA direction

MAX\_TIME: max of AB & BA time

AB\_VOC: AB volume-capacity ratio

BA\_VOC: BA volume-capacity ratio

MAX\_VOC: max of AB & BA volume-capacities.

AB\_SPEED: Speed in AB direction

BA\_SPEED: Speed in BA direction

**op\_pss4.bin:** off-peak period 4 (7:00PM- 11:00PM) - passenger trip assigned link volume table.

ID1: Link ID

AB\_FLOW: Hourly passenger vehicles in the AB direction (vehicles / hour)

BA\_FLOW: Hourly passenger vehicles in the BA direction (vehicles / hour)

TOT\_FLOW: Hourly passenger vehicles in both directions (vehicles / hour)

AB\_TIME: travel time in the AB direction

BA\_TIME: travel time in the BA direction

MAX\_TIME: max of AB & BA time

AB\_VOC: AB volume-capacity ratio

BA\_VOC: BA volume-capacity ratio

MAX\_VOC: max of AB & BA volume-capacities.

AB\_SPEED: Speed in AB direction

BA\_SPEED: Speed in BA direction

**Tr\_drv2PNR.mtx:** highway portion of drive to transit trips (person trips from each production zone to each park-n-Ride lot). This is not currently used but in the future it could be used to assign drive access trips to the highway network.

Matrix 1: Trips\_Pk (peak person trips).

Matrix 2: Trips\_Op (off-peak person trips).

**Tr\_PNR2attr.mtx:** transit portion of drive to transit trips (person trips from each Park-n-Ride lot to each attraction zone). This is the matrix used to assign drive access trips to the transit network.

Matrix 1: Trips\_Pk (peak person trips).

Matrix 2: Trips\_Op (off-peak person trips).

**Am1.bin:** AM period 1 (6:30AM-7:00AM) - total volumes and link statistics

ID1: Link ID

DIST: length of the link (mi)

AB\_FLOW: Total vehicles in the AB direction (vehicles)

BA\_FLOW: Total vehicles in the BA direction (vehicles)

TOT\_FLOW: Total vehicles in both directions (vehicles)

AB\_TIME: travel time in the AB direction

BA\_TIME: travel time in the BA direction

AB\_SPEED: Speed in AB direction

BA\_SPEED: Speed in BA direction

AB\_VOC: AB volume-capacity ratio

BA\_VOC: BA volume-capacity ratio

AB\_VMT: AB vehicle miles traveled

BA\_VMT: BA vehicle miles traveled

Tot\_VMT: Total vehicle miles traveled

AB\_VHT: AB vehicle hours traveled

BA\_VHT: BA vehicle hours traveled

Tot\_VHT: Total vehicle hours traveled

**Am2.bin:** AM period 2 (7:00AM-8:00AM) - total volumes and link statistics

ID1: Link ID

DIST: length of the link (mi)

AB\_FLOW: Total vehicles in the AB direction (vehicles)

BA\_FLOW: Total vehicles in the BA direction (vehicles)

TOT\_FLOW: Total vehicles in both directions (vehicles)

AB\_TIME: travel time in the AB direction

BA\_TIME: travel time in the BA direction

AB\_SPEED: Speed in AB direction

BA\_SPEED: Speed in BA direction

AB\_VOC: AB volume-capacity ratio

BA\_VOC: BA volume-capacity ratio

AB\_VMT: AB vehicle miles traveled

BA\_VMT: BA vehicle miles traveled

Tot\_VMT: Total vehicle miles traveled

AB\_VHT: AB vehicle hours traveled  
BA\_VHT: BA vehicle hours traveled  
Tot\_VHT: Total vehicle hours traveled

