

## APPENDIX A: MODEL CALIBRATION REPORT

Year 2002 was used as the base year for the travel demand model as it was the last year that the Utah Department of Transportation had complete traffic counts. Traffic counts used for calibration came from UDOT's *Traffic on Utah Highways*, which includes both actual counts and statistical estimates of counts for major roads in Cache County. After running the base year travel model, results were compared to UDOT data to determine the accuracy of the model. Several iterations of the model were run with various minor adjustments to speeds and capacities to best reflect existing data. The calibration compared the traffic volumes from the model output with the actual traffic counts from UDOT.

The scope of the Cache MPO LRP update involved reviewing the model for reasonable accuracy without significant efforts to improve the model. Model calibration was performed based on daily volumes only and no attempt was made to adjust UDOT counts to weekday application. In order to "accept" the model for use in the LRP update, it was not necessary that the travel model output be the same as the actual counts in order to have an accurate model, although the numbers should be similar. The model calibration results are shown in Table A-1.

**Table A-1: Travel Model Calibration**

Street or Location	From	To	2002 UDOT AADT	Model AWDT Volume	Difference	Percentage
3200 South	800 West	Highway 165	1,005	953	-52	-5.2%
3200 South	Highway 89/91	800 West	1,065	918	-147	-13.8%
Mill Rd	Highway 165	Main St (Millville)	1,290	836	-454	-35.2%
Main St (Millville)	Mill Rd	400 North(Millville)	1,290	575	-715	-55.4%
Main St (Millville)	400 North(Millville)	100 North(Providence)	1,416	1,700	284	20.1%
Main St. (Providence)	100 North	700 South (River Heights)	2,328	8,406	6,078	261.1%
800 East	2500 North	200 South(Hyde Park)	3,575	5,853	2,278	63.7%
Hyde Park Rd	Highway 91	Main St. (H. Park)	3,575	732	-2,843	-79.5%
400 East (River H.)	700 South	300 South	4,324	9,090	4,766	110.2%
1000 North	800 East	1200 East	4,925	4,917	-8	-0.2%
800 East	1800 North	2500 North	5,200	6,615	1,415	27.2%
300 South	400 East(Logan)	Main St (Logan)	5,724	3,661	-2,063	-36.0%
2500 North	1000 West	2400 West	6,100	8,303	2,203	36.1%
St. Rt. 30	1000 West	Highway 23	6,160	6,497	337	5.5%
800 East	1400 North	1800 North	6,685	8,402	1,717	25.7%
Highway 89	Logan River	Beyond	7,000	3,942	-3,058	-43.7%
1000 West	Highway 89/91	1100 South	7,795	4,679	-3,116	-40.0%
800 East	1000 North	1400 North	8,725	11,819	3,094	35.5%
2500 North	Highway 91	1000 West	9,480	4,937	-4,543	-47.9%
1000 West	St. Rt. 30	2500 North	9,485	8,929	-556	-5.9%
Highway 165	2600 South	1700 South	9,570	19,965	10,395	108.6%
St. Rt. 30	Highway 89/91	1000 West	10,095	5,885	-4,210	-41.7%
1000 West	600 South	St. Rt. 30	11,192	4,174	-7,018	-62.7%
800 East	Highway 89	1000 North	11,925	7,098	-4,827	-40.5%

Highway 165	Hyrum	3200 South	12,365	19,360	6,995	56.6%
1000 West	1100 South	600 South	12,375	5,333	-7,042	-56.9%
1200 East	Highway 89	1000 North	12,405	6,683	-5,722	-46.1%
Highway 165	Mill Rd	2600 South	12,895	18,775	5,880	45.6%
Highway 89/91	3200 South	1000 West	16,805	20,704	3,899	23.2%
Highway 89/91	1000 West	Highway 165	17,680	22,713	5,033	28.5%
Highway 89/91	Wellsville	3200 South	18,115	21,594	3,479	19.2%
1400 North	Highway 91	800 East	18,725	16,921	-1,804	-9.6%
Highway 165	1700 South	Highway 89/91	21,100	19,691	-1,409	-6.7%
Highway 89	600 East	Logan River	21,865	19,839	-2,026	-9.3%
Highway 89	Main St.	600 East	29,225	19,613	-9,612	-32.9%
Highway 91	2500 North	Hyde Park Rd	29,935	32,822	2,887	9.6%
Highway 91	1400 North	2500 North	30,240	30,810	570	1.9%
Highway 91	Hyde Park Rd	600 South(Smithfield)	30,420	31,451	1,031	3.4%
Highway 91	Highway 89	1400 North	31,839	30,714	-1,125	-3.5%
Highway 89/91	Center St.	St. Rt. 30	35,995	28,336	-7,659	-21.3%
Highway 89/91	St. Rt. 30	Highway 89	40,490	30,610	-9,880	-24.4%
Highway 89/91	Highway 165	Center St.	40,745	45,821	5,076	12.5%
		<b>Total</b>	<b>573,148</b>	<b>560,676</b>	<b>-12,472</b>	<b>-2.2%</b>

While the travel model is a good tool for travel demand forecasting, some level of error is expected. The output of the travel model will vary from actual counts but as the traffic volumes increase, the amount of error should decrease. This is consistent with calibration results of the Cache MPO 2002 travel model.

Shading in Table A-1 indicates traffic volume ranges based on UDOT 2002 counts. Ranges, given in vehicles per day, are:

- 0-5,000
- 5,001-15,000
- 15,001-30,000
- 30,001+

Calculating a percent difference between the travel model and the 2002 counts for each traffic volume range, the degree of error was determined. Figure A-1 indicates that as the traffic volumes increase, error decreases. On a few streets, modeled traffic volumes differ greatly from the 2002 traffic counts. However, in most of these cases the amount of error is expected due to base year traffic count error and seasonal variation in traffic patterns. Therefore, model results can be assumed to be reasonably accurate for planning purposes.

Figure A-1: Model Calibration Error

