



# Santa Fe Metropolitan BICYCLE MASTER PLAN



## APPENDICES

Approved:  
APRIL 12, 2012





## **Appendix 1:**

### **List of Public Presentations, Meetings, and Field Visits**

#### **General Public Information Meetings**

Tues., Feb. 8, 2011, 5:30 – 7:30 pm: Public Meeting, Downtown Library.  
Thurs., Feb. 10, 2011, 4:00 pm: Public Hearing, MPO Transportation Policy Board.  
Sat., Feb. 12, 2011, 10 am - noon: Public Meeting, Genoveva Chavez Center.  
Sat., Mar. 24, 2012: 10 am - noon: Public Meeting, Santa Fe Trails Conference Room  
Thurs., Mar. 29, 5:00 – 7:00 pm: Public Meeting, Downtown Library

#### **Meetings of the Citizens' Advisory Group (CAG) & Partners**

March 16, 2011, County Commission Chambers.

Welcome, Overview of Bike Master Plans, Discussion of CAG Role and Process, Proposed Outline.

April 12, 2011, Downtown Library.

Presentation by WPI Students, Review of BMP Draft Chapters, Discussion of May Events.

May 10, 2011, Downtown Library.

Review Draft Material for Chapters I-III, Presentation of Proposed Engineering Recommendations.

June 14, 2011, Downtown Library.

Review of June 8 Draft Materials, Discussion of CAG Ride

July 19, 2011, Downtown Library.

Review of Current BMP Draft, Presentation of Draft Implementation Plan.

Sept. 20, 2011, Santa Fe County Legal Conference Room.

Review of Latest BMP Draft, Discussion of CAG Rides.

Oct. 18, 2011, Santa Fe County Legal Conference Room.

Further Review and Discussion of September Draft.

Feb. 9, 2012, Downtown Library

Review and Discussion of Chapter V. Education, Encouragement, and Enforcement, with members of CAG, BTAC Education Subcommittee, Santa Fe LCIs, and other partners.

Mar. 20, 2012, Downtown Library

Final Review of Draft for 30-Day Public Comment Period

### **Educational Rides**

Nov. 6, 2010 Community Cruise: Rail Trail and Arroyo de los Chamisos Trail

May 21, 2011 Community Cruise: Assorted Streets, Frenchy's Field, River Trail, and Rail Trail

June 25, 2011 CAG Ride #1: River Trail, Acequia Trail, and Railyard.

July 31, 2011 CAG Ride #2: Rail Trail and Arroyo de los Chamisos Trail.

Sept. 12, 2011 Western Planner-APA Four Corners Conference, Bike Planning Tour:  
Downtown bike routes, Rail Trail to County trailhead. Co-led by Colleen Baker, Santa Fe County Open Space and Trails Program.

Oct 16, 2011 CAG Ride #3: Community College District

### **Presentations to Local Government Staff, Committees, Community Groups, etc.**

Nov. 22, 2010	MPO Technical Coordinating Committee (TCC)
Dec. 15, 2011	City Bicycle and Trails Advisory Committee (BTAC)
Jan. 13, 2011	MPO Transportation Policy Board (TPB)
May 12, 2011	NMDOT Bicycle-Pedestrian-Equestrian Advisory Committee
May 20, 2011	Bike-to-Work Day (information provided to public at event)
July 2, 2011	Sustainable Eldorado Residents Alliance / Green Café
Oct. 11, 2011	Santa Fe Community College / Green Task Force
Oct. 20, 2011	Mayor's Commission on Disability
Oct. 24, 2011	MPO Technical Coordinating Committee (TCC)
Nov. 10, 2011	MPO Transportation Policy Board (TPB)
Nov. 15, 2011	City Parks and Open Space Advisory Commission
Nov. 17, 2011	City Bicycle and Trails Advisory Committee (BTAC)
Nov. 17, 2011	County Open Land, Trails, and Parks Advisory Committee (COLTPAC)
Nov. 21, 2011	County Open Space and Trails Staff
Dec. 1, 2011	City Planning Commission
Jan. 12, 2011	City Streets Staff
Jan. 19, 2011	NMDOT Planning Staff
Jan. 19, 2011	County Open Land, Trails, and Parks Advisory Committee (COLTPAC)
Jan. 20, 2011	City Parks, Trails, and Watershed Staff
Jan. 24, 2011	City Public Works
Jan. 27, 2011	County Public Works, Planning, and Open Space and Trails Staff
Feb. 8, 2011	City Outdoor Recreation Staff
Feb. 27, 2012	MPO Technical Coordinating Committee (TCC)
Feb. 28, 2012	Board of County Commissioners (BCC)

## **Metropolitan Bicycle Master Plan, Citizens' Advisory Group (CAG)**

### **Core Members**

Joe Abbatacola  
Fletcher Catron  
Paul Cooley  
Brian Combs, Santa Fe Community College  
Phillip Crump  
Brannigan Draic, Chainbreaker Coalition  
Abe Franklin  
Gretchen Grogan, BTAC member  
Anna Hansen, POSAC member  
Frank Herdman, BTAC member  
Andrew Jandacek, Santa Fe County  
Lisa Miles, president of Bike Santa Fe, BTAC member  
Stephen Newhall, LCI, Bike Santa Fe & BCNM  
Emily Oaksford  
Andy Otterstrom, Creative Couriers  
Gary Schiffmiller, LCI

Keith Wilson, MPO staff  
Tim Rogers, Bicycle Master Plan consultant to MPO

### **Additional Participants in CAG Meetings**

Angela Bordegaray  
Bette Booth, POSAC Chair  
Betsy Conover  
Cat Downing, LCI, BTAC Education Subcommittee  
Ray Galley  
Daniel Guevara  
Jessica Griffin, NM Safe Routes to School Coordinator  
Clemente MacFarlane, Chainbreaker Coalition  
Elizabeth Mesh, NM Artists for Hire  
Charlie O'Leary, Santa Fe Conservation Trust  
Shelly Robinson, BTAC member E  
Andrea Poole, Santa Fe Arts Commission  
Rusty Rodke  
Xubi Wilson

## **Appendix 2:**

### **Bicycle Planning in the Santa Fe MPO Area**

#### **Santa Fe Metropolitan Planning Organization**

The MPO has long emphasized the development of bicycle transportation as a key element of the Metropolitan Transportation Plan (MTP). To this end, the MPO adopted the “Complete Streets” approach through Resolution 2007-1, “A Resolution Advancing Complete Streets for the Santa Fe Metropolitan Planning Area,” which specifically resolves that

- bicycle, pedestrian, equestrian and transit needs should be given full consideration in the planning and development of transportation facilities in the Santa Fe metropolitan planning area
- Bicycle, pedestrian, equestrian, and transit facilities should be established by ordinance in conjunction with the construction, reconstruction, or other change of any transportation facility in accordance with Complete Streets principles
- The Santa Fe MPO staff will work with City and County land use and public works departments, Regional Planning Authority staff, and related advisory committees to collaboratively designate common Complete Streets specifications that are consistent across jurisdictions for regionally significant roadways.

#### **City General Plan Policies**

The City's General Plan sets out the following "guiding policies" for bicycle circulation:

6-3-G-1        Provide a comprehensive network of bikeways for safe and efficient transportation.

6-3-G-2        Recognize bicycling and walking as viable alternatives to motorized transportation.

6-3-G-3        Provide off-road trails as an alternative to on-road travel where natural corridors exist.

6-3-G-4        Provide necessary amenities, such as secure bike racks and traffic signals which can be triggered by bicyclists.

The City's General Plan also recommends the following "implementing policies" for bicycle circulation:

6-3-I-1        Use the Bikeways Master Plan as the primary tool for detailed policy making and bicycle system planning.

6-3-I-2 Consider the feasibility of providing a network of bikeways along acequias and riparian corridors as part of the planned trail network if development and impacts do not negatively affect the environment or wildlife.

6-3-I-3 Conduct a signage and striping program for the bikeway network shown on the Bikeways Master Plan.

### **City of Santa Fe, 1993 Bikeways Masters Plan**

This plan established short-range and long-range priorities for the development of multi-use trails in Santa Fe, particularly the extension of the Rail Trail and the Arroyo Chamiso Trail and the creation of the River Trail as a multi-use trail. The Plan also outlined the development of the Acequia Trail, but only along alignments farther west than the alignments that have been pursued to date. The 1993 Bikeways Master Plan also created the City's system of signed bike routes as described below, and proposed other initiatives...

### **City of Santa Fe, Parks and Recreation Plan, 2001**

This plan emphasized development of multi-use trails for use by bicyclists and pedestrians in parks and open space alignments throughout the City. The plan identified needs in well-known and –prioritized areas such as the River Trail as well as lesser-known alignments such as the Arroyo Chaparral Trail. Many of these proposed bicycle facilities were removed from consideration under the Parks Division's 2009 "Bond Implementation Plan."

Most of the trails built by the Parks Division through the \$30 million bond have focused on internal, recreational use, rather than a transportation function for bicyclists and pedestrians. Significant construction of multi-use trails through the bond was implemented by the Public Works Department's Trails Division, primarily following plans under BTAC (see below), and in some cases including alignments within city parks (e.g. Ashbaugh Park).

### **City of Santa Fe, Bicycle and Trails Advisory Committee (BTAC)**

BTAC was created by the City Council in 2003(?) to determine the use of a new \$1.5 million Capital Improvement Program fund and to guide bicycle planning in Santa Fe...

BTAC created a "Big Picture" map of proposed trail alignments in and around the City of Santa Fe based on the 1993 Bikeways Master Plan as well as additional input and information from Committee members and staff. Since the creation of BTAC, the City's trail planning and construction has been based on input from the Committee, sometimes in alignment with the 1993 Bikeways Master Plan, along with additional priorities and plans by the City's Public Works Department. BTAC's "On-Road Subcommittee" provided the City with recommendations on the use of shared lane arrows ("Sharrows") as well as bicycle-sensitive signal actuators that the City has subsequently implemented

and marked. BTAC continues to meet on a monthly basis to discuss developments and provide guidance.

### **City of Santa Fe, Sustainable Santa Fe Commission**

The Sustainable Santa Fe Plan (<http://www.santafenm.gov/index.aspx?NID=685>) developed by the City's Sustainable Santa Fe Commission was adopted by City Council in 2008. The plan examines how the City of Santa Fe can reduce its contribution to greenhouse gas emissions and prepare to be more resilient to impacts of global warming. (The Plan responds to a City Council Strategic Plan initiative to "Support Sustainable Development and a Green City," which includes priorities to "Adopt and enforce land use codes and policies that promote sustainable, energy-efficient, carbon-neutral development," "Provide for alternatives to...automobiles," and "keep neighborhoods livable and protect rural areas from sprawl.") The Plan supports the development of bicycle transportation in Santa Fe, along with support for pedestrians, transit, low-emission vehicles, and alternative fuels as well as appropriate land use, to reduce motorized trips.

The Plan summarizes activities underway and proposes actions to

- establish safe transportation routes for "zero-emission" transportation, including bicycles
- support free or inexpensive bicycle rentals
- establish bicycle racks throughout the city
- continue the development of bicycle and pedestrian trails
- increase the bicycle-carrying capacity of transit
- implement "complete streets," including retrofitting where width allows, and
- continue to pursue a wide variety of strategies for on-road facilities including road diets, sharrows, bike lanes, and use of existing streets, especially near transit.

### **Santa Fe County**

Santa Fe County's trail planning is overseen by the County Open Land, Trails, and Parks Advisory Commission (COLTPAC).

The County's recent Sustainable Growth Management Plan includes proposed policy to build complete streets, including bike lanes or shoulders on county roads where appropriate, and to build trails for transportation purposes rather than purely for recreation.

### **State of New Mexico**

**New Mexico Department of Transportation (NMDOT), Bicycle Pedestrian Equestrian (BPE) Advisory Committee.** The BPE Advisory Committee has produced various iterations of a statewide BPE Advisory Plan, a non-binding document provided to the Transportation Secretary which has generally urged the Agency to follow AASHTO guidelines for bicycles in all construction and maintenance projects. The Committee has



also been charged with recommending the designation through signage of State Bicycle Routes, and among the first routes designated was State Bike Route 9, a series of signed bikeways bisecting the MPO area from Lamy to Tesuque via Santa Fe's plaza area (described in more detail below).

**New Mexico State Parks (NMSP), Recreational Trail Program (RTP).** As the recognized "state trail agency," NMSP has pursued the development of long-range trails of statewide and regional significance, including the Continental Divide Trail and the Rio Grande Trail, both envisioned to extend from the northern to southern border of the state. Although Santa Fe might be on or near proposed alignments for a statewide Rio Grande Trail, NMSP's planning efforts to date have focused on downstream alignments, including a Belen-to-Bernalillo segment to encompass Albuquerque's 17-mile Bosque Trail and formative efforts in Sierra County and Doña Ana County to the south. NMSP is also relevant to local bikeway planning efforts in Santa Fe in that Hyde State Park and many urban properties in Santa Fe are under NMSP administration. The state RTP under NMSP is also responsible for distributing federal Recreational Trail Program funds, which are a possible source for trail funding in and around Santa Fe.

## Appendix 3:

### Selected Elements of City of Santa Fe Code, Chapter 14, Supporting Bicycle Transportation

#### City of Santa Fe Code, Chapter 14

##### 14-8.6 OFF-STREET PARKING AND LOADING

...

(D) Off-Street Bicycle Parking

(1) Applicability. Off-street bicycle space parking standards shall apply to all uses except single-family residential uses.

(2) Requirements. Off-street bicycle spaces shall be provided as follows:

(a) For all uses except those specified below:

TABLE 14-8.6-3: General Off-Street Bicycle Parking	
Parking Spaces Required	Bicycle Spaces Required
10 or less	5
11-50	10
51-100	15
101-150	20
151 or more	25

(Ord. No. 2002-37 § 90)

(b) For hotels or motels:

TABLE 14-8.6-4: Hotel or Motel Off-Street Bicycle Parking	
Number of Employees per Shift	Bicycle Spaces Required
20 or less	5
21-40	10
More than 40	15

(Ord. No. 2002-37 § 90)

(i) For elementary and middle schools, one bicycle space for every 20 students.

(ii) For high schools, commercial, trade, or vocational schools, one bicycle space for every 50 students.

(iii) For colleges, one bicycle space for every 20 students.

(iv) The number of employees or students shall be based upon an affidavit submitted by the applicant.

(3) Standards. Off-street bicycle spaces shall:

(a) Not be located on public right-of-way;

(b) Be designed as illustrated in Chapter XIV. Other rack designs may be approved by the Land Use Department; (Ord. No. 2007-45 § 30)

(c) Be located on an outside ground surface which shall be paved or planted in a way which avoids mud or dirt and is easily maintained;

(d) Be anchored so they cannot be easily removed. Racks shall be designed so that both wheels or the frame of a bicycle can be locked securely to it with a chain, cable or padlock;

(e) Be located so as to be visible, easily accessible near the building entrances, well lit and not conflicting with pedestrian or vehicular traffic; and,

(f) Lockers may be substituted for racks and shall be so designed that an unauthorized person cannot remove a bicycle from them. If a room or common locker

not divided into individual lockers or rack spaces is used, one bicycle per 12 square feet of floor area is assumed.

#### 14-8.15 DEDICATION AND DEVELOPMENT OF LAND FOR PARKS, OPEN SPACE, TRAILS AND RECREATIONAL FACILITIES

(A) Purpose

(Ord. No. 2007-12 § 2)

(1) The Governing Body deems it in the best interest of the City and its citizens that adequate provision is made for parks, open space, trails, and recreational facilities, and for City maintenance thereof.

(2) These regulations shall provide standards for the dedication of land or easements to the City to assist in implementing of the City's Parks, Open Space, Trails and Recreation Master Plan.

(3) These regulations shall provide standards based upon the average number of persons per housing unit according to Census 2000 which is 2.0 persons per unit for the City of Santa Fe.

(4) Land dedicated for neighborhood parks shall be based upon a rate of 3 acres per 1,000 persons, or per 500 housing units.

(5) Land dedicated for regional parks, community parks, open space and trails shall be based upon a rate of 12 acres per 1,000 persons, or per 500 housing units.

(6) For usable park land, park dedication should result in a park area of no less than 1 acre.

(7) Land or easements dedicated for public, nonmotorized trails may be used to satisfy the requirement for dedication of regional parks under paragraph (5) above, and to establish an interconnected regional transportation system.

(B) Applicability

(Ord. No. 2007-12 §3)

(1) Except as limited in paragraph (B)(3) below, this section shall apply to applications for subdivision or development approvals that create new residential lots or dwelling units submitted after the effective date of this section.

(2) Developments which are part of an annexation plat, master plan or similar document which dedicated park land in compliance with § 14-8.15 are not required to comply at time of individual subdivision or plan approval.

(3) Public, nonmotorized trail dedication requirements set forth in § 14-8.15(D) shall only apply to all subdivision for residential lots and development plan approvals for nonresidential uses requiring approvals by the Planning Commission or the Summary Committee.

(C) Land Dedication Requirements; Park Development Requirement

(1) Any master plan, development plan or subdivision proposing 167 or more single family residential lots shall dedicate park land to the City according to the requirements set out in § 14-8.15(C)(3).

(2) For any other development proposing dwelling units, the City shall require land to be dedicated for either neighborhood parks or regional parks or both, unless the amount of land or type of land is not suitable for public parks, open space or recreational facilities. Where the City determines that no land is to be dedicated for neighborhood parks, then neighborhood park impact fees shall be collected according to § 14-8.14. Where the City determines that no land is to be dedicated for regional parks, then regional park impact fees shall be collected according to § 14-8.14.

(3) Where land is to be dedicated to the City for parks, open space and recreational facilities, the amount of land dedicated shall be calculated as follows, in accordance with § 14-8.15(A)(4) and (5):

- (a) Neighborhood Parks - 0.006 acres per new housing unit;
- (b) Regional & Community Parks, Open Space and Trails - 0.024 acres per new housing unit.

(4) The City shall determine the suitability and location of land to be dedicated as set forth in the Parks, Open Space, Trails and Recreation Master Plan, as well as the type, size and dimensions of land dedicated.

(5) Land dedicated shall be suitable for public use including but not limited to community, neighborhood, special use and pocket parks; open space; recreational facilities for passive and active recreation and sports, playgrounds, and trails.

(6) Land to be dedicated shall be specified at the time of final subdivision plat or final development plan approval and it shall be clearly written on the plat or plan the specific category of park impact fees to be waived at time of building permit.

(7) The developer shall be responsible for the development of all neighborhood and regional park land dedicated to the City. The park land shall be developed in accordance with the City's minimum landscaping and equipment standards (playground, ball courts, sports fields, paved trails, benches, picnic tables, etc.) for each type of park created.

(Ord. No. 2003-35 § 4)

(D) Public, Nonmotorized Trail Dedication Requirements  
(Ord. No. 2007-12 § 4)

(1) Dedications to the City for the purpose of public, nonmotorized trails shall be made either by the dedication of fee simple land or by dedication of a public easement as determined by City staff. Such dedications are required wherever the approved Parks, Open Space, Trails and Recreation Master Plan indicates a trail within or along the property line of a parcel to which § 14-8.15 applies. The City may, at its discretion, also require trail dedication where it can be demonstrated that public trail use has occurred continuously for a period of 10 years or more, as demonstrated by City staff through aerial photography supplemented by written testimony from affected parties.

(2) Staff shall determine the width of the required dedication based on the type of trail, existing topography and current City standards. The alignment of the trail may be modified by staff from that shown in the Parks, Open Space, Trails and Recreation Master Plan in order to accommodate preservation of natural resources, address drainage and topography, improve public access, or to accommodate design goals of the property owner as long as the connections between public rights-of-ways, open space or parks shown on the Parks, Open Space, Trails and Recreation Master Plan is accomplished.

(3) The dedication for the trail shall be shown on the subdivision plat or final development plan.

(4) If the area dedicated for a trail is in partial fulfillment toward the regional park land dedication requirements, then the City at its discretion may pro-rate the fee that would ordinarily be required.

(5) The developer shall be responsible for the development of the trail in accordance with City's standards. The City is responsible for maintenance of the trail upon inspection and acceptance of the improvements.

Article 14-9: SUBDIVISION DESIGN, IMPROVEMENT, AND DEDICATION  
STANDARDS

...

14-9.2 IMPROVEMENT AND DESIGN STANDARDS

...

(E) Streets. The following standards for streets shall apply to all subdivisions except for inheritance and family transfer subdivisions, the design standards for which are as set forth in §14-9.4:

...

