Appendix D.1 – User Count Data

Non-motorized user counts were conducted on the Albuquerque area streets and trails to quantify utilization on both weekdays and weekends. The count locations for the on-street and trails systems were selected based upon the following criteria:

1. Locations where previous count data from 1997 was available for comparison.
2. On-street intersection locations that are known to have numerous cyclists. This included most access locations to the University of New Mexico and KAFB.
3. Intersections along key on-street commuter routes
4. Trail locations along key commuter trails such as the Bosque Trail, Paseo del Nordeste/Diversion Channel Trail, and Tramway Trail
5. Intersections in developing areas that will act as baseline data for future counts
6. Nodes near areas that have poor non-motorized connectivity (Coors Blvd at Eagle Ranch Rd and Montaño Rd)

The weekday counts were collected to quantify commuter cycling traffic within the Albuquerque area. That traffic uses both the on-street and trail systems, and a large number of count locations were selected to determine what areas of the city experience commuter cyclists. The weekend counts were primarily collected to assess the number of recreational users of the trail system, thus the major non-motorized trail users were counted. Some on-street counts were gathered at strategic locations with on-street bike lanes or shoulders along common recreational routes, or at key locations with limited non-motorized facilities. A total of 38 locations were selected for counts during weekdays, weekends, or both.

A. Count Data Methodology

On-Street Count Methodology

On-street facilities collected data only for cyclists, while off-street trails quantified all non-motorized users. All intersection counts were collected as standard turning movement counts in 15 minute increments, with each turning movement counted separately. Mid-block and trail locations were collected in 15 minute increments with directional or turning movements collected depending upon the location.

Bicycle counts included both volumes and a number of additional characteristics. Each cyclist was identified as wearing or not wearing a helmet. For on-street locations, cyclists were also noted where they rode on sidewalks rather than in the street. Traffic violations were quantified for on-street cyclists. The traffic violations were limited to non-compliance with traffic signal indications, running stop signs without slowing, and riding the incorrect direction within a bicycle lane (for instance, riding eastbound in an westbound lane). Cyclists who slowed considerably and looked for oncoming traffic at stop signs without a full stop were not considered to violate the traffic control, nor were cyclists who slowed without stopping to make a right turn at a traffic signal. The violations recorded were primarily traffic control violations. Because most of the on-street locations were signalized intersections, the violations at these intersections were running red lights. Few cyclists were seen running a red signal indication

without first stopping at the approach. The second most common violation was riding on the wrong side of the street in a bike lane. Complete raw count data are provided in Appendix B.

Trail Count Methodology

The trail system counted each user that passed the specific location or intersection. The users were categorized as:

1. Bicyclists
2. Runners/Joggers
3. Walkers
4. Roller Bladers/Skateboarders
5. Equestrians

Bicyclists were identified as wearing or not wearing helmets on trails as well. Some trail users had pets, primarily dogs, and each user with a pet was noted. A few users had multiple pets, but only the number of users with pets was counted, not the number of actual pets. Note that no user was observed with more than two pets. All pets were observed on leashes except for a few in the Bosque walking on the opposite side of the Riverside drain from the paved trail.

A series of summary tables contain the results of the counts. The weekday data are summarized by the AM and PM peak periods, each period representing two hours of data. The weekday on-street data quantify the approach and departure volumes (two-direction) at each intersection, resulting in double counting each user (an approach and a departure). The double counting results in accurate link volumes for each leg of the intersection.

The trail volumes were summarized considering all users. Link volumes were generated for each of the trail locations and major intersecting connectors. These link volumes quantify the bi-directional traffic during each two-hour data collection period. The weekend volumes, primarily counted on trails, quantify the three-hour count periods for each link listed. The weekend intersection locations have summary data only for bicycles.

Albuquerque has a number of unique employment areas, and the data for two of these areas, the University of New Mexico (UNM) and Kirtland Air Force Base (KAFB), have been separated from the other locations in the volume tables. The reason for the segregation is that in each case, most of the primary entry/exit points for each facility were counted to quantify the overall bicycle demand for that facility. This permits summary data for these locations. Complete raw count data are provided in Section D.1.E.

B. Weekday Trail and On-Street Volume Summary

Collectively, the UNM area has the greatest amount of cycling traffic in the Albuquerque area. The university area also experiences the highest percentage of cyclists not wearing helmets and cyclists utilizing the sidewalks, primarily along Central Ave.

UNM Summary Statistics:	AM Peak	PM Peak	Total

Total Entering Volume:	435	814	1249
Percent Wearing Helmets:	49.7%	39.6%	43.1%
Percent on Sidewalk:	18.2%	27.1%	24.0%
Percent Committing Violations:	9.7%	5.2%	6.7%

The KAFB access was unique in that it accounts only for entering and exiting traffic. The KAFB gates also differed in that the count periods were moved forward a half hour from the count periods throughout the rest of the study area. The KAFB counts were collected from 6:30 to 8:30 am and from 3:30 to 5:30 pm. Observation at the Eubank gate began at 6:15 am and concluded at 5:45, confirming that the peaks occurred within the data collection period. There was not an issue concerning traffic violations at the gate accesses, therefore that column was deleted. The Eubank Gate has two access points for cyclists – the vehicle gate and a new pedestrian-bicycle gate located to the south. Counts were conducted for each gate to establish utilization. This area exhibited the highest helmet usage in the Albuquerque area. The high level of compliance with traffic laws can likely be attributed to the fact that traffic violations within KAFB are federal offences. The volumes reflect the commute patterns with heavy entering AM volumes and heavy exiting PM traffic. It is interesting to note that the Eubank gates accounted for 77-percent of the bicycle traffic to/from KAFB.

KAFB Summary Statistics:	**AM Peak**	**PM Peak**	**Total**
Total Entering Volume:	117	4	121
Total Exiting Volume:	3	115	118
Percent Wearing Helmets:	97.5%	95.8%	97.1%
Percent on Sidewalk:	7.4%	5.9%	6.7%

The Silver Ave. and Buena Vista Dr. intersection experienced the highest number of traffic violations. This intersection is the only count site located on the existing Bicycle Boulevard, and has all-way stop traffic control. The high violation rate, 29.3-percent of all entering vehicles, is a concern. A second concern was for the high violation and low helmet usage at the Rainbow Blvd-Woodmont Ave intersection. The AM peak reflects middle school children traveling to school and it yielded a violation rate of 53.9-percent and helmet usage of 23.1-percent. It appears that an educational program should focus on this area and age group.

C. Weekend Trail and On-Street Volume Summary

The highest weekday cycling usage occurred at the University of New Mexico. The highest weekend usage was along the Bosque Trail with an average of more than 200 users per hour per link at three locations.

The Bosque Trail experiences the highest utilization in the Albuquerque area. Based upon observation, it is assumed that the majority of the Bosque Trail users were recreational users. Some cyclists during the weekday counts appeared to be commuters; however, the overwhelming majority appeared to be recreational. The Bosque Trail is unique in that you can travel over 13 miles without encountering an at-grade intersection, which leads to high recreational usage. The second most frequently used trail for cyclists was the combined trails Paseo del Nordeste and the Diversion Channel Trail. The original Paseo del Nordeste Trail

started at UNM, and went north to the Hahn Arroyo, then east to Pennsylvania St. The trail utilization has changed since the Diversion Channel Trail was completed and connected to Paseo del Nordeste, resulting in primarily north-south movements within the corridor. The reason for this change may be that the Diversion Channel Trail connects to the Bosque Trail via the Paseo del Norte Trail with minimal at-grade crossings. These trails carry regional cycling traffic, not just local traffic.

Cyclists were the most frequently counted trail users, who generally out-numbered the second most frequent, walking and jogging. Cyclists generally outnumbered walkers and joggers by ratios ranging from 1:1 (in only a few locations) to 5:1. The least common trail users were equestrian and they were observed more frequently on weekdays than weekends. One reason for this trend could be the need to mix with other user types in conditions that may scare or startle horses. Another possible cause is a lack of dedicated equestrian parking and suitable trail connections in the north valley area. This is consistent with feedback received during stakeholder interviews.

The previous on-street bicycle plan collected counts in 1997 at 11 comparable locations. The 1997 weekday counts were conducted for two hours during the AM peak period and three hours during the PM peak period, therefore adjustments were necessary to normalize the PM data. Raw data was available for 7½ of the 1997 locations, and only locations with raw 1997 data were compared. Table 10 contains the peak period entering volumes from each year, while Figure 2 shows a percentage change at each location.

D. Volume Comparison: 1997 and 2010

The Bosque Trail locations show a moderate increase in weekday activity, and increases in helmet usage. The Wyoming gate at KAFB shows a significant decrease in volume, however, additional detail from the previous plan indicates that much of the cycling traffic has shifted to the Eubank gates. The UNM area had significantly lower volumes during the AM peak period at each site counted, though the PM peak is slightly higher. The counts also indicate that helmet usage has increased and violations are less frequent in the university area.

E. Trail Count Raw Data

2010 Bicycle Counts

No.	Locations	1997 Count	Weekday	Weekend
1	Bear Canyon Trail @ Morris	N	X	
2	Bear Canyon Trail @ Wyoming	Y	X	
3	Pennsylvania @ Indian School	N	X	
4	Pennsylvania @ Embudo Trail	N	X	X
5	UNM - Yale @ Lomas	Y	X	
6	UNM - Campus @ Girard	Y	X	
7	UNM - MLK @ University	Y	X	
8	UNM - Paseo del Nordeste @ Tucker	N	X	X
9	UNM - Yale @ Central	Y	X	
10	UNM - Stanford @ Central	Y	X	
11	UNM - Cornell @ Central	N	X	
12	Silver Ave @ Buena Vista	Y	X	
13	KAFB Wyoming Gate	Y	X	
14	KAFB Eubank Gate	N	X	
15	KAFB Louisiana Gate	N	X	
16	KAFB Carlisle Gate	N	X	
17	Tramway Blvd @ Central Ave	N	X	X
18	Tramway Blvd @ Spain	N	X	
19	Tramway Blvd @ Embudo Trail	N	X	X
20	Bosque Trail @ Central Ave	Y	X	X
21	Bosque Trail @ Montaño	Y	X	X
22	Bosque Trail @ Paseo del Norte	N	X	X
23	Bosque Trail @ Alameda	N	X	X
24	Bosque Trail @ Rio Bravo Blvd	N		X
25	Paseo del Nordeste @ N Diversion Channel Trail	N	X	X
26	North Diversion Channel @ Paseo del Norte	N	X	X
27	Paseo del Nordeste @ East I-40 Trail	N	X	X
28	Atrisco Rd @ I-40 Overcrossing	Y	X	X
29	Unser Blvd @ I-40 Trail	N	X	
30	Coors Blvd @ Montaño Rd	N	X	X
31	Coors Blvd @ Eagle Ranch Rd	N	X	
32	Paradise Blvd @ Golf Course Rd	N	X	
33	Marquette @ 2nd St	N	X	
34	Bridge Blvd @ Isleta Blvd	N	X	
35	Arenal Rd @ Unser Blvd	N	X	
36	Alameda Blvd @ 4th St	N	X	
37	Candelaria Rd West of Edith	N	X	
38	Woodmont Ave @ Rainbow Blvd	N	X	

Weekday Counts: 37

Weekend Counts: 14

Intersection: Bosque Trail @ Alameda Blvd Date/Day: 5/15/2010 Observer: NH

	Alameda Blvd		Northbound Trail										Southbound Trail											
	Bike		Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse			
Begin Time	EB	WB	SL	NL	SL	NL	SL	NL	SL	NL	SL	NL	SL	NL	SL	NL	SL	NL	SL	NL	SL	NL	Pets	No Helmet
9:00 AM	1	7	3		2		7	4					32	2			10	1					7	3
9:15 AM	3		7		1		15						8		2	2	10	1					4	1
9:30 AM	1		11		3	1	4	9					11	2	1		9	1					4	1
9:45 AM	1		7		3	3	6	2					14		1		4	1					3	4
10:00 AM			9				6	4					13	1			9	4					4	5
10:15 AM	2	2	11	2	4		2	3			2		14	1	3		4	4					3	1
10:30 AM		2	17				7	3					15		1		1	2	1				3	10
10:45 AM	3	1	3	2			5						12		1		8	3			1		5	3
11:00 AM	1		20		3	2	5	6					13			1	11	1					6	6
11:15 AM		3	18	2			12						20		1		7	5	1				10	5
11:30 AM	1		20		4	1	4	6	2				20	3	1		6	3	1				4	11
11:45 AM	1	2	15	1	2		8	3					14	1	4	1	2	3					4	5

SL - South of Parking Lot NL - North of Parking Lot Only

	Totals	Percents
Users	662	
Cyclists	375	56.6%
Cyclists w/o Helmets	55	14.7%
Run/Jog	48	7.3%
Walkers	231	34.9%
Skaters	5	0.8%
Equestrians	3	0.5%
Pets	57	8.6%

Intersection: Bosque Trail @ Paseo del Norte **Date/Day:** 5/15/2010 **Observer:** AG

	Northbound Bosque Trail										Southbound Bosque Trail										Paseo del Norte Connector											
	Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse			
Begin Time	LT	Th	LT	Th	LT	Th	LT	Th	LT	Th	Th	RT	Th	RT	Th	RT	Th	RT	Th	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	Pets	No Helmet
9:00 AM	1	3		4		4					18	3										1		3								
9:15 AM	3	11	4	3							10		1		3																	4
9:30 AM	4	5		5		1					8	2	3		3						5	6									1	1
9:45 AM	1	5		1	1	2					13	4			3																	3
10:00 AM	1	6		2		3	1				14	4	2		7						3	5				1					2	9
10:15 AM	9	7		1		6					6	3			4						4	9				1		1			1	9
10:30 AM	4	10				5					17		4	1	2						1	1				1					4	7
10:45 AM	4	9	2	5		4					13				1		1				1	8		3							3	5
11:00 AM	4	13		1		5					6	2	3		4						1	4										5
11:15 AM	3	24		4		2					14	5	2		2	2					2	3									2	8
11:30 AM	5	9		2		1		1			20	1	2		1	1					6	4			2						2	10
11:45 AM	7	20		4		5					21	6	2	1	1		1					5									2	17

	Totals	Percents
Users	575	
Cyclists	427	74.3%
Cyclists w/o Helmets	78	18.3%
Run/Jog	65	11.3%
Walkers	78	13.6%
Skaters	5	0.9%
Equestrians	0	0.0%
Pets	17	3.0%

Intersection: I-40 Overcrossing @ Atrisco Rd **Date/Day:** 5/15/2010 **Observer:** RC

	Northbound Bosque Trail										Southbound Bosque Trail										Montaño Connector											
	Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse			
Begin Time	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	Th	RT	Th	RT	Th	RT	Th	RT	Th	RT	LT	Th	LT	Th	LT	Th	LT	Th	LT	Th	Pets	No Helmet
9:00 AM		4	3	7	1	2					1		1	1							2	3		2								1
9:15 AM	4	14									7		2			2						8		2		1						6
9:30 AM		6	1	2							29		1	1							1	4		1								5
9:45 AM	4	5		1	1						4		2								3	8				1	1					6
10:00 AM	2	13		3							13	2	3	1							3	7										7
10:15 AM		11		1							15		1								3	2		1							1	6
10:30 AM	4	12		1			2				5	1			1			1			1	7	1	2		2					1	8
10:45 AM	3	11		4		3					11		2	1	2						5	8			1	1						12
11:00 AM	6	20	3	4				1			19	2				2	1				1	9										5
11:15 AM	4	17		6		4					15	7	6	1		1					3	2										6
11:30 AM	6	20									15	3										4										6
11:45 AM	3	10		1							22	2		1	1						7											8

	Totals	Percents
Users	545	
Cyclists	443	81.3%
Cyclists w/o Helmets	76	17.2%
Run/Jog	70	12.8%
Walkers	26	4.8%
Skaters	6	1.1%
Equestrians	0	0.0%
Pets	2	0.4%

Intersection: Bosque Trail @ Central Ave **Date/Day:** 5/15/2010 **Observer:** RG

E-W Street: Central Ave **N-S Street: Bosque Trail**

Begin	Northbound Bosque Trail					Southbound Bosque Trail									
Time	Bike	Run/Jog	Walk	Skate	Horse	Bike	Run/Jog	Walk	Skate	Horse				Pets	No Helmet
9:00 AM	13		2			9	4	2	1						
9:15 AM	3	5	10			5	1	3						1	
9:30 AM	7	3	149			8	1	3						1	1
9:45 AM	10	5	27			15	5	9						1	10
10:00 AM	5		4	2		6	4	18							2
10:15 AM	13	2	1			17		56						1	12
10:30 AM	11	1	1			14	6	36							7
10:45 AM	19		1			1	2	34							7
11:00 AM	22		1			12	1	12						2	14
11:15 AM	10					14		1	2						4
11:30 AM	13		2			20								2	12
11:45 AM	7	1	1			7	1	2							2

	Totals	Percents
Users	683	
Cyclists	261	38.2%
Cyclists w/o Helmets	71	27.2%
Run/Jog	42	6.1%
Walkers	378	55.3%
Skaters	5	0.7%
Equestrians	0	0.0%
Pets	8	1.2%

Intersection: Bosque Trail @ Rio Bravo Blvd **Date/Day:** 5/15/2010 **Observer:** JB

E-W Street: Ro Bravo Blvd **N-S Street:** Bosque Trail

Begin	Northbound Bosque Trail					Southbound Bosque Trail									No
Time	Bike	Run/Jog	Walk	Skate	Horse	Bike	Run/Jog	Walk	Skate	Horse				Pets	Helmet
9:00 AM	6					6									6
9:15 AM	9					14		3							12
9:30 AM						1									
9:45 AM	6	1	4			5	1	4						2	8
10:00 AM	1					3		1						1	2
10:15 AM	9		1			12								1	11
10:30 AM	10					10									11
10:45 AM	14		2			12		2						2	18
11:00 AM	6		1			6			1						9
11:15 AM	3					5									4
11:30 AM	5		2			7									10
11:45 AM	24					10									32

	Totals	Percents
Users	207	
Cyclists	184	88.9%
Cyclists w/o Helmets	123	66.8%
Run/Jog	2	1.0%
Walkers	21	10.1%
Skaters	1	0.5%
Equestrians	0	0.0%
Pets	6	2.9%

Intersection: I-40 Overcrossing @ Atrisco Rd **Date/Day:** 5/22/2010 **Observer:** NH

	Atrisco Connector										Alamogordo Connector										I-40 Overcrossing											
	Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse			
Begin Time	Th	RT	Th	RT	Th	RT	Th	RT	Th	RT	Th	LT	Th	LT	Th	LT	Th	LT	Th	LT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	Pets	No Helmet
8:45 AM						2		1																								
9:00 AM																																
9:15 AM																									1							
9:30 AM		1				1										1						1										1
9:45 AM		1										1																				2
10:00 AM																																
10:15 AM																											1					
10:30 AM												3																				
10:45 AM		1				1																										
11:00 AM																																
11:15 AM																					2											2
11:30 AM																																
11:45 AM		1																														1

	Totals	Percents
Users	19	
Cyclists	11	57.9%
Cyclists w/o Helmets	6	54.5%
Run/Jog	0	0.0%
Walkers	6	31.6%
Skaters	2	10.5%
Equestrians	0	0.0%
Pets	0	0.0%

4 motocycles were recording using the bridge.

Intersection: Coors Blvd @ Montaño Rd **Date/Day:** 5/15/2010 **Observer:** DZ

E-W Street: Montaño Rd **N-S Street:** Coors Blvd

Begin Time	Eastbound			Westbound			Northbound			Southbound			No Helmet	Riding on Sidewalk	Traffic Violation	
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT				
9:00 AM		1														1
9:15 AM																0
9:30 AM			1													1
9:45 AM		4											2			6
10:00 AM		3			1								2			6
10:15 AM		1							1				1			3
10:30 AM		1						1					1	1		4
10:45 AM		1														1
11:00 AM		2														2
11:15 AM		4		1									2	3		10
11:30 AM		1			2								2	1		6
11:45 AM		1			2				1				2			6

	Totals	Percents
Cyclists	46	
Cyclists on Sidewalk	5	10.9%
Cyclists w/o Helmets	12	26.1%
Traffic Violations	0	0.0%

Intersection: North Diverison Channel Trail @ Paseo del Norte **Date/Day:** 5/1/2010 Saturday **Observer:** RC

	NB Diversion Channel Tral										SB Diversion Channel Trail										SB Paseo del Norte Connector											
	Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse			
Begin	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	Th	RT	Th	RT	Th	RT	Th	RT	Th	RT	LT	Th	LT	Th	LT	Th	LT	Th	LT	Th	Pet	No Helmet
9:00 AM	10																					1		3								
9:15 AM	2																					5										
9:30 AM	4																					3										1
9:45 AM	6	1																														
10:00 AM	1																															
10:15 AM	3	5	1	2							2											2										
10:30 AM		4									1											6										2
10:45 AM	6	1												2								6										
11:00 AM		2									1	3										4										2
11:15 AM	3	2									1											2										1
11:30 AM	1	3									2	1										7	3								1	1
11:45 AM	2	5			1						7										1	3										

	Totals	Percents
Users	131	
Cyclists	119	90.8%
Cyclists w/o Helmets	7	5.9%
Run/Jog	11	8.4%
Walkers	1	0.8%
Skaters	0	0.0%
Equestrians	0	0.0%
Pets	1	0.8%

Intersection: Paseo del Nordeste @ North Diversion Channel **Date/Day:** 5/1/2010 Saturday **Observer:** NH

Begin Time	NB Paseo del Nordeste										SB Diversion Channel Trail										WB Paseo del Nordeste										Pet	No Helmet
	Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse			
	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	Th	RT	Th	RT	Th	RT	Th	RT	Th	RT	LT	Th	LT	Th	LT	Th	LT	Th	LT	Th		
9:00 AM					1											2																
9:15 AM	7			2							1										1											3
9:30 AM	6										3										1	1										
9:45 AM	1										1	4									1	1										1
10:00 AM	7				2						1	2																				3
10:15 AM	2										1										1				3							
10:30 AM	2		1	2							4	2		1	2						3	2	2		1							2
10:45 AM												8				2					1	1										
11:00 AM	2	8			1							4									1	3			1							7
11:15 AM	5	1		3								7			1						2											1
11:30 AM	8	2									2	2			1						2											2
11:45 AM	4	2									1	9									2	1										3
12:00 PM	8	3									1	7																				1
12:15 PM	2										1	9																				1
12:30 PM	1	4										2										2										
12:45 PM	4	1										1		1																		1

Bikes puling children in carriers - 4

	Totals	Percents
Users	208	
Cyclists	179	86.1%
Cyclists w/o Helmets	25	14.0%
Run/Jog	12	5.8%
Walkers	17	8.2%
Skaters	0	0.0%
Equestrians	0	0.0%
Pets	0	0.0%

Intersection: Paseo del Nordeste @ East I-40 Trail Date/Day: 5/1/2010 Saturday Observer: MA

Begin Time	NB Paseo del Nordeste										SB Paseo del Nordeste										I-40 East Trail										Pet	No Helmet
	Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse			
	LT	Th	LT	Th	LT	Th	LT	Th	LT	Th	Th	RT	Th	RT	Th	RT	Th	RT	Th	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT		
9:00 AM		6									3																					4
9:15 AM		4																														2
9:30 AM		6																														
9:45 AM			1								6		1																			1
10:00 AM		4	1	1																												1
10:15 AM		2		1							2																					1
10:30 AM				2	1						2	2		1																		1
10:45 AM		5									5	1	1																			
11:00 AM		8	10	1							6	4																				7
11:15 AM		4											1	10																		3
11:30 AM		12									5	2	1			1																4
11:45 AM		7		1							2	7																				6

	Totals	Percents
Users	140	
Cyclists	105	75.0%
Cyclists w/o Helmets	30	28.6%
Run/Jog	33	23.6%
Walkers	2	1.4%
Skaters	0	0.0%
Equestrians	0	0.0%
Pets	0	0.0%

Intersection: Paseo del Nordeste @ Tucker **Date/Day:** 5/8/2010 **Observer:** MA

E-W Street: Tucker St **N-S Street: Paseo del Nordeste**

Begin Time	Eastbound			Westbound			Northbound			Southbound			No Helmet	Riding on Sidewalk	Traffic Violation
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT			
9:00 AM		2				3		1			1				
9:15 AM											5				1
9:30 AM										1	4		1		
9:45 AM											2				
10:00 AM						1							1		
10:15 AM						2				4					
10:30 AM															
10:45 AM										1	3		1		
11:00 AM						3		2					1		
11:15 AM															
11:30 AM						3			1				3		
11:45 AM															

	Totals	Percents
Cyclists	39	
Cyclists on Sidewalk	0	0.0%
Cyclists w/o Helmets	7	17.9%
Traffic Violations	1	2.6%

Intersection: Pennsylvania St @ Embudo Arroyo **Date/Day:** 5/8/2010 **Observer:** NH

	Pennsylvania St		West Leg Embudo Arroyo								East Leg Embudo Arroyo								Pets	Side-walk	Viola-tion	No Helmet
	Bike		Bike		Run/Jog		Walker		Skater		Bike		Run/Jog		Walker		Skater					
Begin Time	NB	SB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB				
9:00 AM					1										1				2			
9:15 AM	2			3								2										
9:30 AM			1	1		1					1	1							1			
9:45 AM	1						1															
10:00 AM			3			1	1				3				1	1						
10:15 AM	2		1	2			1				1											
10:30 AM				1								2										
10:45 AM		1	2											1								
11:00 AM		2	1		1	1	1				2										1	1
11:15 AM			2			1					1											1
11:30 AM			1																			
11:45 AM			3																			

	Totals	Percents
Users	56	
Cyclists	42	75.0%
Cyclists w/o Helmets	2	4.8%
Ride on Sidewalk	0	0.0%
Run/Jog	7	12.5%
Walkers	7	12.5%
Skaters	0	0.0%
Pets	3	5.4%

Intersection: Tramway @ Central **Date/Day:** 5/8/2010 **Observer:** RC

E-W Street Central Ave N-S Street Tramway Blvd

Begin Time	Eastbound			Westbound			Northbound			Southbound			No Helmet	Riding on Sidewalk	Traffic Violation	Bike Total
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT				
9:00 AM								1	1	8	2					12
9:15 AM			1			1				1						3
9:30 AM										1	2	1				4
9:45 AM				1				1				1	1	1		3
10:00 AM										1	1					2
10:15 AM				3						2						5
10:30 AM				1						1	3		1		1	5
10:45 AM								1		1	2					4
11:00 AM				1				1			1					3
11:15 AM								1		2						3
11:30 AM					1	4		3				1	1	1		9
11:45 AM								1		1	1		1			3

	Totals	Percents
Cyclists	56	
Cyclists on Sidewalk	2	3.6%
Cyclists w/o Helmets	4	7.1%
Traffic Violations	1	1.8%

Intersection: Tramway Trail @ Embudo Trail and Tramway Bl **Date/Day:** 5/8/2010 **Observer:** AG

	Embudo Trail								SB Tramway Trail								NB Tramway Trail								Tramway Blvd NB	Tramway Blvd SB	Pets	No Helmet
	Bike		Run/Jog		Walker		Skater		Bike		Run/Jog		Walker		Skater		Bike		Run/Jog		Walker		Skater					
Begin Time	LT	RT	LT	RT	LT	RT	LT	RT	Th	RT	Th	RT	Th	RT	Th	RT	LT	Th	LT	Th	LT	Th	LT	Th	Bikes	Bikes		
9:00 AM											2							1		1						9		
9:15 AM										1										1		3			1	4	1	
9:30 AM						1					3		3							2						6	5	1
9:45 AM						2														1		1			7	2	2	
10:00 AM		1											2									1				4	2	
10:15 AM	2	1	1			4			3													1				8	4	2
10:30 AM		2							2		1		3				2	2	3		2	1			7	2	4	1
10:45 AM													1					1			1	1			1	2	3	
11:00 AM													1				1	3			3	2			1	3	1	
11:15 AM									1				1												3	1		
11:30 AM	1								2									1		2					4	3	2	
11:45 AM													1												5	2		

