

STATUS REPORT ON VER 2.3 MODEL UPDATES AND VER. 2.5 MODEL DEVELOPMENT

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Overview of the Presentation:

- **Updates to the Version 2.3 Travel Demand Model**
- **Development activities on the Version 2.5 Travel Demand Model**
- **Recent work on refinements to external trip distribution (refinements will be presumably used in both 2.3 and 2.5 model versions)**



Planned updates for the Version 2.3 Model (Model that will be used to analyze Visualize 2045)

Land Activity & Network Inputs

- Land Use: Round 9.1 Cooperative Forecasts
- Exogenous trip forecasts
- Transit “Base-Year” network: 2017
- Transit fare assumptions

Parameters:

- The latest Consumer Price Index (CPI) used in cost deflation

Model Structure

- We plan to remove the so-called “Highway Skim Replacement” procedure
 - It will **simplify** the process and **reduce computation times** by eliminating the existing dual modeling process



Version 2.5 Model activities

(Model that is in development)

Reporting Enhancements:

- Added detailed reporting process to Mode Choice Model outputs
- Added PT-compliant LINESUM process to generate:
 - line volume summaries; and
 - station access summaries

Tested modeling process without a “Pump-Prime” iteration

- Tried running the model with a pre-existing loaded network, instead of running a complete 4-step iteration: Results are reasonable

Tested modeling process without using the Highway Skim Replacement (HSR) procedure

- Modeling results WITH and WITHOUT the HSR appear consistent /reasonable

Current Activity: Revisiting external trip distribution

Why?

- Staff has noted higher-than-expected external trip volumes during the course of select-link analysis (in project planning)
- Consultants have suggested external trip may be overstated in recent years

Implication:

- External traffic represents ~5% of the traffic but a substantial (>5%) amount of VMT
- Over-estimating external traffic negatively affects modeling performance

Data source used: 2014 AirSage Cellular (O-D) data



AirSage external data features

Data description:

- O/D data
- Purposes: HBW, HBNW, NHW, NHO
- External trip ends at the “station-group” level (12 groups)

What do we know about AirSage data quality?

- External O/D trip ends do not exactly match traffic counts
- O/D data **does not** correlate well with land use at **zone level**
- Reasonable at the district level of analysis or higher

2014 AirSage Trips by Station Group & Purpose

	HBW	HBNW	NHW	NHO	Total	Pct.
1 3676/VA3:	8,823	10,070	1,772	2,224	22,890	1.8%
2 3680/I95S:	40,791	39,640	7,452	7,979	95,862	7.7%
3 3685/US1529:	18,692	20,333	3,469	3,945	46,438	3.7%
4 3687/I66:	11,173	8,829	1,386	1,281	22,669	1.8%
5 3691/VA7:	25,605	19,751	3,496	2,688	51,540	4.2%
6 3693/WVA9:	148	113	3	0	264	0.0%
7 3697/I70W:	4,163	3,574	525	645	8,906	0.7%
8 3700/MD550:	5,203	4,774	765	639	11,381	0.9%
9 3702/US15:	13,095	14,177	2,276	2,159	31,706	2.6%
10 3705/MD30:	13,801	16,087	2,806	2,481	35,175	2.8%
11 3713/I95N:	411,990	302,264	74,320	58,446	847,020	68.3%
12 3722/BayBr:	25,044	29,531	5,675	5,400	65,649	5.3%
Sum	578,528	469,142	103,943	87,887	1,239,499	100.0%