(2) Street Types-Design Criteria (Ord. No. 2002-37 § 102)

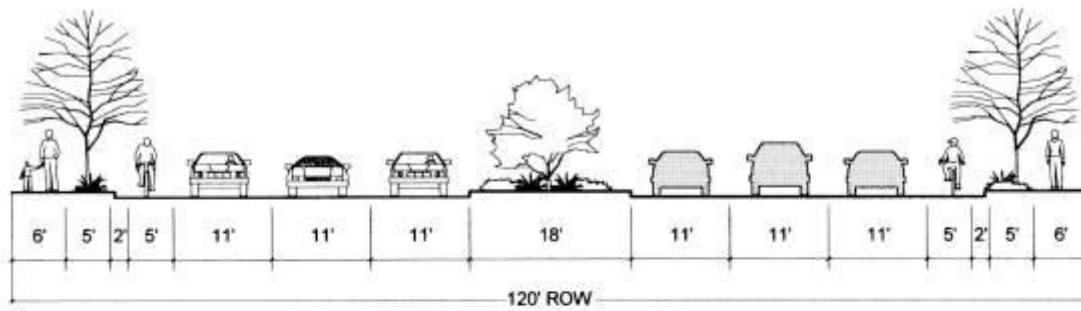
(a) The arrangement, character, extent, grade and location of all streets shall conform to the officially adopted master plan and shall be considered in their relationship to existing and planned streets, to topographic conditions, to public convenience and safety. Public streets approved for construction, after the effective date of this ordinance, shall be classified according to projected average daily traffic as shown in the street types-design criteria chart and Illustration 14-9.2-1, "Street Types Design Criteria," except that the Planning Commission, or in the case of City projects, the Public Works Committee may consider and approve innovative street designs that are not included among the street types and street sections shown or described herein. However, all new public streets shall be required to provide adequate pedestrian and bicycle facilities, as well as necessary transit facilities.

(b) Traffic calming measures are encouraged in new developments and specific measures may be required by the City to ensure traffic safety in new neighborhoods (See City of Santa Fe Calming Program).

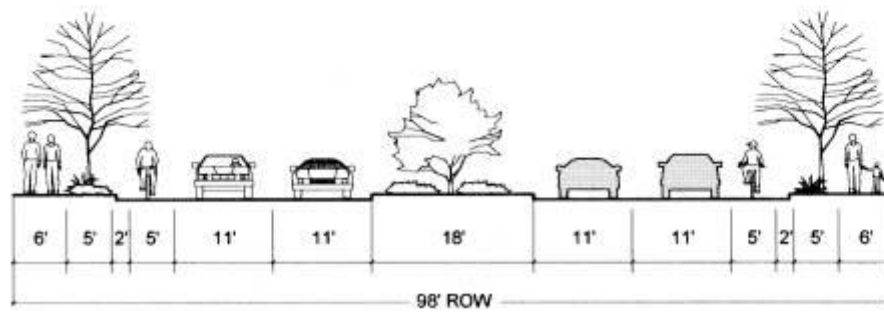
(c) The collector mixed use street type is to be constructed in conjunction with the development of neighborhood centers and is designed to function like many of the streets near the plaza.

TABLE 14-9.2-1: Design Criteria for Street Types									
Criteria	Major Arterial (6-Lane)	Major Arterial (4-Lane)	Secondary Arterial	Collector	Collector Mixed-Use	Subcollector		Lane	Private Driveway
						No Parking	With Parking		
Average Daily Traffic	Up to 60,000	Up to 40,000	5,000-15,000	1,000-5,000	1,000-5,000	300-1,000	300-1,000	0-300	Minimum
Dwelling Unit Access						30-100	30-1000	0-30	(0-8)
Minimum Right-of-way Width	120	98	70	50	50	42	46 or 52	38	20
Slope/Grading Easement (conditional upon staff review)	0-30	0-30	0-30	0-30	0-30	0-30	0-30	0-30	NR
Number of Auto Lanes	6-7*	4-5*	2-3*	2	2	2	2	2	2
Width of Driving Lanes	11	11	11	10	10	9	10	9	9
Median/Turn Lane Width	18	18	14	NR	NR	NR	NR	NR	NR
Minimum Bikeway Width	5	5	5	4	NR	NR	NR	NR	NR
On-Street Parking Width	NA	NA	NA	NA	6**	NA	6**	NA	NA
Curb & Gutter	2	2	2	2	2	2	2	2	NR
Minimum Sidewalk Setback	5	5	5	4	NR	5	3	3-4	NR
Minimum Sidewalk Width	6	6	5	5	7	5	5	4-5	NR
<p>Notes:</p> <p>NA - Not Applicable</p> <p>NR - Not Required</p> <p>* Includes Median/Turn Lane</p> <p>** Parking required on both sides of street, except no parking on that side of a street adjoining the plaza.</p> <p>*** Parking may be on one side or both sides of the street; parking lane should not be continuous.</p> <p>Private Driveway - Range denotes single family lots served by driveway; Private Driveway proposed to serve multi-family development or commercial development must be approved by the City Engineer, City Traffic Engineer and City Fire Chief.</p> <p>All measurements in feet, unless otherwise noted.</p>									

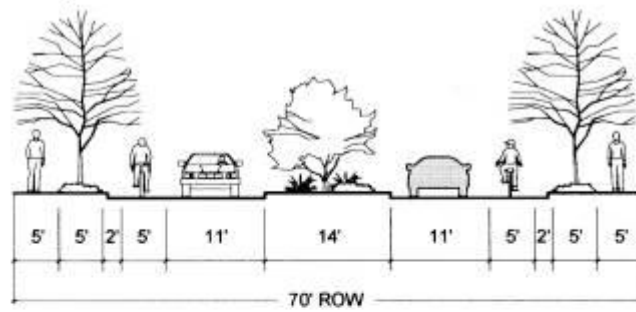
(Ord. No. 2005-24 § 2)



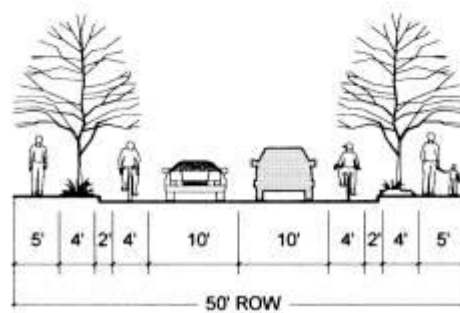
**Major Aterial 6-Lane**



**Major Aterial 4-Lane**

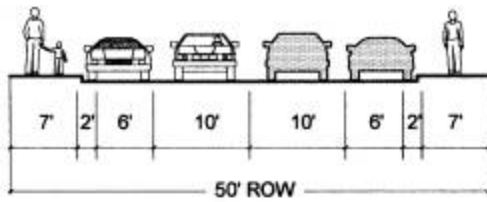


**Secondary Aterial**

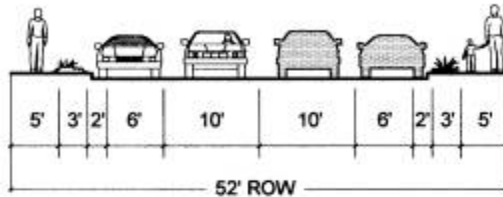


**Collector**

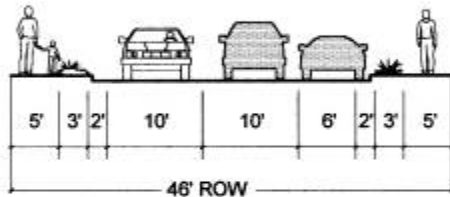
### Illustration 14-9.2-1: Street Types Design Criteria



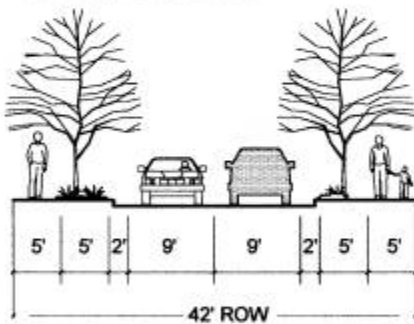
COLLECTOR - MIXED USE



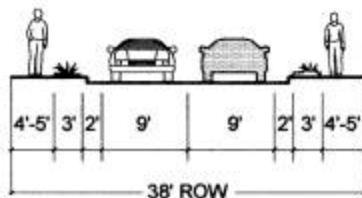
SUB COLLECTOR W/  
PARKING BOTH SIDES



SUB COLLECTOR W/  
PARKING ON ONE SIDE



SUBCOLLECTOR WITHOUT PARKING



LANE - NO PARKING

#### (N) Bikeways

Bikeways shall be provided on each side of the street on collectors (not collector mixed-use), secondary arterials, and major arterials, unless a street is approved as a one way in which case a bikeway will be placed to the right of the driving lane. Bikeways shall be located between the driving lane and the curb and gutter, or between the driving lane and right turn lane. Bikeways shall be separated from the driving lane by a solid white stripe or other appropriate pavement marking or traffic separation device approved by the City. Bikeway pavement width shall conform to the criteria set out in the street types-design criteria chart.

(Ord. No. 2002-38 § 2)



## **Appendix 4:**

### **Santa Fe MPO Complete Streets Resolution**

**SANTA FE METROPOLITAN PLANNING ORGANIZATION**  
**TRANSPORTATION POLICY BOARD**  
**RESOLUTION NO. 2007-1**

**A RESOLUTION ADVANCING COMPLETE STREETS FOR THE SANTA FE  
METROPOLITAN PLANNING AREA.**

**WHEREAS**, the Santa Fe Metropolitan Planning Organization promotes a multi-modal, regional transportation system that is safe, energy and fiscally efficient, maximizes community connectivity, serves the mobility needs of all citizens, and exists in harmony with the environment. In accordance with the Santa Fe Metropolitan Transportation Plan, the Santa Fe MPO promotes transportation improvements that encourage walking, bicycling and transit use while promoting safe operations for all users; and

**WHEREAS**, "Complete Streets" are roadways designed to accommodate safe access for all users. Pedestrians, bicyclists, motorists and transit riders of all ages and abilities are able to safely move along and across Complete Streets; and

**WHEREAS**, Complete Streets principles have been and continue to be adopted nationwide at state, county, MPO, and city levels in the interest of proactive planning and adherence to federal regulations that guide transportation planning organizations to promote multi-modal transportation options and accessibility for all users; and

1           **WHEREAS**, one of the most commonly voiced transportation concerns from the public  
2 regards the perceived danger of bicycling and walking in Santa Fe. Public input has repeatedly  
3 requested improved conditions and facilities for bicyclists and pedestrians; and

4           **WHEREAS**, according to national highway statistics more than one quarter of all trips  
5 are one mile or less – and almost half are less than five miles. Most of those trips are now made  
6 by car. Streets that provide travel choices give people the option to avoid traffic congestion and  
7 increase the overall capacity of the transportation network; and

8           **WHEREAS**, the National Institute of Medicine recommends fighting childhood obesity  
9 by changing ordinances to encourage construction of sidewalks, bikeways, and other places for  
10 physical activity. A report of the National Conference of State Legislators found that the most  
11 effective policy avenue for encouraging bicycling and walking is Complete Streets; and

12           **WHEREAS**, facilities that follow Complete Streets principles complement and enhance  
13 ongoing Share the Road awareness and planning efforts by the City of Santa Fe Bicycle and  
14 Trails Advisory Committee as well as safety education and enforcement initiatives such as  
15 pedestrian safety awareness campaigns directed by Santa Fe Trails, the Santa Fe Walks study,  
16 New Mexico Bicycle Coalition training courses, Safe Kids NM, and programs such as Santa Fe  
17 Crossing Guards, and Safe Routes to School.

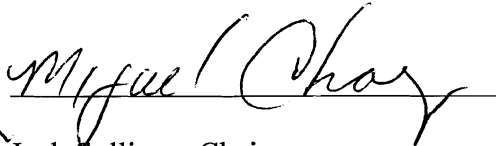
18           **NOW, THEREFORE, BE IT RESOLVED** that bicycle, pedestrian, equestrian and  
19 transit needs should be given full consideration in the planning and development of  
20 transportation facilities in the Santa Fe metropolitan planning area. Bicycle, pedestrian,  
21 equestrian, and transit facilities should be established by ordinance in conjunction with the  
22 construction, reconstruction, or other change of any transportation facility in accordance with  
23 Complete Streets principles. The Santa Fe MPO staff will work with City and County land use  
24 and public works departments, Regional Planning Authority staff, and related advisory

committees to collaboratively designate common Complete Streets specifications that are consistent across jurisdictions for regionally significant roadways.

**PASSED, APPROVED and ADOPTED this 16<sup>th</sup> day of August, 2007.**

**SANTA FE METROPOLITAN PLANNING ORGANIZATION**

**POLICY BOARD**



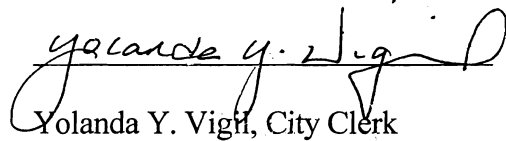
Jack Sullivan, Chair

~~ATTEST:~~ FILED:



Valerie Espinoza, County Clerk

FILED:  
Attest:



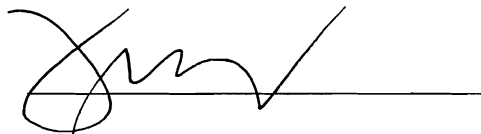
Yolanda Y. Vigh, City Clerk

**APPROVED AS TO FORM:**



Stephen C. Ross, County Attorney

**APPROVED AS TO FORM:**



Frank D. Katz, City Attorney

## Appendix 5: Bicycle Crash Data for the Santa Fe MPO Area, 2004-2008

According to records provided by the University of New Mexico's Division of Government Research, there were 136 bicycle crashes reported in the Santa Fe MPO area during the five-year period of 2004-2008.

Year	Crashes	Fatalities
2004	36	0
2005	24	1
2006	16	0
2007	33	0
<u>2008</u>	<u>27</u>	<u>0</u>
Total	136	1

These crashes included one fatality, which occurred on Old Santa Fe Trail (CR 67) in 2005 as a result of a head-on crash with an intoxicated motorist driving in the wrong lane. Fifteen bicyclists (11% of crashes) were reported to have received incapacitating injuries while 91 (67%) had visible injuries or complaint of injuries. Just over one-fifth of the crashes were reported as "property-damage only."

### Type of Injury

Killed	1	0.7%
Incapacitating	15	11.0%
Visible	56	41.2%
Complaint	35	25.7%
None Apparent	<u>29</u>	<u>21.3%</u>
Total	136	100.0%

Per-capita crash reporting for Santa Fe County is nearly identical to the rate for the state as a whole. Bernalillo County's rate is over 50% higher; extremely low rates in some of Santa Fe's neighboring counties would seem to be indicative of underreporting. Santa Fe's single bicycle fatality represented less than one percent of all crashes reported in Santa Fe County in 2004-2008 (0.7% of 142 crashes county-wide), well below the proportion in other NM counties that reported fatalities during the period.

Selected County and State Data, 2004-2008	Crashes	Fatalities	%	Annual reported crashes, per million residents	Annual fatalities, per million residents
Santa Fe County	142	1	0.7%	195.4	1.4
Bernalillo County	964	13	1.3%	303.4	4.1
Dona Ana County	161	3	1.9%	159.9	3.0
Rio Arriba County	2	0	0.0%	9.9	0.0
San Miguel County	7	0	0.0%	49.3	0.0
Sandoval County	68	3	4.4%	111.1	4.9
Taos County	31	0	0.0%	196.8	0.0
New Mexico	1936	26	1.3%	194.9	2.6

The statewide rate of 2.6 annual bicycle fatalities per million population for 2004-2008 is just above the national rate of 2.35 for 2008.<sup>1</sup> The seven deaths in 2008 in New Mexico amounted to 1.9% of all traffic fatalities in the state, the same proportion that bicyclists represented among nationwide traffic fatalities in 2008.

National data on age of cyclists reported in crashes demonstrates an aging population, progressing from an average of 24 yrs. of age in 1998 to 31 yrs. of age in 2008. Average age of cyclists reported in crashes in the Santa Fe MPO area in 2004-2008 was 33.8 years, well above the national average of 30 for the same period. Distribution of age groups in the MPO area in 2004-2008 was as follows:

<b>Age</b>		
<5	0	0%
6-10	10	8%
11-15	13	10%
16-20	13	10%
21-24	13	10%
25-34	18	15%
35-44	20	16%
45-54	21	17%
55-64	11	9%
65-74	5	4%
<u>75-84</u>	<u>0</u>	<u>0%</u>
Total	136	100.0%

Data entry on types of crashes indicates that about three quarters of the reported crashes involved a motor vehicle hitting a bicyclist while for one-quarter of reports the bicyclist was reported to have hit a motor vehicle or an unknown object. Cyclists reported to have been hit at an angle were the highest single category at 60 (44%). Cyclists reported being hit from behind accounted for 26 reports (19%) and head-on for 14 reports (10%).

#### **Reported Type of Crash: Leading Types**

Veh-Cyc. Angle	60	44.1%
Cyclist-Veh	30	22.1%
Veh-Cyc. Behind	26	19.1%
Veh-Cyc. Head On	14	10.3%

Crash reports entered in UNM/DGR's database provide primary and secondary street names, though precise location of a given crash is not always clear. Eighteen primary streets listed had more than one crash and ten had more than two crashes listed, as presented in the table below. Where closest intersection was specified, locations with the most reports in 2004-2008 were the intersection of Cerrillos Rd. and Camino Carlos Rey (4) and the intersection of St. Francis Dr. and Siringo Rd. (3).

<sup>1</sup> NHTSA Traffic Safety Facts, "Bicyclists and Other Cyclists, 2008."

**Street\***

Cerrillos Rd	23	16.9%
Agua Fria St	13	9.6%
St Francis Dr	12	8.8%
Alameda	6	4.4%
St Michaels Dr	5	3.7%
Airport Rd	4	2.9%
Cordova Rd	4	2.9%
Old Santa Fe Tr (City)	4	2.9%
Paseo De Peralta	4	2.9%
NM 599	3	2.2%

\* - Primary street, or secondary street in crashes classified as "Intersection" or "intersection-related."

It is well known that non-fatal bicycle crashes are under-reported throughout the country. UNM's Department of Emergency Medicine<sup>2</sup> found that 35% of non-fatal bicyclist injuries appearing in emergency rooms in Bernalillo County in 1996-2003 had not been reported to law enforcement, and thus were never entered in the state's crash database.

**Bicycle crashes in the Santa Fe MPO area, 2004-2008: Other Data****Time of Day / Light**

DAYLIGHT	116	85.3%
DUSK	1	0.7%
DAWN	1	0.7%
DARK-LIGHTED	13	9.6%
DARK-NOT LIGHTED	5	3.7%

**Cause of Crash: Driver Inattention, etc.- could refer to cyclists as well as motorist**

DRIVER INATTENTION	59	43.4%
FAILURE TO YIELD	40	29.4%
ALCOHOL/DRUG INVOLVED	9	6.6%
RED LIGHT RUNNING	7	5.1%
PASSED STOP SIGN	5	3.7%
EXCESSIVE SPEED	3	2.2%
LEFT OF CENTER	3	2.2%
IMP. OVERTAKING	2	1.5%
IMPROPER TURN	2	1.5%
FOLLOW TOO CLOSE	2	1.5%

**Urban / Rural**

"SANTA FE"	124	91.2%
RURAL	12	8.8%

**Gender**

Not available in this data set.

<sup>2</sup> LaValley, J., et al. UNM Dept. of Emergency Medicine. "Using Emergency Department Records to Enhance Bicycle Injury Surveillance in New Mexico." Presentation to American College of Emergency Physicians, New Orleans, LA, October 2006.

## **Appendix 6:**

### **Assessment of On-Road Bicycle Facilities in the Santa Fe MPO Area**

#### **Designated bicycle lanes**

State Highways with dedicated bicycle lanes

- NM466: Old Pecos Trail and St. Michael's Dr., from Old Las Vegas Highway to Galisteo St. (but with shared lanes at some intersections on St. Michael's Dr.)
- NM14: Cerrillos Rd., from Ave. Cielo Vista to Airport Rd.; south of Airport Rd. to Cristo (city maintained), before transition to striped shoulder

City streets with designated bicycle lanes:

- Don Gaspar, from Paseo de Peralta to Coronado
- Gov. Miles Rd. from Nava Ade to Richards Ave.
- Old Pecos Trail, from NM466 to Coronado St.
- Richards Ave., near Rodeo Rd. and between Cerrillos Rd. and Rufina St.
- Rodeo Rd., west of Richards Ave.
- South Capital Rail Station Rd.
- W. Alameda, from Calle Nopal to Camino Alire

County roads with designated bicycle lanes:

- Ave. del Sur in front of Amy Biehl School

Bike Lane markings not based on MUTCD

- Rabbit Rd. from Oshara to "FHWA connector" (use of sharrows in bike lane)

Bike lane in one direction only:

- Dinosaur Trail between La Pradera and Richards Ave. (paved shoulder originally intended as a two-way multi-use trail).

City streets with "quasi-bike lanes" (striped shoulder transitions to lane left of parking or right-turn lane, but w/o bike lane symbols or signage)

- Paseo del Sol; Paseo del Sol W.; Country Club; Jaguar; Plaza Central\*
- Rufina St. between Richards Ave. and Siler Rd.
- Galisteo St. between W. Zia Rd. and Rodeo Rd.
- Agua Fria St. at La Cieneguita St.

\* Tierra Contenta bike lanes have inconsistent width: often <4ft.