	Totals	Percents
Users	154	
Cyclists	102	66.2%
Cyclists w/o Helmets	4	3.9%
Ride on Trail	27	26.5%
Run/Jog	17	11.0%
Walkers	35	22.7%
Skaters	0	0.0%
Pets	24	15.6%

Intersection: Bosque Trail @ Central Ave **Date/Day:** 5/11/2010 and 5/19/2010 **Observer:** RG

E-W Street: Central Ave **N-S Street: Bosque Trail**

Begin	Northbound Bosque Trail					Southbound Bosque Trail									No
Time	Bike	Run/Jog	Walk	Skate	Horse	Bike	Run/Jog	Walk	Skate	Horse				Pets	Helmet
7:00 AM			3			3	1	1							
7:15 AM	2					3									
7:30 AM	1		2			1	1							1	
7:45 AM	2					4		3							
8:00 AM	2					4	1	1							1
8:15 AM	5		1			3	1	1							1
8:30 AM	6	1	1			5		1							1
8:45 AM	3					7									1
4:00 AM	4					7									3
4:15 AM	2					4			1						2
4:30 AM	3					2									
4:45 AM	6		2			2									3
5:00 AM	4					4									3
5:15 AM	5		1			4		3							1
5:30 AM	5					5		2							2
5:45 AM	8	1	2			5									2

	Totals	Percents
Users	152	
Cyclists	121	79.6%
Cyclists w/o Helmets	20	16.5%
Run/Jog	6	3.9%
Walkers	25	16.4%
Skaters	1	0.7%
Equestrians	0	0.0%
Pets	1	0.7%

Intersection: I-40 Overcrossing @ Atrisco Rd **Date/Day:** 5/11/10 and 5/19/10 **Observer:** RC

	Northbound Bosque Trail										Southbound Bosque Trail										Montaño Connector											
	Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse			
Begin Time	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	Th	RT	Th	RT	Th	RT	Th	RT	Th	RT	LT	Th	LT	Th	LT	Th	LT	Th	LT	Th	Pets	No Helmet
6:45 AM																																
7:00 AM	1	4									3	1									1											2
7:15 AM	1			1							2					3					1	1										2
7:30 AM		1									3	2										3			4							
7:45 AM	4										5					1					1	1										4
8:00 AM	1	2	1								7											1	1	1		1					1	
8:15 AM		3		1							3											2										2
8:30 AM	1	10	1		1						2				1						1										1	3
8:45 AM		4		1							3		3								1	2										2
4:00 PM	1	2									3	2	1																			4
4:15 PM	2	4									3											1	2									1
4:30 PM		4				1					3	3									1			2							1	5
4:45 PM	4	7									3		3			2					1			1		1					1	4
5:00 PM		6								1	4	2	1	2				1			3	2	1			2					1	4
5:15 PM	1	8	1	2							6										2	4		1								5
5:30 PM	8	6	1		2	1					6	2		1	1		1					3	1		1						1	4
5:45 PM	6	7	1		2	1		1			6	3	1								3	2		2								10

	Totals	Percents
Users	275	
Cyclists	212	77.1%
Cyclists w/o Helmets	52	24.5%
Run/Jog	34	12.4%
Walkers	25	9.1%
Skaters	3	1.1%
Equestrians	1	0.4%
Pets	6	2.2%

Intersection: Bosque Trail @ Paseo del Norte **Date/Day:** 5/11/10 and 5/19/10 **Observer:** AG

	Northbound Bosque Trail										Southbound Bosque Trail										Paseo del Norte Connector											
	Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse			
Begin Time	LT	Th	LT	Th	LT	Th	LT	Th	LT	Th	Th	RT	Th	RT	Th	RT	Th	RT	Th	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	Pets	No Helmet
6:45 AM																																
7:00 AM	1	3		1		3					2	1	1		1							2									2	1
7:15 AM	1	2		1		1					3		1								1	2										
7:30 AM		2									3					1						2									1	5
7:45 AM	1	1									1	1	1		1				1			3										1
8:00 AM				1							4	1			1							2			1	2					1	1
8:15 AM		2		1							3				2									2								1
8:30 AM	2	3									4				2	1					1										2	3
8:45 AM	1	9			2	5					4				2						1			1								2
4:00 PM		2		1							2		2									1										
4:15 PM	1	3		2							2		1								1											1
4:30 PM		3		1							2		3									2										1
4:45 PM	2	4		1							2		1									2										2
5:00 PM	3	7		1							2		3								1	5										6
5:15 PM	2	10		1							6	5									3	1								1		9
5:30 PM	2	9		1		1					9		4								3	4										12
5:45 PM	1	6		3							3	1			3				2		4	3	1									2

	Totals	Percents
Users	257	
Cyclists	188	73.2%
Cyclists w/o Helmets	47	25.0%
Run/Jog	36	14.0%
Walkers	29	11.3%
Skaters	1	0.4%
Equestrians	3	1.2%
Pets	6	2.3%

Intersection: Bosque Trail @ Alameda Blvd Date/Day: 5/19/10 Observer: NH

	Alameda Blvd		Northbound Trail										Southbound Trail											
	Bike		Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse			
Begin Time	EB	WB	SL	NL	SL	NL	SL	NL	SL	NL	SL	NL	SL	NL	SL	NL	SL	NL	SL	NL	SL	NL	Pets	No Helmet
6:45 AM	3		2				2						10	1			4						1	
7:00 AM	3		1	2	1		4						2											
7:15 AM	1		2										5	2	2									2
7:30 AM	1	2	2										3	1										1
7:45 AM		1	2	1	2		1	1					5		1		1							
8:00 AM	1		1				1	2					17				6	1					2	1
8:15 AM	1	1	2					2					3	1			5							3
8:30 AM			1				1	6					5										2	
8:45 AM	1			3									5					1	2				1	3
4:00 PM			4	1			4	3					5		1		2	2					2	1
4:15 PM		1	1				3	1					3				7	1					2	2
4:30 PM	1	1	4		1								8		1		1							3
4:45 PM			5		1								3	1				2						1
5:00 PM	1	1	5	1									4											2
5:15 PM	1	2	12				4	4					11				4	3						9
5:30 PM		3	13										6	1	2		4							7
5:45 PM			12				1	4					1		1		2	4					3	2

SL - South of Parking Lot NL - North of Parking Lot Only

	Totals	Percents
Users	315	
Cyclists	206	65.4%
Cyclists w/o Helmets	37	18.0%
Run/Jog	13	4.1%
Walkers	94	29.8%
Skaters	2	0.6%
Equestrians	0	0.0%
Pets	13	4.1%

Intersection: Alameda Blvd @ 4th St **Date/Day:** 5/11/2010 and 5/19/2010 **Observer:** HH

E-W Street: Alameda Blvd **N-S Street: 4th St**

Begin Time	Eastbound			Westbound			Northbound			Southbound			No Helmet	Riding on Sidewalk	Traffic Violation
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT			
7:00 AM		2													
7:15 AM				1									1	1	
7:30 AM															
7:45 AM											1		1	1	
8:00 AM															
8:15 AM			2										2	2	
8:30 AM					4										
8:45 AM			1			1							2	2	
4:00 PM					2			1					1	1	
4:15 PM	1							1				1	1	1	
4:30 PM	1	1										1			
4:45 PM					1						1		1	1	
5:00 PM		1			1							1			
5:15 PM															
5:30 PM	2										1		1	1	
5:45 PM	1				1						1		1	1	

	Totals	Percents
Cyclists	32	
Cyclists on Sidewalk	11	34.4%
Cyclists w/o Helmets	11	34.4%
Traffic Violations	0	0.0%

Intersection: Unser Trail @ I-40 Trail, Unser Blvd **Date/Day:** 5/12/2010 **Observer:** RC

Begin Time	Northbound Unser Blvd Trail								Southbound Unser Blvd Trail								I-40 Trail								Unser Blvd NB	Unser Blvd SB	Pets	No Helmet
	Bike		Run/Jog		Walker		Skater		Bike		Run/Jog		Walker		Skater		Bike		Run/Jog		Walker		Skater					
	LT	RT	LT	RT	LT	RT	LT	RT	Th	RT	Th	RT	Th	RT	Th	RT	LT	Th	LT	Th	LT	Th	LT	Th	Bikes	Bikes		
7:00 AM																									1			
7:15 AM																										1		
7:30 AM																												
7:45 AM										1																		
8:00 AM										2							1	1										3
8:15 AM																		1										
8:30 AM																												
8:45 AM		1																										
4:00 PM																												
4:15 PM																												
4:30 PM																												
4:45 PM		1											2		1						1						3	
5:00 PM	1					1																			2			2
5:15 PM																												
5:30 PM											1											2						
5:45 PM									1																			

Place a "D" in the horse column if someone is walking a dog. This is in additon to counting them as a walker (or jogger, roller blader, etc.)

	Totals	Percents
Users	22	
Cyclists	14	63.6%
Cyclists w/o Helmets	5	35.7%
Ride on Trail	10	71.4%
Run/Jog	1	4.5%
Walkers	6	27.3%
Skaters	1	4.5%
Pets	3	13.6%

Intersection: I-40 Overcrossing @ Atrisco Rd **Date/Day:** 5/12/2010 **Observer:** AG

	Atrisco Connector										Alamogordo Connector										I-40 Overcrossing											
	Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse			
Begin Time	Th	RT	Th	RT	Th	RT	Th	RT	Th	RT	Th	LT	Th	LT	Th	LT	Th	LT	Th	LT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	Pets	No Helmet
6:45 AM																																
7:00 AM		1										1																				1
7:15 AM															1	2																
7:30 AM						1																			4							
7:45 AM						3															1				2							1
8:00 AM						2									1										3							
8:15 AM																1									5	1						
8:30 AM															1						2				1							2
8:45 AM												1										1			1							1
4:00 PM																									2						1	
4:15 PM																									2							
4:30 PM																						1										1
4:45 PM						2															1										1	
5:00 PM						2																										
5:15 PM						1															1											
5:30 PM		2				2																1			1							2
5:45 PM						1		1																								

	Totals	Percents
Users	56	
Cyclists	13	23.2%
Cyclists w/o Helmets	8	61.5%
Run/Jog	0	0.0%
Walkers	42	75.0%
Skaters	1	1.8%
Equestrians	0	0.0%
Pets	2	3.6%

Intersection: Coors-Montaño **Date/Day:** 5/12/2010 **Observer:** RG

E-W Street: Montaño Rd **N-S Street: Coors Blvd**

Begin Time	Eastbound			Westbound			Northbound			Southbound			No Helmet	Riding on Sidewalk	Traffic Violation
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT			
7:00 AM		2								1				1	
7:15 AM		1		1						1					
7:30 AM		2													
7:45 AM		1							2					1	
8:00 AM		1													
8:15 AM		1													
8:30 AM				1											
8:45 AM		1						1					1		
4:00 PM					2								1	1	
4:15 PM		1			1								1		
4:30 PM			1		2				1				2	2	
4:45 PM					2	3			1				3	1	
5:00 PM					1				1				1		
5:15 PM				3									1	2	
5:30 PM									1						
5:45 PM	1	1			1										

	Totals	Percents
Cyclists	39	
Cyclists on Sidewalk	8	20.5%
Cyclists w/o Helmets	10	25.6%
Traffic Violations	0	0.0%

Intersection: Coors-Eagle Ranch **Date/Day:** 5/12/2010 **Observer:** NH

E-W Street: Eagle Ranch Rd **N-S Street: Coors Blvd**

Begin Time	Eastbound			Westbound			Northbound			Southbound			No Helmet	Riding on Sidewalk	Traffic Violation
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT			
7:00 AM	1				1								1	1	1
7:15 AM	1										1				
7:30 AM	2												1	1	1
7:45 AM											1				
8:00 AM			1												
8:15 AM															
8:30 AM						1	1						1	1	
8:45 AM															
4:00 PM								1							
4:15 PM												2		2	
4:30 PM	2							2				1	2	2	
4:45 PM		1										1		2	
5:00 PM	1				1							3	1	4	
5:15 PM					1									1	
5:30 PM										1		2	2	2	
5:45 PM	1				1							3	2	2	

	Totals	Percents
Cyclists	34	
Cyclists on Sidewalk	18	52.9%
Cyclists w/o Helmets	10	29.4%
Traffic Violations	2	5.9%

Intersection: Golf Course Rd @ Paradise **Date/Day:** 5/12/2010 **Observer:** HH

E-W Street: Paradise Blvd **N-S Street: Golf Course Rd**

Begin Time	Eastbound			Westbound			Northbound			Southbound			No Helmet	Riding on Sidewalk	Traffic Violation
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT			
7:00 AM															
7:15 AM			1												
7:30 AM															
7:45 AM		1									1		1	1	
8:00 AM															
8:15 AM			1											1	
8:30 AM															
8:45 AM															
4:00 PM			1				1						1	1	
4:15 PM															
4:30 PM		1											1		
4:45 PM					2		3						3	3	
5:00 PM							1								
5:15 PM							1						1	1	
5:30 PM	1					1					1		2	3	1
5:45 PM															

	Totals	Percents
Cyclists	17	
Cyclists on Sidewalk	10	58.8%
Cyclists w/o Helmets	9	52.9%
Traffic Violations	1	5.9%

Intersection: Tramway @ Central **Date/Day:** 5/6/2010 **Observer:** RG

	E-W Street Central Ave						N-S Street Tramway Blvd								
Begin	**Eastbound**			**Westbound**			**Northbound**			**Southbound**			**No**	**Riding on**	**Traffic**
Time	**LT**	**TH**	**RT**	**LT**	**TH**	**RT**	**LT**	**TH**	**RT**	**LT**	**TH**	**RT**	**Helmet**	**Sidewalk**	**Violation**
7:00 AM							1			2	1	1		1	
7:15 AM							1	1			4			2	
7:30 AM											8		2	2	1
7:45 AM											7			1	
8:00 AM											5			2	
8:15 AM								2			1			1	
8:30 AM						3		1		1	2			3	
8:45 AM	1							1	1	2	1	1	3	2	
4:00 PM					2										
4:15 PM						1		1			1	1		2	
4:30 PM							1	5			1				
4:45 PM								7	1					2	
5:00 PM								5				1	1		
5:15 PM								4						1	
5:30 PM	2					1		2					2	2	
5:45 PM	1							5				2	2	3	

	Totals	Percents
Cyclists	92	
Cyclists on Sidewalk	24	26.1%
Cyclists w/o Helmets	10	10.9%
Traffic Violations	1	1.1%

Intersection: Tramway Trail @ Embudo Trail and Tramway Bl **Date/Day:** 5/6/2010 **Observer:** AG

Begin Time	Embudo Trail Trail								SB Tramway TrailTrail								NB Tramway TrailTrail								Tramway Blvd NB	Tramway Blvd SB	Pets	No Helmet
	Bike		Run/Jog		Walker		Skater		Bike		Run/Jog		Walker		Skater		Bike		Run/Jog		Walker		Skater					
	LT	RT	LT	RT	LT	RT	LT	RT	Th	RT	Th	RT	Th	RT	Th	RT	LT	Th	LT	Th	LT	Th	LT	Th	Bikes	Bikes		
7:00 AM									2		2			1				1				1			1	1	1	1
7:15 AM		1				2					2		1	2				1								3	3	4
7:30 AM					2				1				1					1							2	3	2	
7:45 AM						1			2											1	2	3				1	2	
8:00 AM						2				2			1									2			1	1	1	2
8:15 AM	1			2					3		1										2					2		1
8:30 AM	1																				1	1			3	2	1	1
8:45 AM													1					2		3	1	1			1	3	2	1
4:00 PM	1					2			1				1									2				2		1
4:15 PM	1	1																1				1					1	1
4:30 PM		1							1									1		1								
4:45 PM		1																1							3	1		2
5:00 PM											1		3	1			2								2	2	2	
5:15 PM													3							1					2	1		
5:30 PM	1	1			1				2				3					2							1	4	1	5
5:45 PM									1	2	1							2		1		1			1		2	1

Place a "D" in the horse column if someone is walking a dog. This is in additon to counting them as a walker (or jogger, roller blader, etc.)

	Totals	Percents
Users	146	
Cyclists	84	57.5%
Cyclists w/o Helmets	20	23.8%
Ride on Trail	41	48.8%
Run/Jog	16	11.0%
Walkers	46	31.5%
Skaters	0	0.0%
Pets	18	12.3%

Intersection: Tramway @ Spain **Date/Day:** 5/6/2010 **Observer:** HH

E-W Street: Spain Rd **N-S Street:** Tramway Blvd

Begin Time	Eastbound			Westbound			Northbound			Southbound			Trail North of Spain				Trail South of Spain					No Helmet	Traffic Violation	Bike Total
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Bike	Jog/Run	Walk	Skate	Bike	Jog/Run	Walk	Skate	Pets			
7:00 AM	1		1		1			1			2			5	2			5	2	1		1		6
7:15 AM						1		1			1		1	2	1		1	2						5
7:30 AM				1									3				4		1			1		8
7:45 AM								4			1		2		1		2		1					9
8:00 AM			2	2			1						4	1	1		7		2			1		16
8:15 AM	3		2					5	1				7		1		4		1			6		22
8:30 AM				2						1	1		1	1	1			1	1			1		5
8:45 AM				2				4			6	2	7	2	4		9	1	6			3		30
4:00 PM			1	1				2		1	2		4			1	4				1	1		15
4:15 PM		2		1	1			3					4			1	1				1	1		12
4:30 PM			1		1	1		4		1	1		2	2		1		2		1		2		11
4:45 PM	1												3	2			2	2	1					6
5:00 PM								2			1		4	1			4	1				3		11
5:15 PM						1		4	1		3		1		1		1		1					11
5:30 PM		1	1					1			1		1	2	1		2	1	3		3	2		7
5:45 PM							1	3	1		3		1				2	1	1			1		11

Place a "D" in the Skate column if someone is walking a dog. This is in additon to counting them as a walker (or jogger, roller blader, etc.)

	Totals	Percents
Users	257	
Cyclists	185	72.0%
Cyclists w/o Helmets	23	12.4%
Ride on Trail	88	47.6%
Run/Jog	34	13.2%
Walkers	33	12.8%
Skaters	5	1.9%
Pets	5	1.9%

Intersection: Bear Canyon Arroyo Trail @ Morris St **Date/Day:** 5/6/2010 **Observer:** RC

Begin Time	Bear Canyon Trail East									Bear Canyon Trail West									Northbound Morris Bikes Only			Southbound Morris Bikes Only			Pets	No Helmet	Sidewalk	Bike Total
	Bike			Run/Jog		Walker		Skater		Bike			Run/Jog		Walker		Skater												
	LT	Th	RT	Thru	Turn	Thru	Turn	Th	Tu	LT	Th	RT	Thru	Turn	Thru	Turn	Th	Tu	LT	Th	RT	LT	Th	RT				
7:00 AM				2		1	2								1								2		4	1	1	2
7:15 AM		2					2				1				1								1					4
7:30 AM		1					2								1								2	1	1	1		4
7:45 AM		2				2	2						1		3				1						4			3
8:00 AM				1		2	2					1													2			1
8:15 AM					1		6				2					1								1	4			3
8:30 AM		1			1		2									1							1		3	1		2
8:45 AM		1			2						2		1	1									1		1			4
4:00 PM					1					1											12							13
4:15 PM		1			1		1				1		1			1					1				1	1	1	3
4:30 PM	13				2		2													1		1				1		15
4:45 PM											1		1		1					1					3	1		2
5:00 PM				1	1		1				1				1					1	1		2		2	1		5
5:15 PM							3				2										1				2			3
5:30 PM	1				1		2				1									1						1		3
5:45 PM	1						1													2					1			3

Place a "D" in the Skater column if someone is walking a dog. This is in additon to counting them as a walker (or jogger, roller blader, etc.)

	Totals	Percents
Users	133	
Cyclists	70	52.6%
Cyclists w/o Helmets	8	11.4%
Ride on Sidewalk	2	2.9%
Run/Jog	19	14.3%
Walkers	44	33.1%
Skaters	0	0.0%
Pets	28	21.1%

Intersection: Wyoming Blvd @ Bear Canyon Arroyo **Date/Day:** 4/27/2010 **Observer:** RC

	Wyoming Blvd		West Leg Bear Canyon Arroyo										East Leg Bear Canyon Arroyo												
	Bike		Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse				
Begin Time	NB	SB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	Pets	Side-walk	No Helmet
7:00 AM	1	1													1	1								2	1
7:15 AM		1														1	1							1	
7:30 AM	1	1											1										1	2	1
7:45 AM																	1								
8:00 AM				1																					1
8:15 AM		1				1											1	1						1	
8:30 AM							1						1	1									1		
8:45 AM	1			1													2						1	1	1
4:00 PM													1					1					1		1
4:15 PM	1	2						2					1				1	3						3	2
4:30 PM								1					1				1						1		
4:45 PM	1																	1					1	1	
5:00 PM													2	1											1
5:15 PM	1	2											2		1		1	1					2	3	
5:30 PM	1							1						1				2					1		1
5:45 PM	4		1										3		2		2							4	2

	Totals	Percents
Users	68	
Cyclists	37	54.4%
Cyclists w/o Helmets	11	29.7%
Ride on Sidewalk	18	48.6%
Run/Jog	7	10.3%
Walkers	24	35.3%
Skaters	0	0.0%
Equestrians	0	0.0%
Pets	9	13.2%

Intersection: Pennsylvania St @ Indian School Rd **Date/Day:** 4/27/2010 **Observer:** HH

E-W Street: Indian School **N-S Street: Pennsylvania**

Begin	Eastbound			Westbound			Northbound			Southbound			No	Riding on	Traffic
Time	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Helmet	Sidewalk	Violation
7:00 AM								1			3				
7:15 AM					1						2				
7:30 AM							1	1			2	1			1
7:45 AM					2						2	1	1		
8:00 AM		1				2	1	1			3		2	2	
8:15 AM									1		1	1	1	1	
8:30 AM								1			1	1		1	
8:45 AM															
4:00 PM							1	1			2		2	1	
4:15 PM															
4:30 PM	2										1		1		
4:45 PM								2			3		1		
5:00 PM				1				2	1		3		2	1	
5:15 PM						1		4			1		1		
5:30 PM								2			2		1		
5:45 PM	1														

	Totals	Percents
Cyclists	61	
Cyclists on Sidewalk	6	9.8%
Cyclists w/o Helmets	12	19.7%
Traffic Violations	1	1.6%

Intersection: Pennsylvania St @ Embudo Arroyo **Date/Day:** 4/27/2010 **Observer:** NH

	Pennsylvania St		West Leg Embudo Arroyo										East Leg Embudo Arroyo													
	Bike		Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse					
Begin Time	NB	SB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	Pets	Side-walk	Viola-tion	No Helmet
7:00 AM	3	4	2	3				2						3				2								1
7:15 AM						2	3									2	3							2		
7:30 AM	4	4	1	3				1						1				1					1			1
7:45 AM		2	2	4										3												
8:00 AM	2	5	1	6										3											1	
8:15 AM	2		2	1										1			1								1	2
8:30 AM	1	3		4			1							1			1								1	
8:45 AM	1	1		1	1								1		1		1						1			1
4:00 PM	2	2	1	1			3						1	1			3							1		1
4:15 PM		1	2	1	2								2	1											1	1
4:30 PM		3	3	3			2						1	3			2									
4:45 PM	1	4	6				2						4				1								2	1
5:00 PM	2	5	7		2			1					6					1							1	5
5:15 PM	5		7	1		1		1					5	1		1		2						1	1	1
5:30 PM		1	4	3	3		2						3	4			2						2		1	3
5:45 PM			5			1	3	3					4			1	3	3					1			1

	Totals	Percents
Users	248	
Cyclists	181	73.0%
Cyclists w/o Helmets	18	9.9%
Ride on Sidewalk	4	2.2%
Run/Jog	17	6.9%
Walkers	50	20.2%
Skaters	0	0.0%
Equestrians	0	0.0%
Pets	5	2.0%

Intersection: Carlisle Gate **Date/Day:** 5/5/2010 **Observer:** HH

E-W Street: **N-S Street:**

Begin Time	Enter			Exit									No Helmet	Riding on Sidewalk	Traffic Violation
6:30 AM		1													
6:45 AM															
7:00 AM		1													
7:15 AM		2			1									1	
7:30 AM															
7:45 AM		4											1		
8:00 AM															
8:15 AM															
8:30 AM															
8:45 AM															
3:30 PM															
3:45 PM					1										
4:00 PM					2								1		
4:15 PM					6										
4:30 PM					1										
4:45 PM															
5:00 PM					2										
5:15 PM															
5:30 PM															
5:45 PM															

	Totals	Percents
Cyclists	21	
Cyclists on Sidewalk	1	4.8%
Cyclists w/o Helmets	2	9.5%
Traffic Violations	0	0.0%

Intersection: Louisiana Gate **Date/Day:** 5/5/2010 **Observer:** RG

E-W Street: **N-S Street:**

Begin Time	Enter			Exit									No Helmet	Riding on Sidewalk	Traffic Violation
6:30 AM		1													
6:45 AM															
7:00 AM		1											1		
7:15 AM															
7:30 AM															
7:45 AM															
8:00 AM															
8:15 AM															
8:30 AM															
8:45 AM															
3:30 PM															
3:45 PM															
4:00 PM															
4:15 PM															
4:30 PM					1										
4:45 PM															
5:00 PM															
5:15 PM															
5:30 PM															
5:45 PM															

	Totals	Percents
Cyclists	3	
Cyclists on Sidewalk	0	0.0%
Cyclists w/o Helmets	1	33.3%
Traffic Violations	0	0.0%

Intersection: Wyoming Gate **Date/Day:** 5/5/2010 **Observer:** AG

E-W Street: **N-S Street:**

Begin Time	Enter			Exit									No Helmet	Riding on Sidewalk	Traffic Violation
6:30 AM		3													
6:45 AM		2													
7:00 AM		1													
7:15 AM		4												4	
7:30 AM		2												2	
7:45 AM		1												1	
8:00 AM		1												1	
8:15 AM		2													
8:30 AM															
8:45 AM															
3:30 PM															
3:45 PM					2									2	
4:00 PM					1									1	
4:15 PM															
4:30 PM					2									1	
4:45 PM					2										
5:00 PM					3									1	
5:15 PM					4									1	
5:30 PM															
5:45 PM															

	Totals	Percents
Cyclists	30	
Cyclists on Sidewalk	14	46.7%
Cyclists w/o Helmets	0	0.0%
Traffic Violations	0	0.0%

Intersection: Eubank Gate **Date/Day:** 5/5/2010 **Observer:** NH

E-W Street: **N-S Street:**

Begin Time	Enter			Exit								No Helmet	Riding on Sidewalk	Traffic Violation
		Main Gate	Bike Gate		Main Gate	Bike Gate								
6:30 AM		10	5											
6:45 AM		4	4											
7:00 AM		9	6											
7:15 AM		6	8		1	1								
7:30 AM		8	4		1									
7:45 AM		10	4		1							1		
8:00 AM		3	8											
8:15 AM		1	1											
8:30 AM														
8:45 AM														
3:30 PM					4	1						1		
3:45 PM					5									
4:00 PM					8	1								
4:15 PM					8							1		
4:30 PM					12	1						2		
4:45 PM					13	1							1	
5:00 PM		2	1		15	3								
5:15 PM					14	2								
5:30 PM														
5:45 PM														

	Totals	Percents
Cyclists	186	
Cyclists on Sidewalk	1	0.5%
Cyclists w/o Helmets	5	2.7%
Traffic Violations	0	0.0%

Intersection: Martin Luther King @ University **Date/Day:** 5/4/2010 **Observer:** HH

E-W Street: Martin Luther King Blvd **N-S Street: Univeristy Blvd**

Begin	Eastbound			Westbound			Northbound			Southbound			No	Riding on	Traffic
Time	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Helmet	Sidewalk	Violation
6:30 AM															
6:45 AM															
7:00 AM		1			1										
7:15 AM												2			
7:30 AM		5						1	1				3	1	1
7:45 AM		2		1	2				1				2		
8:00 AM		7			2				1				2	1	
8:15 AM		5			1			1	1				4	4	
8:30 AM		3			3		1						3	3	1
8:45 AM		4			2				2				2	2	
4:00 PM		2			5				1				5	2	
4:15 PM		3			1				1		1		4	2	
4:30 PM		2		1	2				1				2	1	
4:45 PM		2			1						1		1		
5:00 PM		1			7				1				4	2	
5:15 PM		1			5			1			1		6	2	2
5:30 PM		7			4	1							7	6	1
5:45 PM		7			6								8	2	3
6:00 PM															
6:15 PM															