**Am3.bin:** AM period 3 (8:00AM-9:00AM) - total volumes and link statistics

ID1: Link ID  
DIST: length of the link (mi)  
AB\_FLOW: Total vehicles in the AB direction (vehicles)  
BA\_FLOW: Total vehicles in the BA direction (vehicles)  
TOT\_FLOW: Total vehicles in both directions (vehicles)  
AB\_TIME: travel time in the AB direction  
BA\_TIME: travel time in the BA direction  
AB\_SPEED: Speed in AB direction  
BA\_SPEED: Speed in BA direction  
AB\_VOC: AB volume-capacity ratio  
BA\_VOC: BA volume-capacity ratio  
AB\_VMT: AB vehicle miles traveled  
BA\_VMT: BA vehicle miles traveled  
Tot\_VMT: Total vehicle miles traveled  
AB\_VHT: AB vehicle hours traveled  
BA\_VHT: BA vehicle hours traveled  
Tot\_VHT: Total vehicle hours traveled

**AM.bin:** Total volumes and link statistics for the entire AM period (6:30-9:00 AM)

ID1: Link ID  
DIST: length of the link (mi)  
AB\_FLOW: Total vehicles in the AB direction (vehicles)  
BA\_FLOW: Total vehicles in the BA direction (vehicles)  
TOT\_FLOW: Total vehicles in both directions (vehicles)  
AB\_TIME: travel time in the AB direction  
BA\_TIME: travel time in the BA direction  
AB\_SPEED: Speed in AB direction  
BA\_SPEED: Speed in BA direction  
AB\_VOC: AB volume-capacity ratio  
BA\_VOC: BA volume-capacity ratio  
AB\_VMT: AB vehicle miles traveled  
BA\_VMT: BA vehicle miles traveled  
Tot\_VMT: Total vehicle miles traveled  
AB\_VHT: AB vehicle hours traveled  
BA\_VHT: BA vehicle hours traveled  
Tot\_VHT: Total vehicle hours traveled

**Pm1.bin:** PM period 1 (3:00PM-5:00PM) - total volumes and link statistics

ID1: Link ID

DIST: length of the link (mi)

AB\_FLOW: Total vehicles in the AB direction (vehicles)

BA\_FLOW: Total vehicles in the BA direction (vehicles)

TOT\_FLOW: Total vehicles in both directions (vehicles)

AB\_TIME: travel time in the AB direction

BA\_TIME: travel time in the BA direction

AB\_SPEED: Speed in AB direction

BA\_SPEED: Speed in BA direction

AB\_VOC: AB volume-capacity ratio

BA\_VOC: BA volume-capacity ratio

AB\_VMT: AB vehicle miles traveled

BA\_VMT: BA vehicle miles traveled

Tot\_VMT: Total vehicle miles traveled

AB\_VHT: AB vehicle hours traveled

BA\_VHT: BA vehicle hours traveled

Tot\_VHT: Total vehicle hours traveled

**Pm2.bin:** PM period 2 (5:00PM-6:00PM) - total volumes and link statistics

ID1: Link ID

DIST: length of the link (mi)

AB\_FLOW: Total vehicles in the AB direction (vehicles)

BA\_FLOW: Total vehicles in the BA direction (vehicles)

TOT\_FLOW: Total vehicles in both directions (vehicles)

AB\_TIME: travel time in the AB direction

BA\_TIME: travel time in the BA direction

AB\_SPEED: Speed in AB direction

BA\_SPEED: Speed in BA direction

AB\_VOC: AB volume-capacity ratio

BA\_VOC: BA volume-capacity ratio

AB\_VMT: AB vehicle miles traveled

BA\_VMT: BA vehicle miles traveled

Tot\_VMT: Total vehicle miles traveled

AB\_VHT: AB vehicle hours traveled

BA\_VHT: BA vehicle hours traveled

Tot\_VHT: Total vehicle hours traveled

**Pm3.bin:** PM period 3 (6:00PM-7:00PM) - total volumes and link statistics

ID1: Link ID

DIST: length of the link (mi)

AB\_FLOW: Total vehicles in the AB direction (vehicles)

BA\_FLOW: Total vehicles in the BA direction (vehicles)

TOT\_FLOW: Total vehicles in both directions (vehicles)