Location-specific ("stand-alone") bike lanes through intersections:

- Old Las Vegas Highway (NM300) at Arroyo Hondo
- Old Las Vegas Highway (NM300) at El Gancho Rd.
- San Mateo at St. Francis Dr. (no symbol)



**Wide paved shoulders:** Striped shoulders, meeting AASHTO 1999 width specifications for bike lanes [(= or > 4ft.) or (at least 3.5 ft. & 5 ft. with gutter pan)]

City streets

- Agua Fria St. (Osage to Siler)
- Alta Vista St., w. of St. Francis
- Ave. Cristobal Colon (Baca to Agua Fria), includes full striping left of parking
- Cordova, east of Don Diego
- Camino Carlos Rey, north of Siringo
- Camino de Cruz Blanca
- Llano St.
- Galisteo Rd., Zia to Rodeo
- Gov. Miles Rd. west of Nava Ade
- Old Santa Fe Trail, Old Pecos Trail to E. Zia
- Pacheco St., St. Michael's to Siringo
- Rodeo Rd., Richards Ave. to Sawmill
- Rufina St. (Siler to S. Meadows), includes full striping left of parking
- San Mateo, Galisteo to Don Gaspar (check width)
- Sawmill Rd., e. of St. Francis (includes full striping left of parking?)
- South Meadows Rd.
- Yucca St.
- Zafarano n. of Cerrillos
- W. Zia St., Botulph to Capshaw M.S. & west of St. Francis Dr.

County roads:

- Caja del Rio
- Airport Rd.
- Rabbit Rd. east of Oshara section
- Ave. Vista Grande

State Highways:

- Cerrillos Rd. (NM14), between Jaguar Rd. and Beckner and between St. Francis Dr. and Osage
- NM14 between NM599 and Lone Butte (Bonanza Creek Rd.)
- Old Las Vegas Highway (NM300)
- US285 south of NM300
- Santa Fe Relief Route (NM599), main line
- I-25
- St. Francis Dr. (US84/285) south of Siringo and north of Alamo
- US84/285 frontage road from Tano Rd. to Tesuque Village Rd.

**Narrow paved shoulders** (only examples that are greater than two feet in width)

- Agua Fria St. between St. Francis Dr. and Osage
- E. Zia
- Gonzales Rd. between Cerro Gordo and Hyde Park Rd.
- Ave. Eldorado

Paved shoulders with significant **pavement edges** resulting in less than four feet of **clear** width:

- NM14 south of Lone Butte
- NM14 between I-25 and NM599, where shoulders exist
- NM599 frontage roads, where shoulders exist
- Camino La Tierra and Buckman Rd. (segments adjacent to NM599 interchange)
- W. Alameda extension (Caja del Rio to S. Meadows Dr.)
- Hyde Park rd. (where shoulders exist)
- Old Las Vegas Highway (FR2108) (where shoulders remain)

Prominent intersections where bike lanes or shoulders approach but do not get through the intersection:

- Airport/Rodeo and Cerrillos (bike lanes on Cerrillos, striped shoulders on Rodeo and Airport)
- Cerrillos Rd. and Jaguar Dr. / Gov. Miles Rd.
- Gov. Miles Rd. and Richards Ave.
- St. Michael's Dr.: bike lanes discontinued at intersections from Galisteo to Arroyo Chamiso
- St. Francis Dr., Cross streets with discontinued bike lanes or shoulders: W. Zia Rd. (east side), Alta Vista St., Cerrillos Rd., W. Alameda St.
- Cerrillos Rd., other intersections where cross streets have bike lanes or shoulders: Zafarano (n. side), Camino Carlos Rey (s. side)
- Agua Fria St., where shoulders exist: Intersections with right-turn lanes (Siler, Osage)
- Rufina St., where shoulders exist: Intersections with right-turn lanes (Siler, Richards)
- W. Alameda St., bike lane: Camino Alire
- Rodeo Rd.: intersections where cross streets have shoulders: Camino Carlos Rey
- W. Zia Rd., other intersections where cross streets have shoulders:

**Shared lanes**

**Wide shared lanes** allow enough space for motorists to pass cyclists without crossing the center line. AASHTO specifies 14 feet as the minimum width needed for this arrangement.

On the Santa Fe bikeways map, roads with significant motor vehicle traffic that have **wide curb lanes** where there is no parking, or where parking is minimal, are often shown in blue, including the following examples:

- Ave. de las Campanas
- Camino Carlos Rey, south of Siringo
- Gov. Miles Rd., Pueblos del Sol and east
- Osage (Rosina to San Ildefonso)

Other wide curb lanes where parking is permitted and significant, where traffic volume is higher, and/or where intersection treatments do not facilitate easy through movements by cyclists are shown on the bikeways map in orange, including:

- Pacheco St. north of St. Michael's Dr. to north of San Mateo
- San Mateo between Galisteo and 2<sup>nd</sup> St. (with localized westbound bike lane at St. Francis Dr.)
- Siringo from St. Francis Dr. west to La Resolana, except at RR tracks

These examples are significant candidates for retrofitting with bike lanes by reallocating space on the existing roadway – e.g. by restricting parking or narrowing or eliminating travel lanes or turn lanes.

#### **“Shared lane arrows,” or “sharrows”**

Sharrows are found in shared lanes on the following streets in the Santa Fe area:

- Artist Rd. (downhill / westbound only)
- Baca St.
- Camino Cabra, Upper Canyon Rd. to Atalaya E.S.
- Camino del Monte Sol
- E. Alameda and W. Alameda to Defouri St.
- Galisteo Rd. north of Coronado
- Gonzales Rd., at Cerro Gordo
- Henry Lynch Rd.
- Old Santa Fe Trail and Old Pecos Trail n. of Cordova
- Pacheco St. from north of San Mateo to Alta Vista St.
- Palace Ave.
- Paseo de Peralta from Cerrillos Rd. to Old Santa Fe Trail
- Potencia St., single sharrow, westbound west of Acequia Trail @ Larragoite Park
- Washington Blvd.
- Various Oshara Village streets (county)

Based on fieldwork in May-June 2011, the BTAC On-Road Subcommittee in its Memorandum to BTAC of June 21, 2011, “Launching an Annual Bicycle Sharrow Maintenance Program,” reported that, among the 380 sharrows installed by the city in 2005 and 2007, just over half (194)(51%) are no longer visible. The Committee found that sharrows originally installed on Grant Ave., 2<sup>nd</sup> St., Marcy St. west of Lincoln, and Don Gaspar Ave. are no longer present after repaving. (Sharrows are no longer needed on Don Gaspar Ave., which now has a bike lane.)

What is the experience with “sharrows”?

"Santa Fe's decision to install shared-lane markings ("sharrows") on certain streets was based on a study of the contribution of these pavement markings to bicycle safety that was done several years ago in San Francisco. By means of extended video surveillance of streets before and after the installation of sharrows, that study determined that the presence of these symbols had the effect of (1) reducing the incidence of wrong-way riding by about 80%, (2) reducing the incidence of sidewalk riding by about 30%, (3) increasing the average distance between cyclists and parked cars by about 20%, and (4) increasing the average distance between cyclists and passing cars by about 80%. Since all of these effects had been shown by other studies to be important factors in improving the safety of cyclists, the conclusion drawn was that the installation of sharrows had made a substantial contribution to this goal. (see [http://www.sfmta.com/cms/uploadedfiles/dpt/bike/Bike\\_Plan/Shared%20Lane%20Marking%20Full%20Report-052404.pdf](http://www.sfmta.com/cms/uploadedfiles/dpt/bike/Bike_Plan/Shared%20Lane%20Marking%20Full%20Report-052404.pdf)).

"Based on the findings of this study, a program of sharrow installation on selected Santa Fe streets was commenced in 2005 and was expanded to additional streets in 2007. Although no study has yet been done of their precise effectiveness in Santa Fe, there is no reason to believe that their impact would be any different here than it was in San Francisco. The city has therefore concluded that this is a valuable program that should be maintained and continued. A line-item for repair and replacement of the existing sharrows, as well as a modest expansion to additional streets, was accordingly included in the CIP bond that was recently approved by the city council.

"Besides the beneficial effects shown by the San Francisco study, observations in Santa Fe also suggest that the sharrows appear to contribute to a better understanding of the appropriateness and acceptability of cyclists 'taking the lane.'"

- Jim Harrington, BTAC On-Road Subcommittee Member, March 2011

Sharrows have been installed alongside densely parked cars in a few downtown locations, including parts of E. Alameda St., Washington Blvd., and Galisteo St., where they may help bicyclists avoid getting "doored" by people exiting parked cars. Other applications include narrow, low-speed streets with stop signs, such as parts of E. Alameda; approaches to intersections with right-turn lanes, such as on W. Alameda at Guadalupe and Paseo de Peralta at Guadalupe; four-lane streets such as Paseo de Peralta; and downhill grades such as Artist Rd. On some streets where motor vehicle speeds are higher and controls (stop signs) fewer, motorists may continue to regularly overtake cyclists regardless of where the latter are positioned on the roadway (e.g., Baca St., Pacheco St., Camino Cabra uphill). This may represent appropriate, mutual accommodation ("sharing the road") as bicyclists may "allow" motorists to pass on the left at times where there is space to do so.

### **Grade Separated Crossings for On-road Cyclists**

On-road bicyclists benefit from various grade-separated road crossings with major roadways, particularly in cases where such crossings are **not** associated with interchange ramps. Examples of the latter include:

- Richards Avenue under I-25
- Via Abajo under NM599
- Ave. Rincón (near Zocalo) under NM599
- Rodeo Rd. over St. Francis Dr.
- Paz Bridge over US84/285 (State Bike Route 9)

## **Appendix 7:**

### **Assessment of Multi-Use Trails in the Santa Fe MPO Area**

- I. Major Multi-Use Trails as “Arterial Bikeways”**
- II. Descriptions of Major Trail and Related Bikeway Alignments**
- III. Other Independent Alignments for Multi-Use Trails**
- IV. Subdivision Trails**
- V. Sidepaths**
- VI. Topographical Barriers for Multi-Use Trails in the Santa Fe Metro. Area**
- VII. Long-Range Trail Alignments**

#### **I. Major Multi-Use Trails as “Arterial Bikeways”**

Santa Fe’s major multi-use trails can be thought of as core pieces of the city’s “arterial bikeways.” Together with complementary road and trail connections, they can function as an integrated network of comfortable and reasonably convenient alignments that a wide variety of bicyclists can use to get to most parts of the city.

As shown in the Table below, the Santa Fe metropolitan area includes nearly 19 miles of paved “arterial” trails and 17 miles of unpaved “arterial” trails. These figures include major trail alignments only. Paved trails listed here meet or approximate AASHTO guidelines. Many more miles of minor paved trails within subdivisions and parks, including internal connections and side paths along roadways, are not included, nor are other soft-surface recreational trails.

**Table: Mileage of Trails along Major Alignments in the Santa Fe MPO Area, by surface type**

Trail Alignment	Paved	Unpaved	Total
Acequia Trail	1.1	0.5	1.6
Arroyo de los Chamisos (1)	4.4	0.2	4.6
Arroyo Hondo Trail	0.0	0.8	0.8
Ashbaugh Park Trail	0.2	0.0	0.2
Chili Line	0.0	0.2	0.2
Frenchy's Field Trails	0.8	0.0	0.8
NM Mexico Central RR (2)	1.6	0.0	1.6
Rail Trail	4.4	11.6	16.0
River Trail	3.3	0.6	3.9
Spur Trail	0.0	3.0	3.0
St. Francis Dr. Trail	0.9	0.0	0.9
Tierra Contenta Trail (3)	2.1	0.0	2.1
<b>TOTAL</b>	<b>18.8</b>	<b>16.9</b>	<b>35.7</b>

(1) Includes Gail Ryba Trail (with Gail Ryba Trail underpass, currently under construction) and Zia Trail.

(2) Includes Rancho Viejo "District Trail" and part of SFCC Loop.

(3) Counted separately from the rest of the Arroyo de los Chamisos Trail.

## **II. Descriptions of Major Trail and Related Bikeway Alignments**

### **Acequia Trail**

The Acequia Trail currently includes 1.1 miles of paved trail segments, between the Railyard Park and Larragoite Park, and unpaved trails along 0.4 miles of the Acequia Madre within the Railyard Park, for a total length of 1.5 miles. Separate pieces of the Acequia Trail include a half-mile of paved trail adjoining Ashbaugh Park, planned for construction in 2012, and an unpaved segment from Otowo Dr. to Maclovía Park (0.1 mi.).

The longer Acequia Bikeway alignment available to local bicyclists incorporates a variety of calm paved roads through residential areas, includes Potencia St., Montañó St., Otowi Dr., and Gallegos Dr. (via Maclovía Park), for a total Acequia Bikeway length of over 2.5 miles, spanning the Acequia Madre and the Acequia de los Pinos from Guadalupe St. to Gallegos Ln. The combine bikeway has just four street crossings, including St. Francis Dr. (marked and signalized) and Baca St. (marked speed table) on the Acequia Trail and Felipe St. and Osage Dr. (controlled via four-way stop) on Otowi Dr. Significant direct connections to this bikeway include the Chili Line in the Railyard Park, the Rail Trail, two W. Railyard trail connections, Larragoite Park, Ashbaugh Park and Trail, and Maclovía Park. Future tie-ins on the west end may include Cielo Vista (Carmelita St.) Park and Dos Hermanos Rodríguez Park.

Separate pieces of the Acequia Trail are planned in the relatively near term for a half-mile section around Las Acequias Park (Lopez Ln. to Rufina St.) and a one-mile section from the west end of Rufina St. to the County's new River Trail trailhead at Agua Fria St. near San Felipe Rd. Incorporating the length of Rufina St. from Harrison St. to S. Meadows Rd., which provides calm shared lanes east of Siler Rd. and striped bike lanes west of Siler Rd., the greater "Acequia Bikeway" concept would provide bicyclists with a 7.25-mile facility from the Railyard Park to the Santa Fe Country Club area, on the outskirts of Tierra Contenta, without requiring the use of Agua Fria St. or Cerrillos Rd.

### **Arroyo de los Chamisos Trail, including the Gail Ryba Trail**

Santa Fe's oldest multi-use trail is a 4.0-mile asphalt path from the Rail Trail at Siringo Rd. to the Nava Ade subdivision and the Santa Fe Place mall and transit center. The trail has three marked, at-grade street crossings (Yucca, C. Carlos Rey, and Ave. de las Campanas), and one grade-separated crossing at Rodeo Rd.

A separate paved section of the Arroyo de los Chamisos Trail to the east, which is being renamed the Gail Ryba Trail, will be connected to the Rail Trail through an underpass under St. Francis Dr. in 2012. The alignment on the east side totals 0.7 miles, including "Zia Trail" extension south of W. Zia Rd. Counting the half-mile of the Rail Trail that connects the two segments along the Arroyo de los Chamisos, the continuous length of paved trail will Santa Fe's longest at five miles.

Significant direct connections to the Arroyo de los Chamisos Trail include Capshaw Middle School, the Zia Trail to the Arroyo en Medio, the St. Francis Dr. Trail, the Rail

Trail, Santa Fe High School, Monica Lucero Park, the Genoveva Chavez Community Center, Villa Linda Park, and the Santa Fe Place mall and transit center.

To the west, a separate section of the Arroyo de los Chamisos trail located in Tierra Contenta runs along 2.1 miles of a tributary to the Arroyo de los Chamisos to a point where the arroyos join near NM599, the future site of the Southwest Activity Node or “SWAN” Park. This segment of the trail also has several, well-marked crosswalks. The ultimate plan over time is to connect this trail to the greater Arroyo de los Chamisos Trail south and southeast of Capital High School. Currently-proposed development of Las Soleras east of Cerrillos Rd. may fill in some of the missing gap, while the SWAN Park and private development proposed to the west may eventually bring the trail under NM599 and along the Arroyo de los Chamisos into the La Cienega area.

The various paved segments of the Arroyo de los Chamisos trail have been built to AASHTO specifications for width (10 ft.) and feature marked crosswalks at all at-grade street crossings, which are primarily at uncontrolled mid-block locations.

### **River Trail**

The River Trail is a multi-use trail along the Santa Fe River that will eventually link downtown Santa Fe with the western edge of the urban area north of Tierra Contenta, a span of nearly ten miles. Developing the River Trail has been a top priority of local bikeway planning since before the City’s 1993 Bikeways Master Plan.

The City’s section of the River Trail is a concrete multi-use trail from St. Francis Dr. to Frenchy’s Field, a span of 2.1 miles. Thanks to a bridge underpass at Camino Alire, it requires no at-grade street crossings. Most of this section meets AASHTO specifications but between Camino Alire and Ave. Cristobal Colón, the trail is only eight feet wide, typically with one or two handrails located less than one foot from the edge of concrete. Adding on the adjoining trail in Frenchy’s Field and the uninterrupted sidewalk along W. Alameda St. east of St. Francis Dr. to Defouri St., the continuous River Trail alignment currently available to trail users reaches a total of nearly three miles.

Significant direct connections to this part of the River Trail include Gonzales Community School, the “El Rio Road” Trail to Alto St., Alto / Bicentennial Park, Griego Park, and Frenchy’s Field.

The “River Parkway” vision is to extend the River Trail nearly a half-mile further east, through De Vargas Park, including an at-grade crossing of Defouri St. and underpasses of Guadalupe St., Sandoval St., and Galisteo St., three downtown streets that are due for bridge repairs. The trail would bring users to Don Gaspar Ave., which in turn provides easy access to the plaza and to points north and south via calm roads integrated into “State Bike Route 9.”

The longer Santa Fe River alignment that is currently available to bicyclists and pedestrians includes a variety of shared lanes, bike lanes, sidewalks, and unpaved trails

along E. and W. Alameda St. West of Frenchy's Field, the County has built separate pieces of the River Trail between San Ysidro Crossing and Caja del Oro Rd. (primarily unpaved) and between Agua Fria St. and Constellation Rd. (paved), totaling 1.8 miles. These segments will likely be integrated into a greater City-County River Trail within the next 5-10 years.

### **Rail Trail**

The Rail Trail includes two distinct paved sections along the Santa Fe Southern Rail Line. The first is 0.75 miles from the Santa Fe Depot through the Railyard Plaza and Railyard Park, and across the intersection of St. Francis and Cerrillos Rd. to Pen Rd. The second is 3.6 miles from nearby Alta Vista St. to Rabbit Rd. In between the two sections are the relatively calm roads of Pen Sd. and South Capitol Station, the latter with bike lanes. Together the paved trails and on-road segments make a 4.0-mile bikeway alignment.

South of Rabbit Rd. is roughly 11.6 miles of soft-surface Rail Trail to Eldorado and US285. The County is currently starting improvements to this trail in order to satisfy easement requirements of the New Mexico Department of Transportation, the owner of the rail right-of-way and in order to provide a more accessible facility that may make for a more efficient commuter bikeway as well. Some of the new alignment will be farther away from the rail line than the current Rail Trail. The new cross-section will be soft-surface on a wide tread.

Significant direct connections to the paved Rail Trail and on-road bikeway include the Santa Fe Depot, the Railyard Park and Plaza, the Acequia Trail, South Capitol Station, the Arroyo de los Chamisos Trail, the Gail Ryba Trail, and Zia Station. The unpaved Rail Trail provides further connections to the Spur Trail (to Santa Fe Community College and Rancho Viejo), roads and wide side paths in Eldorado, and a recreational trail network in the Galisteo Basin Preserve. Access to the origin of the rail line and the Amtrak Station in Lamy is currently only available via the paved shoulders of US285 ("State Bike Route 9") and shared lanes on County Road 33, a total of 2.7 miles on road.

The Rail Trail has roughly a dozen at-grade crossings with minor or major roadways. One crossing, at W. Zia Rd and St. Francis Dr., is signalized. The rest are uncontrolled and for the most part unmarked, with the exceptions of marked crosswalks at Paseo de Peralta and Camino Alire.

### **III. Other Independent Alignments for Multi-Use Trails**

Multi-use trails are also found, or planned for, on the following alignments (see Map 1, Santa Fe Bikeways and Trails Map, 2012, and map of abandoned railroad alignments on p. 9 of this Appendix):

- Cañada Rincon
- Cañada Ancha
- Arroyo de las Mascaras
- Arroyo de los Pinos



- Arroyo Chaparral
- Arroyo en Medio
- Arroyo Hondo
- Chili Line (Denver and Western Rio Grande Railroad, Santa Fe Branch)
- N.M. Central Railroad
- Santa Fe Southern RR, abandoned railbed (n. of I-25 along Galisteo Rd.)
- Power lines through Pueblos del Sol and through Las Soleras (planned)
- I-25 frontage

#### **IV. Subdivision Trails**

Many narrow paved trails and paths make local connections and serve recreational functions but do not meet AASHTO standards for multi-use trails. They are typically found within recent subdivisions such as Pueblos del Sol, Nava Ade, Rancho Viejo, and Las Campanas. In a few cases, subdivision trails are also potential major “arterial” bikeway alignments. The section of the Arroyo de los Chamisos Trail in Nava Ade, for example, preceded the arrival of the main trail south of Rodeo Rd., but, unlike other subdivision trails, it was built the AASHTO-recommended ten feet wide. Similarly, Rancho Viejo’s “District Trail,” which could become part of a much longer New Mexico Central Rail Trail alignment, was also built to AASHTO specifications as the subdivision’s major, central trail. Trails in Pueblos del Sol could also become part of a longer north-south alignment approximating the NM Central Railroad alignment within the city limits. Unfortunately these trails are extremely narrow (6 ft. wide) and meandering and lack basic internal connectivity.