	Totals	Percents
Cyclists	116	
Cyclists on Sidewalk	28	24.1%
Cyclists w/o Helmets	53	45.7%
Traffic Violations	8	6.9%

Intersection: Girard @ Campus **Date/Day:** 5/4/2010 **Observer:** AG

E-W Street: Campus Blvd **N-S Street: Girard Blvd**

Begin	Eastbound			Westbound			Northbound			Southbound			No	Riding on	Traffic
Time	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Helmet	Sidewalk	Violation
6:30 AM															
6:45 AM		1			4			2							2
7:00 AM					5								1		1
7:15 AM		2			8								5		8
7:30 AM		3			8						1		3		2
7:45 AM		1		1	20						1	4	13	2	2
8:00 AM		1			8			1				4	6	2	1
8:15 AM		2			10			1				1	5	1	2
8:30 AM					8							1	3	1	2
8:45 AM				1	14							2	10		4
4:00 PM		12			3				1			1	8		1
4:15 PM		7			8			1			1		10	1	2
4:30 PM		11			1	1		1			1		9	1	4
4:45 PM		15	1		7					1		1	8	1	
5:00 PM	1	14	1		3		1			1			6	1	
5:15 PM	1	14			2				1		2		8		
5:30 PM	1	10	1		2								4		2
5:45 PM	1	13			9							3	10		4
6:00 PM															
6:15 PM															

	Totals	Percents
Cyclists	270	
Cyclists on Sidewalk	10	3.7%
Cyclists w/o Helmets	109	40.4%
Traffic Violations	37	13.7%

Intersection: Lomas @ Yale **Date/Day:** 5/4/2010 **Observer:** NH

E-W Street: Lomas Blvd **N-S Street: Yale Blvd**

Begin Time	Eastbound			Westbound			Northbound			Southbound			No Helmet	Riding on Sidewalk	Traffic Violation
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT			
6:30 AM															
6:45 AM															
7:00 AM						1		2			2		2	1	1
7:15 AM								3			3				
7:30 AM	1							2			3		3	1	1
7:45 AM								7			7		8		
8:00 AM								6			4		3	1	
8:15 AM						1		5			9		8		
8:30 AM							1	3			4		1		
8:45 AM			1					3			11	1	6	2	
4:00 PM		1					1	9			3		6	2	
4:15 PM		1			1	1		6			4		5	2	1
4:30 PM							1	7			5		5		
4:45 PM						1		9		1	4		3	3	2
5:00 PM	1						1	9		1	11		9	4	1
5:15 PM								10		1	2		6	2	1
5:30 PM								11		1	5		4	2	1
5:45 PM		1			1		1	6			5		5	2	2
6:00 PM															
6:15 PM															

	Totals	Percents
Cyclists	202	
Cyclists on Sidewalk	22	10.9%
Cyclists w/o Helmets	74	36.6%
Traffic Violations	10	5.0%

Intersection: Central @ Yale **Date/Day:** 5/3/2010 **Observer:** NH

E-W Street: Central Ave **N-S Street: Yale Blvd**

Begin Time	Eastbound			Westbound			Northbound			Southbound			No Helmet	Riding on Sidewalk	Traffic Violation
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT			
6:30 AM															
6:45 AM															
7:00 AM								1			1		1	1	2
7:15 AM					3			2			1		4	3	3
7:30 AM	1				1		1	3					4	2	1
7:45 AM		1			1	1		4			1		7	4	1
8:00 AM								6	1		2		5	3	1
8:15 AM							1	2	1				4		
8:30 AM				1	1	2		3	1	1		1	5	4	
8:45 AM	1	1		1	2	5		22	1	1	1		27	22	3
4:00 PM		3						5	1	3	9	2	19	15	2
4:15 PM		2						4			4		10	4	2
4:30 PM		2			4		1	7			9		14	10	
4:45 PM		2		3	2			1	1		7		15	11	1
5:00 PM	2		1		1	2		7		2	6		16	12	
5:15 PM		5		1				7	1	2	11		23	18	1
5:30 PM		3		1	2	1		4			4		9	8	1
5:45 PM		3			3			1	2		11	1	12	13	1
6:00 PM															
6:15 PM															

	Totals	Percents
Cyclists	236	
Cyclists on Sidewalk	130	55.1%
Cyclists w/o Helmets	175	74.2%
Traffic Violations	19	8.1%

Intersection: Central Ave @ Cornell **Date/Day:** 5/3/2010 **Observer:** HH

E-W Street: Central Ave **N-S Street: Cornell Dr**

Begin Time	Eastbound			Westbound			Northbound			Southbound			No Helmet	Riding on Sidewalk	Traffic Violation
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT			
6:30 AM															
6:45 AM															
7:00 AM					1			1					2	1	
7:15 AM					2						1		3		
7:30 AM						1		2					2		
7:45 AM	1	1			2			3	1				6	2	1
8:00 AM		1			1			4					4	1	
8:15 AM		1			1		1	1			6		1	1	
8:30 AM	1				2	3	2	3					5	5	
8:45 AM		1			3	1	1	10			2	1	13	1	
4:00 PM		3	1	2				7	1	1	10	2	16	5	3
4:15 PM	2	1			1	2	1	6	1	1	3		15	3	1
4:30 PM	1				2			3	2	1	4	2	13	5	
4:45 PM	1	4		1	1		4	8		1	7		23	9	1
5:00 PM	2	2	1	1	2	1	1	4	1	4	9	4	24	11	
5:15 PM	2	3	1	1	3	1		4	1	3	5	1	20	8	2
5:30 PM	1				2	1		7	1	2	4		13	5	
5:45 PM	1	3	1	2	4			5		1	5	3	18	11	
6:00 PM															
6:15 PM															

	Totals	Percents
Cyclists	249	
Cyclists on Sidewalk	68	27.3%
Cyclists w/o Helmets	178	71.5%
Traffic Violations	8	3.2%

Intersection: Central @ Stanford **Date/Day:** 5/3/2010 **Observer:** RG

E-W Street: Central Ave **N-S Street: Stanford Dr**

Begin Time	Eastbound			Westbound			Northbound			Southbound			No Helmet	Riding on Sidewalk	Traffic Violation
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT			
6:30 AM															
6:45 AM															
7:00 AM															
7:15 AM				1	2			2					4		
7:30 AM					1			3					4	1	
7:45 AM		1			2			7					7		
8:00 AM		1				1		5					4	1	1
8:15 AM								2			1		1		1
8:30 AM		1			1			5		1			5	1	
8:45 AM				1	2	1		6				1	8	4	
4:00 PM	1	3	1		4			2			8		8	5	
4:15 PM		2		1	2			2		2	3		9	4	
4:30 PM					1			4		1	4		7	2	
4:45 PM					4			4		1	2		9	5	
5:00 PM	3	2	1		1	1		2		2	7		17	7	
5:15 PM		8	1					2		2	5	3	18	6	
5:30 PM	1	3	3		4	3		1		1	3		12	5	
5:45 PM	2	3			3		1	2			6		9	1	
6:00 PM															
6:15 PM															

	Totals	Percents
Cyclists	176	
Cyclists on Sidewalk	42	23.9%
Cyclists w/o Helmets	122	69.3%
Traffic Violations	2	1.1%

Intersection: Silver @ Buena Vista **Date/Day:** 5/5/2010 **Observer:** RC

E-W Street: Silver Ave **N-S Street: Buena Vista Dr**

Begin Time	Eastbound			Westbound			Northbound			Southbound			No Helmet	Riding on Sidewalk	Traffic Violation
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT			
6:30 AM															
6:45 AM															
7:00 AM		1			1						1		2		2
7:15 AM								1			3		1		2
7:30 AM		1			3			2			1		3		4
7:45 AM		1			1			3	1	1	3		2		3
8:00 AM						2		1			2		2		2
8:15 AM					4			1			1		5		4
8:30 AM		1			1	1		3		1	2		8		5
8:45 AM		2		1	7	1		5		1			11		5
4:00 PM					5			6		1	8		14		6
4:15 PM					1		1	5	2		7		7		4
4:30 PM				1				2			6	1	5		2
4:45 PM								4		1	3		4		1
5:00 PM		3			2	3	1	4		3	3		10	1	2
5:15 PM	1			1	1	1		3			4		4		1
5:30 PM		1	2		1			2		1	3		7		3
5:45 PM		4				1		1			3		6		2
6:00 PM															
6:15 PM															

	Totals	Percents
Cyclists	164	
Cyclists on Sidewalk	1	0.6%
Cyclists w/o Helmets	91	55.5%
Traffic Violations	48	29.3%

Intersection All Way Stop

Intersection: Paseo del Nordeste @ Tucker **Date/Day:** 5/4/2010 **Observer:** RC

E-W Street: Tucker St **N-S Street: Paseo del Nordeste**

Begin	Eastbound			Westbound			Northbound			Southbound			No	Riding on	Traffic
Time	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Helmet	Sidewalk	Violation
6:30 AM															
6:45 AM															
7:00 AM						2		1			4		3		
7:15 AM						2		3			3		3		
7:30 AM						3		3		4	3		4		
7:45 AM		1				1		2		1	5		2		
8:00 AM	1				1	1		2		1	4		3		
8:15 AM	1		1			2					5		6		
8:30 AM			1		1	1		1			2				
8:45 AM						1				1	4		1		
4:00 PM						2		4					2		
4:15 PM						6		2	1	2	1		2		1
4:30 PM						10		5	1	1	4		2		
4:45 PM						6		8		1	4		2		
5:00 PM			1			3		5		1	4		5		
5:15 PM		1				8		6			2	1	5		1
5:30 PM						5		5		4	3		5		
5:45 PM						6		4		1	3		2		1
6:00 PM															
6:15 PM															

	Totals	Percents
Cyclists	190	
Cyclists on Sidewalk	0	0.0%
Cyclists w/o Helmets	47	24.7%
Traffic Violations	3	1.6%

Intersection: Paseo del Nordeste @ I-40 East Trail **Date/Day:** 4/28/2010 **Observer:** HH

Begin Time	NB Paseo del Nordeste										SB Paseo del Nordeste										I-40 East Trail										Pets	No Helmet
	Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse			
	LT	Th	LT	Th	LT	Th	LT	Th	LT	Th	Th	RT	Th	RT	Th	RT	Th	RT	Th	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT		
6:45 AM	1	1									5																					1
7:00 AM		2		1							5	1									1											1
7:15 AM		8									3		1								1											2
7:30 AM		5									5																					2
7:45 AM		3									7										1											2
8:00 AM		4									6	1	1									3										1
8:15 AM		2									3		1								1	1										2
8:30 AM		5									8														1							3
8:45 AM		7			1	2					5																					3
4:00 PM		3										2									1											1
4:15 PM	1	3									1			2																		2
4:30 PM	1	6									2										2											1
4:45 PM	1	2									8	2																				3
5:00 PM		5									1																					2
5:15 PM		7									5	4										1	2									4
5:30 PM	1	12									2	1		1											1							3
5:45 PM		4				2					4										3											5

	Totals	Percents
Users	196	
Cyclists	180	91.8%
Cyclists w/o Helmets	38	21.1%
Run/Jog	9	4.6%
Walkers	7	3.6%
Skaters	0	0.0%
Equestrians	0	0.0%
Pets	0	0.0%

Intersection: Paseo del Nordeste @ North Diversion Channel **Date/Day:** 4/28/2010 **Observer:** NH

Begin Time	NB Paseo del Nordeste										SB Diversion Channel Trail										WB Paseo del Nordeste										Pets	No Helmet
	Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse			
	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	Th	RT	Th	RT	Th	RT	Th	RT	Th	RT	LT	Th	LT	Th	LT	Th	LT	Th	LT	Th		
6:45 AM												1			1						1	1										1
7:00 AM	4																					3			2	1						
7:15 AM	7	1	1	1	2	1					2	2			2						2					1						1
7:30 AM	2	2									1	3									2	2				1						1
7:45 AM	3				1							3		1							3	1				1						
8:00 AM	2				1	1					1	2			1		1				6	2	1									2
8:15 AM	4					1						2			1							2		1								3
8:30 AM	5	2				1						3	1								3	1			1	1						1
8:45 AM	6	2			1						1	4									1	1			1							4
4:00 PM		2									2															2						
4:15 PM	3										1				1							1				2					1	1
4:30 PM	4	3									2	6													1	2					1	2
4:45 PM	2	2									1	1									2											3
5:00 PM	5	4										2				1					1	6				5		1			2	4
5:15 PM	1	3			2							3			4	1	1				3	2									3	3
5:30 PM	3	6										1		2							2	1				1						2
5:45 PM	5	1	2								2	3	1		1									1		1						

	Totals	Percents
Users	244	
Cyclists	182	74.6%
Cyclists w/o Helmets	28	15.4%
Run/Jog	12	4.9%
Walkers	47	19.3%
Skaters	3	1.2%
Equestrians	0	0.0%
Pets	7	2.9%

Intersection: North Diversion Channel @ Paseo del Norte **Date/Day:** 4/28/2010 **Observer:** RC

	NB Diversion Channel Tral										SB Diversion Channel Trail										SB Paseo del Norte Connector											
	Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse			
Begin Time	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	Th	RT	Th	RT	Th	RT	Th	RT	Th	RT	LT	Th	LT	Th	LT	Th	LT	Th	LT	Th	Pets	No Helmet
6:45 AM																						1		1								1
7:00 AM					1						1										1	1										
7:15 AM	5	1		1	2										1						1	7				1						
7:30 AM	3	1				1							1									5	1									1
7:45 AM			1								1										2	3										1
8:00 AM																						1										
8:15 AM	1	1	1																			2		1								
8:30 AM		4									1											2										
8:45 AM																																
4:00 PM	1	1	1																							1					1	
4:15 PM	2																					2										
4:30 PM	3											1												1		1						1
4:45 PM	4	1									3	1										1										
5:00 PM	3	1				1						3										1									1	
5:15 PM	6	3										2			1							2									1	
5:30 PM	1	1									1	4										1										
5:45 PM	1	1	1								1										1											

	Totals	Percents
Users	118	
Cyclists	98	83.1%
Cyclists w/o Helmets	4	4.1%
Run/Jog	10	8.5%
Walkers	10	8.5%
Skaters	0	0.0%
Equestrians	0	0.0%
Pets	3	2.5%

Intersection: 2nd St-Marquette/2nd St-Tijeras **Date/Day:** 4/29/2010 **Observer:** RC

E-W Street: Marquette/Tijeras Ave **N-S Street: Second St**

Begin Time	Eastbound			Westbound			Northbound			Southbound			No Helmet	Riding on Sidewalk	Traffic Violation
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT			
6:30 AM															
6:45 AM															
7:00 AM								1					1	1	
7:15 AM									1					1	
7:30 AM					1						1		1		
7:45 AM				1	3										
8:00 AM					2						1		2		
8:15 AM					2										
8:30 AM								1							1
8:45 AM													1	1	
4:00 PM															
4:15 PM		1							1						
4:30 PM															
4:45 PM															
5:00 PM		2						1					1		
5:15 PM		1						1					1		
5:30 PM		3											1		
5:45 PM											1				
6:00 PM															
6:15 PM															

Marquette - AM, Tijeras - PM

	Totals	Percents
Cyclists	25	
Cyclists on Sidewalk	3	12.0%
Cyclists w/o Helmets	8	32.0%
Traffic Violations	1	4.0%

Intersection: Unser Blvd @ Arenal Rd **Date/Day:** 4/29/2010 **Observer:** HH

E-W Street: Arenal Rd **N-S Street: Unser Blvd**

Begin Time	Eastbound			Westbound			Northbound			Southbound			No Helmet	Riding on Sidewalk	Traffic Violation
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT			
6:30 AM															
6:45 AM															
7:00 AM															
7:15 AM															
7:30 AM															
7:45 AM															
8:00 AM		1											1		
8:15 AM															
8:30 AM															
8:45 AM															
4:00 PM															
4:15 PM															
4:30 PM															
4:45 PM															
5:00 PM															
5:15 PM															
5:30 PM															
5:45 PM															
6:00 PM															
6:15 PM															

	Totals	Percents
Cyclists	1	
Cyclists on Sidewalk	0	0.0%
Cyclists w/o Helmets	1	100.0%
Traffic Violations	0	0.0%

Intersection: Bridge Blvd @ Isleta Blvd **Date/Day:** 4/29/2010 **Observer:** NH

E-W Street: Bridge Blvd **N-S Street: Isleta Blvd**

Begin Time	Eastbound			Westbound			Northbound			Southbound			No Helmet	Riding on Sidewalk	Traffic Violation
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT			
6:30 AM															
6:45 AM		1											1	1	
7:00 AM									1				1	1	
7:15 AM															
7:30 AM				1	2				1				3		
7:45 AM									2				1		
8:00 AM									1						
8:15 AM															
8:30 AM				1	1				1				2		
8:45 AM					1				1				1		
3:45 PM		2			1								3	2	
4:00 PM															
4:15 PM															
4:30 PM		1			2				1				3	2	
4:45 PM					1				1				2	2	
5:00 PM				1									1	1	
5:15 PM		1											1	1	
5:30 PM															
5:45 PM				1	1								2	2	
6:00 PM															

	Totals	Percents
Cyclists	27	
Cyclists on Sidewalk	12	44.4%
Cyclists w/o Helmets	21	77.8%
Traffic Violations	0	0.0%

Intersection: Rainbow Blvd @ Woodmont Ave **Date/Day:** 5/13/2010 **Observer:** NH

E-W Street: Woodmont Ave **N-S Street: Rainbow Blvd**

Begin Time	Eastbound			Westbound			Northbound			Southbound			No Helmet	Riding on Sidewalk	Traffic Violation
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT			
7:00 AM															
7:15 AM															
7:30 AM															
7:45 AM											8		6	8	5
8:00 AM											4	1	4	5	2
8:15 AM															
8:30 AM															
8:45 AM															
9:00 AM															
9:15 AM											1				
9:30 AM															
9:45 AM															
10:00 AM															
10:15 AM															
10:30 AM															
10:45 AM															
11:00 AM											1				
11:15 AM															
11:30 AM															
11:45 AM															
12:00 PM															
12:15 PM															
12:30 PM															
12:45 PM															
1:00 PM															
1:15 PM															
1:30 PM															
1:45 PM															
2:00 PM															
2:15 PM															
2:30 PM															
2:45 PM															
3:00 PM								3					2	3	3
3:15 PM								8					8	8	1
3:30 PM															
3:45 PM															
4:00 PM															
4:15 PM								1							
4:30 PM															
4:45 PM						1									
5:00 PM															
5:15 PM								1							
5:30 PM															
5:45 PM											1			1	

	Totals	Percents
Cyclists	30	
Cyclists on Sidewalk	25	83.3%
Cyclists w/o Helmets	20	66.7%
Traffic Violations	11	36.7%

This location was near a school and most of the cyclists were school children.

Intersection: Candelaria Rd west of Edith Blvd **Date/Day:** 5/25/2010 **Observer:** NH

Begin Time	Eastbound			Westbound									No Helmet	Riding on Sidewalk	Traffic Violation
6:30 AM															
6:45 AM															
7:00 AM		1													
7:15 AM		1													
7:30 AM															
7:45 AM					2								2		
8:00 AM		1											1	1	
8:15 AM															
4:00 AM					1										
4:15 AM															
4:30 AM					2								2	2	
4:45 AM		2											2	2	
5:00 AM					3								2	2	
5:15 AM		2			1								1	1	1
5:30 AM		1											1	1	
5:45 AM															

	Totals	Percents
Cyclists	17	
Cyclists on Sidewalk	9	52.9%
Cyclists w/o Helmets	11	64.7%
Traffic Violations	1	5.9%

The traffic violation was riding eastbound in the westbound bike lane.

Intersection: Bosque Trail @ Alameda Blvd Date/Day: 5/11/2010 Observer: NH

	Alameda Blvd		Northbound Trail										Southbound Trail											
	Bike		Bike		Run/Jog		Walker		Skater		Horse		Bike		Run/Jog		Walker		Skater		Horse			
Begin Time	EB	WB	SL	NL	SL	NL	SL	NL	SL	NL	SL	NL	SL	NL	SL	NL	SL	NL	SL	NL	SL	NL	Pets	No Helmet
6:45 AM																								
7:00 AM	2	1	2				2						3		1		2						2	
7:15 AM			2				2						2				1							1
7:30 AM			1		1		1						5											1
7:45 AM			1		1								4		1									
8:00 AM	1		1		2		1	4					5				5						2	
8:15 AM	1		2				1	2					6				3						1	4
8:30 AM			2				1						1	4			2	3					2	
8:45 AM		2	9	1			2						5	2	1		2						2	1
4:00 PM																								
4:15 PM																								
4:30 PM																								
4:45 PM																								
5:00 PM																								
5:15 PM																								
5:30 PM																								
5:45 PM																								

	Totals	Percents
Users	106	
Cyclists	65	61.3%
Cyclists w/o Helmets	7	10.8%
Run/Jog	7	6.6%
Walkers	34	32.1%
Skaters	0	0.0%
Equestrians	0	0.0%
Pets	9	8.5%

SL - South of Parking Lot NL - North of Parking Lot Only Morning Only - Recounted on 5/19/2010

Appendix D.2 – Crash Data & Analysis

This section provides a summary of crash data involving bicycles in Albuquerque for 1995-2005. Data for 2006 – 2009 was not available at the time this analysis was completed. Crash data is a valuable source of information that can help identify difficult or dangerous areas for bicycles. However, certain caveats should be clearly understood when interpreting crash data. Bicycle crashes are generally considered to be significantly under-reported worldwide, particularly for crashes that do not result in serious injury. Therefore, a street or intersection that did not see a crash over the ten years examined in this analysis is not an indication that people are not bicycling there or that hazards are not present in those areas.

The State of New Mexico has one of the highest nationwide fatality rates for non-motorized transportation users; a significant number of these incidents occur in the greater Albuquerque area. Table 11 provides a summary of the crash data. There were a total of 1,529 crashes involving bicycles over the ten years studied. These crashes resulted in 1,315 bicycle injuries and 20 fatalities. This extremely high injury rate highlights the importance of taking measures to improve safety for bicyclists in Albuquerque, but may also indicate that non-injury bicycle crashes often go unreported.

Table 11: Bicycle Crashes, 1995-2005

Year	Bicycle Crashes	Bicycle Injuries	Bicycle Fatalities
1995	189	177	2
1996	179	160	2
1997	145	124	3
1998	144	124	1
1999	110	96	3
2000	133	116	2
2001	130	111	3
2002	126	102	3
2003	78	64	0
2004	155	128	1
2005	140	113	0
Total	1529	1315	20

Figure 3 shows the number of bicycle crashes reported in Albuquerque over time, which display a downward trend from 1995 to 2005.

A. Bicycle Crashes by Time of Day/Week/Year

Figure 4 shows the number of crashes per month involving bicycles. Higher numbers of crashes involving bicycles in the summer months likely indicates that cycling is more prevalent during these good-weather months. However, it should be noted that there are crashes involving bicycles throughout the year, indicating that people in Albuquerque continue to cycle during the winter months. Bicycle counts performed by the City of Portland suggest that winter bicycle ridership levels are approximately half of the summer levels.

Figure 5 shows the number of bicycle-involved crashes by day of week. Bicycle crashes are concentrated during weekdays, and on weekends crashes appear to be significantly more common on Saturdays than on Sundays. This trend may reflect the days of the week when bicycle traffic is highest. Recreational trips on off-street bicycle facilities are likely to be more

common on weekends, and the lower weekend crash rate may also represent combined lower traffic volumes of both bicycles and vehicles on surface streets.

Figure 6 shows the number of crashes by time of day for bicycles. Again, this data may give some indication as to the hours that people bicycle in Albuquerque and also those times when crashes are most likely. Crashes are concentrated in the afternoon and evening hours, though there are crashes during the morning peak period as well. The evening peak period is an especially common time for bicycle-involved crashes; 40-percent of all bicycle crashes happened between 3 pm and 6 pm. High numbers of crashes in the late afternoon/early evening reflect both the increased level of bicycle and vehicular traffic during the evening peak and reduced visibility during the darker hours.

B. Crashes by Street and Intersection

A high number of crashes do not necessarily make a street or intersection a prime candidate for bicycle improvements. For example, because crashes tend to be infrequent events, the intersections with multiple crashes from 1995 to 2005 may or may not present particularly difficult conditions for bicycles. Furthermore, difficult intersections not listed in the following figures and tables may serve as important connections along current or proposed bicycle routes and therefore be a higher priority for improvements. However, bicycle crash data presents an objective look at bicycle safety along different corridors, validating known issues or revealing other trends that may not be discovered by other methods such as through surveys or public meetings. With these points in mind, the following figures and tables highlighting the number of crashes on different streets serve as a useful starting point for evaluating the current and future bicycle system in Albuquerque.

High Crash Streets

Figure 7 shows street corridors in Albuquerque with 20 or more bicycle-involved crashes from 1995 to 2005 (Map 2). Of these corridors, Central Avenue E had the highest number of crashes at 143, more than double the number of any other street. Table 12 shows the distribution of fatal and injury crashes on these streets. Eight fatal bicycle crashes occurred on these high crash corridors during the ten year period. Lomas Boulevard NE and on San Pedro Drive NE were each the site of two fatal crashes. Many of the streets with the highest number of crashes are characterized as roadways with 4 – 6 travel lanes, a center turn lane or raised median and no dedicated bicycle facilities.

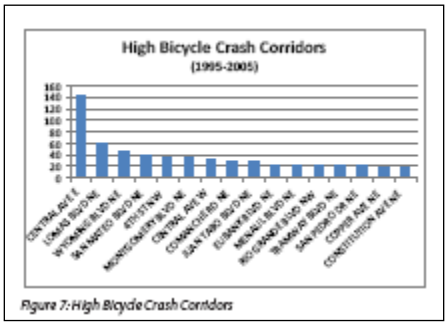


Figure 7: High Bicycle Crash Corridors

High Crash Intersections

While bicycle crashes appear to be concentrated on certain street corridors as detailed above, crashes at individual intersections in Albuquerque are more evenly distributed. Table 13 lists intersections in Albuquerque that were the site of four or more bicycle crashes from 1995 to 2005 (Map 3). None of these intersections was the site of a fatal crash. The majority of these high crash intersections are located along streets that also have high numbers of bicycle crashes along their entire length, such as Central Avenue and Lomas Boulevard.

Table 13: High Bicycle Crash Intersections, 1995-2005

Intersection	No. Crashes
Central Ave E / Yale Blvd SE	7
Central Ave E / Dorado PI SE	6
Central Ave E / Stanford Dr NE	6
Central Ave W / New York Ave NW	6
Central Ave E / Cornell Dr NE	5
Central Ave E / Girard Blvd NE	5
Central Ave E / Juan Tabo Blvd NE	5
Montgomery Blvd NE / Tramway Blvd NE	5
San Mateo Blvd NE / Indian School Rd NE	5
University Blvd SE / Gold Ave SE	5
Wyoming Blvd NE / Constitution Ave NE	5
Wyoming Blvd NE / Montgomery Blvd NE	5
Bridge Blvd SW / 8th St SW	4
Central Ave W / Sunset Rd SW	4
Indian School Rd NE / Constitution Ave NE	4
Lomas Blvd NE / Vassar Dr NE	4
Louisiana Blvd NE / Central Ave E	4
Montgomery Blvd NE / San Mateo Blvd NE	4
Rio Grande Blvd NW / Candelaria Rd NW	4
San Mateo Blvd NE / Pan American East Hy NE	4
Tennessee St NE / Lomas Blvd NE	4
Tramway Blvd NE / Spain Rd NE	4
Wyoming Blvd NE / Candelaria Rd NE	4
Wyoming Blvd NE / Comanche Rd NE	4
Wyoming Blvd NE / Spain Rd NE	4

Types of Bicycle Crashes

The available data also includes some information about the geometry of the reported crashes. Figure 8 shows the number of crashes of each type.