AB\_TIME: travel time in the AB direction

BA\_TIME: travel time in the BA direction

AB\_SPEED: Speed in AB direction

BA\_SPEED: Speed in BA direction

AB\_VOC: AB volume-capacity ratio

BA\_VOC: BA volume-capacity ratio

AB\_VMT: AB vehicle miles traveled

BA\_VMT: BA vehicle miles traveled

Tot\_VMT: Total vehicle miles traveled

AB\_VHT: AB vehicle hours traveled

BA\_VHT: BA vehicle hours traveled

Tot\_VHT: Total vehicle hours traveled

**PM.bin:** Total volumes and link statistics for the entire PM period (3-7 PM)

ID1: Link ID

DIST: length of the link (mi)

AB\_FLOW: Total vehicles in the AB direction (vehicles)

BA\_FLOW: Total vehicles in the BA direction (vehicles)

TOT\_FLOW: Total vehicles in both directions (vehicles)

AB\_TIME: travel time in the AB direction

BA\_TIME: travel time in the BA direction

AB\_SPEED: Speed in AB direction

BA\_SPEED: Speed in BA direction

AB\_VOC: AB volume-capacity ratio

BA\_VOC: BA volume-capacity ratio

AB\_VMT: AB vehicle miles traveled

BA\_VMT: BA vehicle miles traveled

Tot\_VMT: Total vehicle miles traveled

AB\_VHT: AB vehicle hours traveled

BA\_VHT: BA vehicle hours traveled

Tot\_VHT: Total vehicle hours traveled

**Op1.bin:** Off-peak period 1 (11:00PM-6:30AM) - total volumes and link statistics

ID1: Link ID

DIST: length of the link (mi)

AB\_FLOW: Total vehicles in the AB direction (vehicles)

BA\_FLOW: Total vehicles in the BA direction (vehicles)

TOT\_FLOW: Total vehicles in both directions (vehicles)

AB\_TIME: travel time in the AB direction

BA\_TIME: travel time in the BA direction

AB\_SPEED: Speed in AB direction

BA\_SPEED: Speed in BA direction

AB\_VOC: AB volume-capacity ratio

BA\_VOC: BA volume-capacity ratio

AB\_VMT: AB vehicle miles traveled

BA\_VMT: BA vehicle miles traveled

Tot\_VMT: Total vehicle miles traveled

AB\_VHT: AB vehicle hours traveled

BA\_VHT: BA vehicle hours traveled

Tot\_VHT: Total vehicle hours traveled

**Op2.bin:** Off-peak period 2 (9:00AM-11:30AM) - total volumes and link statistics

ID1: Link ID

DIST: length of the link (mi)

AB\_FLOW: Total vehicles in the AB direction (vehicles)

BA\_FLOW: Total vehicles in the BA direction (vehicles)

TOT\_FLOW: Total vehicles in both directions (vehicles)

AB\_TIME: travel time in the AB direction

BA\_TIME: travel time in the BA direction

AB\_SPEED: Speed in AB direction

BA\_SPEED: Speed in BA direction

AB\_VOC: AB volume-capacity ratio

BA\_VOC: BA volume-capacity ratio

AB\_VMT: AB vehicle miles traveled

BA\_VMT: BA vehicle miles traveled

Tot\_VMT: Total vehicle miles traveled

AB\_VHT: AB vehicle hours traveled

BA\_VHT: BA vehicle hours traveled

Tot\_VHT: Total vehicle hours traveled

**Op3.bin:** Off-peak period 3 (11:30PM-3:00PM) - total volumes and link statistics

ID1: Link ID  
DIST: length of the link (mi)  
AB\_FLOW: Total vehicles in the AB direction (vehicles)  
BA\_FLOW: Total vehicles in the BA direction (vehicles)  
TOT\_FLOW: Total vehicles in both directions (vehicles)  
AB\_TIME: travel time in the AB direction  
BA\_TIME: travel time in the BA direction  
AB\_SPEED: Speed in AB direction  
BA\_SPEED: Speed in BA direction  
AB\_VOC: AB volume-capacity ratio  
BA\_VOC: BA volume-capacity ratio  
AB\_VMT: AB vehicle miles traveled  
BA\_VMT: BA vehicle miles traveled  
Tot\_VMT: Total vehicle miles traveled  
AB\_VHT: AB vehicle hours traveled  
BA\_VHT: BA vehicle hours traveled  
Tot\_VHT: Total vehicle hours traveled