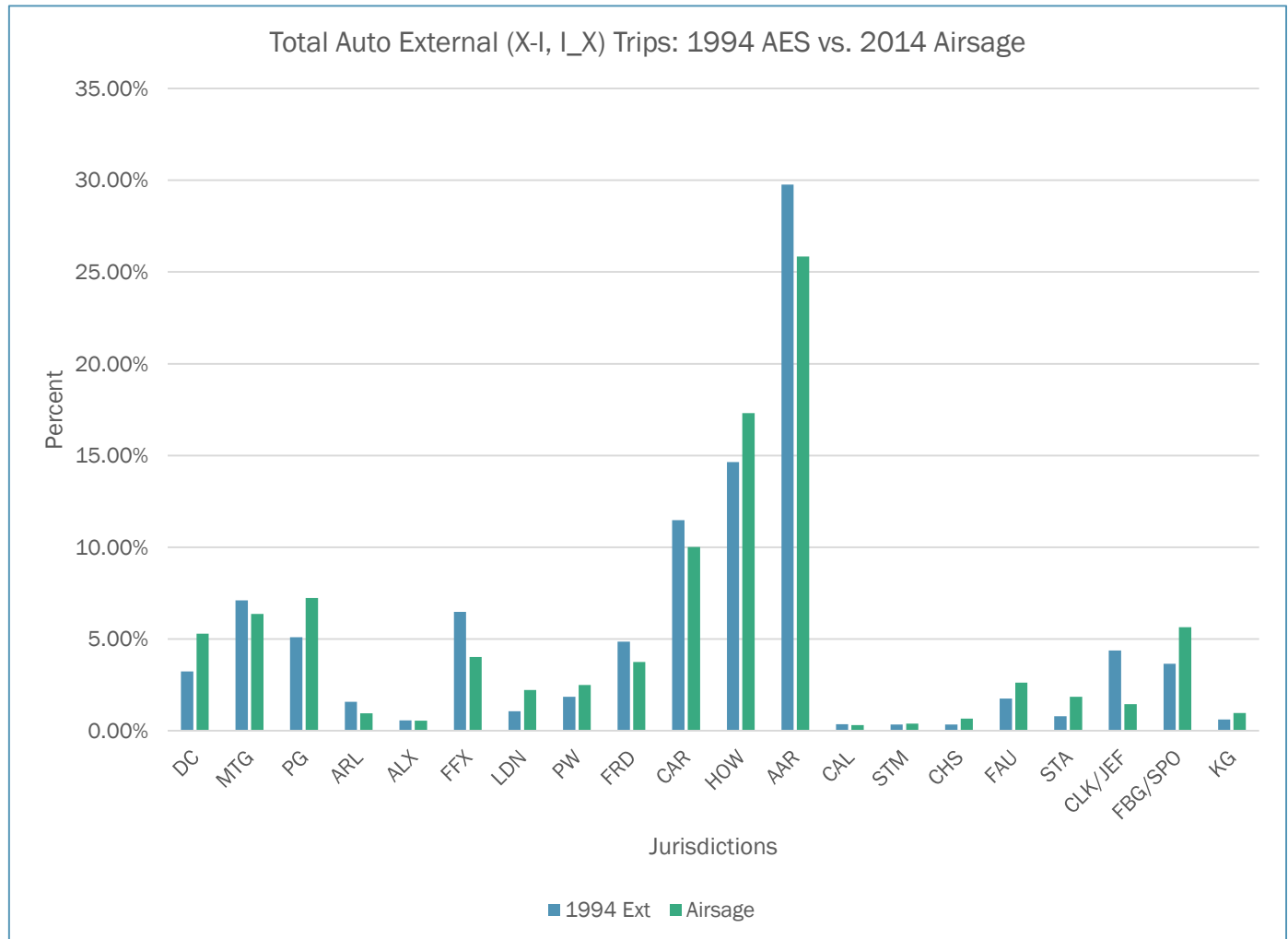
- Over 2/3's of all external trips are coming from the Baltimore area (I-95 North station group- highlighted)
- 33% of all external trips are associated with the work (HBW) purpose



AirSage external trip check: Comparison of total external trip distribution by jurisdiction: 2014 AS vs. 1994 Ext. Auto Survey