In over half of all bicycle crashes, the vehicle struck the cyclist at an angle, implying that most bicycle crashes occur during some type of turning movement. Note that although this data shows the movement of each party during a crash, it does not indicate causation to indicate which party was at fault, or if any citations were given as a result of the crash.

Demographics

As shown in Figure 9, most bicyclists involved in crashes in Albuquerque are male. This is common in other cities, and represents a number of factors including that there are more male than female bicyclists in the United States, and that males often take more risks which may also apply to bicycling behavior.

Bicycle crash data also reveals that 27-percent of bicycle-involved crashes involved bicyclists under the age of 18, including approximately 10-percent of crashes where the bicyclists was age 11 or younger. Figure 10 shows the age distribution of bicyclists in bicycle crashes. This

emphasizes the importance of creating bicycle facilities that are safe for all ages and abilities of bicyclists in Albuquerque. Note that age data was not available for approximately one in eight bicycle crashes.

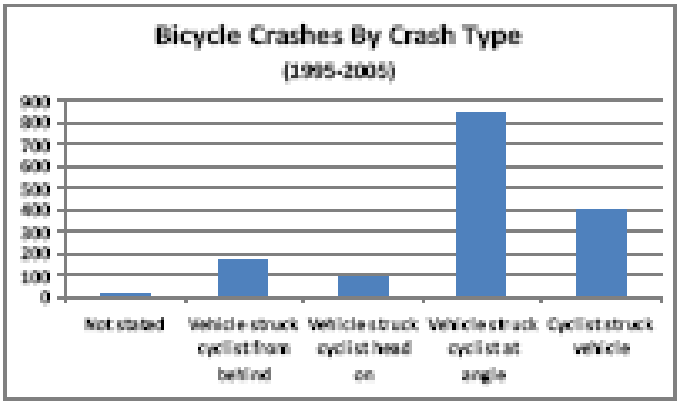


Figure 8: Bicycle Crashes by Crash Type

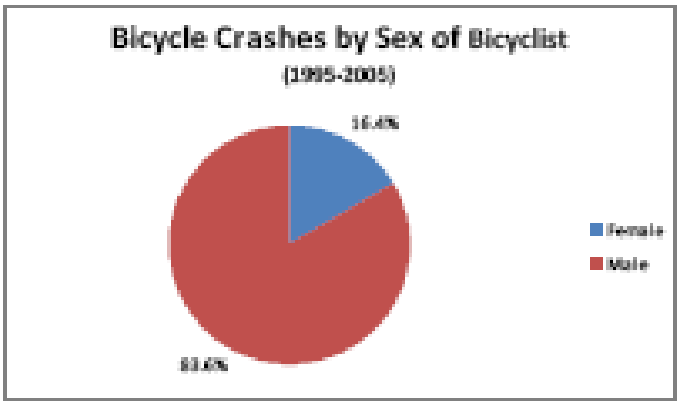


Figure 9: Bicycle Crashes by Gender

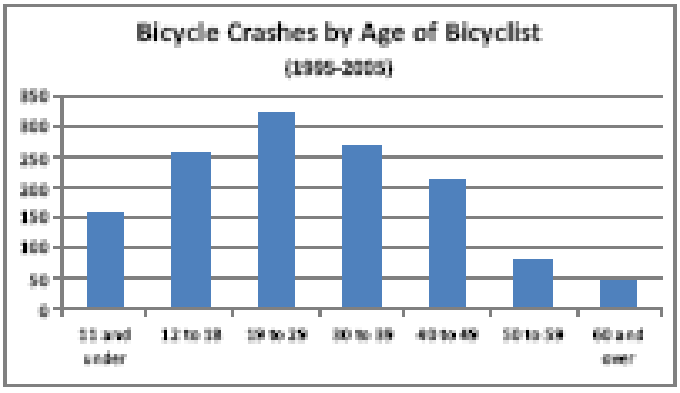


Figure 10: Bicycle Crashes by Age of Bicyclist

Appendix D.3 – Online Survey

The following section summarizes the results of the Albuquerque Bikeways and Trails Facility Plan online survey. The survey gathered information on preferred facility types, current transportation and travel behavior, and concerns about traffic safety. The detailed survey results are provided in **Section D.3.I**. People who selected to take the survey displayed a strong desire for a dedicated system of off-street trails for recreation. Respondents also indicated that improved connectivity through on-street dedicated facilities (i.e. bike lanes and bicycle boulevards) would enhance the biking environment and lead to increased bike trips in Albuquerque. It should be noted however that the vast majority (91-percent) of the respondents who took this survey are current bicyclists. The views and opinions of people who may be interested in bicycling but do not currently bike for transportation or recreation are not well-represented in this sample.

A. Demographics

Over 1,200 individual responses were collected between the end of April 2010 and mid-June 2010. This high response rate demonstrates that there is a significant level of interest in local bicycle infrastructure issues, as well as a large community of existing bicyclists (72-percent responded that they are members of a bicycle advocacy group). More than half of all respondents are frequent riders (ride almost daily), while another one-third are regular riders, logging one or two weekly bike trips.

Of the individuals who answered the survey, over half (55-percent) are between the ages 41 and 60 and persons under the age of 30 may be underrepresented in this sample. The results of the survey also indicate that people who choose to bicycle for both recreation and transportation are well-educated. Eighty-5-percent of respondents completed college or a post-graduate program.

The ratio of men to women who choose to bicycle is commonly used as a rough measure of the adequacy and perceived safety of a city's bicycle system. **Cities that routinely achieve 50/50 splits between both sexes for bicycle commute trips are often regarded as some of the best cities for bicycling.** The results of the Albuquerque survey indicate a somewhat more uneven ratio between the sexes; 64-percent are men and 36-percent women.

B. Bicycle Habits and Travel Behavior

In the survey, respondents were first asked how they identify themselves as a bicyclist. The survey presented three choices: an advanced, confident rider who is comfortable riding in most traffic situations, an intermediate rider who is somewhat comfortable riding in some traffic situations, and a beginner rider who prefers to stick to the bike path. The majority (53-percent) identified as advanced riders, 10-percent placed themselves in the beginner category, and the remainder (37-percent) selected intermediate (See Figure 11). Despite the high ratio of intermediate and advanced riders who are comfortable riding in mixed traffic, more than half (55-percent) of the respondents prefer to ride on multi-use trails and paths over other facility types. However, this preferred facility is often unavailable—two-thirds of respondents felt that

there are not enough bike lanes or multi-use trails that connect to the destinations they need to access.

When asked what kind of bicycle riding the individual chooses to do, the respondent was able to select multiple answers. Recreation/fitness received the largest share of response at 897, commuting to work/school received 590, and errands or other local destinations garnered 390 (Figure 11a). These results indicate that bicyclists are routinely engaging in more than one type of bicycle riding which may include commuting some days of the week and doing some recreational riding as well. Indeed, 43-percent responded that they use multi-use trails 1-3 times per week (Figure 12).

C. Infrastructure Preferences

When asked what kind of roads are preferred to ride on nearly half (48-percent) chose collectors that may be less direct and have medium levels of traffic. Low traffic, local and residential streets were selected by 43-percent, possibly due to these roadways being the least direct. Finally, less than 10-percent selected major roadways, which are generally high traffic but the most direct (Figure 13). A follow-up question asked respondents to select the type of road they need to ride on to reach their destination—44-percent of the responses indicated major roadways.

This finding is consistent with bicyclists' main traffic safety concern, that motorists are not considerate of bicyclists. Major roadways are designed primarily for motorized travel, and the inclusion of bicyclists to the mix commonly introduces conflicts between the two users. This holds especially true when there are insufficient or inadequate bikeway facilities. For example, in a question that asked respondents to select statements regarding infrastructure problems that limit bike riding or trail use, 51-percent agreed that bike lanes are in poor condition or poorly maintained. Half of respondents also agreed that there are no direct bike lanes and/or multi-use trails that connect them to the destinations they need to access and 41-percent cited this as a reason for not using trails more frequently. Infrastructure problems that were less important to respondents included: not enough lighting (19-percent), no bike parking (19-percent), and no showers or lockers (20-percent).

When asked to select the bikeway facility improvements that would most likely influence increases in on-street and off-street bicycle trips the findings show that more on-the-ground infrastructure is desired above all else. Trails, bike lanes, bike routes, and Bike Boulevards were all rated as highly likely to encourage additional bike trips. Less important to respondents were trail amenities or additional way-finding or other bicycle on-street bicycle signage.

D. Bicycle Parking

Developing additional bicycle parking was not rated as a high priority for most respondents. Just 19-percent felt that more bike parking would influence them to ride their bike more often. However, the results indicate a bicycle parking shortage at grocery stores, shopping centers, and restaurants.

E. Female Cyclists

Research on men and women's cycling preferences has become a common discussion topic. Studies estimate that in the U.S. men's cycling trips surpass women's by at least 2:1, the ratio reported in both online survey results and the 2006-2008 American Community Survey cycling commute ratios. Studies show that women are more risk averse, and are more willing to detour out of their way to travel on lower traffic streets. Research has also state that women typically attend to more daily household chores, and would benefit from lower speed and volume routes to "practical urban destinations."

The online survey included responses from nearly 390 women. When analyzed these results create a profile that demonstrates many of Albuquerque's female riders share characteristics common to female riders across the US. This does not imply that women are not confident, fearless cyclists, but rather that different facilities may appeal to different types of riders. These characteristics may offer insight into infrastructure treatments and programmatic strategies that will encourage more cycling among women and other groups that have similar riding habits. It should be noted that the responses of respondents who identified as 'intermediate' or 'beginner' cyclists were very similar to results reported by the majority of women. The respondents who identified as 'intermediate' and 'beginner' riders were split nearly evenly between the genders.

Comparison of 'Female Respondents' in Relation to 'All Surveyed Respondents' or 'Male Respondents' in Albuquerque

- The majority of women characterized themselves as intermediate riders, who are "somewhat comfortable riding in some traffic situations."
- The majority of women prefer riding on local or residential roads. This is consistent with results from all riders who identified themselves as "intermediate riders."
- There was no variation in preferred facility (multi-use trail), common ride frequency (3-4 days a week for commuting and 1-2 days for exercise), or primary ride purpose (exercise/fitness).
- Men and women agree that grocery stores are the type of destination most in need of increased bicycle parking. Women state that other top locations in need of bike parking are shopping centers, restaurants and civic centers. Men's top choices include shopping centers, work sites, and restaurants.
- Nearly 86-percent of women reported walking or jogging as a trail use as compared to 70-percent of men. Both groups reported the same frequency of trail use, most commonly one to three times per week.
- The most frequently stated traffic safety concern for both men and women was that "Motorists are not considerate of cyclists." However, there was significant variation in the second and third most popular responses.
- The only variation in concerns related to infrastructure was that nearly twice as many women as men, 25-percent of respondents, stated that destinations were too far away.

- Both men and women stated that their top three concerns for not bicycling more was the need to carry items or equipment, time constraints, or the need to dress up for work.
- A greater share of men and women commonly thought that multi-use trails, more bike lanes, bike routes and bike boulevards were the improvements that would encourage them to use the system more frequently. Female response was commonly greater than male's by about 5-percent (e.g., 68-percent of women and 63-percent of men felt that more paved multi-use trails was very likely to increase their system use). Women also tended to express stronger support for increased education, encouragement and enforcement programs.

G. Geographic Analysis

The following survey variables were analyzed by zip code to examine the spatial distribution of survey results:

- What type of cyclist are you? (Question 2)
- What type of facility do you prefer to ride on? (Question 5)
- How frequently do you use trails? (Question 20)
- Please check your traffic and safety concerns? (Question 24)
- In general, what type of riding to you tend to do? (Question 10)

There was little variation in the spatial distribution of the majority answer for most questions. The exception was the percent of people who do errands while they bike (Question 10). The greatest percentage of respondents that report they ride to work live in the south central portion of the city where they are close to many destinations including the UNM and KAFB. Areas where fewer people ride for utilitarian purposes include the north valley, the predominately residential eastern portion of the city, and areas west of the Rio Grande. It should be noted that these results are likely impacted by the relative variation in zip code size and relative number of response obtained in throughout the city.

H. Key Findings from the Analysis

- A disproportionate number of reported bicycle crashes, 83-percent, involve males, who make up about 65-percent of Albuquerque's reported bicycle population. This is consistent with findings from other U.S. cities.
- The average bicycle commute trip is about 23 minutes. This is consistent with the idea of the 20 minute neighborhood and idea that the average bicycle trip in the U.S. is two to three miles.
- Albuquerque's reported bicycle commute to work mode-share has been static for about 20 years.
- A comparison of 1997 counts with 2010 counts found the highest AM peak on-street volumes at the Central Avenue and Yale Boulevard intersection. In 2010, 115 cyclists were counted here during the AM peak. This is a drop from the 164 cyclists observed at the same intersection in 1997. These drops in the AM counts are consistent with other count locations.

This trend is not consistent with PM counts at the same locations where, in many cases, the numbers of cyclists increased slightly or remained the same. Potential reasons for these shifts could include a variation in the AM peak times or a shift in facility usage patterns.

- The highest on-street cyclist count volumes were found around the University of New Mexico and KAFB. There was a significant shift of cycling traffic from the Wyoming gate to the new Eubank Gate. The greatest number of legal infractions (e.g., running a red light) were observed around UNM, while the greatest rates of compliance with roadway laws and helmet use were observed around KAFB.
- The highest weekday cycling usage occurred at the University of New Mexico. The highest weekend usage was along the Rio Grande Bosque Trail with an average of more than 200 users per hour per link at three locations. The lowest weekday cycling usage occurred along Unser Boulevard, the lowest weekend usage occurred along Coors Boulevard north of Montaño Road.
- Trail counts indicated that there is significant off-street cycling activity for recreation and utilitarian purposes that is not captured in the census commute mode-share.
- Cyclists were the most commonly counted trail users; they were generally noted in ratios of 1:1 to 5:1 when compared to walkers and joggers, the second most prevalent category of trail users.
- Streets with the greatest number of reported crashes and highest reported crash rates per mile were 4-6 lane roads without bicycle facilities. The roadways with the greatest number of crashes per mile included East Central Avenue, Lomas Boulevard and San Mateo Boulevard. These are all Major Transit Corridors.
- The seven intersections with the greatest number of reported crashes were all located along Central Avenue. Count data was available at one intersection, Yale Boulevard, and indicated significant bicycle traffic during AM and PM peak hours.
- Nearly 2/3 of cyclists feel that bicycle lanes and multi-use trails do not connect to all the places they want to go.
- There is some evidence that bicycle trips are replacing car commute trips when gasoline prices increase.
- Women responding to the survey generally identified as intermediate riders who prefer to ride on low traffic streets, while both genders indicated that bicycle routes and boulevards would 'very likely' increase their cycling. A greater percentage of women indicated strong support for this statement.
- Both men and women agreed that grocery stores were the land use most in need of increased bicycle parking. Other high-priority land uses included the work place, civic destinations (e.g., parks), shopping malls, and restaurants.

I. Raw Survey Results (2010)

Albuquerque Bikeways and Trails Master Plan Survey

1. Are you a current bicycle rider?

	Response Percent	Response Count
Yes	**91.4%**	**1,141**
No	8.6%	107
answered question		**1,248**
skipped question		**0**

2. Which of these phrases best describes you as a cyclist?

	Response Percent	Response Count
An advanced, confident rider who is comfortable riding in most traffic situations	**53.0%**	**575**
An **intermediate** rider who is somewhat comfortable riding in some traffic situations	37.2%	403
A **beginner** rider who prefers to stick to the bike path	9.8%	106
answered question		**1,084**
skipped question		**164**

3. On which type of roads do you prefer riding on for your level of comfort?

	Response Percent	Response Count
Major Roadways (most direct, high traffic)	9.3%	101
Collectors (not very direct, medium traffic)	**48.2%**	**521**
Local/Residential (least direct, low traffic)	42.5%	459
answered question		**1,081**
skipped question		**167**

4. On which type of roads do you need to ride to reach your destinations?

	Response Percent	Response Count
Major Boulevards (most direct, high traffic)	44.7%	480
Collectors (not very direct, medium traffic)	**63.3%**	**680**
Local/Residential (least direct, low traffic)	39.2%	421
answered question		**1,074**
skipped question		**174**

5. What type of facility do you prefer to ride on?

	Response Percent	Response Count
Multi-Use Trail	**55.4%**	**585**
Bike Lane on Major Boulevard	25.1%	265
Bike Route on Major Boulevard	4.8%	51
Bike Route on Local Street	13.4%	142
Sidewalks	1.2%	13
Other (please specify)		63
answered question		**1,056**
skipped question		**192**

6. How often do you ride your bike?

	Response Percent	Response Count
1-2 days a week	22.4%	242
3-4 days a week	**37.8%**	**409**
5-7 days a week	28.7%	310
1-3 times a month	8.6%	93
Less than once a month	2.4%	26
Not at all	0.1%	1
answered question		**1,081**
skipped question		**167**

7. Has the increase in gasoline price changed your bicycling habits?

	Response Percent	Response Count
Yes, and my automobile use has decreased	**26.0%**	**276**
Yes, and my automobile use has stayed the same	1.9%	20
I ride about the same amount, and my automobile use has decreased	16.7%	177
I ride about the same amount and my automobile use has stayed the same	18.0%	191
No, there has been no change in my bicycle use, but my automobile use has decreased	11.7%	124
No, there has been no change in either my bicycle or automobile use	25.7%	272
Other (please specify)		53
answered question		**1,060**
skipped question		**188**

8. Where do you live? (Address Optional)

	Response Percent	Response Count
City:	80.1%	755
Zip:	**87.6%**	**826**
Or please list the closest intersection:	42.3%	399
answered question		**943**
skipped question		**305**

9. Where do you work, go to school, or travel to frequently by bike? (Address Optional)

	Response Percent	Response Count
City:	**74.3%**	**661**
Zip:	63.7%	567
Or please list the closest intersection:	49.0%	436
answered question		**890**
skipped question		**358**

10. In general, what type of riding do you tend to do? (check all that apply)

	Response Percent	Response Count
Recreation/fitness	**87.8%**	**897**
Commuting to work/school	57.7%	590
Errands or other local destinations	38.2%	390
Other (please specify)		44
answered question		**1,022**
skipped question		**226**

11. If you checked Recreation/fitness, how often do you tend to ride?

	Response Percent	Response Count
1-2 days a week	**35.1%**	**321**
3-4 days a week	33.8%	309
5-7 days a week	18.1%	166
1-3 times a month	9.9%	91
Less than once a month	2.8%	26
Not at all	0.2%	2
answered question		**915**
skipped question		**333**

12. If you checked Commuting to work/school, how often do you ride?

	Response Percent	Response Count
1-2 days a week	26.5%	177
3-4 days a week	**34.7%**	**232**
5-7 days a week	21.9%	146
1-3 times a month	4.3%	29
Less than once a month	4.9%	33
Not at all	7.6%	51
answered question		**668**
skipped question		**580**

13. If you checked Errands or other local destinations, how often do you tend to ride?

	Response Percent	Response Count
1-2 days a week	**39.6%**	**201**
3-4 days a week	17.3%	88
5-7 days a week	12.6%	64
1-3 times a month	11.8%	60
Less than once a month	4.9%	25
Not at all	13.8%	70
answered question		**508**
skipped question		**740**

14. If you checked 'other', how often do you tend to ride for other purposes?

	Response Percent	Response Count
1-2 days a week	16.9%	29
3-4 days a week	9.9%	17
5-7 days a week	16.9%	29
1-3 times a month	8.7%	15
Less than once a month	7.0%	12
Not at all	**40.7%**	**70**
answered question		**172**
skipped question		**1,076**

15. Please check the seasons in which you ride a bike. (check all that apply)

	Response Percent	Response Count
Year round	**63.0%**	**644**
Winter	3.0%	31
Spring	37.9%	388
Summer	38.0%	389
Fall	37.1%	380
answered question		**1,023**
skipped question		**225**

16. Where would you like to see more bike racks or bike lockers? (check all that apply)

	Response Percent	Response Count
Work Sites	57.9%	518
Government Centers	36.5%	326
Libraries	42.2%	377
Parking Garages	29.4%	263
Apartment Buildings	15.9%	142
Shopping Centers	66.0%	590
Grocery Stores	**70.2%**	**628**
Restaurants	57.0%	510
Schools	35.8%	320
Community Centers	35.3%	316
Parks, Swimming Pool, Recreation Areas	55.3%	494
Other (please specify)		85
answered question		**894**
skipped question		**354**

17. Are there any specific locations where you think bicycle racks are needed? In order to provide the best service to the public please specify a location(s) for any of the areas you selected above: (Business Name, Address, Cross Street and Zip Code):

	Response Percent	Response Count
Location 1	**100.0%**	**216**
Location 2	41.7%	90
Location 3	21.8%	47
Location 4	9.3%	20
answered question		**216**
skipped question		**1,032**

18. Do you consider yourself to be a multi-use trail user?

	Response Percent	Response Count
Yes - I bike, walk, jog, skate or ride a horse on the trails in and around Albuquerque	**86.8%**	**982**
No	13.2%	149
answered question		**1,131**
skipped question		**117**

19. How do you use the trails? (check all that apply)

	Response Percent	Response Count
I bike	**91.0%**	**885**
I walk or jog	74.6%	726
I roller skate or rollerblade	9.2%	90
I ride a horse	2.5%	24
answered question		**973**
skipped question		**275**

20. How frequently do you use the trails?

	Response Percent	Response Count
Daily or almost daily	26.2%	255
1-3 times per week	**42.9%**	**417**
Several times a month	26.6%	259
Rarely	4.2%	41
Not at all	0.0%	0
answered question		**972**
skipped question		**276**

21. Why do you walk, skate or ride? (check all that apply)

	Response Percent	Response Count
Exercise/fitness	**91.6%**	**885**
Commuting to work/school	40.5%	391
Errands or other transportation	27.2%	263
Recreational activities with a pet and/or child	39.8%	384
Recreation or fun	60.2%	582
answered question		**966**
skipped question		**282**

22. Please check the seasons in which you use the trail system. (check all that apply)

	Response Percent	Response Count
All year	**78.4%**	**761**
Winter	3.1%	30
Spring	23.1%	224
Summer	22.6%	219
Fall	21.8%	212
answered question		**971**
skipped question		**277**

23. If you do not use the trail system all year, please indicate why. (check all that apply)

	Response Percent	Response Count
Temperature/weather	**100.0%**	**214**
Other (please specify)		46
answered question		**214**
skipped question		**1,034**

24. Traffic and Safety Concerns (Please check all that apply)

	Response Percent	Response Count
Too many cars on the streets	45.9%	429
Motorists drive too fast	53.5%	500
Motorists are not considerate of cyclists	**80.3%**	**751**
Traffic signals are not set for bicycles	31.3%	293
I don’t feel safe biking on roads (crime, personal safety)	36.6%	342
I don’t feel safe biking on paths (crime, personal safety)	8.3%	78
answered question		**935**
skipped question		**313**

25. Infrastructure (check all that apply)

	Response Percent	Response Count
Bike lanes are in poor condition or poorly maintained (broken glass, road debris, bad pavement)	51.3%	489
Multi-use trails are in poor condition or poorly maintained (broken glass, road debris, bad pavement)	25.6%	244
Not enough bike lanes/multi-use trails to my destinations	**66.5%**	**634**
No direct bike lanes/multi-use trails to my destinations	49.5%	472
No mountain bike trails	6.8%	65
Destinations are too far away	17.4%	166
Not enough lighting (on road or multi-use trail or lane)	19.1%	182
No bike parking	18.9%	180
No showers, lockers	19.6%	187
	answered question	**953**
	skipped question	**295**

26. Personal Concerns (check all that apply)

	Response Percent	Response Count
I am afraid of getting lost	1.8%	11
I travel with small children	18.2%	109
I have to carry things	**47.8%**	**286**
I don't have enough time	40.5%	242
I am not physically able to bike	2.0%	12
I don't own a bicycle	3.7%	22
Terrain / hills	8.5%	51
Bicycling gives me helmet hair	7.7%	46
I am concerned about riding in the rain	18.7%	112
I have to dress up for work	30.6%	183
Other (please specify)		116
answered question		**598**
skipped question		**650**

27. Are there any reasons that you don't use the trails more frequently? (check all that apply)

	Response Percent	Response Count
Trails are in poor condition	19.6%	121
There are no multi-use trails in areas where I want to go	**40.8%**	**252**
Destinations are too far away	21.0%	130
I am not physically able to walk, skate or ride	0.5%	3
Not enough lighting	15.4%	95
I don't have enough time	29.4%	182
Weather concerns	20.9%	129
I don't feel safe on the multi-use trails (crime/personal safety)	13.9%	86
Other (please specify)		150
answered question		**618**
skipped question		**630**

28. Would the following improvements influence you to bike and/or use the multi-use trail system more often? Please rate each improvement by likelihood of influencing you to bike and use the multi-use trail system more often.