#### **V. Sidepaths**

Within the city of Santa Fe, a side path built along Botulph Rd. is one of the only examples of a side path constructed by the City with the specific intent of accommodating bicycle traffic. Several more, relatively minor examples can be found in subdivisions in the city:

- along south side of Gov. Miles Rd., east of Pueblos del Sol
- along Richards and Gov. Miles Rd. in La Sonata

Numerous examples of side paths can be found in county subdivisions and other developed locations, including:

- Eldorado
- Las Campanas
- Rancho Viejo
- La Pradera (along Dinosaur Trail)
- Campus of Santa Fe Community College.

In most cases, side paths serve as an acceptable pedestrian facility but a marginal bicycle facility, suitable for low-speed recreational use only. Because they are along roads, they make for less-than-ideal recreational bicycling alignments, compared to a multi-use trail on an alignment independent of a roadway. Also because they are along roads, they are

not very functional for bicycle through traffic, and commuter or other on-road cyclists travelling adjacent roadways tend to avoid them. Side path alignments introduce numerous street and/or driveway crossings that constitute hazards not found on the roadway, they often have dysfunctional interfaces with side streets or the streets that they travel along, they may require frequent stopping or yielding to motor vehicle traffic, and they often include additional grades and meanders that limit safe or comfortable travel speed and increase cycling distance.

**Sidepaths that have been Proposed along Major Roads:** Past bicycle planning in Santa Fe has included numerous side path alignments with little reference to the concerns expressed by AASHTO and LAB. BTAC's Big Picture map, for example, depicts countless roadways as proposed trail alignments, including much of Rufina St. (also identified as a trail alignment by the 1993 Bikeways Master Plan), St. Francis Dr. (US84/285), Richards Ave., Old Pecos Trail, Gonzales Rd., Artist Rd./Hyde Park Rd. (NM475), and even St. Michael's Dr. (NM466). In most cases, however, side paths have NOT been pursued as a solution for accommodating bicyclists and pedestrians along these alignments. Rather, City has pursued the combination of on-road bicycle facilities and sidewalks that is recommended by AASHTO, endorsed by LAB, and well-suited to accommodate bicyclists and pedestrians along most of these roadways, and many more.

The proposed Gonzales Rd. "side path," which has been designed but not yet constructed for the City, might seem to be an exception, but BTAC and the City have determined that this is not to be considered a bicycle facility, in which case it can be considered a sidewalk.

Several major roadways with high-speed traffic in Santa Fe have also been proposed as side path alignments, particularly Richards Ave. and St. Francis Dr. In neither case is a side path recommendable for long distances along these roadways as envisioned in early bicycle planning, as well as in NMDOT's recent St. Francis Dr. Corridor Study. Both alignments, however, do have specific segments with merits specifically relating to their prospective role in connecting trails and bikeways on other alignments that are independent of roadways.

- **Richards Ave.** has ample paved shoulders or bike lanes throughout its alignment north of Rancho Viejo. A side path along Richards Ave. to the Santa Fe Community College was proposed both by the 1993 Santa Fe Bikeways Master Plan and by BTAC's "Big Picture" map. Initial planning and design activities were funded by BTAC but the Committee eventually rejected the use of city trail funds for a Richards Ave. side path.

Given the convenience of Richard Ave.'s underpass of I-25 (with no conflicts at interchange ramps), prospective connections with various independent trail alignments planned to the north and south of I-25, local land uses including SFCC and possible developments such as a Railrunner Station at Las Soleras, Richards Ave.'s current lack of pedestrian facilities in the form of a sidewalk, and availability of trail easements along uninterrupted right of way (e.g., through the Petcheskey Ranch on the west side of Richards Ave., and through undeveloped

land north of Rabbit Rd. on the east side, toward the NMCRR alignment), one or more side paths along Richards Ave. and an adjoining part of Rabbit Rd. may be appropriate accommodations for trail users in this area in the near future.

- **St. Francis Dr.** has very limited on-road facilities for cyclists, primarily south of Siringo Rd. St. Francis Dr. is another corridor that has been proposed for various side paths, as reiterated and expanded by the NMDOT's St. Francis Dr. Corridor Study. The newly-built St. Francis Dr. Trail provides a bicycle and pedestrian facility along part of St. Francis Dr., bringing bicyclists to signalized crosswalks at busy, high-speed highway intersections that have not been designed for trail traffic and, in most cases, have handled minimal pedestrian traffic to date.

The St. Francis Dr. Trail creates a high level of connectivity between significant bikeway alignments independent of St. Francis Dr., namely the Rail Trail and Gail Ryba Trail to the south and west and Santa Fe's network of designated on-road facilities to the north and east, including signed bike routes on Galisteo, Don Gaspar, and San Mateo as well as bike lanes on St. Michael's Dr. and Old Pecos Trail. Extensions of the St. Francis Dr. Trail to busy intersections at W. Zia to the south and St. Michael's Dr. (NM466) to the north created new points of conflict that were not necessary to create this connectivity. The connection to W. Zia Rd. may provide added value if a sidewalk or trail is provided directly into the Plaza Entrada shopping center, otherwise this Bicycle Master Plan does not include further extensions of trails along St. Francis Dr.

- More recently, the Las Soleras subdivision has planned a side path along **Beckner Dr.**, which will also have standard bike lanes per city code.

### **Expanded definition of Sidepath in AASHTO 2011**

The latest AASHTO guidance (2011) expands the definition of a "side path" to include multi-use trails that use intersection crosswalks in general. These "side path-like" conditions exist at the following major, signalized intersections in Santa Fe:

- Acequia Trail at St Francis and Cerrillos
- Rail Trail at St. Francis and W. Zia
- River Trail at St. Francis and W. Alameda.

"Side path-like" conditions also occur on Santa Fe's major multi-use trails at the following non-signalized location:

- Rail Trail at Rodeo Rd. and Galisteo Rd. (cross-traffic not controlled)

### **Mitigation of Conflicts created by Sidepaths**

While there are methods promoted by AASHTO and FHWA to design intersections for pedestrian safety and to accommodate trails in crosswalks, construction of side paths in the Santa Fe area has typically not included improvements to existing ramps and crosswalks at road crossings.

## **VI. Topographical Barriers for Multi-Use Trails in the Santa Fe Metropolitan Area**

The Santa Fe River is a formidable topographical feature that is bridged by many lower-speed, narrow streets downtown and a handful of mostly higher-speed roadways west of downtown. Among the busier roads west of downtown, with the notable exception of St. Francis Dr., nearly all of the roadway bridges over the Santa Fe River provide appropriate accommodations to cyclists in the form of a paved shoulder. Most of these bridges west of downtown (again with the exception of St. Francis Dr.), also provide space for River Trail users to cross underneath the roadway.

Arguably, non-motorized traffic is better accommodated across the Santa Fe River than motorized traffic, for there are at least as many dedicated non-motorized crossings of the Santa Fe River as there are road crossings. These include four “pedestrian” bridges east (upstream) of St. Francis Dr., eight River Trail bridge crossings or connections west (downstream) of St. Francis Dr., and one at-grade low-water crossing that is closed to motor vehicles (Camino Carlos Rael). As the River Trail is developed, needs for more crossings will become more apparent; recommendations for future locations are presented in Chapter IV.

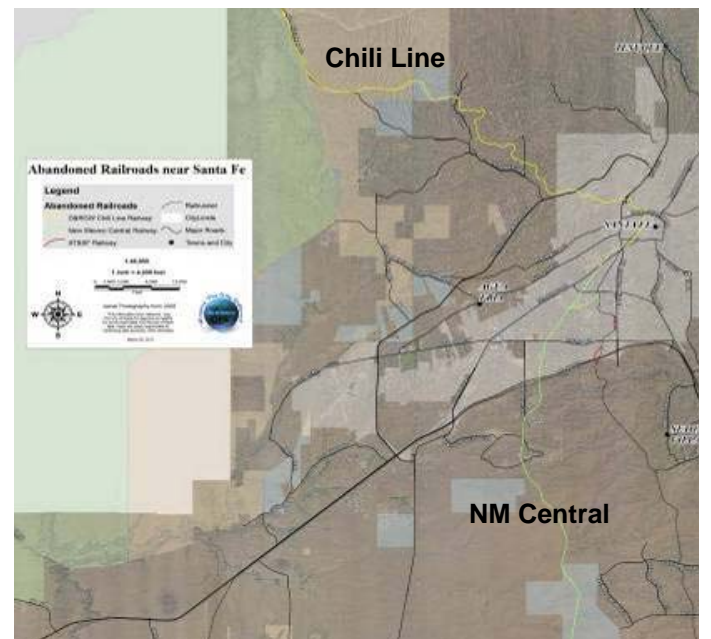
Arroyos and irrigation ditches also pose barriers to the road and trail systems in Santa Fe, though these are typically more easily overcome through smaller bridges, culverts, or at-grade crossings. Roughly a dozen bridges for non-motorized traffic over the Acequia Madre range from informal but sturdy two-by-four construction to four hefty new structures built by the City in 2009-11 to accommodate maintenance and emergency use by heavy motor vehicles. Bicycle-pedestrian bridges over major arroyos in the Santa Fe area include five over the Arroyo de los Chamisos (Gail Ryba Trail (2), Rail Trail (1), Arroyo de los Chamisos Trail (2)) and three along the Arroyo de los Chamisos Trail that span tributaries to the Arroyo de los Chamisos. Countless other trail crossings and footbridges, many associated with city parks, include crossings over the Arroyo de las Mascaras and its tributaries (most within Fort Marcy Park), Arroyo Chaparral (Rail Trail; footpath near Chaparral E.S.), and Arroyo de los Pinos (Rail Trail; footpath in Herb Martinez Park).

Locations where unbridged arroyos or acequias continue to pose a major barrier to non-motorized traffic include the Acequia Madre at various locations including Kathryn St. and Oñate Pl. dead-ends, Arroyo Chaparral near Candelario Park, and various locations where the County of Santa Fe is considering trail alignments along the Arroyo Hondo.

## VII. Long-Range Trail Alignments

- **NM Central Railroad Line to Galisteo:** Santa Fe County is currently seeking to develop the abandoned railbed of the NM Central Line south of Eldorado to Santa Fe County Road 42 west of Galisteo Village, as a soft-surface trail in conjunction with the Galisteo Basin Preserve development. This alignment could have some transportation value, since a paved trail is planned to extend northward from Eldorado to Rancho Viejo. More significant are the recreational opportunities, including possible links to other, existing Galisteo Basin Preserve trails and to the Santa Fe Southern Rail Trail to Eldorado and Santa Fe.

*Map: Abandoned railroads in the Santa Fe MPO Area.*



- **Rio Grande Trail, Santa Fe River Trail, and the Chili Line:** Two conceptual alignments for long-range trails in the Santa Fe area, one to continue the Santa Fe River Trail to La Bajada Village and Cochiti, and the other to pursue a Chili Line Trail around Buckman Wells and north, could both conceivably be integrated into New Mexico State Parks' statewide Rio Grande Trail initiative. Both alignments are primarily on federal land belonging to the Bureau of Land Management (BLM) and the Santa Fe National Forest (SFNF) but also include some tribal land. The extended Santa Fe River Trail alignment could conceivably include an abandoned section of old Route 66 featuring 23 switchbacks descending to La Bajada village. SFNF and BLM have recently proposed to improve a 1.5-mile recreational trail along the Chili Line on federal land north of the



*The Denver, Rio Grande and Western railroad, also known as the Chili Line, near Diablo Canyon (Photo courtesy of <http://ngchililine.org>)*

Buckman diversion.<sup>1</sup> Possible alignments to link to this trail in the future from Santa Fe include the Chili Line, Buckman Rd., and the Buckman diversion pipeline, which in turn might be linked to the City's MRC Trail and the Santa Fe River Trail. The critical link from a long-range transportation perspective, to extend the Chili Line trail north to NM502 at Otowi Bridge, is a 1.5-mile stretch along the Rio Grande through San Ildefonso Pueblo.

Other long-range alignments of possible future interest include (1) Galisteo Creek / Old Santa Fe Trail / BNSF rail alignment west to Glorieta, which would offer bicyclists and pedestrians an alternative to I-25, and (2) a combination of the NM Rail Runner alignment to Waldo Canyon and the BNSF rail alignment to Cerrillos; an abandoned rail spur could in turn provide a connection from Cerrillos to Madrid.

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<sup>1</sup> SWCA Environmental Consultants, for SFNF and BLM, "Rio Grande Corridor at Buckman Restoration and Recreation Enhancement Project: Proposed Action, Alternatives, and Preliminary Effects Analysis" (Nov. 2011), p. 21.

## **Appendix 8:**

### **Assessment of Bike Route Guidance in the Santa Fe MPO Area**

#### **A. Guidance provided through Bike Route Signs on Streets in Santa Fe**

The 1993 Bikeways Master Plan created a network of bike routes designated through standard “Bike Route” signage on city streets including:

- De Fouri St.
- Montezuma St.
- Galisteo St.
- Don Gaspar
- Coronado
- San Mateo
- Old Pecos Trail (n. of St. Michael’s Dr.)
- Hospital
- Botulph
- Siringo
- Yucca St.
- Avenida de las Campanas
- Rodeo Rd. (existing per 1993)
- Airport Rd. (county) (existing per 1993)

This signage program was implemented within a few years of the plan. The signage scheme only included directional signage at a few decision points (Galisteo and Hospital; Don Gaspar and Montezuma) and no information on destinations or distance. A few facilities proposed for designation never received it, including Richards Ave., part of Old Pecos Trail, and a proposed route to Capital High School including S. Meadows and part of Jaguar Rd. Each of these facilities now includes designated bike lanes or paved shoulders and need not be generically designated as a “bike route,” though each may be considered for specific directional guidance for cyclists, should the need arise.

#### **B. Longer-Range Signed Bike Routes**

**“State Bike Route 9.”** The primary rationale of the State Bicycle Route program is to provide guidance through New Mexico for longer-range bicycle tourists. State Bike Route 9 in Santa Fe serves to provide guidance in and out of downtown Santa Fe for local cyclists as well as visitors. It is a series of primarily on-road facilities connecting Lamy, Eldorado, Santa Fe and Tesuque Village. It was designated by NMDOT in conjunction with the City of Santa Fe in 2006-2007 (See Map 3, State Bike Route 9, p. 26).

The link from Lamy to Santa Fe follows paved shoulders and bike lanes along US285, NM300 (Old Las Vegas Highway), and Old Pecos Highway (NM466 and City section) into the network of city streets designated as “Bike Routes” under the City’s 1993

Bikeways Master Plan, including parts of San Mateo, Don Gaspar and Galisteo, adding a one-block link from Don Gaspar to Galisteo via Malaga St., and extending the existing bike routes on Galisteo and Don Gaspar several blocks north to San Francisco St.

The route heads north from the plaza area via Grant St., a short piece of Paseo de Peralta, and Old Taos Highway onto a multi-use trail connection to Camino Encantado near the top of “Opera Hill.” The route then crosses “Paz Bridge” over US84/285, and follows the US84/285 west-side frontage road down to the beginning of Tesuque Village Rd. (CR73).

Each side of State Bike Route 9 brings cyclists to within a block of the plaza but, due to the difficulty of establishing a single best route as well as the sensitivity of signage in the plaza area, the two sides are only connected through reference on the plaques.

State Bike Route 9 added directional information (arrows and destination plaques) at many decision points and added or incorporated small spur or connector bike routes. Cyclists are given specific destination guidance to “SANTA FE” and “PLAZA” on inbound routes and to “LAMY,” “ELDORADO,” “OLD LAMY TRAIL,” or “TO TESUQUE VILLAGE RD.” on outbound routes. Part of St. Michael’s Dr. (NM466) was simultaneously designated a Bike Route by NMDOT as well, with specific guidance to State Bike Route 9 from Galisteo St. to Old Pecos Trail. For cyclists on northbound State Bike Route 9 in this area, alternative guidance plaques are provided: “State Bike Route 9 – Downtown” (right) and “Bike Route – St. Michael’s Dr.” (left) (Part of the rationale was to avoid confusion between the designated bike route on Old Pecos Trail and the bike lane following NM466 onto St. Michael’s.)

Another decision point with alternative destinations created through the state bike route occurs at Galisteo and Montezuma, where a “RAIL YARD” destination plaque was added to the original city bike route sign with left arrow, and the new State Bike Route guidance signage continuing along Galisteo specifies “PLAZA” as destination (See Figure: Photo of Railyard vs. Plaza Destination plaques).

**Other Bicycle Tourist Routes:** Tourists traveling by bicycle visit the Santa Fe area as part of organized and supported tours or self-supported in smaller groups or as individuals. Designated Scenic Byways are typically relatively popular routes for bicycle tourists, including the Turquoise Trail on NM14 south of Santa Fe, the High Road to Taos on NM76 north of Santa Fe, and the Jemez Mountain Byway (NM4) to the northwest toward Los Alamos. Long-Range plans for NMDOT’s “State Bike Route 9” take into account the attractiveness of routes to Galisteo and Moriarty (via NM41) and to Ojo Caliente via Española (via US285).

Many of these popular long-range bike tourism routes are publicized and informally mapped by local cycling groups such as the New Mexico Touring Society (NMTS). Also included on NMTS’s web site are popular day trips starting and ending in Santa Fe, including the Santa Fe Century Route (100-mile loop to Madrid and Stanley with 50-mile loop using County Road 42 to Galisteo, see [www.santafecentury.com/routemap.html](http://www.santafecentury.com/routemap.html)),



and many shorter rides such as “the Prison Loop” (using Bonanza Creek Rd. and NM14, see [www.nmts.org](http://www.nmts.org)).

Bicycle tourism to Santa Fe and within Santa Fe may be anticipated to increase for several reasons. Improvement in the environment for bicycling alone can be expected to increase the number of visitors coming to Santa Fe with bicycles, regardless of their mode of transportation to the city. The ease of arriving with a bicycle by train on the NM Railrunner has already been observed to contribute to cycling in the downtown area. Cyclists can also come on public transit from Las Vegas, Moriarty, Los Alamos, Española, and Taos, by private buses running between Albuquerque and Denver, and by AMTRAK to Lamy and “State Bike Route 9.”

**Bike Route 66.** On November 22, 2010, the premiere provider of mapping and travel information services for long-range bicycle tourists in North America, the Adventure Cycling Association (ACA), announced that it will add “Bike Route 66” between Chicago to Los Angeles to the 40,000 mile network of routes that ACA has researched and mapped (see [www.adventurecycling.org/news/20101122.cfm](http://www.adventurecycling.org/news/20101122.cfm)). Unlike most other ACA routes, this route will intentionally bring cyclists into and through urban areas like Phoenix and Albuquerque.