**Op4.bin:** Off-peak period 4 (7:00PM-11:00PM) - total volumes and link statistics

ID1: Link ID  
DIST: length of the link (mi)  
AB\_FLOW: Total vehicles in the AB direction (vehicles)  
BA\_FLOW: Total vehicles in the BA direction (vehicles)  
TOT\_FLOW: Total vehicles in both directions (vehicles)  
AB\_TIME: travel time in the AB direction  
BA\_TIME: travel time in the BA direction  
AB\_SPEED: Speed in AB direction  
BA\_SPEED: Speed in BA direction  
AB\_VOC: AB volume-capacity ratio  
BA\_VOC: BA volume-capacity ratio  
AB\_VMT: AB vehicle miles traveled  
BA\_VMT: BA vehicle miles traveled  
Tot\_VMT: Total vehicle miles traveled  
AB\_VHT: AB vehicle hours traveled  
BA\_VHT: BA vehicle hours traveled  
Tot\_VHT: Total vehicle hours traveled

**OP.bin:** Total volumes and link statistics for the entire Off-Peak period

ID1: Link ID

DIST: length of the link (mi)

AB\_FLOW: Total vehicles in the AB direction (vehicles)

BA\_FLOW: Total vehicles in the BA direction (vehicles)

TOT\_FLOW: Total vehicles in both directions (vehicles)

AB\_TIME: travel time in the AB direction

BA\_TIME: travel time in the BA direction

AB\_SPEED: Speed in AB direction

BA\_SPEED: Speed in BA direction

AB\_VOC: AB volume-capacity ratio

BA\_VOC: BA volume-capacity ratio

AB\_VMT: AB vehicle miles traveled

BA\_VMT: BA vehicle miles traveled

Tot\_VMT: Total vehicle miles traveled

AB\_VHT: AB vehicle hours traveled

BA\_VHT: BA vehicle hours traveled

Tot\_VHT: Total vehicle hours traveled

**MD.bin:** Total volumes and link statistics for the entire Mid-Day period (9 AM – 3 PM)

ID1: Link ID

DIST: length of the link (mi)

AB\_FLOW: Total vehicles in the AB direction (vehicles)

BA\_FLOW: Total vehicles in the BA direction (vehicles)

TOT\_FLOW: Total vehicles in both directions (vehicles)

AB\_TIME: travel time in the AB direction

BA\_TIME: travel time in the BA direction

AB\_SPEED: Speed in AB direction

BA\_SPEED: Speed in BA direction

AB\_VOC: AB volume-capacity ratio

BA\_VOC: BA volume-capacity ratio

AB\_VMT: AB vehicle miles traveled

BA\_VMT: BA vehicle miles traveled

Tot\_VMT: Total vehicle miles traveled

AB\_VHT: AB vehicle hours traveled

BA\_VHT: BA vehicle hours traveled

Tot\_VHT: Total vehicle hours traveled

**AllDay.bin:** Total volumes and link statistics for the entire day.

ID1: Link ID

DIST: length of the link (mi)

AB\_FLOW: Total vehicles in the AB direction (vehicles)

BA\_FLOW: Total vehicles in the BA direction (vehicles)

TOT\_FLOW: Total vehicles in both directions (vehicles)

AB\_TIME: travel time in the AB direction

BA\_TIME: travel time in the BA direction

AB\_SPEED: Speed in AB direction

BA\_SPEED: Speed in BA direction

AB\_VOC: AB volume-capacity ratio

BA\_VOC: BA volume-capacity ratio

AB\_VMT: AB vehicle miles traveled

BA\_VMT: BA vehicle miles traveled

Tot\_VMT: Total vehicle miles traveled

AB\_VHT: AB vehicle hours traveled

BA\_VHT: BA vehicle hours traveled

Tot\_VHT: Total vehicle hours traveled

**Converge\_pk.bin:** Peak speed convergence test file, used in determining if the speed balancing process has converged.