	Very Likely	Likely	Somewhat Likely	Somewhat Unlikely	Unlikely	Very Unlikely	Not Sure	Respons Count
More Paved (off-street) Mulit-Use Trails	**65.0% (673)**	20.5% (212)	8.7% (90)	1.6% (17)	2.5% (26)	1.4% (15)	0.3% (3)	1,03
More Amenities Along Multi-Use Trails (e.g., mile markers, trash receptacles and lighting)	**27.6% (268)**	18.3% (178)	25.7% (250)	7.7% (75)	11.7% (114)	7.2% (70)	1.6% (16)	97
Create Mountain Bike Trails	**22.2% (210)**	14.4% (136)	20.9% (197)	10.6% (100)	14.2% (134)	12.1% (114)	5.6% (53)	94
Increased Maintenance (sweeping/repairs to bike lanes, routes, paths, and landscape trimming, etc.)	**42.0% (420)**	25.1% (251)	20.3% (203)	4.9% (49)	4.1% (41)	1.9% (19)	1.6% (16)	99
More Bike Lanes (Separate Lanes for bikes) on Major Streets	**58.7% (595)**	21.2% (215)	11.7% (119)	2.2% (22)	3.1% (31)	2.2% (22)	1.0% (10)	1,01
More Bike Routes	**55.7% (558)**	23.0% (230)	13.5% (135)	2.9% (29)	1.8% (18)	2.1% (21)	1.1% (11)	1,00
More Bike Boulevards (Bike Priority Streets) on Smaller Streets	**49.2% (486)**	19.5% (193)	18.2% (180)	5.7% (56)	3.1% (31)	2.5% (25)	1.7% (17)	98
Widen Outside/Curb Lanes on Major Streets (easier to share lanes with cars)	**42.7% (415)**	21.2% (206)	17.3% (168)	5.8% (56)	4.8% (47)	3.7% (36)	4.4% (43)	97
Narrow Outside/Curb Lanes on Major Streets (easier to control lane)	16.1% (142)	9.6% (85)	**18.7% (165)**	16.7% (148)	12.7% (112)	11.0% (97)	15.3% (135)	88
Implement Shared Use Lane Pavement Markings for Bicyclist Positioning in Traffic Lanes ("Sharrow")	**28.5% (272)**	20.0% (191)	23.2% (221)	9.4% (90)	6.5% (62)	5.3% (51)	7.0% (67)	95
More On-Road Bike Signage	**30.6% (294)**	20.7% (199)	22.8% (219)	10.8% (104)	6.6% (63)	3.7% (36)	4.8% (46)	96
Bicycle Signs Indicating Major Attractions	14.8% (132)	12.2% (109)	**19.1% (170)**	18.7% (166)	16.1% (143)	10.8% (96)	8.3% (74)	89
More Bicycle Parking	19.1% (175)	19.4% (178)	**30.7% (281)**	13.0% (119)	8.3% (76)	4.8% (44)	4.7% (43)	91

Education or Promotional Programs for **Drivers**	**41.8% (403)**	22.0% (212)	16.5% (159)	8.2% (79)	4.5% (43)	4.0% (39)	3.0% (29)	96
Education or Promotional Programs for **Cyclists**	**32.1% (302)**	22.7% (213)	19.5% (183)	11.8% (111)	5.9% (55)	5.0% (47)	3.1% (29)	94
Projects to Reduce Motor Vehicle Speed	**34.5% (328)**	22.4% (213)	18.6% (177)	10.5% (100)	5.7% (54)	5.0% (48)	3.3% (31)	95
More Recreational Programs/Events for Bicyclists	**24.5% (226)**	21.6% (199)	23.6% (217)	12.8% (118)	7.5% (69)	6.2% (57)	3.8% (35)	92
Increase Enforcement of Traffic Violations for **Motor Vehicles** (e.g. speeding, red light running, parking violations)	**48.0% (470)**	20.4% (200)	15.1% (148)	6.0% (59)	4.3% (42)	3.2% (31)	3.1% (30)	98
Increase Enforcement of Traffic Violations by **Bicyclists** (e.g. red light running, riding against traffic)	**30.4% (288)**	16.5% (156)	17.5% (166)	13.2% (125)	7.9% (75)	9.7% (92)	4.9% (46)	94
						Other (please specify)		11
						answered question		**1,06**
						skipped question		**18**

29. What is your age?

	Response Percent	Response Count
12 – 15	0.2%	2
16 – 18	0.1%	1
19 – 22	0.8%	9
23 – 30	10.9%	117
31 – 40	21.3%	228
41 – 50	**27.9%**	**298**
51 – 60	27.0%	289
61 and above	11.8%	126
answered question		**1,070**
skipped question		**178**

30. What is the highest level of education you completed?

	Response Percent	Response Count
Elementary School	0.1%	1
High School	2.6%	28
Some College	11.6%	124
College	42.1%	451
Post Graduate Degree	**43.6%**	**466**
answered question		**1,070**
skipped question		**178**

31. What is your profession?

	Response Percent	Response Count
Student (6-12)	0.3%	3
Student (College)	3.7%	38
Non-profit	2.3%	24
Government	16.1%	166
Private Business	16.3%	168
Professional	**44.8%**	**461**
Self–employed	7.1%	73
Not currently employed	1.7%	17
Retired	7.6%	78
Other (please specify)		62
answered question		**1,028**
skipped question		**220**

32. Are you?

	Response Percent	Response Count
Male	**63.7%**	**678**
Female	36.3%	387
answered question		**1,065**
skipped question		**183**

33. Do you belong to any bicycle clubs or bicycle advocacy groups in the region?

	Response Percent	Response Count
Yes	27.8%	295
No	**72.2%**	**766**
answered question		**1,061**
skipped question		**187**

34. Do you belong to any pedestrian or equestrian club or advocacy group in the area?

	Response Percent	Response Count
Yes	5.7%	59
No	**94.3%**	**985**
answered question		**1,044**
skipped question		**204**

35. Do you own car?

	Response Percent	Response Count
Yes	**96.1%**	**1,022**
No	3.9%	42
answered question		**1,064**
skipped question		**184**

36. What is your primary mode of transportation?

	Response Percent	Response Count
Drive Alone in a Car	**70.8%**	**728**
Carpool / Vanpool	5.0%	51
Take Public Transit	2.6%	27
Ride a Bicycle	20.5%	211
Walk	1.1%	11
Other (please specify)		80
answered question		**1,028**
skipped question		**220**

37. Would you like to receive information about future public meetings for the Bikeways and Trails Master Plan?

	Response Percent	Response Count
No thanks	47.3%	496
Yes	**52.7%**	**553**
answered question		**1,049**
skipped question		**199**

38. Would you like to receive information from the City of Albuquerque Bicycle Program?

	Response Percent	Response Count
No thanks	45.2%	475
Yes	**54.8%**	**577**
answered question		**1,052**
skipped question		**196**

39. If you checked yes to question 8 or 9, please provide the following information:

	Response Percent	Response Count
First Name	97.0%	585
Last Name	96.4%	581
Email	**99.5%**	**600**
answered question		**603**
skipped question		**645**

40. Do you have any ideas, comments or suggestions for the City of Albuquerque? (500 Characters Maximum)

	Response Count
	457
answered question	**457**
skipped question	**791**

Bikeway Quality Index

The goal of BQI analysis is to capture a snapshot of the current condition of biking infrastructure using both qualitative and quantitative measures. Studying well-performing bikeways and pinpointing deficient facilities will allow improvements to be carefully targeted to areas that need improvement or areas where minimal improvement will significantly improve the cycling experience.

Bikeway Segment Definition

Using existing GIS data, project staff surveyed existing bicycle facilities, including trails. The segments range in length from 250 feet to over 6,000 feet. The following graphic shows a typical division of segments.

Data Collection and Synthesis

The team collected data for all the existing trails within the City. Each route was followed on a bicycle and rated for a number of criteria including pavement quality and width. The data for street routes were taken primarily from the provided GIS data and most of the evaluation factors like speed, and pavement quality were estimated based on facility type.

Bikeway Quality Analysis

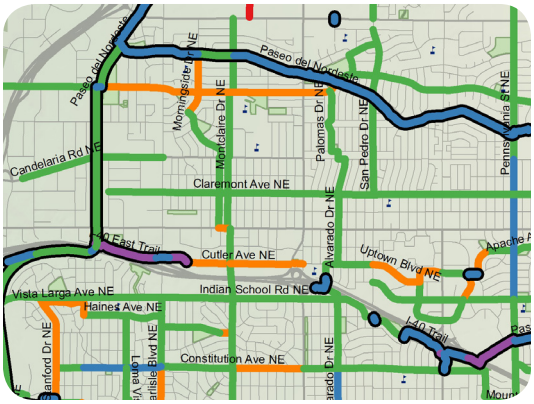
The BQI factors included are:

Auto Speed

Definition
The posted speed of the segment.

Reasoning
Auto travel speed plays a large part in how comfortable cyclists feel while traveling on the road. Generally, increasing auto speeds are associated with decreasing cyclist comfort and quality of the cycling experience.

Basic Methodology
Speed was combined with volume data to create a composite measurement. (See Speed and Volume Integration)



Color changes represent segment changes

Auto Volume

Definition
The average number of cars that pass along a street is called Average Daily Traffic (ADT). The City provided ADT data for most segments, and this number was used when available. When this information was not available or counts were taken before the year 2000, an estimated volume was assigned. This estimate was based on the street's functional classification (local highway, arterial, or local street), and number of auto lanes.

Reasoning
As a general rule, increasing auto volumes equate to decreasing cyclist comfort and ride quality.

Basic Methodology
See speed volume integration factor (below) for calculation detail

Speed and Volume Integration

Definition
The relationship between auto speed and volume plays a significant role in defining the feel of comfort on a road segment. Four extreme relationships are recognized: low speed-low volume, low speed-high volume, high speed-low volume, and high speed- high volume.

The relationship between these variables is not linear: for example, a high speed-low volume street may be worse than a low speed-high volume street. Most cyclists prefer more slow moving vehicles to few fast moving vehicles. By assigning categorical rankings of speed and volume, we can more closely define how cyclists respond to varying combinations of these factors.

Reasoning
Speed and volume each impact cyclist comfort and ride quality, and these factors interact in a non-linear manner. It is appropriate to create a composite measure that captures this interrelationship.

Basic Methodology
Each segment is assigned to a category based on the speed and volumes in Table 1 below. The color key (best – worst) results in a quantitative ranking of 1 (worst) – 5 (best).

Table 1. Speed and Volume Relationship Methodology

Motor Vehicle Daily Volume					
10,000+	2	2	2	1	1
8,000	2	2	2	1	1
6,000	3	3	3	2	1
4,000	4	3	3	2	1
2,000	8	4	3	3	2
1,000	5	8	4	3	2
500	5	5	4	3	2
Posted Speed (MPH)	18	25	30	35	40+

Facility Width

Definition
The width of the bike lane: This is measured from the center of the lane striping on each side. If the bike lane is against a curb, the width is measured from the center of the lane stripe to the edge of the curb. Bike lanes received 1 – 3 points based on the following criteria:

- 1 point if the facility was less than 5 feet wide
- 2 points if the facility was exactly 5 feet wide
- 3 points if the facility was more than 5 feet wide

The width of a trail/path: This is measured from the edge of pavement on one side to the edge of pavement on the other side. Multi-use trails received 1 – 3 points based on the following criteria:

- 1 point if the facility was less than 8 feet wide
- 2 points if the facility was exactly 8 feet wide
- 3 points if the facility was more than 8 feet wide

The width of Bike Boulevards/Shared roads: This is not measured, due to the nature of the facility it is assigned the highest width score.

Reasoning
Wider facilities are more comfortable than narrow facilities.

Basic Methodology
The data was added to the GIS from several sources including, field checks, and City GIS data. There were no calculations performed to get these numbers, they were simply added to the GIS data as width in feet per segment and scored in the overall segment analysis.

Pavement Quality

Definition

Pavement quality was assigned as an overall measure of quality throughout the entire segment. Facilities were assigned 1 – 5 points based on the basic pavement quality.

- 5- Only new or nearly new pavements are likely to be smooth enough and free of cracks and patches to qualify for this category.
- 4 - Pavement, although not as smooth as described above, provides a smooth ride while exhibiting some signs of surface deterioration.
- 3 - Riding qualities are noticeably inferior to those rated at a four or five. Defects may include rutting, cracking - longitudinal or transversemap cracking, raveling and extensive patching. 3 is the maximum rating for any pavement that has a ridge height greater than ¼" at gutter lip.
- 2- Flexible pavement having distress over 50 percent or more of the surface, washboard surface, potholes and pavement shoving. Rigid pavement distress includes joint spalling, patching, etc.. Bike lanes that have valve boxes or manholes that have not been adjusted to grade.
- 1 - Pavements that are in an extremely deteriorated condition. Distress occurs over 75 percent or more of the surface.

Good pavement quality

Reasoning

Cyclists are more affected by pavement quality than automobiles. Poor pavement quality can be distracting to a cyclist, potentially dangerous due to potholes and cracks and can decrease the quality of the ride experience.

Basic Methodology

These were qualitative measures gathered in the field or assumed based on facility type. There were no calculations performed to get these numbers, they were simply added to the GIS data as value per segment and scored in the overall segment analysis.

Poor pavement quality

Signing and Marking

Definition

The segment is assigned a score of 1 if it is signed and marked as a trail or bike route.

Reasoning

Signed and marked bikeways improve wayfinding and can increase use.

Basic Methodology

These were qualitative measures gathered in the field or assumed based on facility type. There were no calculations performed to get these numbers, they were simply added to the GIS data as value per segment and scored in the overall segment analysis.

Poor pavement quality

Facility Evaluation and Model Outcomes

The data gathered for each bikeway segment is then used to score each segment using a 0-20 scale, shown in Table 2.

Table 2. Bicycle Quality Index Factor Weights

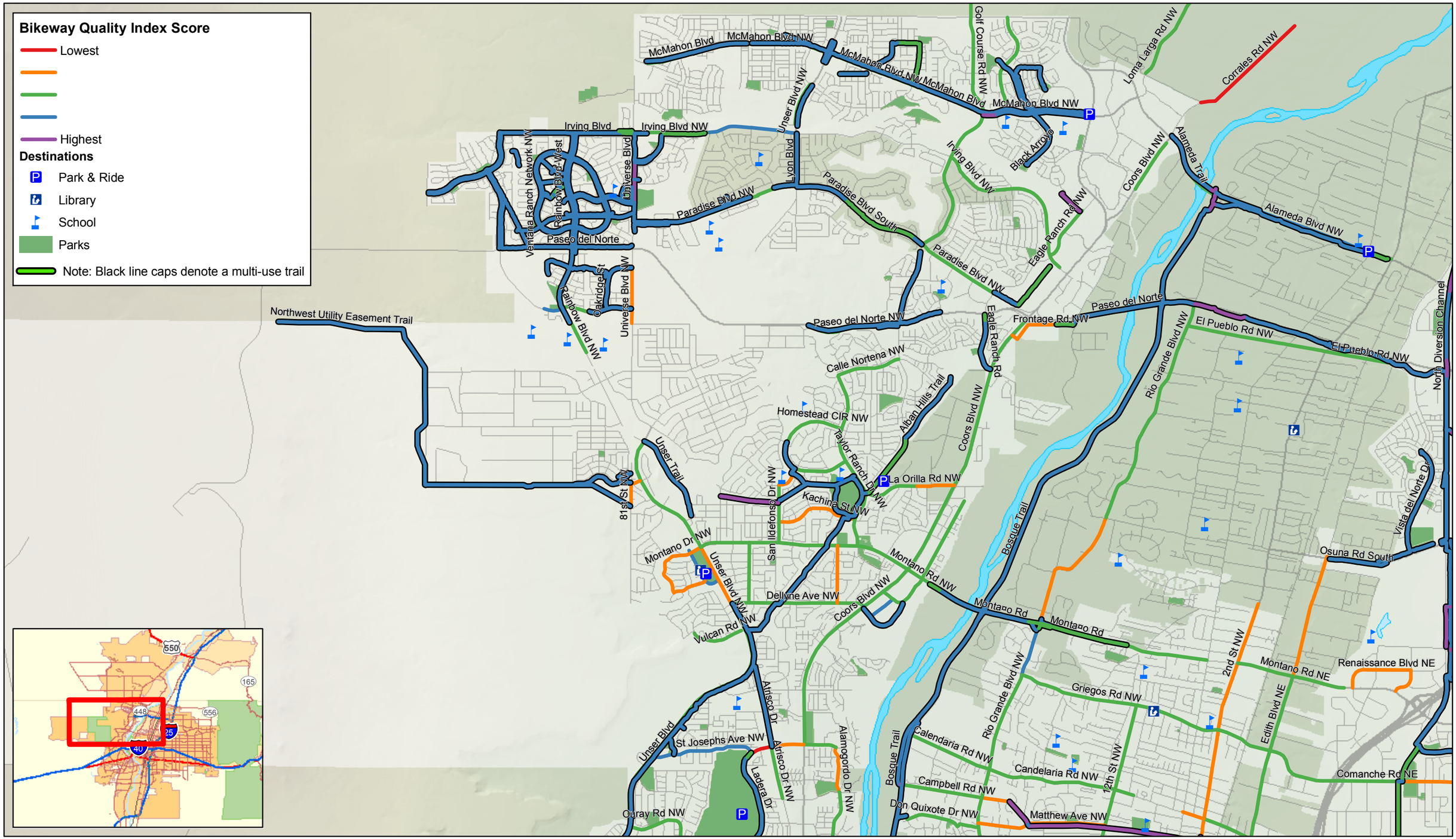
Facilities scored a potential of 20 points, with score ranging from 6 – 19. No facility scored a perfect 20 points. Both multi-use trails and on-street facilities were scored on the same scale to facilitate comparison of the cycling experience, though in some cases different criteria were used. Multi-use trails generally scored higher than on-street facilities; while the lowest trail segment scored a 13, the lowest scoring on-street facility scored a 6. The average score for multi-use trail segments was a 16.1 while the average score for an on-street facility was 12.4 this is consistent with the most people's perception of relative level of comfort in on-street vs. off-street facilities. Within the on-street facilities, it is useful to sample the variation in average facility quality. Table XX shows the on-street facility types and associated average segment scores:

Figure XX. Average Scores for On-street Bikeways by Type

These average scores are consistent with the expected variation in the level of quality and comfort most cyclists experience with riding on these types of facility. Of course, there are some cyclists that prefer on-street riding to cycling on multi-use trails and experience the same quality of ride on all facility types.

This tool has many potential uses beyond the development of project recommendations, one of which is to highlight high performing facilities and quantify the reasons for excellent performance. Once measured, this information can be extracted and applied to other facilities throughout the city. For example, the quality of cycling facilities in the NW quadrant of the city is high based on the presence of many multi-use trails that provide many opportunities to bicycle on a network of trails that are separated from motor vehicles. However, looking at the cycle zone factors for land use indicates that many people may not bicycle in this area due to a relatively low population and employment density, and a relatively low quality of roadway connections, which decreases the opportunity for cyclists to choose their route. However, the NW quadrant performs well in terms of exiting bikeway density and connectivity, indicating that cyclists may find it easier to traverse this part of the city on designated bikeway facilities than the SW quadrant or portions of the SE quadrant. Examination of the BQI map indicates that the NW quadrant can be significantly improved through increased connection of bikeways and roadways.

Another use of the BQI tool is the examination of conditions within the facility types to identify priorities for spot improvements. For example, an analysis of surface quality conditions on the multi-use trail system can be used to generate a list of repaving priorities. For example, existing multi-use trail facilities that scored a one or two for surface quality should be considered priorities for repaving projects. Similarly bicycle lanes that scored a one for facility width should be widened to five-feet, especially along bicycle lanes with high roadway speeds and volumes.



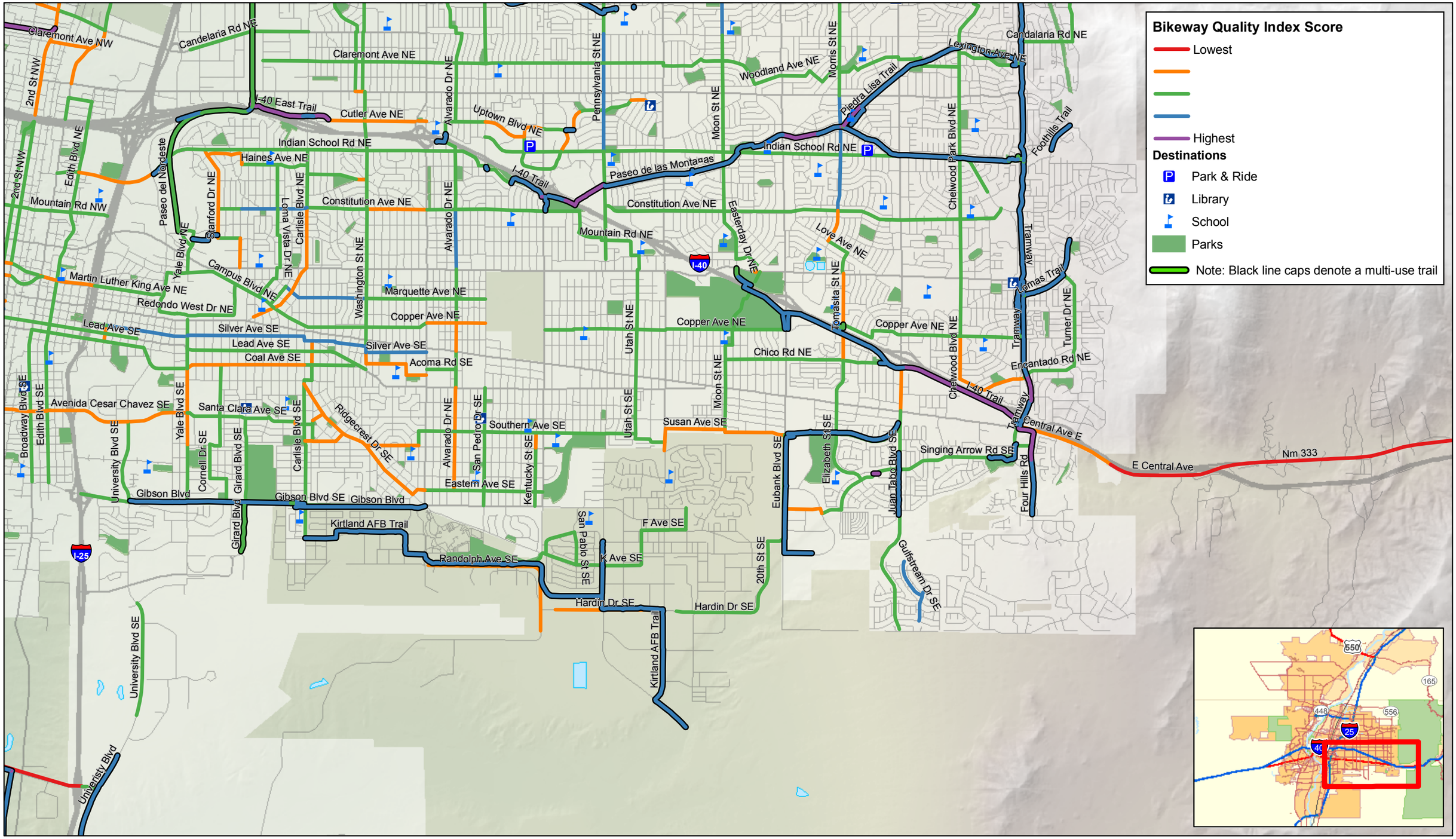
Appendix A - Map 1. Bicycle Quality Index - Southwest Quadrant

Albuquerque Bikeways and Trails Master Plan Update

Source: City of Albuquerque, MRCOG, Gannett Fleming

Author:

Date: January 2011

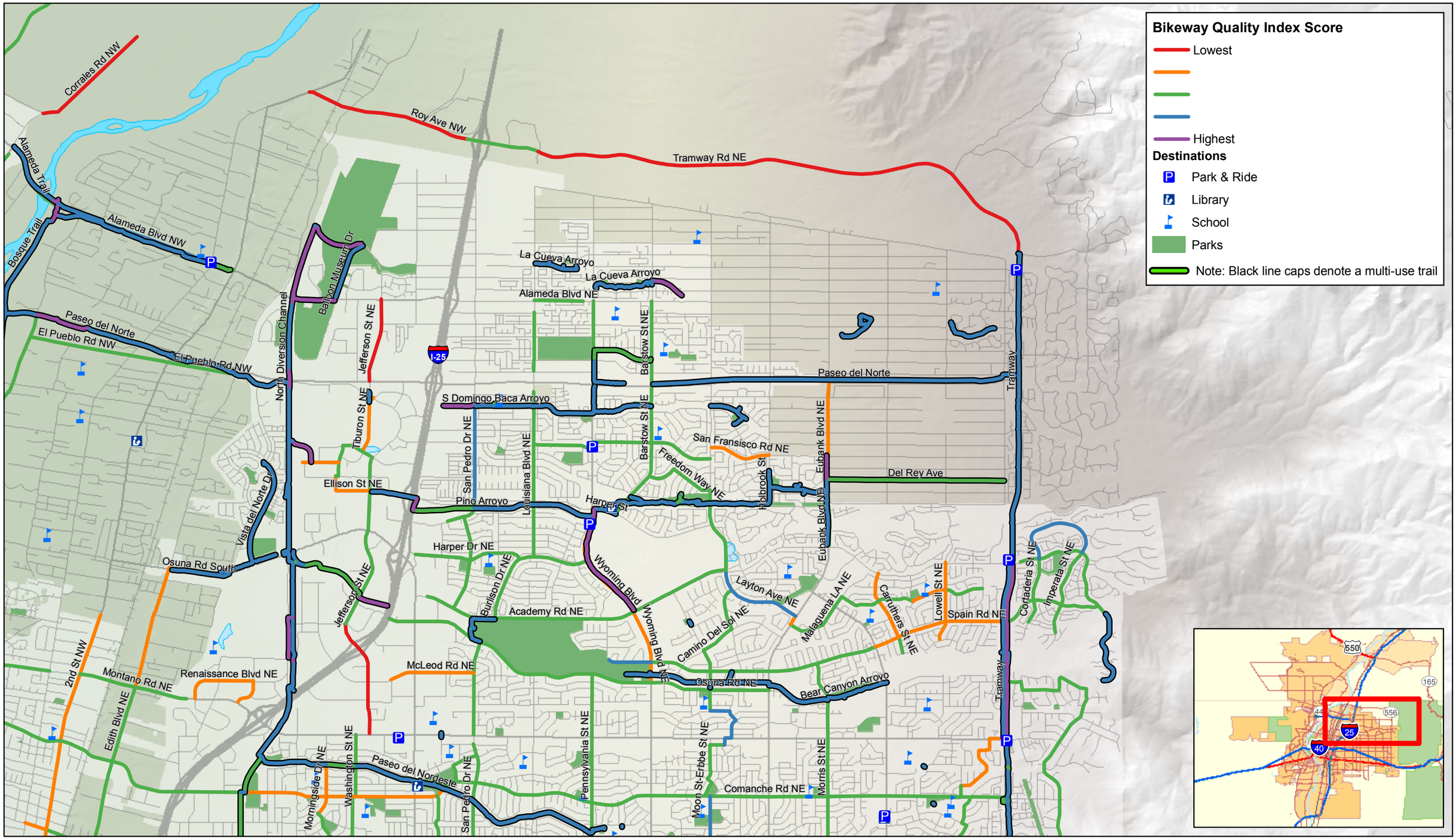


Appendix A - Map 2. Bicycle Quality Index - Southeast Quadrant

Albuquerque Bikeways and Trails Master Plan Update

Source: City of Albuquerque, MRCOG, Gannett Fleming
Author:
Date: January 2011

0 0.5 1 Miles

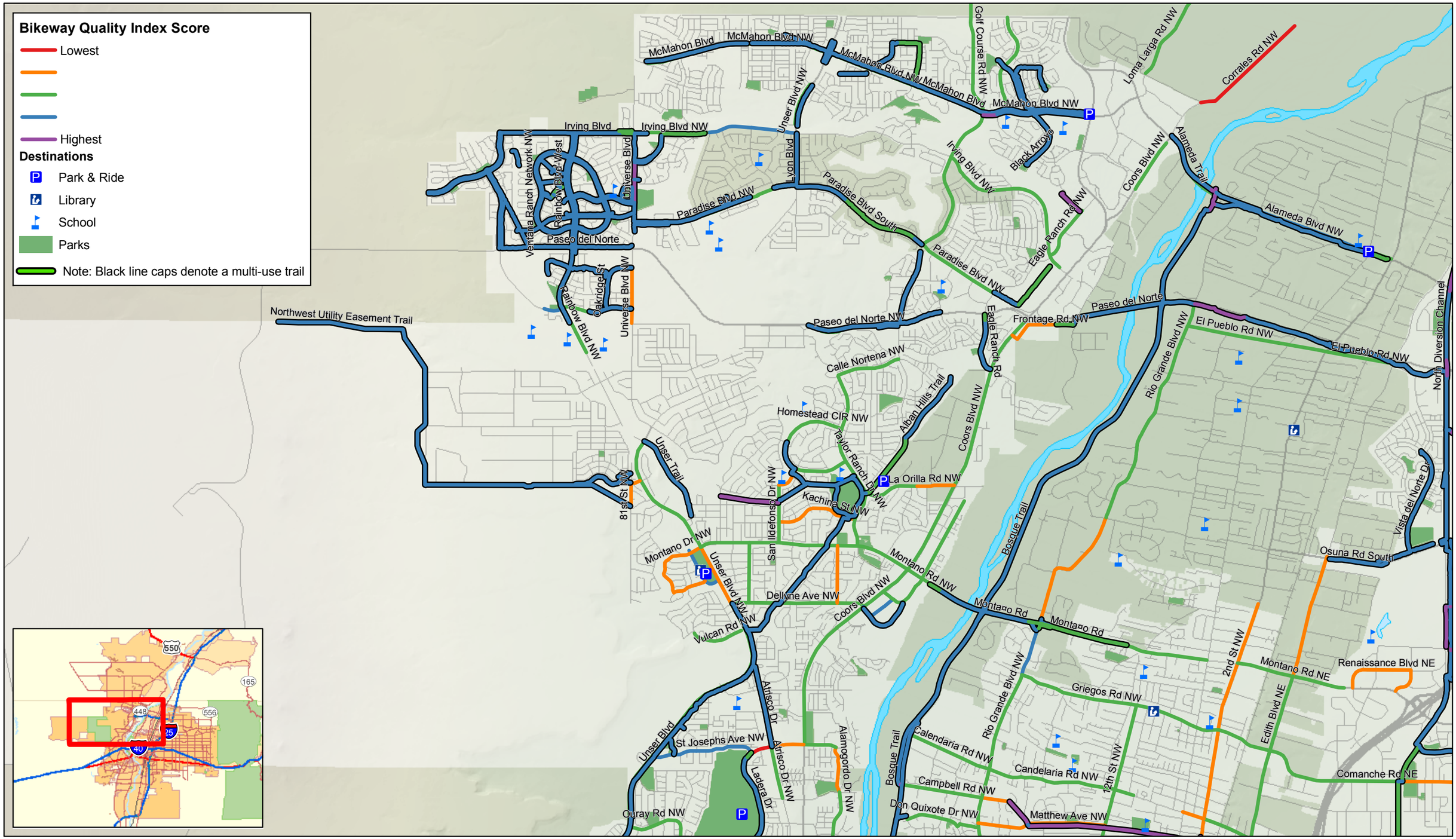


Appendix A - Map 3. Bicycle Quality Index - Northeast Quadrant

Albuquerque Bikeways and Trails Master Plan Update

Source: City of Albuquerque, MRCOG, Gannett Fleming
Author:
Date: January 2011

0 0.5 1 Miles



Appendix A - Map 4. Bicycle Quality Index - Northwest Quadrant

Albuquerque Bikeways and Trails Master Plan Update

Source: City of Albuquerque, MRCOG, Gannett Fleming
Author:
Date: January 2011

Albuquerque Cycle Zones

The Cycle Zone Analysis (CZA) tool allows the City to better understand which parts of the City are best suited for capturing large numbers of cycling trips, which have greater potential to do so than they are currently, which areas are best suited for strategic investments, and which areas may need innovative bikeway treatments to maximize cycling potential. Breaking the City into zones which share similar characteristics, allows a comparison and analysis that provides information that can be used to guide future facility investments.