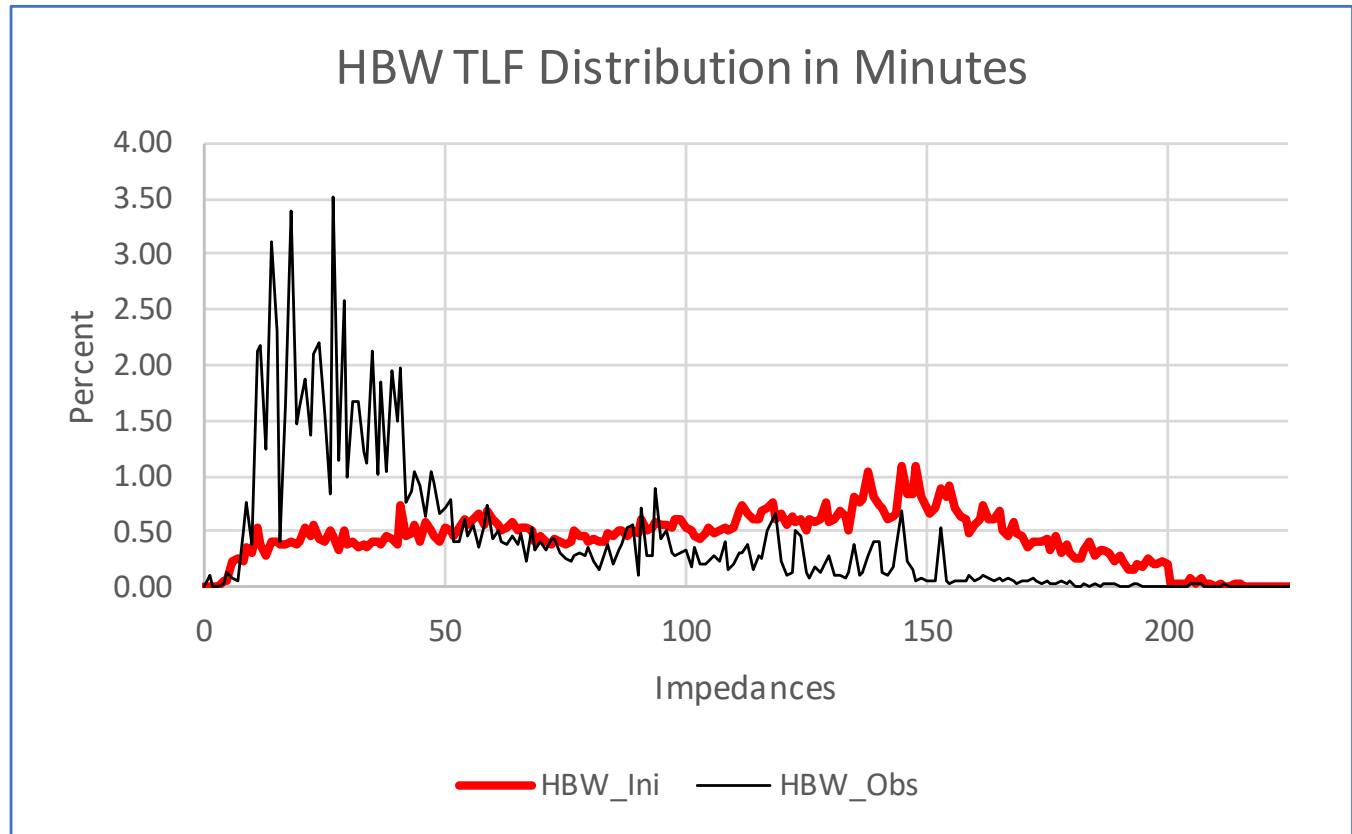
-The distributions compare reasonably well