ID1: Link ID

ID2: Link ID again

DIST: Link Length (mi)

Facility\_Type: same as in network

AB\_New\_Speed: AB link speed from the current iteration

BA\_New\_Speed: BA link speed from the current iteration

AB\_Old\_Speed: AB link speed from the previous iteration

BA\_Old\_Speed: BA link speed from the previous iteration

AB\_Prop\_Speed: proposed AB link speed for the next iteration, calculated as the average of the old and new speeds

BA\_Prop\_Speed: proposed BA link speed for the next iteration, calculated as the average of the old and new speeds

AB\_Speed\_Diff: Difference between old and new AB speeds

BA\_Speed\_Diff: Difference between old and new BA speeds

AB\_Pct\_Speed\_Diff: Percent difference between old and new AB speeds

BA\_Pct\_Speed\_Diff: Percent difference between old and new BA speeds

AB\_Sq\_Speed\_Diff: Squared difference between old and new AB speeds, for calculating RMSE

BA\_Sq\_Speed\_Diff: Squared difference between old and new BA speeds, for calculating RMSE

**Converge\_op.bin:** off-peak speed convergence test file, used in determining if the speed balancing process has converged.

ID1: Link ID

ID2: Link ID again

DIST: Link Length (mi)

Facility\_Type: same as in network

AB\_New\_Speed: AB link speed from the current iteration

BA\_New\_Speed: BA link speed from the current iteration

AB\_Old\_Speed: AB link speed from the previous iteration

BA\_Old\_Speed: BA link speed from the previous iteration

AB\_Prop\_Speed: proposed AB link speed for the next iteration, calculated as the average of the old and new speeds

BA\_Prop\_Speed: proposed BA link speed for the next iteration, calculated as the average of the old and new speeds

AB\_Speed\_Diff: Difference between old and new AB speeds

BA\_Speed\_Diff: Difference between old and new BA speeds

AB\_Pct\_Speed\_Diff: Percent difference between old and new AB speeds

BA\_Pct\_Speed\_Diff: Percent difference between old and new BA speeds

AB\_Sq\_Speed\_Diff: Squared difference between old and new AB speeds, for calculating RMSE

BA\_Sq\_Speed\_Diff: Squared difference between old and new BA speeds, for calculating RMSE

**Converge\_rpt.txt:** speed balancing report file

**PARAMETERS AND TABLES FROM DRCOG RESOURCE FILE  
(02/09/04)**

**I. Geography/network pre-processing:**

**Param[INI\_IDX]**

1.	0.1333	peak hour value of time
2.	0.15	peak hour value of distance (auto operating cost)
3.	0.1000	off-peak hour value of time
4.	0.15	off-peak hour value of distance (auto operating cost)
5.	3.48	occupancy rate for share 3+ drive mode
6.	0.51	maximum walking distance in miles
7.	0.1	maximum connector distance in miles
8.	3.0	walking speed (m/h)
9.	1.000	Peak Mall Shuttle Time Factor Applied to Hwy Time
10.	1.108	Peak Local Bus Time Factor Applied to Hwy Time
11.	1.163	Peak Limited Bus Time Factor Applied to Hwy Time
12.	1.000	Peak Express Bus Time Factor Applied to Hwy Time
13.	1.033	Peak Regional Bus Time Factor Applied to Hwy Time
14.	1.000	Peak Light Rail Time Factor Applied to Hwy Time
15.	1.033	Peak SkyRide Bus Time Factor Applied to Hwy Time
16.	1.000	Off-Peak Mall Shuttle Time Factor Applied to Hwy Time
17.	1.131	Off-Peak Local Bus Time Factor Applied to Hwy Time
18.	1.000	Off-Peak Limited Bus Time Factor Applied to Hwy Time
19.	1.140	Off-Peak Express Bus Time Factor Applied to Hwy Time
20.	1.000	Off-Peak Regional Bus Time Factor Applied to Hwy Time
21.	1.000	Off-Peak Light Rail Time Factor Applied to Hwy Time
22.	1.000	Off-Peak SkyRide Bus Time Factor Applied to Hwy Time
23.	1.00	Time required to pay toll at booth
24.	0.16	Toll Rate in 1996 dollars per mile