Cycle Zone Definition

A cycle zone is defined as an area of the City that possesses similar characteristics for cycling. Cycle Zones are not Transportation Analysis Zones (TAZ) and TAZs cannot be used for cyclezone analysis. Generally, a cycle zone is defined by features that represent significant barriers or crossing difficulties, like I-25, I-40 and the Rio Grande River. They are also defined by neighborhoods and areas that contain places that are desirable destinations for cyclists like parks or neighborhood centers. In addition, cycle zone boundaries reflect a change in the character of a neighborhood (e.g. block size or street connectivity).

The cycle zones and their boundaries were delineated by City and consultant staff familiar with cycling conditions, neighborhoods, and features that represent crossing difficulties for cyclists. The City's political limits also served as a boundary for this analysis.

Data Gathering and Synthesis

The analysis was based on existing data from the City of Albuquerque and Bernalillo County.

The measures that were chosen and the reasoning for their inclusion in the cycle zone analysis equation are discussed in more detail below. In many cases, the selected measures were translated into density units – square acre or linear feet - to account for size variations between zones. The following measures were used for cycle zone analysis:

Road Network Density: (ft/square acre)

Definition

The density in linear feet per square acre of all roads in the cycling zone. This includes roads of all types, including local streets, arterials, highways and freeways.

Example

Reasoning

A zone with a greater density of roads will facilitate a better cycling experience. Riders will be able to go more places and have greater route choice.

Basic Methodology
GIS tools were used to determine the overall length of roads falling within each cycle zone. This was divided by the zone's acreage to obtain an average road network density.

Bike Network Density: (ft/square acre)

Definition
The density in linear feet per square acre of all the City of Albuquerque's bicycle facilities within a specific cycling zone. The facilities used for this analysis include only existing facilities.

Example

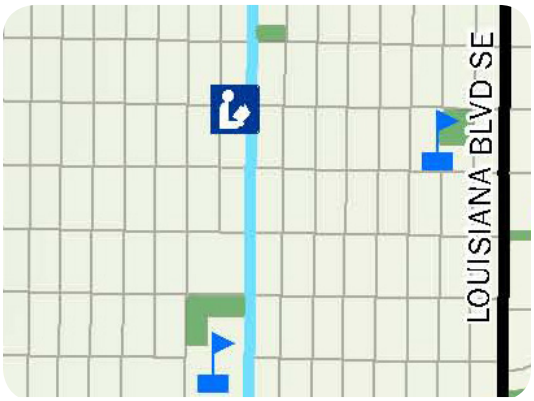
Reasoning
The presence of facilities designed for cyclists increases their comfort and safety. A greater presence of cycle facilities will improve the cycling experience.

Basic Methodology
The bicycle network layer was intersected with the cycle zone boundary, and then the lengths of each segment or partial segment that fell within a specific zone were summed. The resulting number was divided by acreage to obtain the average density

Road Network Connectivity

Definition
A measure of road network connectivity, this number ranging from 0 – 1 represents the ratio of cul-de-sacs and three-way intersections to four- or more way intersections. The closer to one, the more grid-like the street pattern. An overall average score was calculated for each zone.

Example



Reasoning
A zone with greater roadway connectivity will facilitate a better cycling experience. Riders will be able to easily go more places and have greater route choice.

General Methodology
GIS was used to determine all points in the City where one road was intersected by at least one other road. The location and number of roads at each intersection point were recorded. For each cycle zone, the overall number of intersections was summed up as well as the number of intersections that were at least four ways. These numbers were used to determine the percentage of intersections that were four-ways or more.

Bike Network Connectivity

Same measure and use as road network connectivity, but applied specifically to the existing on-street bicycle and trail network

Slope: (% greater than 5%)

Definition
The percentage of roads and bikeways with slope greater than 5% for each cyclezone.

Reasoning
Topography can decrease the ease of cycling. A great cycle zone will be relatively flat. Topography is an issue that is difficult or impossible to change and is very important to consider when evaluating the bikability of a zone.

General Methodology
Elevation data from the United States Geologic Service was used to determine the elevation at all starting and ending points of the road segments in the City. The elevations were used to calculate the overall slope for each road segment.

Land Use Mix

Definition
This factor combines the degree of concentration of cycling generating land uses in a Cycle Zone with the residential and employment density in a Cycle Zone.

Reasoning
Areas with a high population and employment density as well as a good use of bicycle trip generating land uses create a significant number of potential cycling trips.

Calculation

The methodology involves calculating both the overall level of land use mix and combined residential and employment density in each Cycle Zone. The scores from the land use mix and residential and employment datasets were then integrated as shown in Table 1.

Table 1. Employment Density and Land Use Integration

Residential & Employment Density *(residents and employees per acre)*							
18.1 - 20.9	1G	2G	3G	4G	5G	6G	7G
15.3 - 18.1	1F	2F	3F	4F	5F	6F	7F
12.5 - 15.3	1E	2E	3E	4E	5E	6E	7E
9.7 - 12.5	1D	2D	3D	4D	5D	6D	7D
7.0 - 9.7	1C	2C	3C	4C	5C	6C	7C
4.2 - 7.0	1B	2B	3B	4B	5B	6B	7B
1.3 - 4.2	1A	2A	3A	4A	5A	6A	7A
Land Use Mix *(% Commercial, Institutional, or Mixed Commercial-Residential)*	19 - 25	28 - 31	31 - 36	36 - 42	42 - 47	47 - 51	51 - 56

Ratings Scale	
Violet	Highest (8)
Indigo	(7)
Dark Blue	(6)
Light Blue	(5)
Green	(4)
Yellow	(3)
Orange	(2)
Red	Lowest (1)

Model and Zone Scores

Once the cycle zone analysis is complete, the scoring, normalization and weighting of the data occurs. Positive Z-Scores are calculated for each major metric of the Cycle Zone Analysis and then weighting is applied. Score weighing is shown in Table 2.

Table 2. Composite CZA Factor Weights

Factor	Weight (Percent)
Road Network Connectivity	10
Road Network Density	10
Topography	10
Land Use	20
Existing Bikeway Connectivity	25
Existing Bikeway Density	25

Composite scores showing the relative quality of the cycling experience in each zone are displayed on Map B-1. Higher scores represent areas that have the best existing cycling conditions, these are zones 19, 20, 23 and 24. Zone 4 is the highest scoring Zone on the west side of the river due to a dense and well-connected network of bicycle facilities. Zones 8 and 25 generally scored the lowest for most factors including land use, existing roadway network density and connectivity, and existing bikeway network connectivity.

Table 3 shows the scores for each zone by from low to high. This table can be used to understand the existing conditions in each zone, understand the factors that can be changed, and develop a strategy to develop each zone to it's maximum cycling potential. For example, zone 4 scores poorly for roadway density but well for connectivity. The factors that contribute the highest percentage of the overall score for bikeway density and bikeway connectivity are some of the high-

est in the city. This contributes to a high overall score, but cyclists still may face challenges traversing this zone on roadways that are not part of the designated bikeway network due to lower roadway density and connectivity. These findings indicate that as the roadway network in this zone increases, the relative quality of the cycling network will increase. Any new construction in this zone should include accessways to facilitate bicycle and pedestrian connectivity. These accessways should be signed to increase user's awareness of these facilities. A summary of existing conditions along with suggested strategies to improve the relative Cycle Zone Analysis Scores is included in Appendix A. Maps showing the relative score for each factor are included in Appendix B.

Table 3. Summary of CZA Factor Scores

Zone Number	Bikeway Connectivity	Roadway Connectivity	Bikeway Density	Roadway Density	Topography	Land Use	Composite CZA
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
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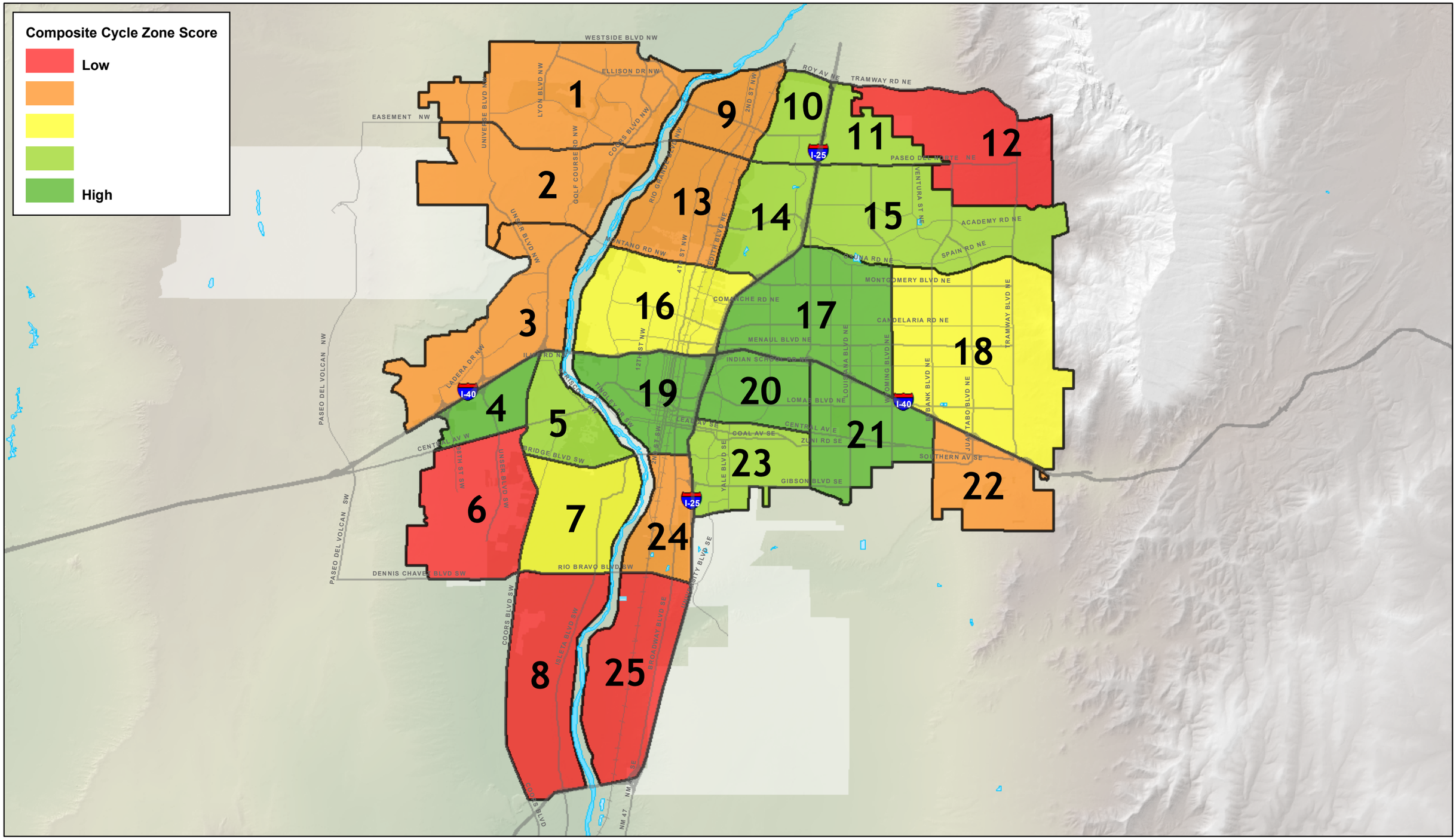
21							
22							
23							
24							
25							

Value Key	
Low	
High	



Appendix B - Map 1. Cycle Zone Analysis Composite Existing Conditions

Albuquerque Bikeways and Trails Master Plan Update

Source: City of Albuquerque, MRCOG, Gannett Fleming
Author:
Date: January 2011

0 1.5 3 Miles

Streetplan Analysis

A critical component of the bike lane analysis was the use of Alta Planning + Design's 'StreetPlan' model. StreetPlan is an analysis tool that excels at quickly identifying corridors with the greatest potential for striping bike lanes. It does not make recommendations for other commonly utilized bikeway treatments such as shared lane markings, bicycle boulevards, or signed bike routes. Assuming acceptable minimum widths for each roadway element, the model analyzes a number of roadway characteristics to retrofit bike lanes on each surveyed roadway segment. Factors used in this analysis include:

- Current roadway width
- Raised or painted median
- Number and width of travel lanes
- Presence and number of turn lanes and medians
- Location and utilization of on-street parking
- Presence of roadway shoulder

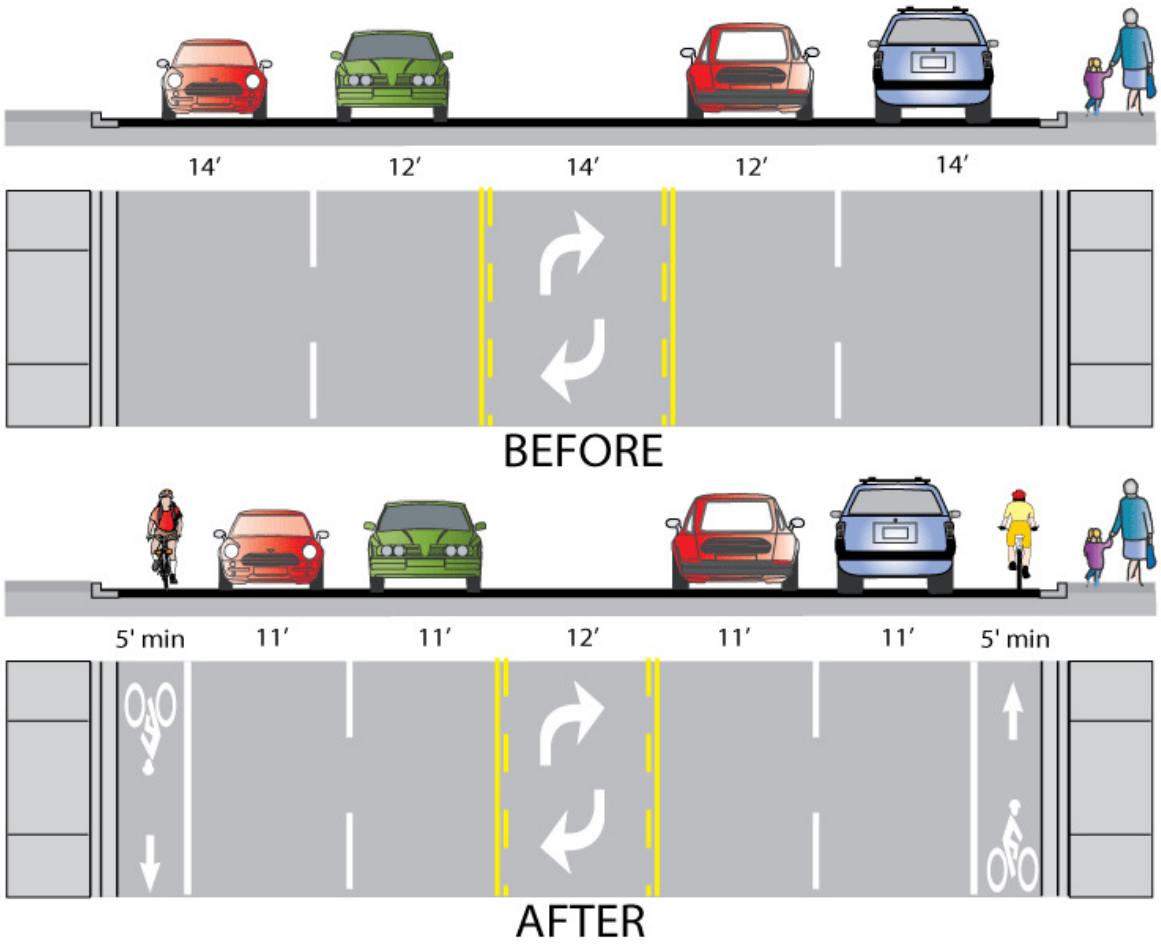
In some cases, the retrofit is simple and only requires the addition of a bike lane in readily available roadway space. Other corridors may be more challenging and require a tradeoff to stripe bike lanes. Though the model makes recommendations for bike lanes, its outcomes should not be considered a replacement for a striping plan. The model is useful in its ability to clearly illustrate locations where projects can be completed easily and locations where adding bike lanes may be more difficult. The decision to narrow or eliminate a travel lane, or remove on-street parking should be considered in conjunction with engineering judgment and traffic impact studies. However, if there is a need for bicycle lanes on a corridor, the difficulty of implementation should not preclude development. It may simply indicate the need to explore alternative options, such as a parallel bicycle boulevard, or the need to prioritize bicycle and pedestrian travel in a corridor and consider alteration of existing motor vehicle prioritization. The City of Albuquerque will need identify the impacts of altering the roadway's existing condition and, as with any roadway retrofit, conduct careful field analyses and detailed engineering studies prior to striping bike lanes.
Retaining a uniform roadway configuration throughout a corridor can simplify travel for motorists and cyclists alike, creating a safer and more comfortable experience for all users. It is recognized that acceptable lane widths vary by functional classification, for example 10 foot travel lanes may be acceptable for a local street, but higher speed arterials may require 11 feet as the minimum lane width. For the purposes of the model, acceptable minimum roadway dimensions were set at the following:

- Travel lane width: 11 feet
- Right turn lane width: 10 feet
- Left or Center Turn Lane width: 10 feet
- Parking lane width: 7.5 feet

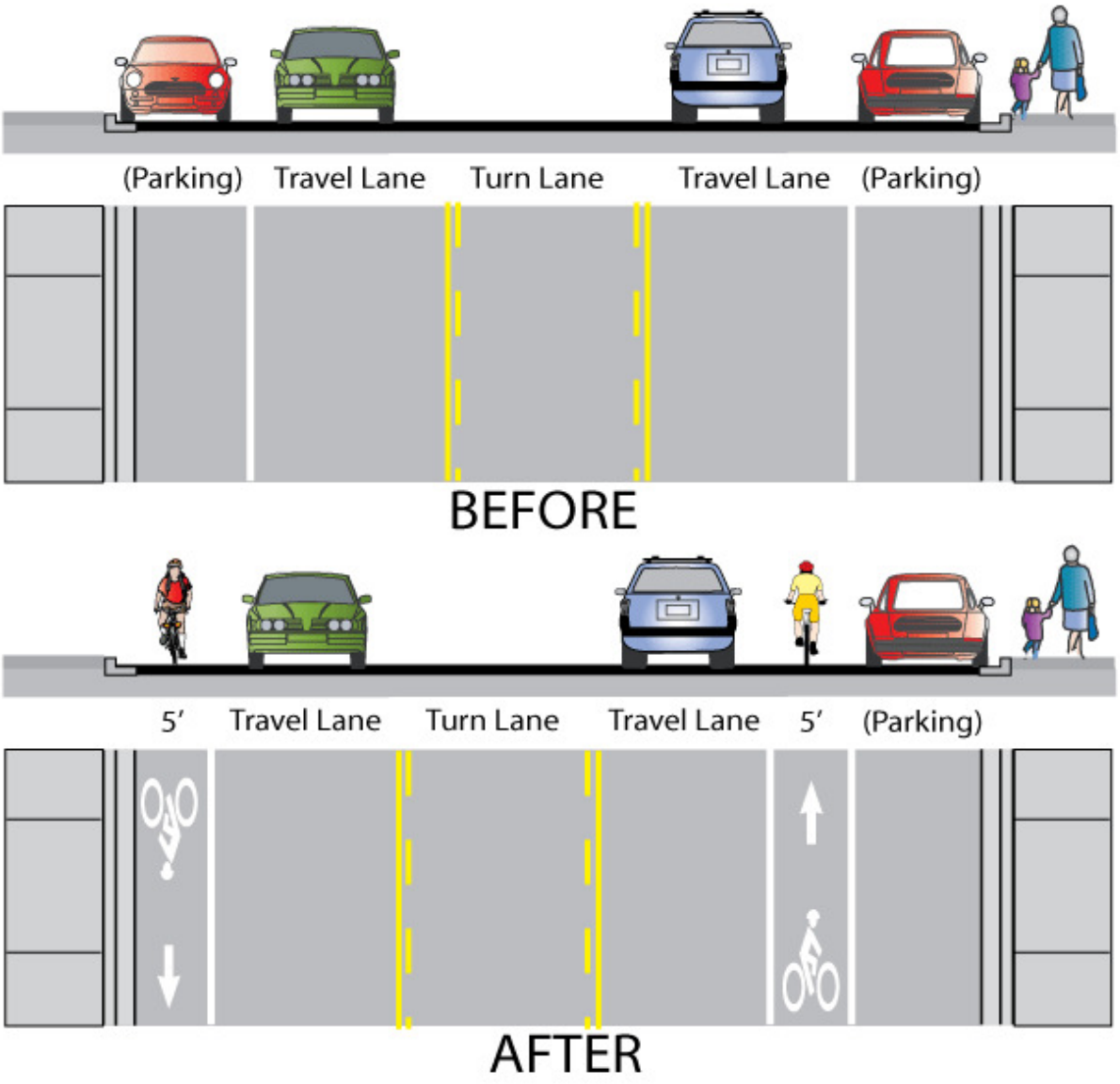
StreetPlan Outcomes

Analysis corridors were developed based on previously proposed facilities, a review of existing conditions, field work and discussions with city staff. Street plan results were used in combination with existing conditions analysis, speed and volume information, public feedback, stakeholder interviews, and conversations with city staff to develop the proposed citywide bikeway network. In many instances the StreetPlan model recommends multiple treatments for a given roadway segment. To determine the appropriate treatment, the model organizes its recommendations in order of the *most preferred* facility type. The order uses the first strategy (below) for a given segment of roadway and is given priority over succeeding strategies. Not all of the below options were possible strategies for all segments, but on many segments multiple strategies could be used to implement bike lanes. Each of the specific treatment recommendations is defined in detail below.

Bike Lanes Fit With Existing Roadway Configuration – In this option, enough surplus road space exists to simply add the bike lane stripes and stencils without impacting the number of lanes or configuration of the roadway. This is by far the most desirable and easily implemented option available.



Reconfigure Travel Lanes and/or Parking Lanes – In this option, bike lanes can be added by simply adjusting wide travel lanes or parking lanes within the established minimums presented above. No reduction to the number of travel lanes is needed.
Remove Underused Parking – In this option, underused on-street parking on one side of the street is removed to create space for bike lanes. Acceptable situations for this scenario include collector or arterial roadways that pass by back fences of homes rather than the front sides, or areas that have large surface parking lots adjacent to existing on-street parking. A parking utilization study



should be conducted prior to removal of on-street parking.

Consider '4 to 3' Road Diet – In this option, a reconfiguration of the existing travel lanes may be necessary. In areas with two travel lanes in either direction, it may make sense to remove two travel lanes and use the spare roadway width to stripe a center turn lane and two 5' bike lanes. This treatment may not be appropriate on roads with high ADT.

Add Additional Pavement Width and Stripe Bike Lanes – In this option, it was determined that additional right-of-way was available along the corridor. Where no curbs exist along the segment it may be possible to pave a new roadway shoulder and stripe bike lanes
Remove On-Street Parking – In this option, on-street parking may be removed on one side of the road. However this on-street parking configuration may currently be utilized in residential or commercial areas. This option is seen as a less desirable option and may only be considered as a last resort in short sections to maintain bike lane continuity. A full parking study should be conducted to determine if excess parking capacity exists before making changes to the roadway configuration.
Bike Lanes Will Not Fit – In this last case, the existing roadway geometry will not allow for the addition of bike lanes. Either a bike route or major reconstruction of the roadway may be necessary for bikeway continuity.

General Outcomes

Northwest

The NW quadrant of Albuquerque shows a fairly extensive network of existing bike lanes. Bike lane facilities exist on many of the collector and arterial roadways. Some significant do gaps exist however. For bicyclists traveling east to west, Paseo Del Norte presents a challenge, as does Coors Blvd and Golf Course Rd for northbound and southbound bicyclists. StreetPlan indicates that there is existing roadway width for striping bike lanes, but that some reorganization of travel and parking lanes may be necessary.

Southwest

In the SW quadrant there are similar existing conditions to that of the NW quadrant. A network of bike lanes provides access to many local parks and schools, with few major gaps in the network. Of those portions requiring closer examination, Bridge Blvd west of Coors Blvd is the most obvious. r.

Southeast

The SE quadrant poses some more serious constraints for the development of bike lanes. Existing conditions along Zuni Rd, a principal east/west arterial, are a challenge for implementing bike lanes. Recommendations for this segment includes a 4 to 3 road diet with a more complicated engineering solution needed in some areas. Roadways that can more easily accommodate bike lane facilities include some portions of 5th St and 6th St, and the entirety of Lomas Blvd west of 6th St.

Northeast

The more grid-oriented urban form in much of the NE quadrant, combined with the existing bike lane network, makes this area quite bike accessible. The few treatment recommendations are primarily located west of I-25 and east of the Rio Grande River Osuna Rd/NW 2nd St should both be analyzed to determine if a reconfiguration of travel and parking lanes can be accomplished to stripe bike lanes. Doing so would help to connect communities west and east of I-25.

8.2 Evaluation of Gap Closure and Intersection Improvements

A review of the City's current bikeways and trail network revealed several locations with poor connectivity, or a gap between existing facilities. Closure of the gaps is beyond standard practice and requires that engineering analysis be incorporated. As a result twenty-six locations received further engineering evaluation and recommendations. One location of concern is the East Central Avenue area which has been studied by the City and recommendations from the "East Gateway Sector Development Plan" helped form the recommendations. Identified as a challenging area that lacks bicycle facilities is the Paseo del Norte/I-25 interchange area that is currently under study by the NMDOT and includes accommodations for bicycle facilities in its alternatives. A "Prototypical Multi-lane Arterial Intersection Improvements" recommendation was developed that incorporates traffic signal bicycle detection and a color enriched bike lane in motor vehicle/bicycle conflict areas.

As part of the review of the City's existing bikeways and multi-use trials and the identification of projects that will expand, close gaps, and make improvements to deficient intersections, a review of the existing conditions indicated that a detailed engineering approach was needed. As a result twenty-six locations received further engineering evaluation and recommendations.

8.2.1 East Central Avenue

The *East Gateway Sector Development Plan* recommends public improvements throughout the East Gateway area, but emphasizes policies, regulations and projects to improve area function and appearance along Central Avenue and Wyoming, Eubank, and Juan Tabo Boulevards. Plan area boundaries include Interstate Highway 40 on the north, properties abutting the west side of Wyoming Boulevard on the west and municipal boundaries on the east and south.

The *East Gateway Sector Development Plan* recommends the creation of safe pedestrian crossings at all signalized street intersections and bicycle street crossings of Central Avenue. No other bicycle related improvements to Central Avenue are recommended.

8.2.1.1 Long-term Recommendations for Central Avenue

Long-range redesign and phased redevelopment of Central Avenue could provide space for on-street bicycle lanes, an improved walking environment and more efficient vehicle movement at major street intersections. It could establish the framework for private reinvestment in a more vibrant setting. Reducing the number of lanes on Central Avenue would be needed to accomplish the improvements presented for consideration.