-Note: There's a 20 year difference between data sets



HBW Trip Length Frequency (min): 2014 AirSage(Obs) vs. existing 2014 TPB Model

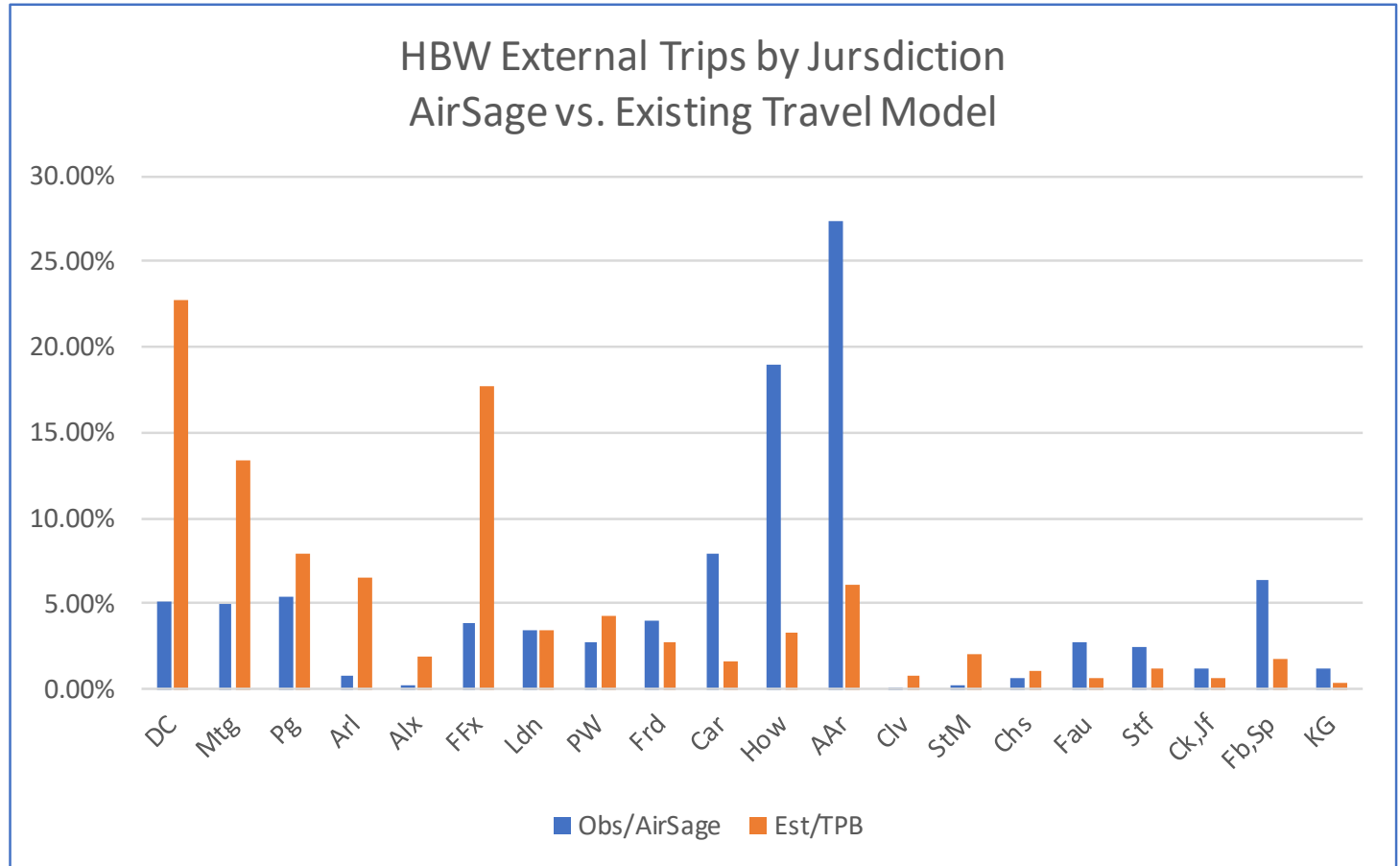
Observation:
“Houston:
We’ve got a
problem...”



HBW External Trips at Jurisdictional Level: 2014 AirSage vs. 2014 existing TPB Model