*Photo from ACA blog, “[Bicycling the Mother Road](#),” Nov. 24, 2010*

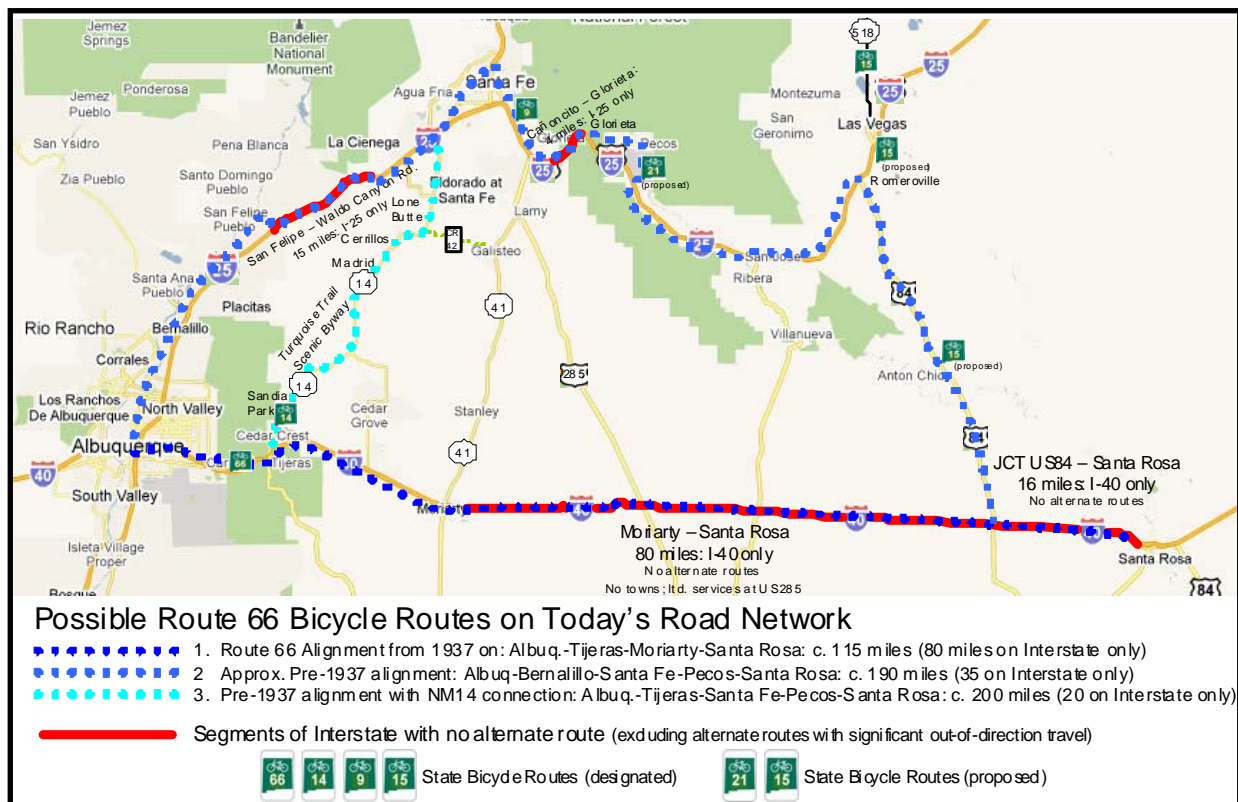
ACA will also be working with state and local agencies and through AASHTO to designate a U.S. Bike Route Bicycle Route 66 in conjunction with ACA’s Bike Route 66. Prospective routes through the Santa Fe metropolitan area will undoubtedly be researched and mapped by ACA, working with local and state agencies, within the next year or so. It can be anticipated that the pre-1937 alignment of Route 66 through Santa Fe will a major alternative, if not the major alternative, promoted by ACA (see MAP: Route 66 Alignments between Santa Rosa and Albuquerque). Although following the pre-1935 alignment to Santa Fe adds at least an extra day to a cyclist’s trip, a route that includes Santa Fe will be more attractive to many bike tourists for a variety of reasons, and there is no doubt that local bike shops, outfitters, tour guides, and well-situated hotels and campgrounds will directly and significantly benefit from future bike tourists following ACA’s route - many of whose last significant city visited will have been Amarillo, Texas, roughly a week earlier.

In order to follow the pre-1935 alignment, ACA will likely have cyclists follow the established Scenic Byway route into Santa Fe along Old Las Vegas Highway (NM300) from Cañoncito. From the junction with US285, this route would coincide with State Bike Route 9 along Old Las Vegas Highway onto Old Pecos Trail up to San Mateo, where SBR9 diverges left. The ACA route would most likely continue on the original alignment and current Scenic Byway route along Old Pecos Trail and Old Santa Fe Trail

to Water St. in the plaza area, a route that now offers bicycle lanes to Coronado St. transitioning to sharrows on the narrow descent downtown. (For the reverse direction, ACA may want to consider the SBR9 southbound alignment using Don Gaspar, which offers a bicycle lane and less motor vehicle traffic on the corresponding uphill section.)

It can be anticipated that much of the historic pre-1935 alignment of Route 66 west of downtown Santa Fe that might be followed by motorized tourists will not be a major recommended route for bicycle tourists. Most if not all of Cerrillos Rd. from St. Francis Dr. to Airport Rd. may not be the kind of facility that ACA will desire to guide cyclists to use. A relatively direct alternative to get to the slightly more “bicycle-friendly” part of Cerrillos Rd. beyond Airport Rd. could include Rufina St., along with South Meadows and Jaguar Rd. This possibility highlights the priority of connecting Rufina St. to the Acequia Trail to create an “Acequia and Rufina Bikeway” from the Railyard Park west.

ACA may give cyclists some alternatives to get back to the main Route 66 alignment in Albuquerque. Although it is not a historic Route 66 alignment, cyclists could continue south on Cerrillos Rd. to the Turquoise Trail Scenic Byway (NM14) south of NM599. NM14 is already a popular bicycle touring route to Tijeras, from which “State Bicycle Route 66” on NM333 provides the classic entrance into Albuquerque on the post-1937 alignment. Cyclists who would like to avoid the topography of NM14, however, may backtrack to NM41 and Moriarty via Galisteo or may continue tracing the pre-1937 alignment to Albuquerque via Bernalillo. The modern driving route for this alignment, which is more commonly associated with the Camino Real, starts with a 15-mile stretch of I-25 starting at Waldo Canyon Rd. with no frontage roads or other convenient alternate routes.



## **Appendix 9:**

# **Santa Fe MPO Bicycle Master Plan Goals and Recommendations**

### **Goal: More Bicycle Facilities and Better Bicycle Facilities, within an Integrated and Effective Bikeway System**

- Recommendation 1.1. Implement “Complete Streets” policies for all construction and maintenance of roadways in the MPO area.
- Recommendation 1.2: Create and implement programs to retrofit roadways in need of bicycle facilities
- Recommendation 1.3: Adopt and adhere to established engineering guidelines for planning, designing, building, and maintaining roads, trails, and other bicycle facilities.
- Recommendation 1.4: Target investments in new infrastructure that maximizes cost effectiveness toward a better bikeway system
- Recommendation 1.5: Support pro-active maintenance of on-road and off-road facilities while minimizing impact to users
- Recommendation 1.6: Coordinate planning of bikeway facilities in the MPO area
- Recommendation 1.7. Provide bicyclists with useful guidance through Bike Route signage and other wayfinding assistance on trails and roads
- Recommendation 1.8. Research, consider, promote, and implement best design practices
- Recommendation 1.9. Improve and expand bicycle parking
- Recommendation 1.10. Support Higher-Density, Mixed-Use Development
- Recommendation 1.11. Provide Critical Connectivity for Bicyclists and Pedestrians
- Recommendation 1.12. Gather Data to Support and Guide Bicycle Planning

### **Goal: Santa Feans and their guests are able to confidently, safely, and effectively ride bicycles within a shared transportation network where cyclists’ rights and responsibilities are understood, respected, and enforced.**

- Recommendation 2.1: Support Bicycle Education for Children and Adults

Recommendation 2.2: Educate Motorists about Safe Operating Behavior around Bicyclists

Recommendation 2.3: Enforce Traffic Laws Relating to Bicycling

Recommendation 2.4: Establish a District-Wide Safe Routes to School Program

Recommendation 2.5: Continue to Promote and Celebrate Bicycles and Bicycle Transportation in the Santa Fe Area

Recommendation 2.6: Establish a Bike-Sharing Program as an Extension of Public Transit Services

Recommendation 2.7: Encourage and facilitate the use of bicycles by public agency staff and in the private sector

Recommendation 2.8: Create Incentives / Remove Barriers to Travel by Bike

## Appendix 10:

### A Proposed Policy Approach with Regard to ADA and Multi-Use Trails

Planning for bicyclists and planning for pedestrians, and particularly those with disabilities, are broadly overlapping fields. Both approaches emphasize accessibility along and between off-road facilities and across roadways. Each field can help the other if the broad needs of bicyclists and pedestrians are fully taken into account.

Americans with Disabilities Act (ADA) specialists focus on ensuring that general legal requirements under ADA are not violated, and that minimum facility specifications are met, according to a given set of accessibility guidelines, to provide public access to a service. Often in reviewing site design, the focus is on provision of an accessible route from a dedicated parking space and exterior sidewalk to the interior of a building.

More general transportation planning for bicyclists and pedestrians focuses on creating longer accessible routes, including connections from sites into the broader transportation system. Planning and designing for bicyclists and pedestrians also requires an understanding of the need to go beyond minimum accessibility standards in order to ensure the safety and convenience of non-motorized traffic using accessible routes.



*Accessibility across roads and onto off-road facilities is a major goal of ADA specialists as well as more general bicycle and pedestrian planners (W. Alameda at Temblon).*



*A sidewalk within the City's recent Villa Alegre housing project ties directly into an existing marked, accessible crossing of W. Alameda, east of St. Francis Dr.*

*Connections between the River Trail and sidewalk along Caja del Oro Grant Rd. could provide opportunity for community access to the Trail to Agua Fria village (in background)*





### **Accessible Routes and the Santa Fe Bicycle Master Plan**

Many of the priorities specified in this Bicycle Master Plan for short connections and crossing improvements align closely with the kinds of improvements being pursued under the City's ADA compliance program, as illustrated in various photos of proposed trail connections in the body of this Plan and in this Appendix. Many other prioritized improvements are essentially longer accessible routes that may or may not be as clearly "enforceable" under ADA, but which nonetheless provide a critical degree of accessibility within the transportation system where it is currently lacking for pedestrians and bicyclists.



*Among the highest-ranking trail improvements recommended under this Bicycle Master Plan are a pair of accessible ramps from W. Alameda to the sidewalk that serves as the River Trail east of St. Francis Dr.: at Candelario (left) and Camino del Campo (right). Ramps and short sidewalk connections should be designed to safely and conveniently serve wheelchair, pedestrian, and bicycle traffic. These locations may also be candidates (based on engineering study) for additional crossing improvements, including crosswalk striping, signage, and built median refuges.*



*A chain across a sidewalk connection at the back of the City's Villa Alegre housing project at W. San Francisco St. represents accessibility challenges to potential users.*

*This Bicycle Master Plan recommends:*

*(1) create an accessible and safe pedestrian and bicycle route between residential and retail land uses, (2) create a viable crossing of W. San Francisco St. for the nearby Arroyo de las Mascaras Trail (in center of photo at upper right), and (3) to remediate a posted "restriction in accessibility" for pedestrians moving along the south side of Paseo de Peralta [State Highway NM 475] (in foreground of photo at upper right).*

*The restricted access sign placed by NMDOT on Paseo de Peralta in photo at right is placed where a signalized crosswalk provides access between the mall and the sidewalk, a footbridge, and the Arroyo de las Mascaras trail to W. San Francisco St.*



## **Design Issues for Bicycles when Applying ADA to Multi-Use Trails**

Multi-use trails and connections to multi-use trails need to safely and conveniently accommodate bicycle traffic, specifically meeting engineering guidelines for bikeways under AASHTO's Guide for the Development of Bicycle Facilities.<sup>1</sup>

In most cases, designs that work for wheelchair users work well for pedestrians and bicyclists in general (e.g., see photo at upper right, north side of Closson St. bridge). Bicyclists, pedestrians pushing strollers, joggers, or carts, skateboarders, rollerbladers, and other “wheeled” trail and sidewalk users have clearly benefitted through the placement of curb cuts at street corners and other crossings throughout the Santa Fe area in order to meet ADA guidelines.

In some cases, minimum accessibility requirements can lead to facilities that are unconventional for other users.

Examples of some of the possible drawbacks to bicycle users include:

- Switchbacks and other realignments intended to meet ADA-related grade requirements which may produce indirect routes that are less convenient and less efficient.
- Horizontal sections within longer sloping grades, intended to provide slope relief for wheelchair users, making for a less comfortable, and less efficient condition for other wheeled users as well as runners.



*The two ends of the Closson St. footbridge across the Santa Fe River demonstrate how designs to provide access for wheelchair users can lead to contrasting outcomes for other users. The north side of the bridge (above) is well integrated into the narrow “River Trail” while the south side (below) is inaccessible for bicyclists and inconvenient for other users.*

<sup>1</sup> See AASHTO Guide for the Planning, Design and Operation of Pedestrian Facilities (2003), p. 55, referring to AASHTO Guide for the Development of Bicycle Facilities (1999) as the authoritative source of guidance to accommodate the various users of multi-use trails.



- Handrails placed on or close to multi-use trails along slopes for ADA purposes (rather than for safety purposes), which may constrain available trail width, which could result in congestion, user conflicts, and a less enjoyable trail environment.
- Inadequate ramp connections for bicyclists. Sometimes the focus on pedestrian accessibility to trails leads to creation of connections that are insufficient for bicycle use.
- Accessibility requirements could affect multi-use trail project budgets and limit improvements for other intended trail users such as bicyclists



*When the “El Rio Rd. Trail” was rebuilt several years ago, the grade of the old asphalt trail where it met the River Trail was found to be too steep. The new concrete trail, built at 8 ft. width, features bollards, handrails, and horizontal sections that present significant challenges to bicyclists (photo to left). Meanwhile, previously existing access to a footpath along the south side of the river was all but eliminated by a new retaining wall and handrail (photo to right).*

*Three examples where bicyclists are denied convenient access between road and trail: Below left, in Villa Sonata, bicyclists are routed from a trail to a narrow sidewalk and a ramp, rather than provided direct access to what should be a four-way intersection. Center, at the northeast end of the same trail, no curb cut is provided to the shoulder of Richards Ave. Below right, a curb stands between trails in Franklin Miles Park and a public parking lot, where ADA requirements apparently are not applied due to lack of dedicated pedestrian facilities in the form of sidewalks or crosswalks.*





*At Pueblos del Sol, a trail resurfacing project triggered accessibility concerns, leading to the costly realignment of some sections in order to meet acceptable grades under ADAAG, a set of guidelines developed to define accessibility into buildings (black dash = old, white dot = new). These costs were offset by building the trail narrower (6 ft.) than before (8 ft.). Both developments significantly compromised the trails' utility as a bicycle facility.*



### **Design Issues for Bicyclists and Pedestrians resulting from limitations of Standard Drawings for Accessible Ramps**

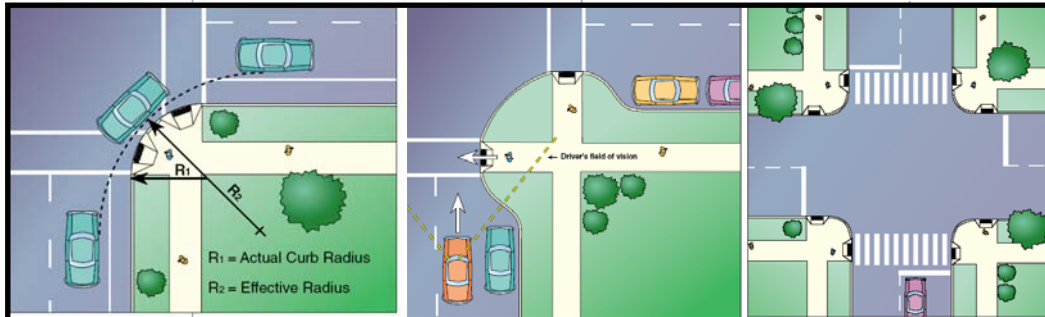
Standard “pre-approved” designs for ADA-compliant ramps at crosswalks and elsewhere<sup>2</sup> satisfy minimum specifications for pedestrian accessibility but may not address multi-use trail junctions appropriately. The standard drawings in use tend to favor, and systematically lead to, the creation of back-of-curb sidewalks or side paths (vs. separated from roadway through a buffer zone). Each of these characteristics represents a distinct drawback for the safety and convenience of pedestrians and bicyclists alike. AASHTO guidelines and best practices for multi-use trails (see Recommendation 1.3, pp. 48-49) may help designers create ramps that function well for pedestrians as well as bicycle design vehicle.

Standard drawings currently in use fail to demonstrate how a trail should be designed nor how two sidewalks with buffers should come into one corner. Sidewalks with buffers are the optimal facility for pedestrians, they meet the City’s Chapter 14 requirements for arterials or collectors, they represent best practices under AASTHO (see images below), and they facilitate a variety of pedestrian safety treatments at street corners such as dedicated directional ramps and reduced crossing distance.



*Acequia Trail at Potencia St.: NMDOT Standard Drawing meets ADA requirements but confines trail and sidewalk users to a narrow area along the edge of the roadway.*

<sup>2</sup> See NMDOT Standard Drawings, created for use in conjunction with state highway projects or other use of state or federal funds obtained through NMDOT. These drawings are endorsed and recognized by most local and tribal governments in New Mexico, including the City and County of Santa Fe.



Three figures from AASHTO's Guide for the Planning, Design, and Operation of Pedestrians Facilities (2004) depict street corners accommodating sidewalks that have buffers from the roadway. The buffer space allows for more favorable placement of separate, directional ADA ramps at corners, reducing crossing distance and exposure to motor vehicle conflicts. Although sidewalk buffers are optimal for pedestrian safety and convenience, and are required on arterials and collectors under the City's Chapter 14, NMDOT's Standard Drawings used by all Santa Fe MPO partners do not specifically address this option.



A narrow buffer between Potencia St. and the recently-extended sidewalk along the Acequia Madre increases the quality of the pedestrian facility considerably.

### **Available Guidance on Applying ADA to Multi-use Trails**

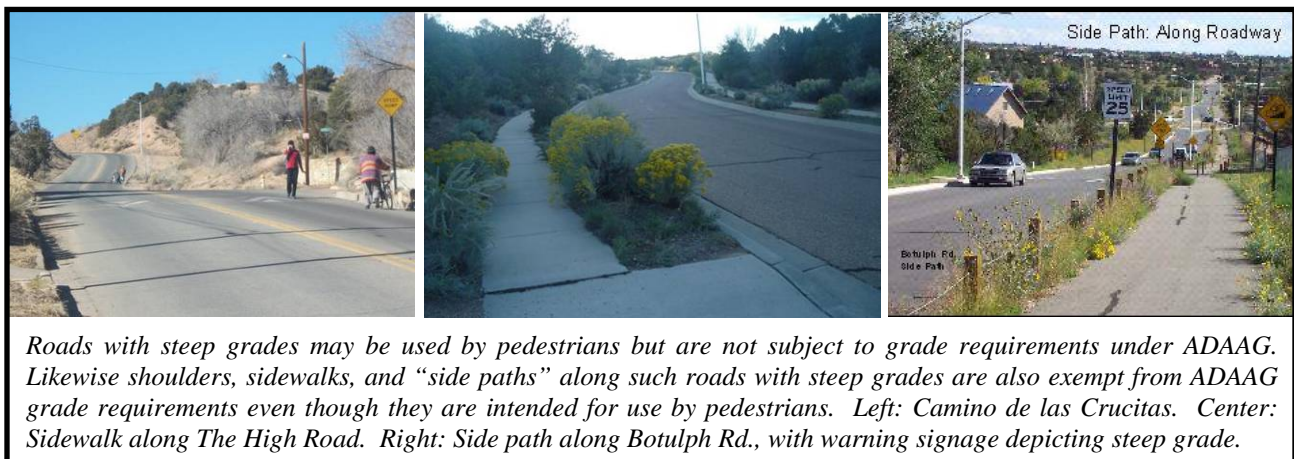
Federal and local guidance on accessibility in the areas of transportation and recreation is still under development. The U.S. Access Board's current draft version of the federal Accessibility Guidelines for Outdoor Areas (AGODA) is intended to cover recreational trails and related outdoor facilities. Current proposed rulemaking on "Shared Use Path Accessibility Guidelines" covers transportation-oriented trails such as the paved multi-use trails being designed and built in the Santa Fe area. (see <http://edocket.access.gpo.gov/2011/2011-7156.htm>)

Requirements under ADA for multi-use trails, and any other facilities intended to serve bicycles, should not be equated with strict requirements and best practices for the federal ADA Accessibility Guidelines (ADAAG), as is currently the case. ADAAG needs to be

recognized as a set of guidelines specifically developed to define adequate access to buildings and specific public services. ADAAG should not be automatically and strictly applied to multi-use trails, for which the bicycle is the intended design vehicle.

### **Do ADA guidelines always need to be applied to multi-use trails?**

When considering applying ADAAG or other ADA guidelines for multi-use trails in the MPO area, the first question one might ask is, “What is the specific ‘Public Service’ to which access must be provided?” In many cases, such as roadways and soft-surface recreational trails, the facility itself is not interpreted as a public service for which it is necessary to mandate optimal access for pedestrians with mobility or other impairments, when doing so would inherently compromise the design for the majority of intended users (i.e., motorists for roads, hikers and others for recreational trails). Likewise sidewalks and side paths along steep roadways are exempted from ADAAG grade requirements in recognition that these facilities are simply following what is essentially an optimal roadway alignment and the considerable adjustments that would be needed to meet grade requirements are neither practical nor technically feasible.



*Roads with steep grades may be used by pedestrians but are not subject to grade requirements under ADAAG. Likewise shoulders, sidewalks, and “side paths” along such roads with steep grades are also exempt from ADAAG grade requirements even though they are intended for use by pedestrians. Left: Camino de las Crucitas. Center: Sidewalk along The High Road. Right: Side path along Botolph Rd., with warning signage depicting steep grade.*

Should multi-use trails, with the bicycle as the intended design vehicle, merit this same consideration? If a bikeway is taking advantage of an optimal alignment for bicycles (such as the steep segment of the Arroyo de los Chamisos Trail near SFHS), it may include slopes that are simply not an optimal alignment for wheelchairs. In such cases, mandating switchbacks or flat spots on optimal bikeway alignments in order to meet ADAAG grade requirements can be a self-defeating proposition. The result, if even feasible, can be a multi-use trail that is dysfunctional for bicycles and by definition a poor use of public investment.