8.2.1.2 Central Avenue Street Cross Section

Central's conversion from six-lanes to four-lanes would include a median, left turning lanes at major street intersections, bicycle lanes, improved street crossing design for pedestrians, and flat sidewalks set back from the curb all within existing public rights-of-way. On-street parking could also be introduced between Tramway and Western Skies to serve businesses in the proposed Community Activity Center if desired.

Central Avenue is the focus of the City of Albuquerque's proposed Bus Rapid Transit (BRT) plan. The plan calls for a BRT line in the median of Central Avenue. Therefore, any cross section improvements to Central will have to take this into account. Close coordination with the City Transit Department will be necessary when planning and designing bicycle improvements.

8.2.2 Paseo del Norte, North Diversion Channel to I-25.

I-25/Paseo del Norte Interchange Study has been recently conducted by the NMDOT. Two alternatives include recommendations for bicycle facilities in this corridor.

A goal of regional bicycle system planning is to improve the east-west connectivity with a bicycle crossing of I-25 in the vicinity of Paseo del Norte. The MRCOG Long Range Bikeway System Map proposes an

east-west bike/pedestrian connection across I-25 in the vicinity of Paseo del Norte and the South Domingo Baca Arroyo. This would allow a continuation of the existing trail along Paseo del Norte west of the North Diversion Channel to the existing trail along the Domingo Baca Arroyo at San Pedro Drive. It would also link to the existing trail along the North Diversion Channel. Bike lanes are proposed on Jefferson Street north of Paseo del Norte and Jefferson is designated as a Bikeway Corridor from Masthead to El Pueblo.

The long-range bikeway system plans are accommodated in each of the proposed build alternatives. The following describes how each of the alternatives provides for improved east-west bicycle and pedestrian connectivity through the study area.

8.2.2.1 Alternative 7

As part of the multimodal element of Alternative 7, a comprehensive system of bicycle and pedestrian facilities would be implemented. The bicycle and pedestrian facilities included with this alternative would facilitate north-south travel within the employment district west of I-25 and would provide safe east-west access across I-25. The principal bicycle and pedestrian elements included in Alternative 7 are:

- A grade-separated bridge across I-25 along the south side of Paseo del Norte. This facility would connect to the South Domingo Baca Arroyo Trail east of I-25. On the west side of I-25, this trail would connect to a new trail parallel to the Domingo Baca Arterial and to an on-street bicycle route and sidewalks along Headline Boulevard south of Paseo del Norte.
- A bicycle trail parallel to Domingo Baca Arterial from I-25 west to Channel Road. This trail would follow Channel Road south to connect with El Pueblo Road.
- On-street bicycle lanes and sidewalks would be constructed on the Domingo Baca Arterial, Jefferson Street (from El Pueblo Road to the Domingo Baca Arterial), and El Pueblo Road.

8.2.2.2 Alternative 16

With the exception of the crossing over I-25, the bicycle and pedestrian facilities proposed with Alternative 16 are the same as described for Alternative 7. With Alternative 16, the grade-separated structure over I-25 would be located north of the I-25/Paseo del Norte interchange. This structure would connect the existing trail along the South Domingo Baca Arroyo with new facilities west of I-25. South of Paseo del Norte, an extension to the west would be constructed to provide a direct connection to Headline Boulevard.

Additional Opportunities for Bicycle and Pedestrian Facilities

Additional opportunities are provided in Alternatives 7 and 16 along the Domingo Baca Arroyo arterial. Approximately 170 feet of right-of-way exists in the Domingo Baca Arroyo corridor which provides sufficient width for the roadway requirements along with pedestrian and bicycle facilities.

8.2.3 Bridge Blvd. (Coors to Broadway)

1. Widen Bridge Blvd. Coors Rd to Tower Rd. adding bike lanes.
2. Align bike to left side of westbound right turn lanes at Old Coors
3. Bike Box at Old Coors eastbound, Goff Blvd., Atrisco Dr., Sunset Rd., Isleta Blvd. and La Vega Dr.

8.2.4 Paseo del Norte/Paradise Boulevard (Gap closure - new route)

1. Construct grade separated crossing of Coors Blvd. at the Canal Frontage Rd./Coors Blvd. intersection.
2. Add multi-use trail from Coors Blvd./ Canal Frontage Rd. intersection on west side of Coors Rd.. The multi-use trail will parallel Coors Blvd. towards the Paseo del Norte interchange staying south of the Paseo del Norte/Coors southbound ramp. Continue the multi-use trail along the south side of Paseo del Norte up to the Paseo del Norte /Golf Course Rd. intersection.
3. Pave multi-use trail along AMAFCA between Canal Frontage Rd. and the proposed Coors Trail.
4. Designate the proposed Coors Trail as a bike route between Canal Frontage Rd. and Coors Blvd.
5. Add bike lanes to Eagle Ranch Rd. from Coors Blvd. to Paseo del Norte.

8.2.5 Candelaria Rd. (12th St to University)

1. Add share the road signs between 12th St. and 4th St.
2. Add bike lanes between 4th St. and 2nd St.
3. Revise the crossection of Candelaria Rd. between Edith Blvd. and Pan American Frontage Rd. from 3 driving lanes in each direction to 2 driving lanes and a bike lane in each direction. The bike lanes can be striped 8-feet wide with a 4-feet wide buffer between the driving lane and bike lane.
4. At the Pan American Frontage Rd. South intersection add guide signs directing cyclist to use the sidewalk on the north side of Candelaria Rd. between Pan American Frontage Rd. So. and University Blvd. Add similar guide signs at Pan American Frontage Rd. North directing cyclist to use the sidewalk on the north side of Candelaria Rd.
5. Improve the pedestrian crossings at Candelaria Rd. and University Blvd.

8.2.6 Wyoming Boulevard/Utah Street area (Gap closure - new connections)

1. Convert the bike route connecting Paseo del Montanos trail to the Utah St./Southern Ave. intersection to a Bicycle Boulevard.

- Constitution Ave: Louisiana Blvd. to San Pablo St.
- San Pablo St.: Constitution Ave. to Mountain Rd.
- Mountain Rd.: San Pablo St. to Texas St. (short segment on Dallas St.)
- Texas St.: Mountain Rd. to Marble Ave.
- Marble Ave.: Texas St. to Utah St.

Utah St.: Marble Ave. to Southern Ave.

8.2.7 San Pedro Drive, Zuni Road to Claremont Avenue (Gap closure)

1. Alvarado Dr approximately ¼ mile west of San Pedro Dr provides existing bicycles facilities complete with signalized intersection at Lomas and a grade separated crossing at I-40 at the Palomas Dr overpass.

- Unsignalized crossings
  - Constitution Ave
  - Indian School Rd
  - Menaul Blvd

2. San Pedro corridor modification to striping only turning the existing four lanes into three lane with bike lanes (corridor volumes are between the 15K to 20K threshold):

- Unbalanced section – two lanes in heaviest direction, one lane in the opposite direction.
- Two-way left turn lane in the center.
- Reversible center lane.

3. San Pedro corridor modification needed to add bike lanes without reducing number of lanes;

- Zuni to Acoma: width expansion possible, outward from roadway centerline – sidewalks will abut adjacent buildings, some impacts to overhead utilities.
- Acoma to Central: width expansion possible, shift centerline west – expansion through existing parking lot consumption. Parking variances may be necessary.
- Central to Domingo: width expansion possible, shift centerline west – expansion through commercial lot fronts. Parking variances may be necessary.
- Domingo to State Fair Grounds entrance: width expansion possible, shift centerline east.
- State Fair Grounds entrance to Lomas: expansion not possible without reconfigurement of State Fair Grounds or commercial land acquisition. Roadway section is four lanes, no median separation, existing lanes are narrow.
- Intersection of Lomas and San Pedro: commercial land will need to be acquired to accommodate bike lanes.
- Lomas to Constitution: width expansion possible, shift centerline west – expansion through commercial lot fronts and parking. Parking and landscaping variances may be necessary.

- Constitution to I-40: width expansion possible, maintain centerline – expand outward, may need to relocate property walls, acquire right of way from residence.
- I-40: bridge widening will be necessary in order to add bike lanes.
- I-40 to Indian School Rd: width expansion possible, shift centerline west (box culvert prevents any easterly expansion) – expansion through commercial lot fronts. Landscaping variances maybe necessary. Overhead utilities will be impacted.
- Indian School to Menaul: width expansion possible, shift centerline east – expansion through commercial lot fronts and parking lots. Parking and landscaping variances may be necessary.
- Menaul to Phoenix: width expansion possible, shift centerline west – expansion through commercial lot fronts. Landscaping variances may be necessary.

Phoenix to Claremont: Bike lanes exist.

8.2.8 San Mateo/Gibson Intersection connect to Ridgecrest

1. Wayfinding signs directing cyclist to use the existing short trail that connects the San Mateo/Gibson Intersection to Ridgecrest Dr. and Ridgecrest to the San Mateo/Gibson Intersection.

8.2.9 Montano Road/Montgomery Boulevard (Gap closure)

1. Bike route from Renaissance Blvd. to Chappell Dr.

- Bike route on Culture Dr. from Renaissance Blvd. to Mission Ave.
- Bike route on Mission Ave. between Culture Dr. to Chappell Dr. connecting to the existing multi-use trail that parallels Chappell Dr. from here you can connect to the North Diversion Channel Trail, Bear Arroyo Trail and the Paseo del Norte Recreational Trail.
- Add bike lanes on Singer Blvd. from Chappell Rd. to Jefferson St.

8.2.10 Sequoia Road, (Coors Blvd. to Ladera Dr.)

1. Coors Blvd to Atrisco Dr. convert cross section to have a TWLT center lane between the intersections adding bike lanes.
2. Atrisco Dr. to Ladera Dr. mark as shared lane bike route

8.2.11 Girard Boulevard (Gap Closure)

1. Convert Dartmouth Dr. to a Bicycle Blvd. from Campus Blvd. to Silver Ave.

8.2.12 Central Avenue, Yale Boulevard (Intersection Improvements)

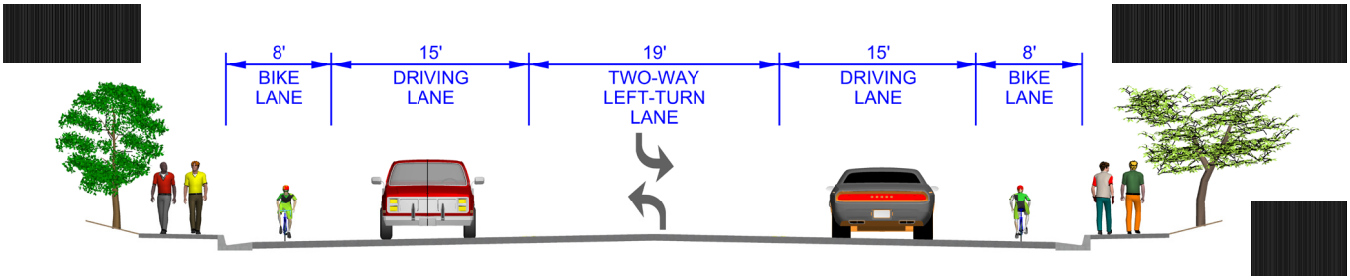
1. Central Ave does not nor is it intended to have any bicycle facilities.
2. Yale Blvd is a bicycle route movement north or south through the intersection with Central Ave should proceed with the through movement of vehicular traffic. Adding bike lanes would confuse the movements north of Central and may potentially be a life safety issue.
3. Engineering judgment – do not change the intersection.

8.2.13 Indian School Road, Rio Grande Boulevard to 12th Street (Gap closure)

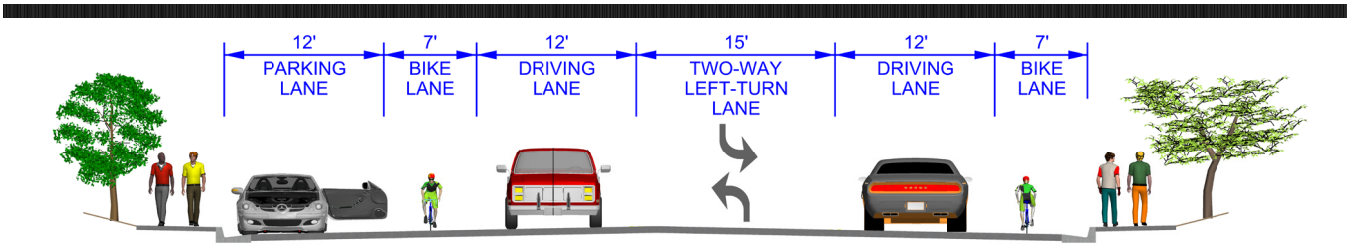
1. Existing Indian School Rd is approximately 65' in width which supports two driving lanes in each direction and a central two-way left turn lane, and intermittent single side on street parallel parking. Existing traffic volumes for 2009 were in the 10K to 12K AADT.

2. Bike lanes are possible without widening via reducing the number of vehicle lanes.

- Remove one lane in each direction and
  - Have two 7-8′ bike lanes, two 15′ driving lanes, and a 19′ wide two-way left turn lane. (Where on street parking is not warranted)



  - Have two 7′ bike lanes, two 12′ driving lanes, a 15′ wide two-way left turn lane, and a 12′ wide parallel parking lane.



8.2.14 Cutler Avenue, Washington Street to San Mateo Boulevard (Gap closure)

1. The existing corridor is already a designated as a route no change necessary.
2. Prospect Ave. to the north of Cutler Ave. is a bike route with a signalized crossing of San Mateo Blvd.

8.2.15 Claremont Avenue as a Bicycle Boulevard (Richmond Dr. to Moon St.)

1. Designate Richmond as a bike route/shared route from Candelaria Rd. to Claremont Ave..
2. Sign and mark approaches to signalized intersection at Carlisle Blvd. with R4-11 and shared route marking.
3. Convert two-way left-turn along San Mateo to a raised median with left turn bays at Claremont Ave.
4. Louisiana Blvd. and Wyoming Blvd. have raised medians no change necessary.

8.2.16 Lomas Boulevard/Easterday Drive (Gap closure)

Lomas does not have existing or proposed bicycle facilities, Easterday is a low volume low speed (speed humps) near Lomas. South of Lomas Easterday dead ends at a pedestrian bridge over I-40, only service vehicles utilize this portion of Easterday.

Recommend adding route signs or bicycle warning signs to increase awareness of bicycle presence.

8.2.17 Lomas Boulevard/San Pedro Dr (Gap closure)

Lomas does not have existing or proposed bicycle facilities therefore there is no gap. No change necessary. See San Pedro Dr recommendations for north/south accommodations.

8.2.18 Cutler Avenue, Washington Street to San Mateo Boulevard (Gap closure)

1. The existing corridor is already a designated as a route no change necessary.

8.2.19 Alexander Boulevard, Comanche Road to Mission Avenue (Gap closure)

1. Widen Alexander Blvd from Comanche Rd to Carmony Rd to add bike lanes by consuming spur rail line to American Furniture. If spur line removed – remove crossing as well as it is a safety hazard for bicycles. If the spur lines is not removed install skewed crossing (W10-12-36) signs at approach to rail crossing.
2. Carmony Rd to Mission Ave; initiate a road diet on the existing four lane section by removing one vehicle lane in each direction, widening center driving lanes, adding bike lanes and converting median to a wide two-way left turn lane (or paint a buffer -2' from raised medians). Keep median and metal barrier at Montano Rd underpass.

8.2.20 Montano Road, 4th Street to 2nd Street (Gap closure)

1. Existing Montano Rd is approximately 65' in width which supports two driving lanes in each direction and a central median.
2. Bike lanes are possible by expansion of the facility to the south. Several private lots have extra frontage which could be narrowed or eliminated.
3. Existing eastbound lanes at 4th St are approx. 10' wide, but expansion to the north by eight feet may be possible.
4. Relocate WB bike lane on 2nd St approach to be between thru and right-turn. Paint or delineate full width of bike lane in high conflict areas.

8.2.21 Irving Boulevard, Universe Boulevard to La Paz Dr (Gap closure)

1. Existing Irving Blvd is two vehicle lanes in each direction with a center raised median and a bike lane westbound. Traffic is restricted to the eastbound lanes with one lane in each direction, until the developer on the NE corner of Universe and Irving builds the rest of the intersection (COA impact fees evolution).
2. The existing eastbound direction is approximately 24'.
3. Narrowing of the median is possible in order to obtain the additional 6' necessary for eastbound bike lanes.

8.2.22 Washington Street, Lomas Boulevard to Zuni Road (Intersection Improvements)

1. Washington south of Central is a bike route and has bike lanes north of Central no change necessary.
2. Washington South of Lomas is a low volume road with thru-right combinations, providing a bicycle lane at the intersection would force bicycles to be right of potential right turns and is contradictory to standard practice, no change necessary.

8.2.23 Carlisle Boulevard, Garfield Avenue to Silver Avenue (Gap closure)

1. Hermosa Dr approximately 1/10 mile east of Carlisle Blvd provides existing bicycles facilities.

- Unsignalized crossings
  - Lead Ave
  - Coal Ave

2. Remove two-way left turn lane and add bike lanes; i.e. convert three-lane section into a two-lane section with bike lanes.
3. Acquire residential ROW strips along corridor – enough to add bike lanes, and reduce width of two-way left turn lane. Existing sidewalks are narrow and driveways are short.

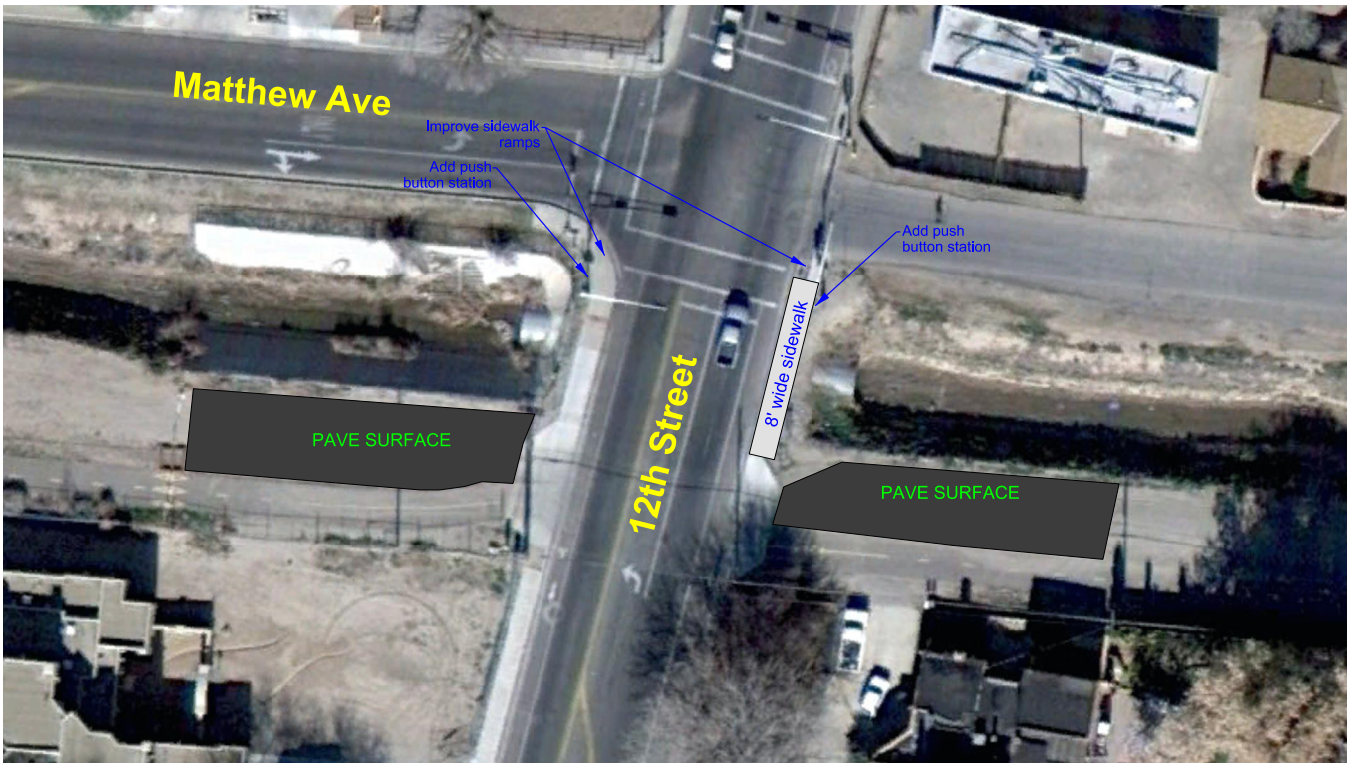
8.2.24 Second St., Stover to Marquette (Gap Closure)

1. Need description
2. Designate 1st St. as a bike route between Hazeldine Ave. and Gold Ave./Alvarado Transportation Center.

8.2.25 Rio Grande Boulevard (Gap Closure)

1. Bike route Mountain Rd. to Alhambra Ave.
- 19th St.: Mountain Rd. to Old Town Rd.
- Old Town Rd.: 19th St. to San Pasquale Ave.
- Cross Central Ave at San Pasquale Ave. using pedestrian crossings, improvements to accommodate bicycles should be part of the redesign of the Central Ave./ San Pasquale Ave. intersection.
- Continue on San Pasquale Ave. to Alhambra Ave.

8.2.26 Alameda Drain at 12th St. (Intersection Improvement)



1. Widen the sidewalk on east side of 12th St. to 8 feet wide between the Matthew Ave. and the Alameda Drain multi-use trail.
- Improve the sidewalk ramps on the southeast and southwest corners of 12th St. and Matthew Ave. to make it easier for cyclist to make turns.

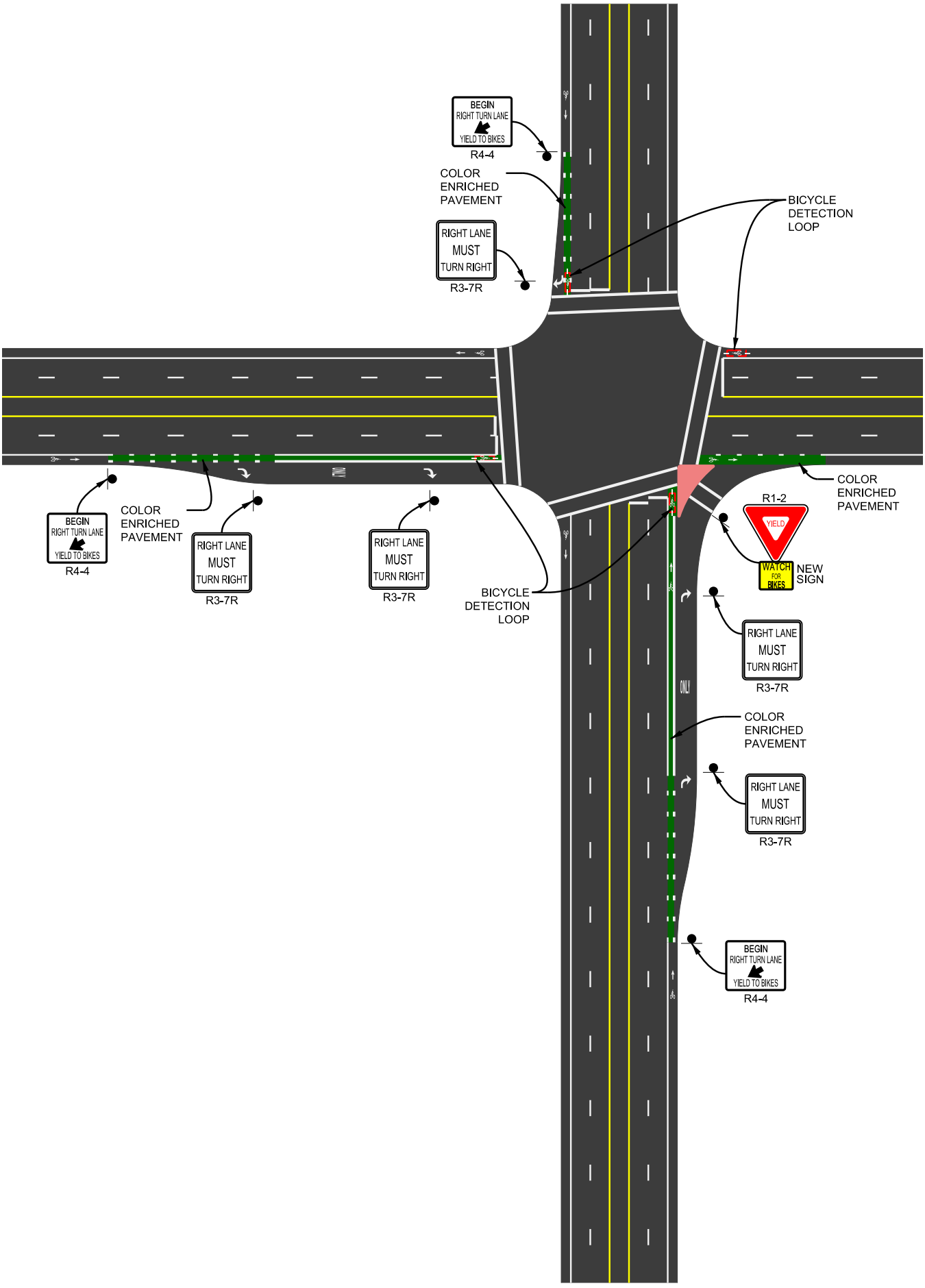
2. Pave the dirt surface between the multi-use trail and edge of drain from the sidewalk back 100 feet. This will help eliminate loose soil from accumulating at the multi-use trail/sidewalk interface.
3. Relocate or add pedestrian pushbuttons so that they are easily accessible to cyclist using the crosswalk.

8.2.27 Prototypical Multi-lane Arterial Intersection Improvements

The following diagram shows potential treatments to accommodate bicycle lanes on multi-lane arterial streets. Four different intersection approaches are shown:

- Dedicated right-turn bay (1)
- Right-turn slip lane with yield (3) condition (2)
- Shared bike/right-turn lane
- Combination right-turn/through lane with bike lane on right side (4)

Traffic signal bicycle detection is a part of each treatment as is color enriched bike lanes in locations where motor vehicle traffic crosses over the bike lane.


BEGIN
RIGHT TURN LANE
YIELD TO BIKES
R4-4
COLOR
ENRICHED
PAVEMENT
RIGHT LANE
MUST
TURN RIGHT
R3-7R
BICYCLE
DETECTION
LOOP
BEGIN
RIGHT TURN LANE
YIELD TO BIKES
R4-4
COLOR
ENRICHED
PAVEMENT
RIGHT LANE
MUST
TURN RIGHT
R3-7R
RIGHT LANE
MUST
TURN RIGHT
R3-7R
BICYCLE
DETECTION
LOOP
COLOR
ENRICHED
PAVEMENT
R1-2
YIELD
WATCH
FOR
BIKES
NEW
SIGN
RIGHT LANE
MUST
TURN RIGHT
R3-7R
ONLY
COLOR
ENRICHED
PAVEMENT
RIGHT LANE
MUST
TURN RIGHT
R3-7R
BEGIN
RIGHT TURN LANE
YIELD TO BIKES
R4-4

End-of-Trip Facility Evaluation

End-of-trip facilities, including bicycle parking and other facilities such as showers and clothing lockers, can be a determining factor in whether someone decides to make a bicycle trip. They enhance the bicycling experience by providing cyclists with somewhere to park and somewhere to refresh themselves following their trip. Numerous studies have shown the value of these facilities in attracting cyclists to employment and activity centers and in supporting multi-modal trips. In fact, in the online survey conducted earlier in this planning process, nearly 70% of the people who responded indicated that more bicycle parking would likely influence them to bike and/or use the multi-use trail system more often (see Figure 1 below).