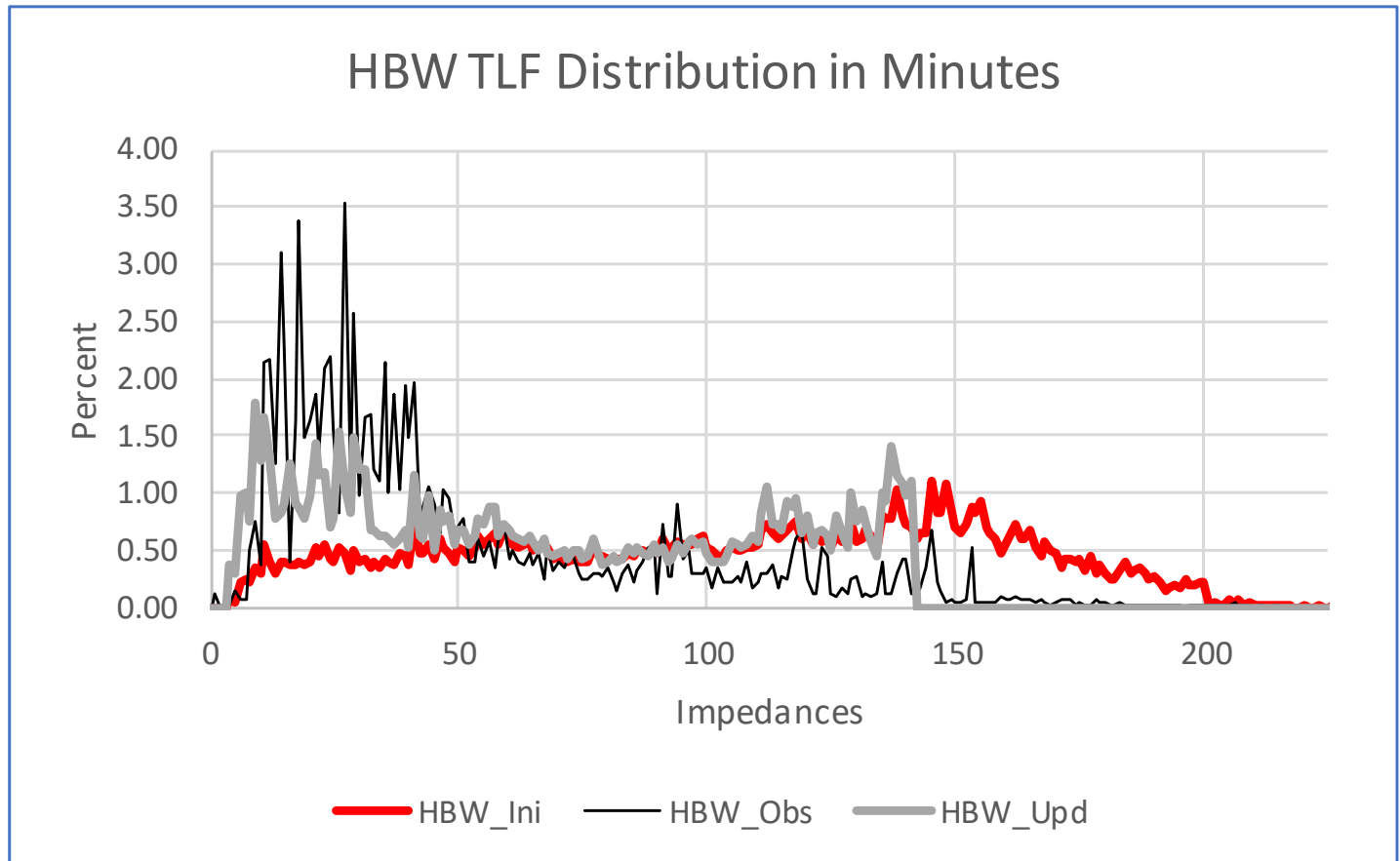
Observations:
-Model over-
states trips to
DC and the
inner suburbs

-Model
understates
trips to the
Baltimore
area
jurisdictions



Results of recent F-Factor adjustments: HBW Trip Length Frequency (min): 2014 AirSage vs. existing and updated TPB Model