A second question to ask when considering ADA requirements for multi-use trails in the Santa Fe MPO area is, “Is there a reasonable alternate route available?” For the hypothetical case of SFHS, and the real cases of Pueblos del Sol Trails, the River Trail at Camino Alire, or the proposed Acequia Trail grade separation at St. Francis Dr., examination of possible routes would reveal that accessible sidewalks are indeed available to reach the same destinations served by bikeway alignments in question. The



latter may thus merit a relaxation of strict requirements under ADAAG or other ADA guidelines. Thus it is possible for a facility to meet ADA without meeting ADAAG.



*The Arroyo de los Chamisos Trail climbs a steep grade to meet the Rail Trail at Siringo Rd. This is a perfect alignment for a “road for bikes” – switchbacks are neither feasible nor desirable.*



*Trail users approaching the steep section of the Arroyo de los Chamisos Trail from either direction are given a warning about the “steep grades” ahead. An alternative, ADA- accessible route to Siringo Rd. is available for pedestrians along Yucca St.*

### **Other Strategies to Satisfy Both AASHTO and ADA**

In cases where it is determined that a multi-use trail alignment is providing pedestrian access to a significant public service, and that no other reasonable accessible route is available to provide pedestrian access to that service, and that an accessible route is to be provided via switchbacks or flat spots, bicyclists may still be provided an alternative, optimal bikeway alignment rather than be required to negotiate compromised alignments designed for wheelchair use.



*At another location in Pueblos del Sol where the existing trail was too steep to meet ADAAG grade requirements, a circuitous ADA-accessible route was created as an alternative, in foreground, while the more direct alignment was retained as the more convenient route for most users (background).*

## **Conclusion**

For these reasons, this MPO Bicycle Master Plan urges MPO partners to

(1) Seek to design and build multi-use trails that satisfy both AASHTO and U.S. Access Board criteria for safety, convenience, and accessibility for all users, in the spirit of

**“universal design.”**

(2) Use restraint in the strict application of ADAAG, and best practices under ADAAG, to multi-use trails, where there may be significant adverse impact on bicyclists and other users

(3) Consider exemptions to applying ADA guidelines to multi-use trails where there may be significant adverse impact to intended users and alternative, accessible routes are available to pedestrians, and

(4) Keep abreast of alternative guidance being developed by U. S. Access Board on the application of ADA to the transportation environment in general, multi-use trails in particular, and other outdoor developed areas.

## Appendix 11: Best Practices and Emerging Practices

Guidance for many best practices for bikeways is provided by AASHTO, the MUTCD, and other established sources and are discussed and recommended in this plan in Chapter IV through Recommendation 1.3: “Adopt and Adhere to Established Engineering Guidelines for Planning, Designing, Building, and Maintaining Roads and Trails.”

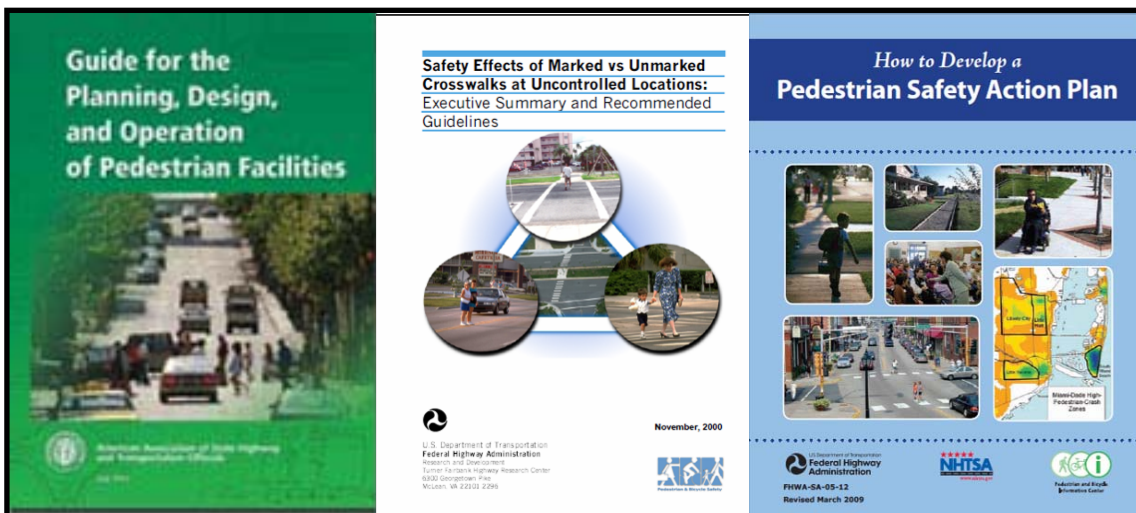
Many other best practices, particularly with regard to trail crossings, come from the field of pedestrian safety, and particularly from FHWA and AASHTO, and are discussed in Chapter IV under Recommendation 1.7: Research / consider / promote / implement best (latest) design practices.

### **Best Practices: At-Grade Trail Crossings and Intersections**

Path-Roadway Intersections. Intersections between paths and roadways are often the most critical issue in shared use path design. Due to the potential conflicts at these junctions, careful design is of paramount importance to the safety of path users and motorists alike.

- AASHTO Guide for the Development of Bicycle Facilities (1999), p. 46.

Best practices for trail crossings and junctions with roadways take advantage of a combination of proven effective pedestrian safety techniques for crosswalks and good multi-use path design for bicycles as described by AASHTO.



## Best Practices for Crossings, Using Pedestrian Safety Techniques<sup>1</sup>

- high-visibility markings
- median refuge
- bulb-out
- speed table
- reduction of curb radius
- adjusting signal timing
- eliminating or adjusting angle of separated right-turn ramps
- pedestrian hybrid signal

## Best Practices for Crossings and Junctions, Designing for Multi-Use Paths

- ramp width at least same as trail
- angle of entry near 90 degrees for crossings
- limit use of bollards (posts) in pathway, consider alternatives where needed
- where bollards are installed: adequate spacing from roadway, adequate spacing between bollards, establishment of centerline of trail

### Best Practices for At-grade Crossings

- Highly-visible Crosswalk Markings
- Median Refuge
- Good Transition:
  - perpendicular to roadway
  - sufficient space for two-way travel

Marked Crosswalk with  
Median Refuge:  
W. Alameda at Gonzales  
Community School,  
Connection to River Trail

References: AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities (July 2004), p. 75; FHWA, "Designing Streets for Pedestrian Safety" Training Materials; AASHTO Guide for the Development of Bicycle Facilities (1999), p. 47-52.

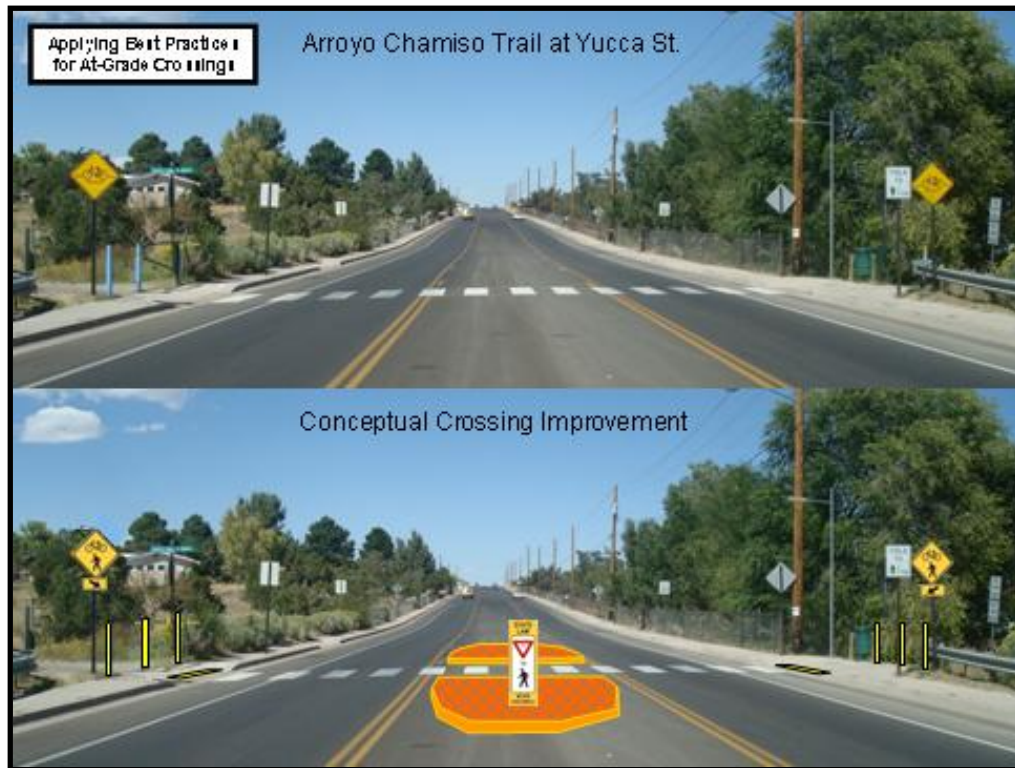


<sup>1</sup> AASHTO 2003, FHWA 2000, and FHWA 2009 (see figure).



There are many examples of these best practices for crossings put into place in Santa Fe (see figure above). There are also many opportunities remaining to apply these practices to other crossings where cyclists' safety and convenience may be challenged.

Improvements of Arroyo de los Chamisos trail crossings are a high priority listed in Phase 1 of the BMP implementation plan (Chapter VI); the following illustration depicts possible improvements at Yucca St. using some of the best practices outlined above.



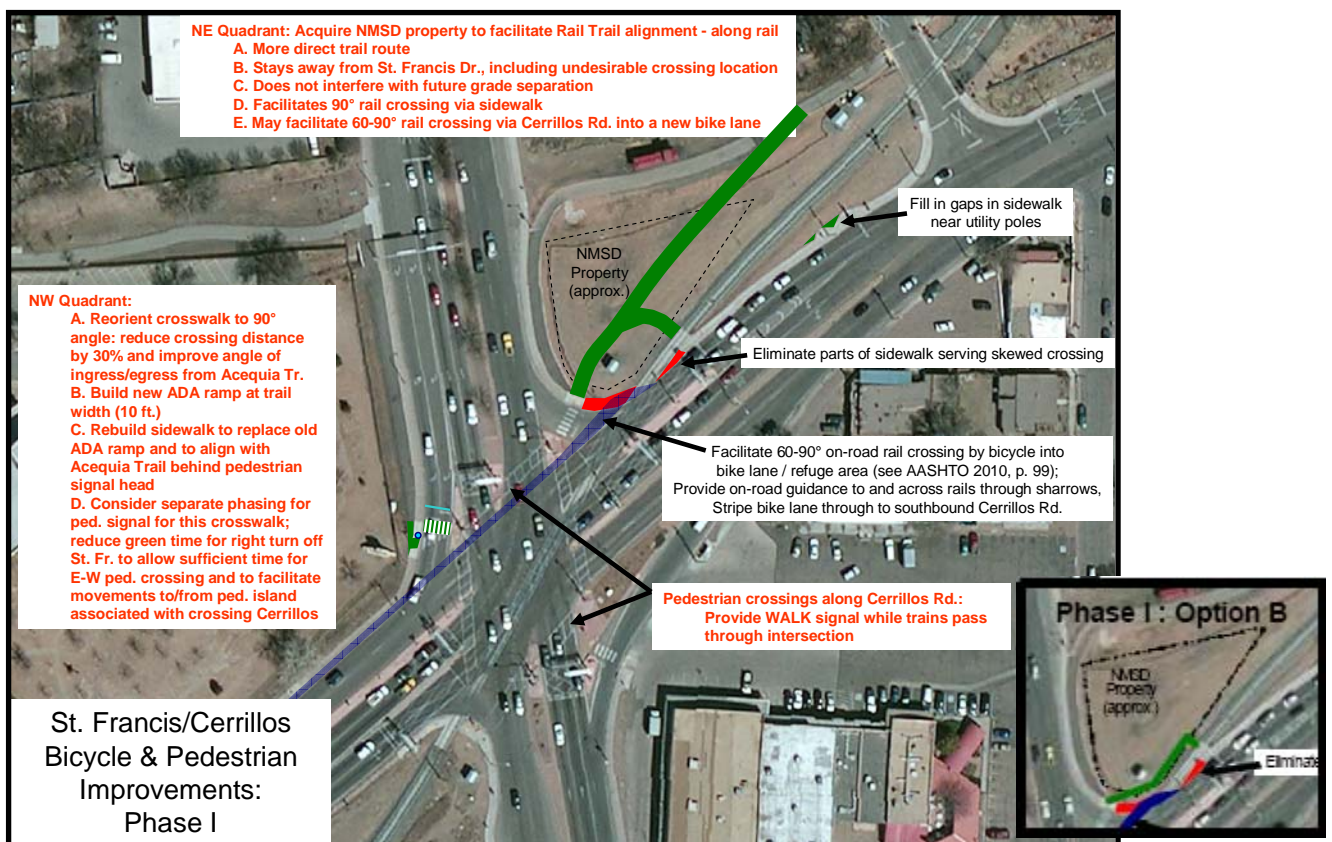
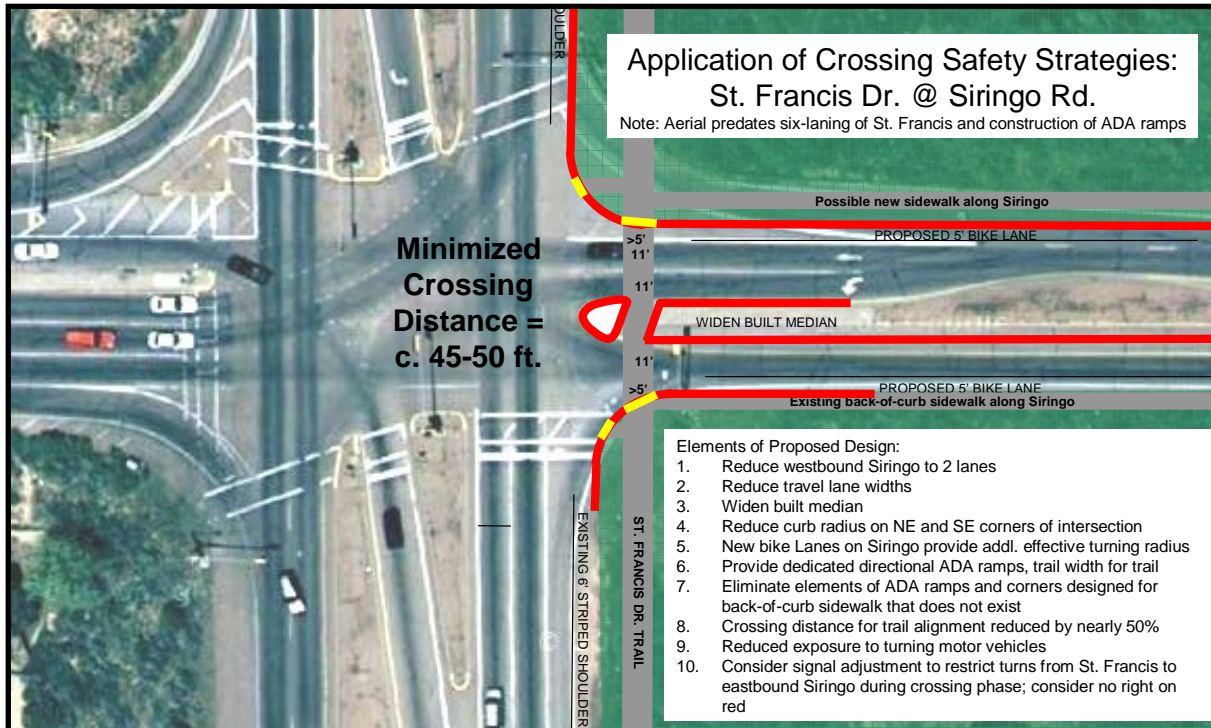
The City of Santa Fe recently eliminated a free right-turn lane from St. Michael's Dr. onto Cerrillos Rd. (see photo at right). Pedestrian safety, specifically relating to the use of the intersection by schoolchildren, was a major reason for the change. Trail crossings at signalized intersections are another major opportunity to employ this best practice for pedestrian accommodation.

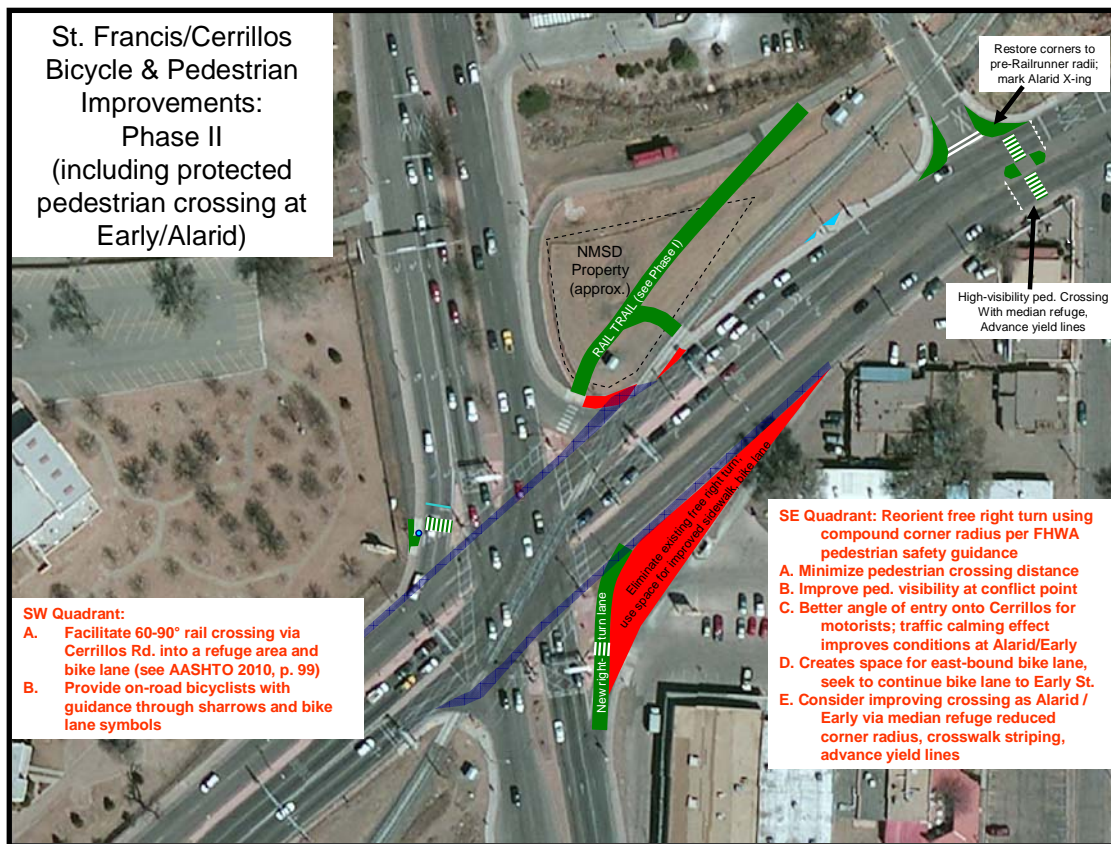


The following illustrations propose measures to improve existing and planned signalized trail crossings along St. Francis Dr., including elimination or adjustment of free right-turn lanes, reducing corner radii, building or expanding median refuges, adjusting signal



timing, and in the case of the intersection with Cerrillos Rd., employing strategies to reduce hazards associated with rail crossings (see next section). Each case also represents an opportunity to consider the improvement of on-road facilities for bicyclists crossing St. Francis Dr.





## **Best Practices: Dealing with Skewed Rail Crossings (On- and off-road)**

Guidance on reducing hazards presented to bicyclists by rail crossings is provided by AASHTO's Guide for the Development of Bicycle Facilities as well as in USDOT's "Rails-with-Trails: Lessons Learned" (see next page). Crossings of rails at a skewed angle are particularly difficult for bicyclists on trails or roadways.

Recommended strategies to deal with skewed rail crossings include:

- Seek to reroute trail or sidewalk in order to achieve 90° angle of rail crossing<sup>2</sup> (see illustration from USDOT, p. 73, below right.)
- Seek to provide space for on-road cyclists to facilitate 60-90° angle on road: "It is often best to widen the roadway, shoulder, or bike lane to allow bicyclists to choose the path that suits their needs the best. On extremely skewed crossings (30° or less), it may be impracticable to widen the shoulders enough to allow for 90° crossing; widening to allow 60° crossing or better is often sufficient. It may also be helpful to post a warning sign at these locations."<sup>3</sup>

<sup>2</sup> AASHTO Guideline for the Development of Bicycle Facilities (1999); Also see USDOT, "Rails with Trails: Lessons Learned" (2002), pp. 72-73.

<sup>3</sup> AASHTO Guide for the Planning, Design, and Operation of Bicycle Facilities (2010 Draft), p. 99, "4.12.1 Railroad Crossings."



