

APPENDIX D

Network Calibration

INTRODUCTION

To calibrate the QRS model, the results of the capacity-restraint assignments were compared to the 2002 Average Daily Traffic (ADT) volume count data, presented in Working Paper #1 and Chapter III. The LSC Team conducted 24-hour machine counts at various locations in Rifle and these were seasonally adjusted to represent average daily traffic volumes.

THE CALIBRATION PROCESS

The approach to the calibration process was to conduct a point validation analysis. Point validation represents a higher standard for calibration than is typically used. Not only are overall flows of traffic volumes compared, but also site-specific volumes. A calibrated model should provide results which are reasonably close for major links in the street network. Table D-1 shows the two-way volume error range which was used in calibrating the Rifle model. For low-volume links, a larger error range is acceptable because of the lack of congestion. A difference of 100 percent for volumes less than 1,000 vehicles per day has little effect on congestion because less than 50 percent of the roadway capacity is being used. For higher volume roadways, the percentage error must be much smaller.

Average Daily Traffic (ADT)	Error Range
<1,000	± 100%
1,000 - 3,999	± 50%
4,000 - 9,999	± 25%
10,000 - 15,000	± 15%
≥15,000	± 10%

Source: LSC, 2002

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The error ranges account for the difficulty in representing personal choices for travel as a mathematical model and the simplification of possible travel paths. For example, a driver in Rifle has the option to access businesses from Railroad or from Whiteriver Avenue. The driver may actually enter from one of those streets and exit onto the other. The following day, the same trip may be made, but the driver chooses to use the opposite street for entry and exit.

MODEL CALIBRATION RESULTS

Iterative adjustments were made to the network model until the modeled link volumes were within the acceptable error ranges for observed volumes on key links within the network. Model parameters which established the base-year model were used in modeling the future growth projections and will be used to evaluate alternate transportation network improvements.

Table D-2 presents the results of the model validation process. Observed volumes from traffic counts and calculated volumes are shown. Point volumes are presented next to the corresponding standards for the desired error level and the resultant error ranges.

Table D-2
Model Validation Results

Location	Traffic Counts	Acceptable Range		Model Volume
		Low	High	
SH 13 North of I-70	12,810	10,889	14,732	13,897
SH 13 Truck Bypass south	2,423	1,212	3,635	3,350
SH 13 Truck Bypass north	4,200	3,150	5,250	3,924
SH 13 north of Railroad Avenue	8,900	6,675	11,125	8,154
SH 13 north of Rifle	4,100	3,075	5,125	4,376
I-70 west of West Rifle interchange	12,998	11,048	14,948	12,974
I-70 east of West Rifle interchange	9,575	7,181	11,969	7,590
I-70 west of Silt interchange	13,810	11,739	15,882	12,912
US 6 east of West Rifle interchange	4,050	3,038	5,063	4,917
US 6 west of SH 13 Truck Bypass	5,450	4,088	6,813	4,985
US 6 west of Railroad Avenue	2,452	1,226	3,678	3,320
US 6 east of Whiteriver	5,750	4,313	7,188	7,079
US 6 east of Rifle	4,942	4,201	5,683	5,278
Railroad Avenue (16 th to SH 13)	7,650	5,738	9,563	6,098
Railroad Avenue (9 th to 13 th)	11,860	10,081	13,639	11,548
Railroad Avenue (6 th to 8 th)	11,836	10,061	13,611	10,620
Airport Road east of Taugenbaugh	3,565	2,674	4,456	2,939
County Road 293	850	0	1,700	413
<i>Source: LSC, 2002</i>				