Trip Generation

Production / Attraction rate consolidation

Version 2.1 combined what were 3 separate travel models for Ogden, Salt Lake, and Provo into a single model. However, the production and attraction equations from those separate models were retained for each area. Further, production equations were based strictly on observed data, and were not smoothed by logical reasoning. For example, the data may have suggested a zero-car household with 3 people would take more shopping trips/day than a zero-car household with 6 people. This cannot logically be explained other than by a small sampling. Rates have now been consolidated to regional averages, and smoothed as recommended by an in-house peer review in January 2002.

Regional balancing of HBO trips

HBO trips produced in an urban area and attracted to that same urban area were significantly out of balance. For example, the Utah County area was found to produce about 10% more HBO trips than it attracted, where the 1993 household survey shows it at 2%. Since HBO trips are heavily weighted toward short, neighborhood trips, they were balanced by urban area to help address this.

NHB attractions to SL CBD increased by 10%.

Trips to SL CBD (Large District 9) were compared against the 1993 Home Interview Survey, and it was found that the percentage of SL CBD trips that were non-home based was about 10% lower in the model than it was in the survey. Thus NHB attractions to the CBD were factored up to account for this.

Home Based Work					
		Car-Ownership			
H		0	1	2	3+
H	1	0.32	0.7	1.07	1.14
S	2	1.04	1.23	1.52	1.92
I	3	1.47	1.54	1.79	2.38
Z	4	1.77	1.76	1.97	2.7
E	5	2.01	1.93	2.12	2.95
	6	2.2	2.24	2.31	3.32

Home Based Personal Business					
		Car-Ownership			
H		0	1	2	3+
H	1	0.45	0.65	0.54	0.48
S	2	0.67	0.91	0.96	1.04
I	3	0.79	1.07	1.21	1.37
Z	4	0.88	1.18	1.39	1.6
E	5	0.95	1.26	1.53	1.79
	6	1.01	1.42	1.71	2.05

Home Based Shop					
		Car-Ownership			
H		0	1	2	3+
H	1	0.49	0.42	0.51	0.31
S	2	1.01	0.97	0.99	1.05
I	3	1.32	1.3	1.27	1.49
Z	4	1.53	1.52	1.47	1.8
E	5	1.7	1.7	1.63	2.04
	6	1.84	2.02	1.83	2.38

Home Based School					
		Car-Ownership			
H		0	1	2	3+
H	1	0.01	0.17	0.17	0
S	2	0.41	0.45	0.24	0.3
I	3	0.9	0.89	0.64	0.95
Z	4	1.47	1.48	1.33	1.77
E	5	2.11	2.23	2.32	2.74
	6	2.84	4.8	4.68	5.04

Home Based Other					
		Car-Ownership			
H		0	1	2	3+
H	1	1.04	1.27	1.26	1.12
S	2	1.53	1.8	1.95	2.13
I	3	2	2.64	2.86	3.29
Z	4	2.45	3.78	4	4.6
E	5	2.87	5.23	5.37	6.05
	6	3.27	10.17	8.22	9.2

Figure 1: Trip production rates for home based trips.

HBW	=	1.2167 TOTEMP				
HBO	=	0.8460 POP	+	2.8497 RETEMP		
HBSC	=	0.4197 POP				
HBSH	=	1.6208 RETEMP	+	0.7221 TOTDWL		
HBPB	=	0.6886 TOTDWL	+	0.9799 RETEMP	+	0.1913 OTHEMP
NHBW	=	1.2130 TOTEMP	+	0.7246 TOTDWL		
NHBNW	=	2.8188 TOTDWL	+	5.9869 RETEMP	+	0.6750 OTHEMP

Variable Names:

HBW	-	Home Based Work Attractions
HBO	-	Home Based Other Attractions
HBSC	-	Home Based School Attractions
HBSH	-	Home Based Shop Attractions
HBPB	-	Home Based Personal Business Attractions
NHBW	-	Non-Home Based Work Related trip-ends
NHBNW	-	Non-Home Based Non-Work Related trip-ends
POP	-	Population
TOTDWL	-	Total Dwelling Units
TOTEMP	-	Total Employment
RETEMP	-	Retail Employment
OTHEMP	-	Other Employment (Total - Retail - Industrial)

Figure 2: Trip attraction equations.