## Rails-with-Trails: Lessons Learned

Literature Review, Current Practices, Conclusions



August 2002  
FHWA 26-0052 04.1

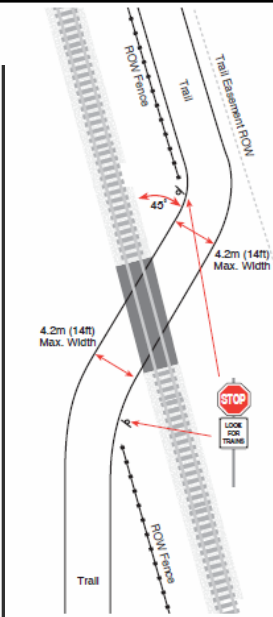


FIGURE 5.20 45° Trail-rail crossing

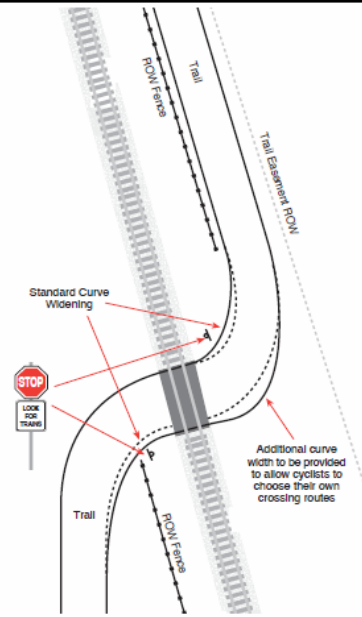
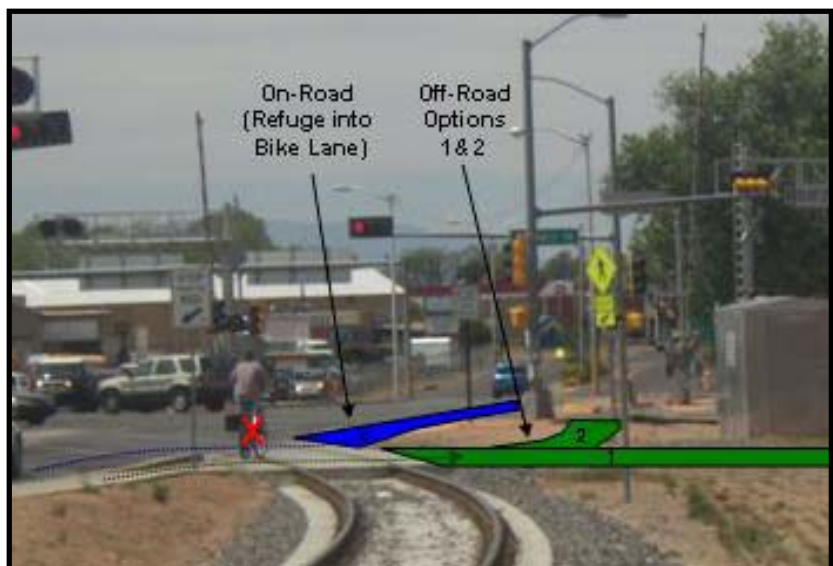


FIGURE 5.21 90° Trail-rail crossing

“Railroad-highway grade crossings should ideally be at a right angle to the rails....The greater the crossing deviates from this ideal crossing angle, the greater is the potential for a bicyclist’s front wheel to be trapped in the flangeway, causing loss of steering control. If the crossing angle is less than approximately 45 degrees, an additional paved shoulder of sufficient width should be provided to permit the bicyclist to cross the track at a safer angle, preferably perpendicularly.”

Conceptual images of improvements at the intersection of St. Francis Dr. and Cerrillos Rd. on p. 11-4 above seek to employ these on-road and off-road strategies in order to address these major hazards to Santa Fe bicyclists. In the image at right, these conceptual improvements are superimposed onto a photo showing perpendicular on-road and off-road approaches to the rail crossing at the northeast corner of the intersection.





*Coloring bike lanes – typically blue, as shown here in Cambridge MA – has emerged as a useful technique for guiding cyclists through complicated intersections.*

### **Best Practices: Bike Boulevards**

Bike Boulevards are roads where an agency has taken measures to prioritize bicycle through-traffic over motor-vehicle through-traffic. Bicycle boulevards function best within a grid system where alternative parallel roads can serve the needs of motor vehicle through-traffic. Creation of bicycle boulevards benefits pedestrians as well as bicyclists.

Bicycle Boulevards are defined and characterized in new AASHTO guidance as well as in the NACTO Urban Bikeway Design Guide.<sup>4</sup> Typical bicycle boulevard treatments include:

- High-visibility pavement markings
- Distinctive signage (typically purple)
- Motor vehicle traffic diverters
- Traffic calming, both on the bicycle boulevard and on cross streets



Bicycle Boulevard, Berkeley CA

*A Bicycle Boulevard in Berkeley CA: Motor vehicle through traffic is diverted to parallel streets.*

<sup>4</sup> See AASHTO 2010 (draft), Section 4.10, “Bicycle Boulevards,” pp. 93-94; also see NACTO at [nacto.org/cities-for-cycling/design-guide/neighborhood-greenways/signs-and-pavement-markings/](http://nacto.org/cities-for-cycling/design-guide/neighborhood-greenways/signs-and-pavement-markings/).

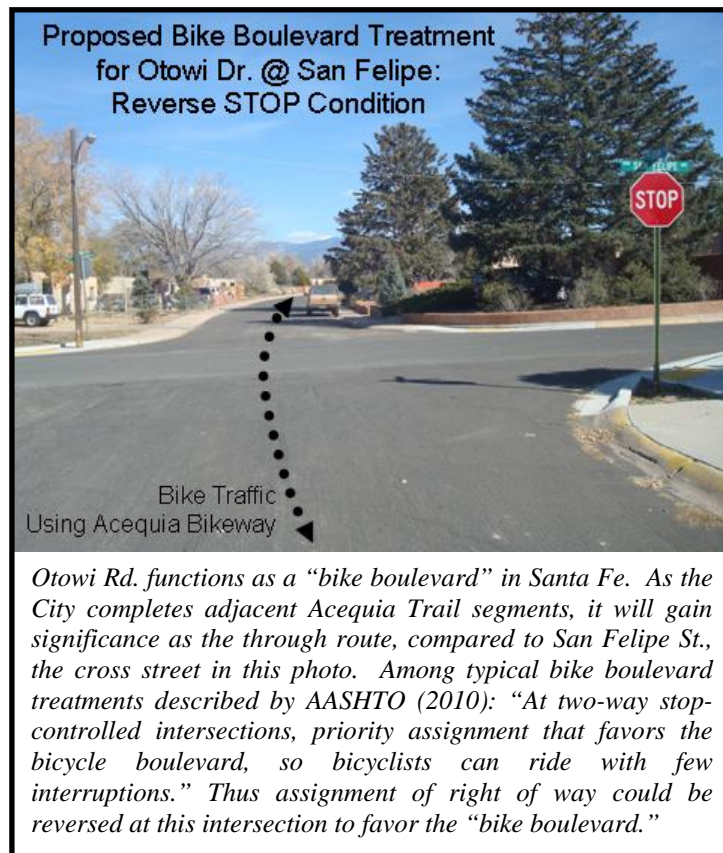
- Higher consideration of assignment of priority to the bicycle boulevard at intersections.

Some bicycle boulevard treatments can even involve turning small stretches of streets into neighborhood parks.

While there are few clear opportunities to implement true bicycle boulevards in the Santa Fe area, there are opportunities to utilize bike boulevard techniques on some streets. One exists on Otowi Rd., which acts part of the “Acequia Bikeway,” a valuable through alignment for bicycles that cannot be used by motorists, who must use parallel (and less bicycle-friendly) routes on Agua Fria St. or Cerrillos Rd. The Acequia Trail continues the bikeway alignment on either end, and the only significant street crossing, at Osage Ave., is controlled by a four-way stop. The only other street crossing on Otowi Rd. is at San Felipe, and at this intersection that the STOP

sign orientation could be reversed to favor Otowi Rd. as the more significant through route (see photo above). In light of the changing role of Otowi Rd., stop conditions may also be re-evaluated at two other intersections with uncontrolled side streets, Apache Ave. and Lujan St.

Elsewhere in Santa Fe, Oñate Pl. and parallel roads to the west may be thought of as bicycle-friendly alternatives to a limited section of St. Francis Dr. between the Acequia Trail to the south and Agua Fria St. and the River Trail to the north. (This relationship gives high priority to creating bridge connections to the Acequia Trail from the dead-ends of Oñate Pl. and Kathryn St.) Because



#### **AASHTO 2010 Draft (p.94-95)**

#### **4.10. BICYCLE BOULEVARDS ...**

A bicycle boulevard incorporates several design elements to accommodate bicyclists.

...

At two - way stop - controlled intersections, priority assignment that favors the bicycle boulevard, so bicyclists can ride with few interruptions.



Oñate does not cleanly connect with the continuation to the north (Urioste St.), and because bicyclists can use any number or combination of parallel neighborhood streets for N-S movements (Franklin, Kathryn, Cortez, etc.) it is unnecessary to focus on a single street for “bicycle boulevard” designation. It may however be possible to improve safety and convenience of bicycle and pedestrian movements across Hickox St. in particular, which has on-street parking, through the use of bulb-outs at corners (see photo of bike boulevard treatment in Albuquerque at right).



*Curb extensions act as traffic calming and improve sight distance on Girard Blvd. in Albuquerque, which has on-street parking, in order to benefit users of the Silver Ave. “Bicycle Boulevard” ( the cross street in this photo) near UNM. The bike boulevard, which runs parallel to Central Ave., has a STOP condition at this location. This kind of treatment on Hickox St. might benefit bicyclists using Oñate Pl. as an alternative to St. Francis Dr.*

Further west, the parallel alignment of Felipe St., Alicia St., and La Madera St., is part of a much longer north-south bikeway alignment that includes the Rail Trail to the south and Casa Solana streets to the north. This segment provides a more direct connection between the Acequia Trail and the River Trail that would be further improved with a proposed ramp to the River Trail from Alto St. at the end of La Madera St. The route already benefits from marked school crossings at Alto St. and Agua Fria St. and a four-way stop at Hickox St. Given its growing significance as a bicycle through route, this alignment might warrant placement of STOP signs to create a four-way stop at Camino Sierra Vista as well, an action which may also serve to address general traffic calming concerns on Camino Sierra Vista.

Other streets in Santa Fe which already function, and are used by bicyclists, like bicycle boulevards include W. Manhattan from St. Francis Dr. to the Railyard, and W. De Vargas St., as a continuation of Agua Fria St., from Guadalupe St. to Don Gaspar Ave. and E. De Vargas St. Both routes already feature intersections where bicyclists and pedestrians can pass through but motorists must turn.

### **Best Practices: Contra-flow bike lanes / Contra-flow condition**

Contra-flow bike lanes are facilities that facilitate two-way use by bicyclists of roads that are one-way facilities for motor vehicles. When applied judiciously – where they do not create unwarranted conflicts with motorists entering or departing the roadway who would not expect a bicyclist travelling in the opposite direction of motorists – contra-flow bike lanes can create useful connections for bicyclists who would otherwise need to dismount or travel several blocks out of direction to legally get to a desired facility or destination.

They can be used as an effective tool to prioritize and encourage bicycle travel over motorized travel.

The best applications of contra-flow bike lanes make a critical connection between other bike facilities, have few or no conflicts with cross streets, driveways, or alleys, and feature signage and striping making it clear to all users that bicyclists are exempt from one-way restrictions on motorists and should be expected to be traveling against the flow of motor vehicles. A center line (typically a double yellow line) is provided to delineate the contra-flow bike lane from the travel lane that is used by all other road users (with or without a corresponding bike lane for travel in that direction).

One opportunity in Santa Fe to create a contra-flow condition without necessarily using bike lane markings, on W. San Francisco St., is highlighted in Chapter IV Section B and illustrated in the photo above. Other opportunities to consider contra-flow bike lanes include:

- Don Gaspar: Northbound from Water St. to plaza. Provides continuity for northbound bicycle traffic; no driveway conflicts.
- Old Santa Fe Trail: Southbound from plaza to Water St., provides continuity to Shelby St., continuing one-way southbound; no significant driveway conflicts.
- Galisteo St.: southbound from Camino de los Marquez c. 100 ft. to Barcelona. One residential driveway crossing, significant connection as E-W bicycle route (sidewalk is existing, viable alternative at this location).



*“Contra-flow” travel on this street in Madison WI is permitted for bikes, busses, and emergency vehicles.*



*A very useful, easy, and virtually conflict-free application to permit contra-flow bike travel on W. San Francisco St. from the Plaza.*

## **Best Practices for Trails: Conversion of concrete box culvert into trail underpass**

This “home-grown” solution to achieve a convenient grade separation between trails and roads is highlighted as a “best practice” in Chapter IV, p. 55. Candidate locations to replicate this strategy in the Santa Fe MPO area are listed on p. 69.



## **Emerging Practices**

Other emerging bikeway design practices have originated in Europe or Canada, or otherwise have not been addressed in AASHTO or MUTCD guidance in the United States. A new source of guidance on emerging bikeway practices in the United States is the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide (see <http://nacto.org/cities-for-cycling/design-guide/>).

## **Emerging Practices: Cycle Tracks**

Cycle tracks are one-way or two-way bike lanes that are separated from motor vehicle lanes by a curbed median or other physical barrier. One-way cycle tracks have successfully been implemented along major roads in European cities such as Amsterdam and Copenhagen, where they are part of city-wide networks, one on each side of the street, often with their own phase at



*A two-way cycle track in Washington DC, in effect converting part of 15<sup>th</sup> St. into a multi-use path..*

signalized intersections, and with high levels of usage. Cycle tracks have also been built as site-specific applications in some American cities such as Cambridge, Mass., New York City, and Washington DC. They can require considerable right of way but are also



possible to implement as road retrofits through adjustments to lanes, parking, or medians. They may introduce the some of the same conflicts as bicycling on sidewalks or sidepaths, particularly in areas with multiple driveways and street intersections, but also with respect to conflicts with pedestrians. They also may limit cyclists' ability to make turns or otherwise access the opposite side of a street.

Guidance on the developing use of cycle tracks in the United States is available in the. This Bicycle Master Plan's recommendation is to refrain from considering cycle tracks until applications in other American cities have demonstrated their efficacy and safety and researchers have determined how best to design cycle tracks in American cities. At such a time, specific applications in Santa Fe may be considered in locations that appear conducive to cycle tracks, given local land use, presence of cross traffic, ability to mitigate hazards presented by cross-traffic, and potential bicycle demand.

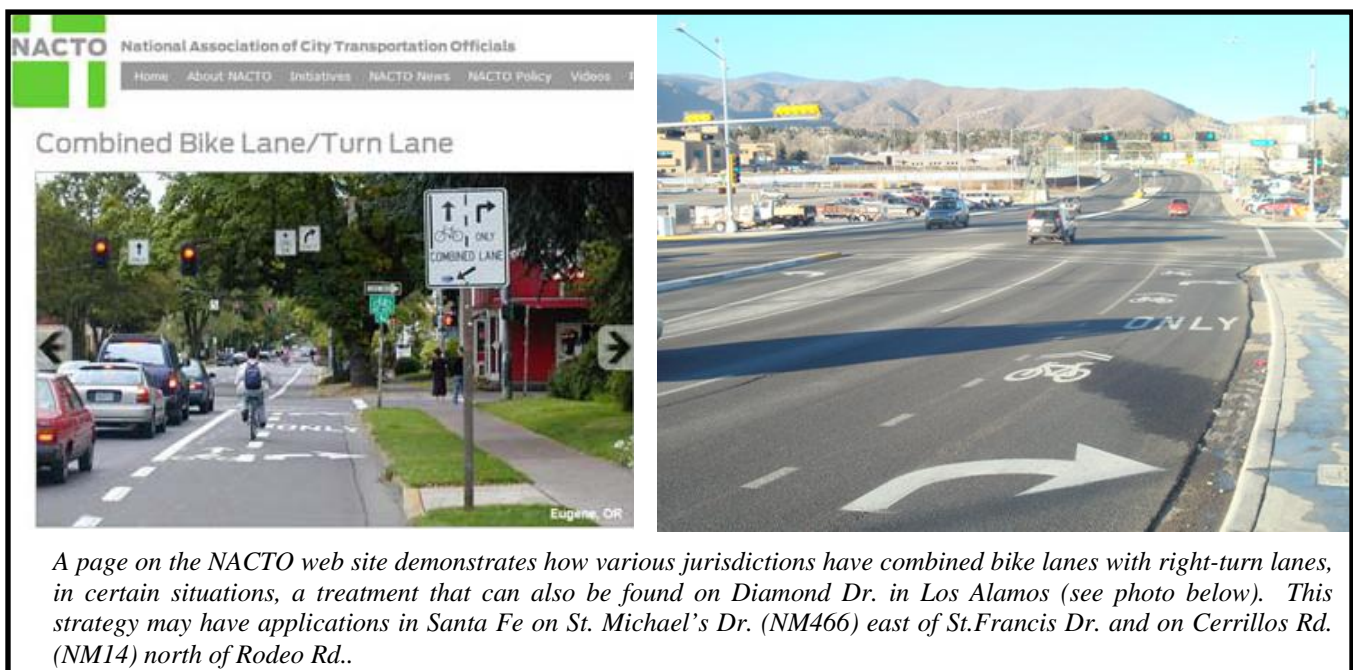
### **Emerging Practices: Bike Boxes**

See NACTO section describing bike boxes (<http://nacto.org/cities-for-cycling/design-guide/intersection-treatments/bike-box/>). This technique has been implemented in Albuquerque.

### **Emerging Practices: Combined Bike Lane Turn Lane**

See <http://nacto.org/cities-for-cycling/design-guide/intersection-treatments/combined-bike-laneturn-lane/>

This practice might facilitate opportunities to retrofit bike lanes within constrained environments. St. Michael's Dr. (NM466) between Old Pecos Trail and Galisteo Rd., in a fairly high-speed environment, effectively already has this condition but without special markings or other treatments that are now recommended by NACTO at intersections. This location should be re-examined for possible improvements, including bike symbols,



gore lines, and possibly curb extensions at selected locations on the far side of intersections. A more clear-cut candidate for the kind of treatment described by NACTO is northbound Cerrillos Rd. north of Rodeo Rd.