**Table[INI\_IDX]**

1.	{7,4,3,2,1}	peak orginal terminal times based on area type
2.	{7,6,3,1,1}	peak destination terminal times based on area type
3.	{9,3,2,2,1}	off-peak orginal terminal times based on area type
4.	{9,6,2,1,1}	off-peak destination terminal times based on area type

## II. Trip generation

### Param[TGN\_IDX]

1.	2001	Modeling forecast year (4 digits)
2.	0.001326	Rate of airport cargo trips per person
3.	0.002295	Rate of airport cargo trips per employee
4.	0.009835	Rate of HNB airport passenger trips per person
5.	0.011832	Rate of NHB airport passenger trips per person
6.	0.006877	Rate of drop-off, taxi, limo, etc. trips per person

## III. DB skimming

### Param[SKM\_IDX]

1.	7.0	pivot value in initial wait time
2.	0.1333	peak hour network value of time
3.	0.1333	peak hour network value of impedance
4.	0.1000	off-peak hour network value of time
5.	0.1000	off-peak hour network value of impedance

## IV. Trip distribution

## V. Mode split

### Param[MOD\_IDX]

1.	1.16	factor to get mall shuttle trips from NHB trips
2.	-0.0131	parameter COST for HBNW utility calc.
3.	15	parameter UP5
4.	4.1656	parameter HNWC
5.	1.39	parameter UP2, NHB regional avg. auto occupancy
6.	3.59	HBNW average auto occupancy for drive mode
7.	3.52	NHB average auto occupancy for drive mode
8.	1.47	HBNW default average auto occupancy (when HH = 0)

### Table[MOD\_IDX]

1.	{0.0,1.13,1.38,1.60,1.81,1.98,2.13,2.27,2.40,2.52,2.63,0.0}, lookup table for HBNW auto average occupancy
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2. {1.00,1.00,0.925,0.849,0.784,0.716,0.656,0.599,0.548,0.499,0.456,0.413,0.372,0.331,0.292,0.257,0.224,0.224}, lookup table for SHARES OF DA vehicle trips
3. {0.00,0.00,0.058,0.121,0.170,0.211,0.246,0.276,0.295,0.312,0.320,0.327,0.331,0.335,0.335,0.330,0.320,0.320}, lookup table for SHARES OF SR2 vehicle trips
4. {0.00,0.00,0.016,0.031,0.050,0.073,0.098,0.125,0.156,0.188,0.224,0.260,0.297,0.334,0.372,0.413,0.456,0.456}, lookup table for SHARES OF SR3+ vehicle trips
5. {0.725, 0.196, 0.079}, NHB drive mode shares (DA, SR2, SR3+)

## VI. Assignment

### Param[ASN\_IDX]

1. 50 Maximum number of iterations for AM highway loading
2. 50 Maximum number of iterations for PM highway loading
3. 50 Maximum number of iterations for off-peak highway loading
4. 0.01 Convergence criterion for AM highway loading
5. 0.01 Convergence criterion for PM highway loading
6. 0.001 Convergence criterion for off-peak highway loading

### Table[ASN\_IDX]

1. {0.689, 0.311} HBW walk-access peak/off-peak time-of-day factors
2. {0.525, 0.475} HBNW walk-access peak/off-peak time-of-day factors
3. {0.385, 0.615} NHB walk-access peak/off-peak time-of-day factors
4. {0.346, 0.468, 0.359} loading factors for AM sub-periods
5. {0.248, 0.289, 0.214} loading factors for PM sub-periods
6. {0.015, 0.098, 0.130, 0.048} loading factors for off-peak sub-periods
7. {0.744, 0.256} HBW drive-access peak/off-peak time-of-day factors
8. {0.578, 0.422} HBNW drive-access peak/off-peak time-of-day factors
9. {0.846, 0.154} drive-access not currently allowed for NHB, but space reserved
10. {0.5, 1.0, 1.0} length of AM sub-periods
11. {2.0, 1.0, 1.0} length of PM sub-periods
12. {7.5, 2.5, 3.5, 4.0} length of off-peak sub-periods

## VII. Speed balancing

### Param[SPD\_IDX]

1. 10 Maximum number of iterations for speed balancing