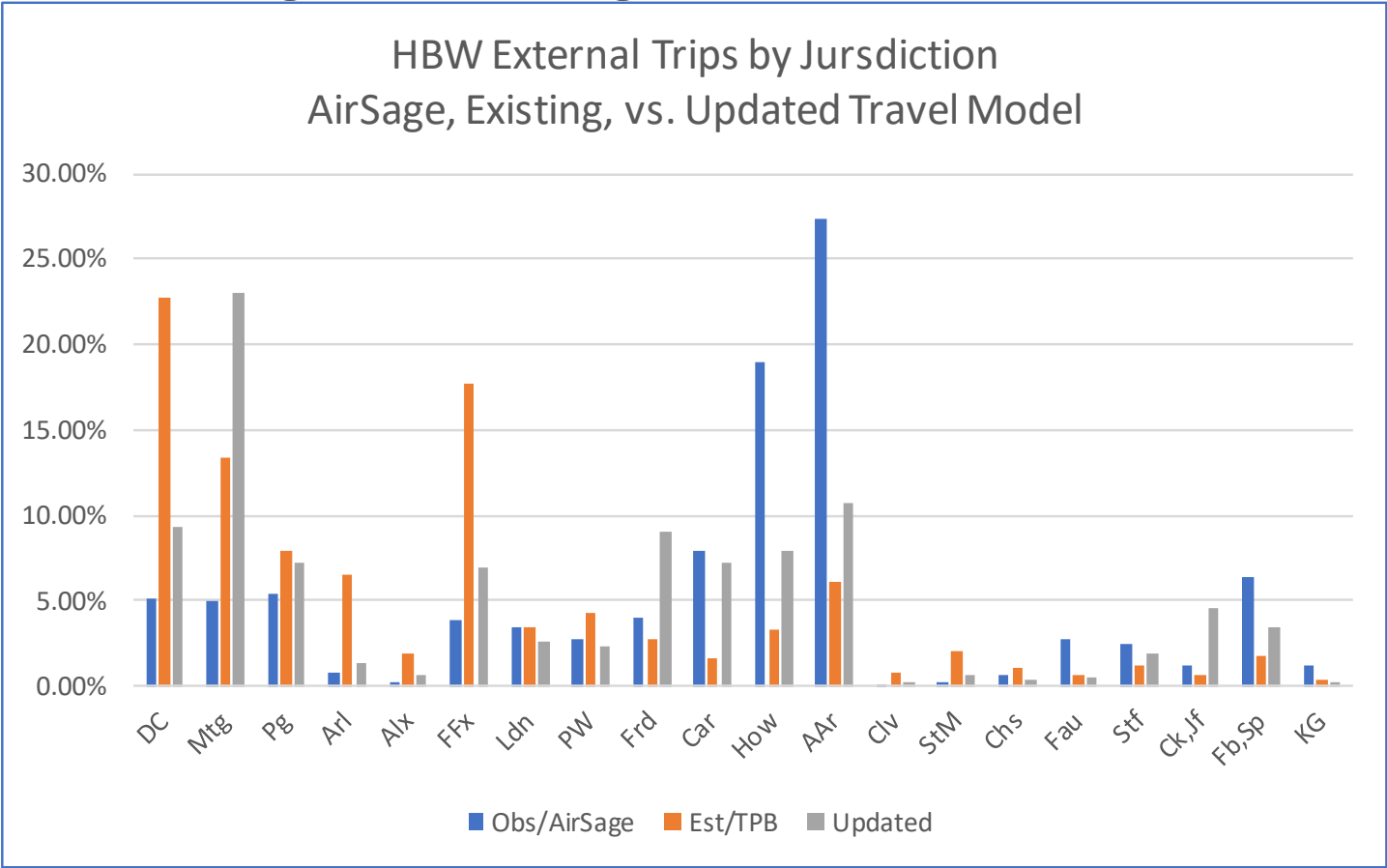
Updated estimated trip length frequency is closer to the observed/AirSage trip length frequency



Results of recent updated F-Factor adjustments: HBW External Trips at Jurisdictional Level: 2014 AirSage vs. existing and updated TPB Model

-Updated model moves the juris. distribution in the right direction, in most cases

-Montgomery County moves in the wrong direction, unfortunately



Conclusions

- Staff has determined that the external trip distribution process requires adjustments
- Recent adjustments to external trip distribution has shown promise
- More work is necessary
- The adjusted model will be used in the Version 2.3 and Version 2.5 Travel Models



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