## **Appendix 12: Prioritization of Trail Segments and Selected Crossing Improvements**

Rank	Trail Segment	Anticipated Demand	System Connectivity	Safety Considerations	Feasibility	Score
1	RAIL TRAIL: Tie in across rail to sidewalk along Carrillos Rd., e. of St. Francis Dr.	9	10	9	8	36
2	RIVER TRAIL: Don Gaspar to Carrino del Campo, w/underpasses	10	9	9	5	33
3	RAIL TRAIL: St. Francis Dr. to Cordova (along Pen Rd.)	8	8	5	10	32
3	RIVER TRAIL: Connections/Crosswalks to Carr. del Campo & Candelario St.	8	8	6	10	32
5	ACEQUIA TRAIL: Grade Separated Crossing of St. Francis Dr.	9	8	9	5	31
5	RAIL TRAIL: Cordova to Alta Vista (S. Capitol Station)	9	8	5	9	31
5	RIVER TRAIL: Connection to Carr. de Chelly at Frenchy's Field	7	8	6	10	31
5	RIVER TRAIL: Connection to Camino de la Consultadora west of Camino Allire	7	8	6	10	31
5	RIVER TRAIL: Connection to La Madera St.	7	8	6	10	31
10	ACEQUIA TRAIL: Bridges to Oñate and Kathryn	7	8	6	9	30
10	ACEQUIA TRAIL: Hmos Rodriguez Park to Harrison	6	9	5	10	30
12	ACEQUIA TRAIL: Connection to Larragoite Park (w/ X-Walk) & Agua Fria St.	5	8	6	10	29
12	ACEQUIA TRAIL: Oñate to Maclovio Park	6	9	5	9	29
12	ARROYO CHAMISO TRAIL: Improve connection to Santa Fe Place	6	8	5	10	29
12	RIVER TRAIL: Camino del Campo to St. Francis Dr. (widen existing trail)	8	8	5	8	28
12	RIVER TRAIL: Connection to Clouston St.	7	8	6	8	28
17	ACEQUIA TRAIL: Rufina to San Felipe, with connector and crosswalk at Agua Fria	6	8	5	9	28
17	ARROYO CHAPPARAL TRAIL: from Ragle Park to Zia Station via Candelero Park	7	8	5	8	28
17	ARROYO HONDO: NM599 Station to Fire Place Rd. via abandoned I-25 on-ramp	5	7	7	9	28
17	LA TIERRA TRAILS: Connection from Camino de los Morreyes via NM599 Underpass	4	8	7	9	28
17	MRC TRAIL: River Trail to JCT Caja del Rio Rd/NM599 Frontage Rd (via NM 599 underpass)	4	8	6	10	28
17	NM CENTRAL / KENNEDY LINE: Pinon ES to Pueblos del Sol trails	6	8	5	8	28
17	RAIL TRAIL CONNECTION: Monterey	6	9	5	8	28
17	River Trail @ C. Cohn: Widen connection	6	8	5	9	28
17	RIVER TRAIL: Frenchy's Field to Siler Rd.	6	9	5	8	28
17	RIVER TRAIL: San Ysidro Crossing to Caja del Oro Grant Rd. (pave existing trail)	5	8	5	10	28
17	SEUAD ROADBED along E. Boundary Ditch, while-ins to Llano @ DY MS & La Farga Library	8	7	5	8	28
17	TIERRA CONTENTA (N. Arroyo Chamiso): Buffalo Grass Rd. to S. Meadows	6	10	5	7	28
28	ACEQUIA TRAIL: Maclovio Park to Hnos. Rodriguez Park	6	9	5	7	27
28	ARROYO CHAMISO TRAIL: Connection south to Richards Ave.	5	8	5	9	27
28	ARROYO CHAMISO TRAIL: Villa Linda Park soccer field to S. Fe Place Transit Ctr.	6	7	5	9	27
28	ARROYO MASCARAS TRAIL: W. San Francisco St. to Las Mascaras St., including speed table at Villa Alegre	7	6	5	9	27
29	CANADA RINCON TRAIL: Calle Mejia to Zocalo	4	8	6	9	27
29	NM CENTRAL LINE: A.C. Trail / GCCC to Rodeo Rd. (w/2-walk to sidewalk to front)	6	7	5	9	27
29	PUEBLOS DEL SOL: N-S Connector across Gov. Miles (w/related improvements)	5	9	5	8	27
29	RAIL TRAIL CONNECTION: Calle Somera	6	8	5	8	27
29	RIVER TRAIL: E. of S. Meadows (Agua Fria Trail Comm.) to San Felipe	6	8	5	8	27

Rank	Trail Segment	Anticipated Demand	System Connectivity	Safety Considerations	Feasibility	Score
38	ARROYO CHAMISO TRAIL: from Gov. Miles to Las Soleras	4	8	5	9	26
38	ARROYO CHAMISO TRAIL: NM14 to Entrada Contenta (to meet Las Soleras)	7	8	5	6	26
38	ARROYO CHAPPARAL TRAIL: from Arroyo Chamiso Trail to Chapparral E.S.	6	8	5	7	26
38	ARROYO DE LOS PINOS TRAIL: Fifth St. @ Cam. Lado to Llano St.	6	7	5	8	26
38	ARROYO DE LOS PINOS TRAIL: Llano St. to CBF Trail @ Yucca & Siringo	6	7	5	8	26
38	ARROYO EN MEDIO TRAIL: connecting route from Zia to Sawmill	6	8	5	7	26
38	CANADA RINCON TRAIL: Alameda to Camino de las Crucitas	7	6	5	8	26
38	Connect County River Trail to Agua Fria Park trails	3	8	5	10	28
38	GAIL RYBA TRAIL: East to Boulder Side Path, w/ St. M's connection	5	9	5	7	28
38	GAIL RYBA TRAIL: Zia to Zia Connection	7	8	5	6	28
38	NM CENTRAL / KENNEDY LINE: Rodeo Park E. (x2-3)	5	8	5	8	28
38	RAIL TRAIL CONNECTIONS: Rodeo Park E. (x2-3)	6	7	5	8	28
38	RIVER TRAIL: Caja del Oro Grant Rd. west to AFTC line (w/ connection n. to S. Meadows)	5	8	5	8	26
38	RIVER TRAIL: Siler Rd. to San Ysidro Crossing	5	8	5	8	26
52	ACEQUIA TRAIL: Maclovio Park to Camelia St. via Cielo Vista Park	8	8	5	6	25
52	ARROYO DE LOS PINOS TRAIL: Thru Herb Martinez Park & w. to Richards Ave. Ext. Trail	8	8	5	8	25
52	ARROYO HONDO: Rancho Viejo Blvd. to development west of Richards Ave.	3	8	5	9	25
52	ARROYO HONDO: NM14 to Rancho Viejo Blvd. / Fire Station Trailhead	3	8	5	9	25
52	MRC TRAIL: NM599 frontage road to MRC entrance & paved path around soccer fields	3	7	5	10	25
52	NM CENTRAL / KENNEDY LINE: E. of Richards Ave., Ave del Sur to trail head	5	6	5	9	25
52	RIVER TRAIL: Constellation to Water Treatment Plant	3	7	5	10	25
52	TIERRA CONTENTA (N. Arroyo Cham.): E. to Cam. Entrada, via S. Meadows School X-ing	6	6	5	8	25
60	ACEQUIA TRAIL: Atajo to Cielo Azul development (n. side of Las Acequias Park)	7	5	5	7	24
60	ARROYO CHAMISO TRAIL: Connection north to Richards Ave.	6	9	5	4	24
60	CANADA RINCON TRAIL: Alamo to Calle del Viento (@ Calle Mella)	5	5	5	9	24
60	NM CENTRAL / KENNEDY LINE: Rancho Viejo "District Trail" to Eldorado	3	8	5	8	24
60	PUEBLOS DEL SOL TRAILS: Utility Line to Camino Carlos Rey	4	6	5	9	24
60	Rabbit Rd. ext. northside Sidewalk / Sidewalk: from Richards Ave. to NM Central RR	4	6	4	10	24
60	RIVER TRAIL: Connection to Calle Atajo	6	8	5	5	24
60	ST. FRANCIS DR. TRAIL: Continue south to A. Benson's	6	5	5	8	24
68	ARROYO HONDO @ Planned Ped. Bridge North to Dinosaur Trail @ I-25 / NM14 Int.	2	7	5	9	23
68	ARROYO HONDO connection NE to Dinosaur Trail, including bridge over arroyo	3	6	5	9	23
68	ARROYO HONDO to ARROYO CHAMISO via I-25 / NM14 Interchange (Dinosaur Trail to Becknar Rd.)	3	5	5	10	23
68	ARROYO HONDO to ARROYO CHAMISO: Along north side of I-25 to Las Soleras	3	5	5	10	23
68	MRC TRAIL: From Soccer Fields to Caja del Oro Rd.	3	5	5	10	23
68	MRC TRAIL: From Soccer Fields to Caja del Rio Rd.	3	5	5	10	23
68	RAIL TRAIL: West Spur from Rodeo Rd. south along Galisteo Rd.	5	6	5	7	23
68	Richards Ave. West Side Sidewalk through Petchesky Ranch (Dinosaur Trail to roundabout at Santo Nino church)	4	4	6	9	23
68	RIVER TRAIL / Route, Patrick Smith Park to Hydroelectric Plant Park:	5	5	5	8	23

Rank	Tail Segment	Anticipated Demand	System Connectivity	Safety Considerations	Feasibility	Score
77	ARROCO-AUBOIRAIL: Through SWN Fork to Tama Center to Trail & Plaza Central	4	7	5	6	22
77	ARROCO-CHUD From Old 250 to Arroyo to NM4 (including NM4 underpass)	5	8	6	3	22
77	CANONINGO RAIL: Camino de las Quiladas to Arroyo	5	5	4	8	22
77	I-25 NORTH-FRONTAGE RAIL Trail / NW Spur to Camino Carlos Rey & P. de las Ocas Sth Trails	4	7	5	6	22
77	Less Arroyo Pass Phase 4 E/W trail along grade acquisition project to Old Arroyo Development	5	4	5	8	22
77	NM CENTER / KENNEDY LINE: Rialto RRI to Iron Trees	6	9	5	2	22
88	ARROCO-AUBOIRAIL: Arroyo Vignette RRI CT. Complex cross Arroyo @ 225th St RRI	4	6	5	6	21
88	LATIERRA TRAILS Connection from NM8B underpass west to NM8B Interchange road	2	6	5	8	21
88	NAC RAIL: From Arroyo RRI to Arroyo Trail (if feasible)	5	5	5	6	21
88	Rialto Ave. Valside St. Bridge under I-25 to Old Arroyo Trail	4	4	4	9	21
87	ARROCO-EL AGUILON RRI from NM8B underpass near Arroyo to Interchange road e.g. at Valside (pending development of NM8B)	2	6	5	7	20
87	ARROCO-EL OSEFINO RRI to Rialto Ave. Connection to Camino de las Arroyos	4	4	5	7	20
88	ARROYO RAIL: Huisa to Old Quiladas Connection	4	4	5	6	19
88	ARROYO RAIL: Silver RRI to Old Arroyo RRI	6	3	5	5	19
88	ARROYO to Old PINOCH (Mts Hwy. Arroyo SE) north of Arroyo Quiladas RRI to Camino Lejo	3	4	5	7	19

## Appendix 13: Agency Responsibilities

Bicycle-related responsibilities of public agencies and selected private entities in the Santa Fe metropolitan area:

<u>Agency</u>	<u>Bicycle-related responsibilities</u>
<b>Santa Fe Metropolitan Planning Organization</b>	Plan for Multi-modal Transportation in the MPO area; integrate Bicycle Master Plan recommendations into Metropolitan Transportation Plan
	Provide training, guidance, and planning assistance with regard to non-motorized transportation in the MPO area
	Promote the Bicycle Master Plan, including Education of Elected Officials and Public Agency Staff
	Coordinate BMP Implementation and Monitor and Report on Progress
	Collaborative review of project planning and design by MPO partners
	Provide technical support and training on bicycle and pedestrian issues
	Continue analysis of Bicycle and Pedestrian Crash Data
	Collect and Analyze Bicycle and Pedestrian Traffic Counts
	Undertake Five-Year Revision of Bicycle Master Plan
<b>City of Santa Fe</b>	
Mayor's Office	Leadership role in promotion of bicycle transportation
City Council	Leadership role in promotion of bicycle transportation
	Adopt Bicycle Master Plan
Land Use	Ensure that private developers build multi-use trail system as planned and per engineering guidelines
	Ensure that reasonable multi-use trail connections are included to provide access to new developments
	Ensure that private developers build roads that meet the City's guidelines for bicycles under Chapter 14 (in conjunction with Traffic Engineering Division)
	Ensure that bicycle parking is of sufficient quantity and quality in new developments
	Encourage developers to provide further incentives for bicycle transportation, such as showers, lockers, water fountains
	Promote/Facilitate dense, mixed-use and transit-oriented development
Police	Enforce laws relating to bicycling
	Educate motorists and bicyclists on safe and legal operations
	Use bicycles for official business and play public role model as cyclists
Public Transportation - Santa Fe Trails	Provide for bicycle storage on-board and via bike racks at transit facilities
	Support development of bike share system
Public Utilities	Accommodate shared use of utility easements where desired and feasible
Fire Department	Accommodate shared use of emergency easements; integrate ADA-compliant pedestrian access into standard emergency access requirements
	Provide access through fire station properties where desired and feasible
	Continue / Increase use of bicycles for emergency responders, e.g. at public events

Public Works	
Facilities	Ensure safe and convenient access by bicycle
	Ensure that bicycle parking meets city guidelines
	Provide further incentives for use of bicycles by staff for commuting and for official business
Parks	Provide for bicyclists and pedestrians travelling to, within, and through parks;
	Maximize connectivity to adjacent land uses for bicyclists and pedestrians
	Design, build and operate multi-use trails within parks in order to create safe and convenient access routes, recreational facilities, and through-routes for non-motorized users; collaborate with MPO to assess needs for through-routes
	Design, build, and operate roads within parks to ensure safe and convenient shared use by bicyclists
	Maintain all city multi-use trails
	Limit use of motor vehicles on multi-use trails and consider use of bicycles for some maintenance functions in parks and on multi-use trails
Recreation	Promote recreational use of local bicycle facilities
	Collaborate with MPO and City Parks and Trails divisions on development of wayfinding resources for bicyclists, including signage and posted maps
	Collaborate with LCI and others to educate bicyclists on safe and legal operations
	Coordinate development of Bike Share System
Roadway and Trails Engineering	Design and build multi-use trails that meet AASHTO guidelines for bicycles
	Design and build "Complete Streets," including bicycle facilities meeting AASHTO guidelines
Streets	Maintain roadways, including bicycle facilities (repaving, patching, sweeping)
Traffic Engineering / Operations	Operate and maintain traffic control devices (signage, striping, signals) relating to bicycles
	Develop bike lane retrofit program, including road diets and other means to reallocate road space to bike lanes on prioritized streets and elsewhere, where appropriate
	Ensure that private developers build "Complete Streets" and Multi-Use Trails that meet AASHTO guidelines and the City's guidelines for bicycles under Chapter 14 (in conjunction with Land Use)
	Preserve or improve bicycle facilities in all city road work
	Ensure that bicycle travel needs are addressed during road construction projects (e.g. keeping temporary signage out of bike lanes, installing temporary bike lanes, trail segments, and/or detour signage as needed)
Sustainable Santa Fe Program	Promote city accommodation of bicyclists at all levels
	Promote use of bicycles by city staff for official and unofficial purposes
	Promote "Green Development" including dense, mixed use, and transit-oriented development
	Promote future revision of Chapter 14 with improved provisions to promote use of bicycles and discourage use of single-occupant motor vehicles
Parking Division	Oversee and Develop Publicly-Provided Bicycle Parking
	Provide Bicycle Parking Facilities at City Parking Lots
	Partner with Traffic Engineering on "Road Diet" Analysis
	Support development of Bike Share system
	Continue / Increase use of bicycles for parking enforcement activities



Mayor's Commission on Disability	Ensure development of accessible facilities and routes
	Research and adopt improved accessibility standards and guidelines as applied to outdoor areas and multi-use trails
	Apply accessibility guidelines as appropriate for multi-use trails (without compromising transportation value and safety for the bicycle as design vehicle)
Bicycle and Trails Advisory Commission	Provide City with guidance and oversight of efforts to accommodate bicyclists and trail users in Santa Fe and to provide education to bicyclists and motorists

<b>Santa Fe County</b>	
County Commission	Leadership role in promotion of bicycle transportation
	Adopt Bicycle Master Plan
Growth Management (Building & Development, Planning)	Ensure that county road standards meet engineering guidelines for "Complete Streets" for bicycles
	Encourage more dense, mixed-use, and transit-oriented development where development occurs
	Ensure that developers build roads that meet engineering guidelines for "Complete Streets" for bicycles
	Ensure that private developers build multi-use trail system as planned and per AASHTO guidelines for multi-use trails
	Ensure that reasonable multi-use trail connections are included to provide access to new developments
	Ensure that bicycle parking is of sufficient quantity and quality in developments
	Encourage developers to provide further incentives for bicycle transportation, such as showers, lockers, water fountains
Public Works	
Streets	Build and maintain county roads as "Complete Streets," in a manner that meets engineering guidelines for bicycles
Open Space & Trails	Planning, design, and construction of multi-use trails
	Maintenance of multi-use trails
Buildings	Ensure safe and convenient access by bicycle
	Ensure that bicycle parking meets guidelines
	Provide further incentives for use of bicycles by staff for commuting and for official business
Utilities	Accommodate shared use of easements where desirable and feasible
COLTPAC	Provide County with guidance and oversight of efforts to accommodate bicyclists and trail users in Santa Fe County
County Sheriff	Enforce laws relating to bicycling
	Educate motorists and bicyclists on safe and legal operations

<b>State of New Mexico</b>	
General Services	Ensure safe and convenient access to state facilities by bicycle
	Ensure that bicycle parking meets guidelines
	Provide further incentives for state employees to use bicycle transportation to commute and/or on official business
	Collaborate on development of bicycle share system, including possible pilot project or special incentives for use by state employees
NMDOT District 5	Build and maintain state highways that meet AASHTO guidelines for bicycles where technically feasible
	Collaborate with local and tribal governments to ensure that bicycle access is provided along and across state highways
	Ensure that local agencies have access to federal and state resources in support of bicycle infrastructure, to the extent that such resources are available
NM Rail Runner, NM Park and Ride	Provide for bicycle storage on-board and via bike racks at transit facilities
	Ensure safe and convenient on- and off-road access to transit stations by bicycle
	Collaborate in development of bicycle share system
NMDOT BPE Program	Implement State Bike Route signage program (SBR 9 and SBR 66)
	Ensure that NMDOT and other state projects in the MPO area address the needs of bicyclists and comply with AASHTO guidelines for bicycles
NMSRTS Program	Facilitate and fund local efforts to encourage walking and bicycling to school
NMDOT Traffic Safety Bureau	Educate motorists and bicyclists on safe and legal operations
NM State Police	Enforce laws relating to bicycling
	Educate motorists and bicyclists on safe and legal operations
	Continue to operate bicycle-mounted unit, including at events in the Santa Fe MPO area, and serve as role model for bicyclists
NM State Parks	Ensure safe and convenient access by bicycle to state park facilities
	Promote recreational and transportation opportunities for bicyclists, e.g. trails within state parks and state trails, such as the Rio Grande Trail, with regional significance for Santa Fe
	Support local trail efforts through the Recreational Trail Program
NMDOH	Promote active transportation for public health purposes at individual and community level
NM Dept. of Tourism	Promote Santa Fe and New Mexico as outdoor-oriented tourism destinations
	Promote bicycle touring in and around Santa Fe
	Provide assistance for bicycle-related improvements on and along Scenic Byways (Old Santa Fe Trail, Camino Real, Route 66, Hyde Park Rd.)

<b>Tesuque Pueblo</b>	
Transportation Planner	Plan for multi-modal transportation on Tesuque Pueblo, including use of bicycles
Public Works	Ensure that on- and off-road facilities meet guidelines and standards for bicycle transportation
Pueblo Police	Enforce laws relating to bicycling
	Educate motorists and bicyclists on safe and legal operations

<b>Educational Institutions</b> (SFCC, SFUAD, SFPS, private schools)	Leadership role in promotion of bicycle transportation
	Ensure safe and convenient access to facilities by bicycle
	Ensure that bicycle parking meets guidelines
	Provide further incentives to staff and students for bicycle transportation
	Collaborate with local governments to build MPO area bikeway system as planned
	Promote safe walking and bicycling routes in school areas, pursue support and funding for elementary and middle schools through NMSRTS program
	Participate in development of bike share program as affordable and desirable transportation for college students

<b>Private / Business</b>	
Chamber of Commerce, S. Fe Alliance, Realtors, Hotels, Restaurants, etc.	Promote Santa Fe as a "Bike Town"
	Promote recreational bicycling opportunities in and around Santa Fe
	Provide information on bicycle transportation in promotional publications
	Promote use of bicycles by visitors, including developing downtown tours by bicycle, offering bicycles as low-cost rentals or included as a guest service, promoting and participating in the development of a bike share system
	Encourage local businesses to seek LAB recognition as Bicycle-Friendly Businesses
St. Vincent / Christus Hospital and other large employers	Promote active transportation for public health purposes at individual and community level
	Ensure safe and convenient access to facilities by bicycle
	Ensure that bicycle parking meets guidelines
	Provide further incentives to staff and patients for bicycle transportation
	Pursue LAB recognition as a Bicycle-Friendly Business
	Educate motorists and bicyclists on safe and legal operations
	Collaborate with bike education activities by LCIs and others, including helmet distribution and fitting
Bike Shops, Outdoors-oriented businesses, and other bike-related businesses	Collaborate in the development of a bike share system
	Promote bicycle transportation and recreation in the Santa Fe area
	Disseminate information on bicycling in Santa Fe, including the Santa Fe Bikeways and Trails Map
	Support the development of bicycle advocacy groups
	Participate, and encourage local bicyclists to participate, in promotional events, bike education, and bikeway planning activities
	Help local businesses become "Bicycle-Friendly Businesses"

## Appendix 14:

### Unit Costs used in Tables 8-10

The following table lists unit costs used to make planning-level project cost estimates for Tables 8-10 in the Implementation Plan. In limited cases other specific cost estimates were added such as anticipated cost of Right of Way acquisition. Cost estimates also include 10% added for design and contingency.

Item	\$ cost	unit	Source
Asphalt trail	600,000	per mile	Santa Fe: trail only
Concrete Trail	800,000	per mile	San Mateo
Soft surface trail	45,000	per mile	La Tierra Trails MP
Soft surface wide tread	200,000	per mile	based on County
Major grade separation	3,000,000	per unit	City of Santa Fe
Convert CBC or bridge underpass	100,000	per unit	based on City
Restripe with Bike Lanes	42,000	per mile	San Mateo
Stripe Bike Lanes	28,000	per mile	San Mateo
Add two shoulders	500,000	per mile	High-end estimate
Mark with Sharrows	5,000	per mile	San Mateo
Wayfinding signage	3,000	per mile	San Mateo
Stripe crossing, cont.	350	per lane	NMDOT SRTS
Speed Table	6,000	per unit	NMDOT SRTS
Median refuge	10,000	per unit	NMDOT SRTS
minor bridge	50,000	per unit	based on City
major bridge	250,000	per unit	San Mateo: 120 ft. bridge
short ramp (10 ft. wide priced for concrete)	540	per linear foot	NMDOT SRTS
ADA ramps	1,700	per unit	NMDOT SRTS
ped hybrid signal	200,000	per unit	NMDOT SRTS
signage	250	per unit	NMDOT SRTS

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## Appendix 15: References

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- AASHTO** Guide for the Planning, Design, and Operation of Bicycle Facilities (2010 Draft)
- BAAQMD** Bay Area Air Quality Management District. RFP 2012-005 Regional Bike Share Pilot Project.
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- FHWA** How to Develop a Pedestrian Safety Action Plan (2009).
- FHWA** Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations (2000).
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(see <http://nacto.org/cities-for-cycling/design-guide/>)
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