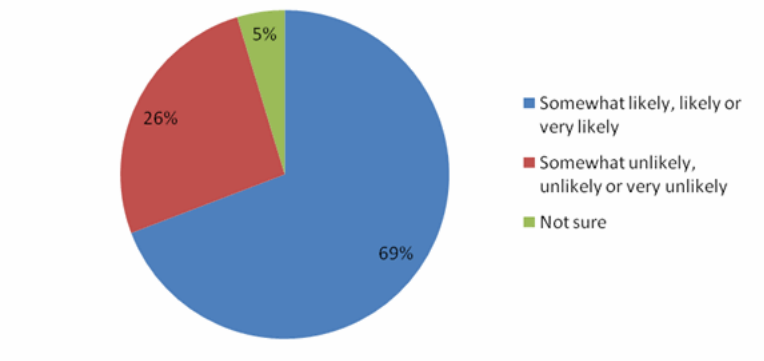


Figure 1 – Question 28 - Would more bicycle parking influence you to bike and/or use the multi-use trail system more often? (916 responses)

Bicycle parking includes both long-term (often referred to as Class A or Class I) and short-term (often referred to as Class B of Class II) parking. These cater to different cycling groups depending largely on their trip duration and desired level of protection from weather and/or theft. Table 1 compares the typical characteristics of short- and long-term bicycle parking.

Other end-of-trip facilities enable cyclists to freshen up following a trip and can include showers, washrooms, and clothing lockers, but may also include other services such as a laundry or dry-cleaning and bike-related services.

Table 1. Characteristics of short- and long-term bicycle parking

Criteria	Short-Term (Class B) Bicycle Parking	Long-Term (Class A) Bicycle Parking
Parking Duration	Less than two hours	More than two hours
Typical Fixture Types	Bicycle racks	Lockers, or racks provided in a secured area
Weather Protection	Unsheltered	Sheltered or enclosed
Security	High reliance on personal locking devices and passive surveillance (i.e. eyes on the street)	Restricted access and / or active surveillance / supervision *Unsupervised:* "Individual-secure", e.g. bicycle lockers "Shared-secure", e.g. bicycle room or cage *Supervised:* Valet bicycle parking Video, CCTV or other surveillance
Typical Land Uses	Commercial or retail, medical/healthcare, parks and recreation areas, community centres	Residential, workplace, transit, schools

End-of-trip facilities for bicycles are currently found throughout Albuquerque. Short-term parking is provided using bicycle racks in many public places as well as outside private buildings, while long-term parking and other end-of-trip facilities are provided at some publically accessible sites but mostly on private property (e.g., as part of an office building). The provision, design, and placement bicycle parking facilities varies widely. Local and national best practices can be used to encourage a more consistent approach to end of trip facilities to maximize the usefulness of these facilities and minimize maintenance costs.

Summary of Recommendations

This section provides recommendations for improving end-of-trip facilities in Albuquerque. Recommendations include sample policies, incentives, programs and design guidelines. In general, the City of Albuquerque should:

- Require bicycle parking and end-of-trip facilities in both newly constructed buildings and redevelopment.
- Consider both long-term and short-term parking requirements.
- Provide incentives to encourage bicycle parking facilities beyond the minimum requirements.
- Provide guidance on the design and placement of these facilities.
- Establish a bike rack program that assists in the location, design and funding of bicycle racks to stimulate retrofitting short-term bicycle parking in the existing network.
- Consider placement of enahcned bicycle facilities (e.g., a bicycle depot) at key transit exchanges, such as the Alvarado Transit Center, if demand analysis indicates adequate potential for facility use.

Bicycle Parking Code

Albuquerque's existing bicycle parking standards are elegant in their simplicity. However, they also lack certain desirable elements:

- First, the existing standards do not contain requirements for long-term bicycle parking. While the City clearly understands the importance of secure bicycle facilities, as exemplified by its Bicycle Locker Program, more extensive long-term bicycle parking facilities could encourage more bicycle commuting.
- Second, given the wide range of non-residential land uses that are technically required to provide a minimum of two bicycle parking spaces, it appears that compliance with the bicycle parking requirements is low. The code also lacks a compliance trigger for installing bicycle parking at existing developments.
- Third, it could be highly beneficial if the City provided additional site planning recommendations to ensure proper placement and spacing of bicycle parking facilities to maximize their usability.
- Finally, and for a similar reason as above, the City should also provide guidance on the different types of bicycle racks, as rack types vary in their functionality.

City Programs

The City of Albuquerque has several programs that support bicycling, including the maintenance of a website dedicated to bicycling and the production of a comprehensive bicycle map. The city has installed over 300 bicycle lockers at 23 locations, installing approximately 50 lockers each year. Several major employers have taken advantage of the Bicycle Locker Program, which is designed to encourage bicycle commuting through the provision of secure bicycle parking.

- Bicycle Rack Program - The City does not currently have a bike rack installation program, which would be an excellent way to encourage utilitarian bicycle trips to retail and other destinations.

Recommended Locations for Additional Bicycle Parking Facilities

The online survey, which had over 1200 responses, contained two questions related to the location of additional bicycle parking facilities. The top responses to the question of which types of places should have more bike racks or lockers were grocery stores, shopping centers, work sites, restaurants and parks. Respondents provided specific locations for additional bicycle parking, including throughout the downtown and Nob Hill areas as well as along Central Avenue. Grocery stores (including Albertsons and Whole Foods) and transit stops were other common responses. The University of New Mexico Hospital was the single most common suggestion. The most effective way for the City to increase parking at these and other locations would be through a Bicycle Rack Program. The City could kick off such a program by conducting outreach to businesses in the areas of town and to the types of businesses identified above.

Bicycle Parking Code

Existing Code

Bicycle parking standards are found in section 14-16-3-1 of the Albuquerque Code of Ordinances (Off-Street Parking Regulations). Section B identifies parking requirements for three types of land uses: 1) Residential, 2) Dormitory, fraternity or sorority house and 3) Non-residential . Four standards for the installation of bicycle parking spaces and lockers are provided in Section G.

The code requires one space per two dwelling units for multi-family units having five or more dwelling units. All non-residential units are required to provide one bicycle space per each 20 parking spaces required and not less than two bicycle spaces per premise. Certain land uses, such as mortuaries or motels, are exempted while separate standards are provided for schools.

The Association of Pedestrian and Bicycle Professionals (APBP) recommend that bicycle parking standards do several things, which are presented in Table 2 below:

Table 2 – APBP Bicycle Parking Standard Recommendations

APBP Recommendation	Albuquerque bicycle parking standards
Specify number of bicycle spaces by land use	Specs by land use are specified, but distinguish between far fewer land uses than those in APBP's sample code
Require long-term parking for all workplaces, transit stations and multi-unit residential	Do not require long term parking
Require adequate short-term parking for other land uses	Technically require short-term parking for most land uses, though its standards require the same amount of parking for very different land uses that may warrant different requirements.
Provide site planning requirements	Provide limited site design requirements.
Provide rack and locker design requirements	Provide limited rack and locker design requirements.

Recommended Update to Bicycle Parking Code

As discussed in the previous section, the existing bicycle parking code does not distinguish between non-residential land uses and does not include requirements for long-term parking. The following rates are provided for consideration from the 2010 Bicycle Parking Guidelines produced by the Association of Pedestrian and Bicycle Professionals.

Table 3 – APBP Sample Bicycle Parking Code

Type of Activity	Long-Term Bicycle Parking	Short-Term Bicycle Parking
Residential		
Single family dwelling	No spaces required	No spaces required
Multi-family dwelling		
a) With private garage for each unit	No spaces required	0.05 spaces / unit, minimum 2 spaces
b) Without private garage for each unit	0.5 spaces / unit, minimum 2 spaces	0.05 spaces / unit, minimum 2 spaces
c) Senior housing	0.5 spaces / unit, minimum 2 spaces	0.05 spaces / unit, minimum 2 spaces
Civic / Cultural		
Non-assembly cultural (library, government buildings, etc.)	1 space for each 10 employees. Minimum requirement is 2 spaces.	1 space for each 10,000 s.f. of floor area. Minimum requirement is 2 spaces.
Assembly (church, theatre, stadium, park, beach, etc.)	1 space for each 20 employees. Minimum requirement is 2 spaces.	Spaces for 2% of maximum expected daily attendance
Health care/hospital	1 space for each 20 employees or one space for each 70,000 s.f. of floor area, whichever is greater. Minimum is 2 spaces	1 space for each 20,000 s.f. of floor area. Minimum is 2 spaces.
Education		
a) Public, parochial, and private day-care centers for 15 or more children	1 space for each 20 employees. Minimum is 2 spaces.	1 space for each 20 students of planned capacity. Minimum is 2 spaces.
b) Public, parochial, and private nursery schools, kindergartens, and elementary schools (1-3)	1 space for each 10 employees. Minimum is requirement is 2 spaces.	1 space for each 20 students of planned capacity. Minimum is 2 spaces.

Table 3 – APBP Sample Bicycle Parking Code

Type of Activity	Long-Term Bicycle Parking	Short-Term Bicycle Parking
c) Public, parochial, and elementary (4-6), junior high and high schools	1 space for each 10 employees plus 1 space for each 20 students of planned capacity. Minimum requirement is 2 spaces.	1 space for each 20 students of planned capacity. Minimum is 2 spaces.
d) Colleges and universities	1 space for each 10 employees plus 1 space for each 10 students of planned capacity; or 1 space for each 20,000 s.f. of floor area, whichever is greater.	1 space for each 10 students of planned capacity. Minimum is 2 spaces.
Transit		
Rail/bus terminals and stations/airports	Spaces for 5% of projected a.m. peak period daily ridership	Spaces for 1.5% of projected a.m. peak period daily ridership
Retail		
General food sales or groceries	1 space for each 12,000 s.f. of floor area. Minimum requirement is 2 spaces	1 space for each 2,000 s.f. of floor area. Minimum requirement is 2 spaces
General retail	1 space for each 12,000 s.f. of floor area. Minimum requirement is 2 spaces	1 space for each 5,000 s.f. of floor area. Minimum requirement is 2 spaces
Office	1 space for each 10,000 s.f. of floor area. Minimum requirement is 2 spaces	1 space for each 20,000 s.f. of floor area. Minimum requirement is 2 spaces
Auto Related		
Automotive sales, rental and delivery, automotive servicing, automotive repair and cleaning	1 space for each 12,000 s.f. of floor area. Minimum requirement is 2 spaces	1 space for each 20,000 s.f. of floor area. Minimum requirement is 2 spaces
Off-street parking lots and garages available to the general public either without charge or on a fee basis	1 space for each 20 automobile spaces, minimum 2 spaces – unattended surface parking lots excepted	Minimum of 6 spaces or 1 per 20 auto spaces – unattended surface parking lots excepted
Industrial/Manufacturing		
Manufacturing and Production	1 space for each 15,000 s.f. of floor area. Minimum requirement is 2 spaces	Number of spaces to be prescribed by the Director of City Planning. Consider minimum of 2 spaces at each public building entrance.

Design Principles

In addition to updating the bicycle parking requirements, the following design principles can be incorporated into the parking code to provide guidance on the placement of bicycle racks.

Space Requirements

- Bicycle parking spaces should be at least 6 ft long and 2 ft wide. A common installation error is to leave insufficient space (less than 2 feet) between the rack and a building or other obstacle (see Figure 2).
- A 5 ft aisle for bicycle maneuvering should be provided and maintained beside or between each row of bicycle parking.
- Bicycle racks should be securely anchored to the surface or a structure.
- Overhead clearance in covered spaces should be at least 7 ft.

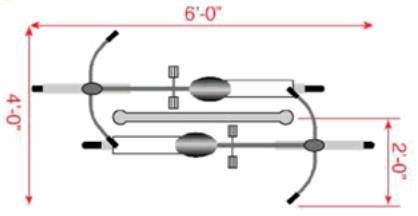


Figure 2 -Bicycle Rack Space Guidelines

Placement

In order to encourage bicycle use, bicycle parking must be as convenient, if not more so, than motor vehicle parking. The facilities must be located in close proximity to building entrances and elevators. General placement guidelines are provided in section 6.3 of the recommended Design Guidelines document. These guidelines can be incorporated into the existing parking code.

Recommended City Programs

Bicycle Rack Program

It is recommended that the City of Albuquerque develop and implement a Bicycle Rack Program that, similar to its Bicycle Locker Program, distributes racks across the city through a request system. By working with interested land owners to supplement the existing supply of bicycle parking, the City would effectively increase both the quantity and quality of bicycle parking throughout Albuquerque. The City can utilize preferred rack designs and ensure proper rack placement following the bike parking guidelines laid out in existing code or the Bikeways and Trails Master Plan.

Increased Awareness

The City could raise awareness of the benefits of short- and long-term bicycle parking and end-of-trip facilities to developers, owners, and managers of privately-owned commercial properties. The 2010 report, Bike Corrals: Local Business Impacts, Benefits, and Attitudes found widespread support for bike corrals from local businesses. The Employer Guide to Bicycle Commuting: Establishing a Bike-Friendly Workplace for your Baltimore Region Employees is a good example of information that the City could make available to employers interested in encouraging cycling to work. The document compares the initial cost of 12 automobile parking spaces ($40,000 to $100,000 USD) to the cost of 12 bike rack spaces and one automobile space ($4,600 - $9,600 USD).

Incentives

There are a number of incentives that can be used to encourage improved bicycle parking and end-of-trip facilities. These include:

- Providing motor vehicle parking relaxations where bicycle parking is provided beyond the minimum requirements.
- Providing motor vehicle parking relaxations where complete end-of-trip facilities are provided, i.e. long- and short-term parking coupled with showers, washrooms, and clothing lockers.
- In space constrained applications, such as redevelopment of an existing building, allow for the conversion of motor vehicle parking spaces into long-term bicycle parking to meet the bylaw requirement (typically 5 bicycle parking spaces can be achieved per motor vehicle parking space).
- Extending or introducing payment-in-lieu of parking programs to allow funds to be collected in-lieu of vehicle parking and placed in a sustainable transportation infrastructure fund to fund active transportation projects, which may include a centralized bicycle parking and end-of-trip facility (e.g. a bike station). Note: this should not replace bicycle parking and end-of-trip facility requirements.

Bicycle Parking Standards at Transit Exchanges

End-of-trip facilities create connections with transit and increase the reach of these services by making cycling attractive for the “first and last mile” of the journey.

New Mexico Rail Runner Express

The New Mexico Rail Runner Express has a friendly attitude towards bicycles. Their website says ‘Bicycles Welcome’ indicates that ‘Trains come equipped with bicycle racks so you can ride your bike to and from each station. Each train will have space for at least two bicycles, and bike racks can be found at each station.’
Bicycle parking provided at each station is typically composed of uncovered bicycle parking for approximately 10-12 bicycles. The Rail Runner Express will also soon offer bicycle lockers at each station. There will be room for 6 to 16 bikes, depending on the station. Lockers will be administered similar to the City’s locker program, using a subscription system rather than having lockers for on demand use. A nominal fee will be charged to cover the administration of the locker program.

Bicycle parking at a Rail Runner station

Two bicycles in the designated space aboard a Rail Runner train

ABQ Ride

Bicycle racks are available on all buses, with a capacity of two to three bicycles depending on the bus. Bicycle parking is typically not provided at ABQ Ride stops. Two recently developed park n ride facilities have been equipped with wave style bicycle racks with a capacity of approximately 20 bicycles. ABQ Ride also installed 8 lockers at each park n ride facility. Because these lockers were installed as a pilot project, half of the lockers are allocated on a subscription basis and the other half on a first come, first served basis. Thus far, the lockers do not appear to be very well used and there have been security concerns with the first come, first served basis as people have utilized the lockers for purposes other than for which they were intended.

Anticipating Demand at Transit Stations

Providing parking at transit stations is particularly important. The City has expressed interest in placing enhanced bicycle parking facilities at locations with potential high demand, such as the Alamosa Transit Center. Generally, the amount of parking needs to exceed the average demand, as users should be able to depend on facilities being available. Demand determines not only the amount of parking, but the type of facility provided as well.

The following are examples of guidelines used by other agencies around the world:

- Bicycle parking at stops should be between one space per 150 entrants and one space per 1,000 entrants, depending on station type and use. (The London Underground)
- Bicycle parking should be 50-80% occupied on average. If parking is at a location that is likely to experience considerable growth or if there are regular overflow periods (i.e. the station would be popular for use during a large event), it should be closer to 50% occupied and built with the ability to expand easily. (The CROW Design Manual for Bicycle Traffic)
- The number of lockers provided should exceed the current demand for lockers (measured by counts of bikes parked at racks and the current usage and wait list for locker at a station) by 10% to allow for fluctuations and growth. (Bay Area Rapid Transit [BART])
- Bike stations should be considered when the demand for long-term parking exceeds 100 bicycles. (BART)

Other factors to consider when estimating demand for a new station or for providing long-term parking where it previously did not exist include:

- Demographics of the service area
- The extent of the bicycle network in the area surrounding the station
- Current ridership capacity
- Mode share
- Trip destination
- Planning goals for the area

- Current parking use at the station
- Current use of bike-on-bus racks
- Type of transit service (bus, light rail or commuter rail)
- Presence of employment and/or major employer near stop
- Projected regional growth
- Projected bicycle ridership levels

Table 4. Recommended Adjustment Factors for Estimating Bicycle Parking at Transit

Factor	Adjustment
Based on a parking demand model:	
How many bicyclists are estimated to park at the site?	Facility should provide parking for at least 20% more bicycles than estimated to regularly use the facility.
Will a particular segment of potential market demand be emphasized over others due to the location? (e.g. Near a University, industrial park etc.)	Hours of parking availability should be convenient for likley users in proximity to the site; marketing efforts should be targeted to potential users.
For each station, how reliable is it to find space for bikes at rush hour?	Quantity of parking should be sufficient to meet bicycle-on-bus or -train capacity.
How much does the demand for park-and-ride spaces exceed supply?	In areas where Park and Ride lots are at capacity, improved bicycle parking can capture a proportion of would-be drivers.
Is there evidence of current bike activity (e.g. parked bikes) at the site?	Facility should provide parking for at least 20% more bicycles than regularly use the facility, and more if demand is estimated to increase.
Public transportation	
Does the station connect to a bus route?	Parking should be provided to accommodate riders who may not find space for a bike on their connecting bus.
Does the transit short-cut a hill or other barrier to bicycling?	People are more likely to take transit with their bicycles if they can avoid a large hill, or if transit is significantly faster than bicycling. Increased parking facilities should be provided. In addition, the transit agency may want to work with the responsible agency to remedy the barrier.
Does the transit line offer a time savings as compared with bicycling (e.g., connecting distant destinations with few stops)?	Transit lines offering travel time savings over bicycling should provide more long-term parking.
Surrounding employment and commercial density	
How many jobs fall within biking distance of the site?	Accommodate transit users who may be interested in storing an additional bicycle at the non-home trip-end.
Will the number of jobs within biking distance of the site grow in the future?	Ensure that there is space for expansion in locations that are likely to be close to future employment.
Potential to generate operating revenue	
Is there a need for bicycle repair and accessory sales in the immediate vicinity?	People will use the resources available at the bicycle parking if the community does not have them available otherwise; this is likely to increase the use of bicycle parking and bike-to-transit trips.
Is there a need for some other complementary business activity in the immediate vicinity?	It is possible to recoup some of the expenses of providing bicycle parking by linking complimentary uses, such as bicycle rentals/fleets and food sales.

Bicycle Parking Standards at Schools

According to a representative, Albuquerque Public Schools installs bike racks at new schools and existing schools when they are remodelled. Within the next 6 years, all schools will have bicycle racks.

Review of Existing Parking

Bicycle parking racks have been installed by various agencies and businesses throughout the City of Albuquerque. The different types of bicycle racks found in Albuquerque are reviewed below.

Inverted U and Inverted U Series

The 'inverted U' type rack can be installed individually or in a connected series. Examples of both are provided in the photos below. The inverted U type rack and the U series rack are both recommended in the Association of Pedestrian and Bicycle Professionals Bicycle Parking Guidelines. These racks are typically secured to a concrete base, support the bicycle in two places, and are easy to park a bicycle in when they are adequately spaced.

University of New Mexico

Library

Bank

Post and Ring

The 'post and ring' style rack is the third style of bicycle rack recommended in the APBP Bicycle Parking Guidelines. Like the inverted U and inverted U series rack, the post and ring style are intuitive, support the bicycle in two places, and are easy to park. This style of rack can and be retrofitted to unused parking meters, which has been done in Albuquerque.

Retail

Retail

Undulating or 'Wave' Style Rack

The wave style rack is a very common rack type and is present at many locations throughout Albuquerque. This type of rack is not endorsed by the ABPB Bicycle Parking Guidelines for a couple of reasons. First, to properly use this rack the cyclist places the bicycle through the 'wave' pattern where it is only supported at one point. Bicycles parked in these racks are unstable and frequently tip over. Second, many cyclists park their bicycle sideways in this rack to gain stability, thereby reducing the capacity by 60-80 percent. Furthermore, due to the narrow space between 'waves,' it is difficult to accommodate the stated rack capacity (two per 'wave') even when bicycles are parked properly. This does not mean that these racks should be replaced, but the City could work to educate businesses or institutions looking to install bike racks on the pros and cons of different rack types and could recommend the installation of either the inverted U or the ring and post style racks.

Restaurant

Library

City Park

Other Rack Types

The first rack type presented in the photo below only holds the bicycle's wheel and does not support the use of a U-shaped lock. They can also cause damage to the bicycle wheels. The second two photos show examples of what are known as comb racks or toaster racks. Designed to roll bicycles into wheel slots, these types of racks also lack stable support and can cause damage to the bicycle wheels. For these reasons, these rack types are not recommended.

University of New Mexico

Elementary School

Parking Garage

Artistic Racks

Artistic racks, like the ones shown below, can add interest the urban environment. Artistic racks are appropriate, provided that they support the bicycle in two places.

Apartment

Restaurant

Restaurant

Visibility

The location of the bicycle rack impacts the actual and perceived security of the bicycle. Several online survey respondents expressed concern about the possibility of their bicycle being stolen. Regarding visibility, ABPB suggests that short term bicycle parking should be:

- Visible from the destination to reassure cyclists about the security of the rack.
- Located in a high traffic area with passive surveillance or eyes on the street.

The photo on the left shows bicycle parking located where parked bicycles are not visible from the adjacent building. Compare this to the photo on the right, where the bicycle parking has been provided directly in front of a large window near the library entrance.

Church

Library

Informal Bicycle Parking

When bicycle parking is not provided, people will park/lock their bicycles to other objects such as parking meters, railings or sign posts. Providing bicycle parking is beneficial not only to bicyclists, but can improve the pedestrian environment by consolidating the bikes and keeping them off of rails and signs which potentially block sidewalks and ramps.

University of New Mexico

University of New Mexico

Lockers and Bike Covers

Bicycle lockers are large metal or plastic stand-alone boxes that offer a high level of bicycle parking security. Over 300 bicycle lockers have been installed in Albuquerque as part of the City's Bicycle Locker Program.

An array of bike lockers on UNM campus.

Individual "Bike Lid" bike locker near Downtown Albuquerque.

Review of Online Survey

Several questions in the online survey relate to end-of-trip facilities and are reviewed below. Questions 16 and 17 explicitly asked respondents about locations where they would like to see more bicycle parking and locker facilities. Question 28 asked respondents to indicate whether additional bicycle parking would influence them to bicycle or use the trail system more often. Three other questions contained select responses relevant to bicycle end-of-trip facilities.

Question 16 - Where would you like to see more bike racks or bike lockers? (check all that apply)

The top responses to question 16 are presented in Figure 3 below.

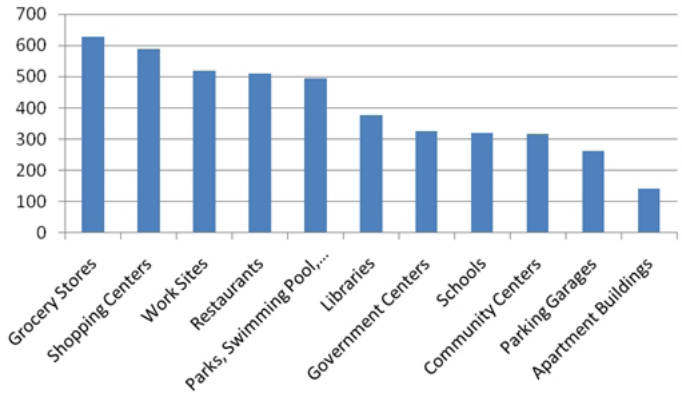


Figure 3 - Question 16 - Where would you like to see more bike racks or bike lockers? (check all that apply)

Question 17 - Are there any specific locations where you think bicycle racks are needed?

The next survey question followed up on Question 16, asking respondents to provide specific locations in where they thought more bicycle racks were needed. The top responses are found in Table 5:

Table 5 –Question 17 - Are there any specific locations where you think bicycle racks are needed?

Location	Number of Responses	Location	Number of Responses
Downtown	31	Rail Runner	4
Nob Hill	30	Whole Foods	4
Central Ave	24	Transit stops	3
UNM Hospital	10	Government buildings	3
Grocery	9	City Hall	3
Albertsons	9	Malls	3
Bus	7	Cottonwood Mall	2
Old Town	7	Winrock Mall	2
UNM	7	Coronado Mall	2
Movie Theaters	7	Costco	2
Uptown	7	Zoo	2
Trails	6	Airport	2
4th Ave	5	Heart Hospital	2
Post office	4	Civic Plaza	2

Question 25 - Infrastructure

When asked to indicate infrastructure concerns, 20% of respondents indicated 'no showers, lockers' while 19% indicated 'no bike parking.' As indicated in Figure 4 below, these were the 5th and 7th most common infrastructure concerns, respectively.

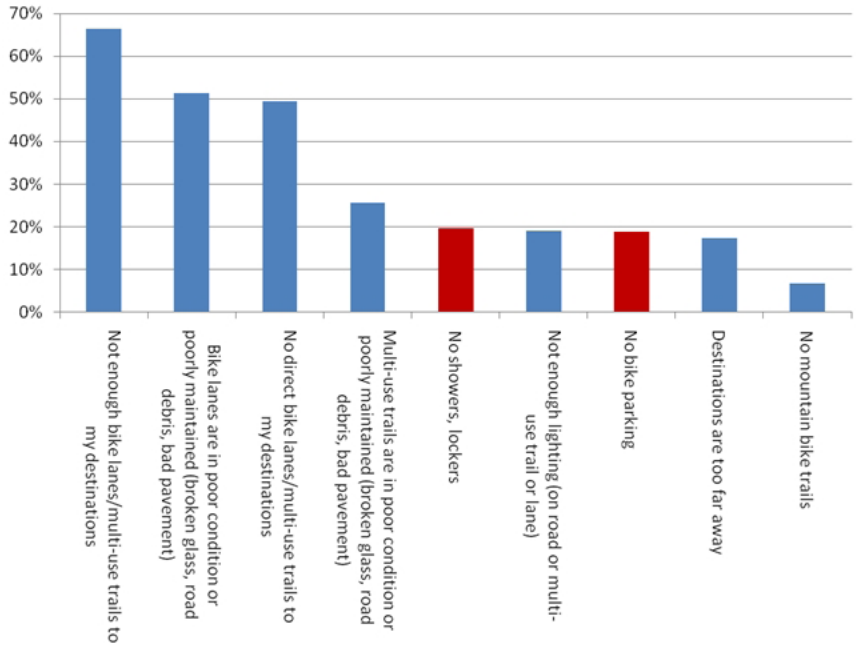


Figure 4- Question 25 – Infrastructure Concerns

Question 26 - Personal Concerns

While question 26 (Personal concerns) did not include a choice related to end of trip facilities, seven respondents selected 'other' and indicated a concern for the security of their bicycle.

- Not a safe place to store my $1000 bike.
- Many bikes have been stolen from the hospital
- Need safe locker for nice bike
- Don't have a safe place to leave my bike
- Don't want my bicycle to get stolen
- My bicycle was stolen last fall and I haven't replaced it.
- Concerned with bike security

Question 40 - Ideas, comments or suggestions for the City of Albuquerque

In response to the final survey question which asked respondents for 'ideas, comments or suggestions for the City of Albuquerque', two people provided suggestions related to end of trip facilities:

- Encourage new business construction to include bike parking/shower/locker room facilities!!
- Secure indoor parking