

## **The “What, When, and Why” of the next likely improvements.**

### **HOV and HOT lane modeling (April, 2005)**

Scoping for the I-15 EIS in Utah County determined that modeling HOV and HOT (toll lanes) is an important element of their study. They would like to work with a model that has these elements in early 2005. PB Consult is assisting us in developing and implementing these Mode Choice features. This improvement will not measurably affect results in any ongoing study, but ongoing studies may be interested in utilizing this feature.

### **Long Term**

#### **HBW destination choice**

We’ve been working with PB Consult to develop a Home-Based Work destination choice model. It will likely undergo testing and possibly be implemented by early next summer.

#### **UrbanSim**

Andy Li is making great progress is being made on testing and implementing UrbanSim. We hope to use it to assist in the development and analysis of the next long-range plan (due in 2006).

#### **Home Interview Survey**

There is continued debate about what exactly is needed in this arena. The committee involved in this is wrestling with how to scope for this, and design a survey or several surveys that will get us the most valuable information available for the money.

#### **Replace *TRNBUILD* with *PUBLIC TRANSPORT***

The transit travel times and assignment utilize the Citilab’s TrnBuild module, which is a carry over from the Minutp platform. Citilabs ceased development on TrnBuild after acquiring the Public Transport (PT) module from a European firm that specialized in transit route choice and graphical display of results. As we learn more about PT, we will replace TrnBuild. We are unsure as to how much this will improve our accuracy of modeling transit, but it will certainly allow us access to better graphics and analytical methods, which alone should highlight opportunities for improvement.

REGIONAL CALIBRATION SUMMARY Version 3.2					REGIONAL CALIBRATION SUMMARY Version 4.2				
All Facility Types					All Facility Types				
Total UDOT Counts	=	36,589,885			Total UDOT Counts	=	37,052,250		
Total Estimated Volume	=	34,179,631			Total Estimated Volume	=	34,936,810		
Total Difference (Est-Obs)	=	-2,410,254			Total Difference (Est-Obs)	=	-2,115,440		
Total Number of Segments	=	1,661			Total Number of Segments	=	1,682		
%RMSE	=	34.75			%RMSE	=	33.06		
%Error (E-O/O)	=	-6.59			%Error (E-O/O)	=	-5.71		
Freeways Only					Freeways Only				
Total UDOT Counts	=	9,054,499			Total UDOT Counts	=	9,071,063		
Total Estimated Volume	=	9,371,924			Total Estimated Volume	=	9,214,868		
Total Difference (Est-Obs)	=	317,425			Total Difference (Est-Obs)	=	143,805		
Total Number of Freeway Segments	=	193			Total Number of Freeway Segments	=	194		
%RMSE	=	17.90			%RMSE	=	16.66		
%Error (E-O/O)	=	3.51			%Error (E-O/O)	=	1.59		
Collectors & Rural Highways					Collectors & Rural Highways				
Total UDOT Counts	=	5,351,348			Total UDOT Counts	=	5,411,498		
Total Estimated Volume	=	3,818,725			Total Estimated Volume	=	4,175,947		
Total Difference (Est-Obs)	=	-1,532,623			Total Difference (Est-Obs)	=	-1,235,551		
Total Number of Freeway Segments	=	537			Total Number of Freeway Segments	=	539		
%RMSE	=	69.99			%RMSE	=	64.19		
%Error (E-O/O)	=	-28.64			%Error (E-O/O)	=	-22.83		
Minor Arterials & Multi-Lane Highway					Minor Arterials & Multi-Lane Highway				
Total UDOT Counts	=	12,995,268			Total UDOT Counts	=	13,316,426		
Total Estimated Volume	=	11,741,049			Total Estimated Volume	=	12,144,857		
Total Difference (Est-Obs)	=	-1,254,219			Total Difference (Est-Obs)	=	-1,171,569		
Total Number of M. Arterial Segments	=	632			Total Number of M. Arterial Segments	=	650		
%RMSE	=	38.68			%RMSE	=	35.66		
%Error (E-O/O)	=	-9.65			%Error (E-O/O)	=	-8.80		
Pr. Arterials					Pr. Arterials				
Total UDOT Counts	=	9,301,957			Total UDOT Counts	=	9,372,400		
Total Estimated Volume	=	9,366,777			Total Estimated Volume	=	9,519,507		
Total Difference (Est-Obs)	=	64,820			Total Difference (Est-Obs)	=	147,107		
Total Number of P.Arterial Segments	=	308			Total Number of P.Arterial Segments	=	307		
%RMSE	=	26.19			%RMSE	=	27.88		
%Error (E-O/O)	=	0.70			%Error (E-O/O)	=	1.57		

Figure 1: Regional calibration summary between version 3.2 and version 4.2.

C A L I B R A T I O N, Version 3.2 Avg. Speeds Weighted By Number Of Segments					C A L I B R A T I O N, Version 4.2 Avg. Speeds Weighted By Number Of Segments				
Type	Area Type	Obs. Speed	Est. Speed	Segments	Type	Area Type	Obs. Speed	Est. Speed	Segments
Freeways	Rural	71.12	71.53	24	Freeways	Fringe	71.12	70.46	24
	Suburban	63.06	61.96	187		Suburban	62.99	59.85	182
	Urban	58.67	60.78	80		Urban	59.07	60.70	85
Pr. Arterials	Rural	38.29	42.74	42	Pr. Arterials	Fringe	38.40	41.17	43
	Suburban	34.97	33.61	153		Suburban	34.92	34.96	154
	Urban	28.58	26.29	69		Urban	28.59	28.30	68
	CBD	27.06	20.70	33		CBD	27.06	22.96	33
M. Arterials	Rural	37.47	39.97	139	M. Arterials	Fringe	37.53	36.87	92
	Suburban	32.81	32.39	313		Suburban	31.42	31.99	286
	Urban	29.15	27.86	158		Urban	29.01	27.27	154
	CBD	28.17	21.77	86		CBD	28.11	24.16	85
Collectors	Rural	29.72	39.26	29	Collectors	Fringe	28.86	32.88	28
	Suburban	30.32	29.90	118		Suburban	29.85	29.25	119
	Urban	27.45	24.95	110		Urban	27.89	26.14	112
	CBD	21.61	18.64	38		CBD	22.24	19.98	38
Master Network codes for Area Types					Multi-Lane Hwys All areas				
Rural & Transition	= 1,2						46.15	42.76	80
Suburban	= 3	Rural & Transition When FT = 35							
Urban	= 4	Suburban When FT = 31,32,34, and Area Type = 1-3							
CBD	= 5	Urban = When FT = 31,32,34, and Area Type = 4							

Figure 2: Calibration average speeds weighted by number of segments.