Santa Fe Metropolitan BICYCLE MASTER PLAN

Preliminary DRAFT

SEPTEMBER 2011

Santa Fe Metropolitan Planning Organization
Bicycle Master Plan: Draft, September 20, 2011

Outline

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Acronyms

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
ADAAG	ADA Accessibility Guidelines
BCNM	Bicycle Coalition of New Mexico
BMP	Bicycle Master Plan
BSF	Bike Santa Fe
BTAC	Bicycle and Trails Advisory Committee (City of Santa Fe)
CAG	Citizens' Advisory Group
CCD	Community College District
COLTPAC	County Open Land, Trails, and Parks Advisory Committee
FHWA	Federal Highways Administration
IMBA	International Mountain Biking Association
MPO	Metropolitan Planning Organization
LAB	League of American Bicyclists
LCI	League Cycling Instructor (certified by LAB)
MUTCD	Manual of Uniform Traffic Control Devices (FHWA's national standards and guidelines for signage, pavement markings, signals, etc.)
MVD	State Motor Vehicle Division
NACTO	National Association of City Transportation Officials
NMDOT	New Mexico Department of Transportation
NMSP	New Mexico State Parks
RTP	Recreational Trails Program
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (federal transportation authorization act)
SBR	State Bike Route
SOBs	Seniors on Bikes
SFPS	Santa Fe Public Schools
SRTS	Safe Routes to School
TE	Transportation Enhancements (federal funding category)
USDOT	United States Department of Transportation

Definitions

Bicycle (or Bike): A pedal-powered vehicle upon which the human operator sits (from AASHTO 2010).

Bicycle Boulevard: A street segment, or series of contiguous street segments, that has been modified to accommodate through bicycle traffic but discourage through motor traffic (AASHTO 2010).

Bicycle Facility: A provision to accommodate or encourage bicycling, including parking and storage facilities, multi-use trails, bike lanes, and shared roadways not specifically designated for bicycle use (adopted from AASHTO 1999).

Bicycle Lane: A portion of a roadway which has been designated by pavement markings and, if used, signs, for the preferential or exclusive use of bicyclists (AASHTO 2010).

Bicycle Level of Service (BLOS): A model used to estimate bicyclists' average perception of the quality of service of a section of roadway between two intersections (AASHTO 2010).

Bicycle Locker: A secure, lockable container used for long-term individual bicycle storage (AASHTO 2010).

Bicycle Rack: A stationary fixture to which a bicycle can be securely attached (AASHTO 2010).

Bicycle Route: A roadway or bikeway designated by the jurisdiction having authority, either with a unique route designation or with BIKE ROUTE signs, along which bicycle guide signs may provide directional and distance information (from AASHTO 2010).

Bikeway: A generic term for any road, street, path or way which in some manner is specifically designated for bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes (AASHTO 2010).

Complete Streets: Streets designed and operated to enable safe access along and across the roadway for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities (Paraphrased from National Complete Streets Coalition).

Multi-Use Trail (a/k/a Multi-Use Path or Shared Use Path): A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way. Multi-use trails may also be used by pedestrians, skaters, wheelchair users, joggers and other non-motorized users (from AASHTO 1999).

Rumble strip: Textured or grooved pavement sometimes used on or along shoulders of highways to alert motorists who stray onto the shoulder (AASHTO 1999).

Sharrow: "Shared lane arrow," a pavement marking symbol indicating appropriate bicycle positioning in a shared lane, with directional arrow, as adopted by MUTCD 2009.

Shoulder: The portion of the roadway contiguous with the traveled way for accommodation of stopped vehicles, for emergency use and for lateral support of sub-base, base and surface courses.

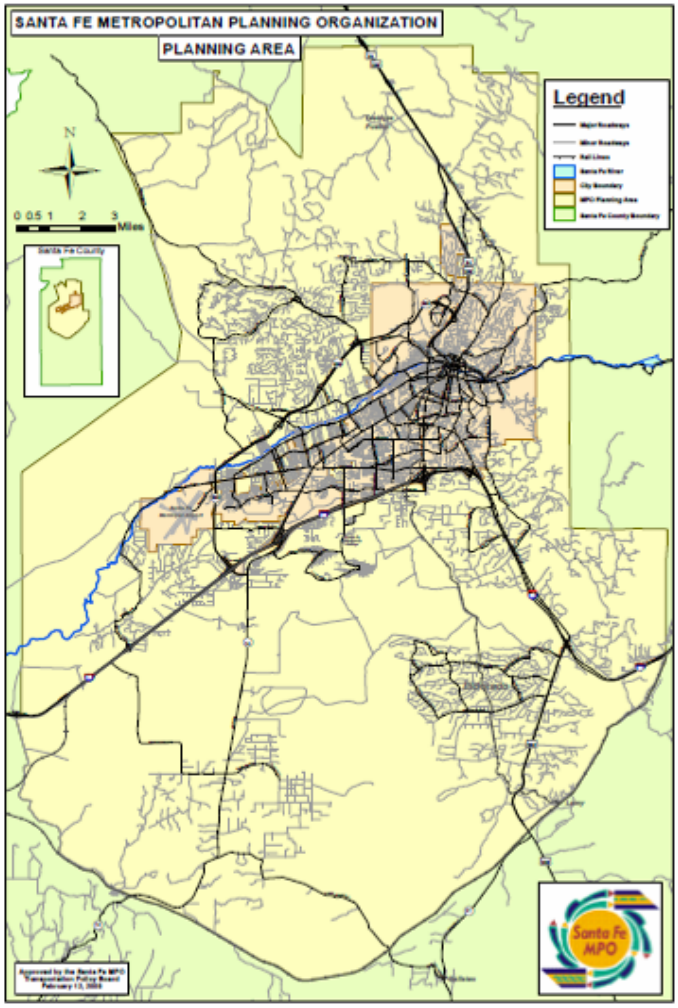
Sidepath: A shared use path located immediately adjacent and parallel to a roadway (AASHTO 2010).

Santa Fe Metropolitan Planning Organization
Bicycle Master Plan

I. Introduction

Bicycling is a clean, healthy, and efficient form of transportation and recreation in the Santa Fe metropolitan area. In order to promote the safe and efficient use of bicycles within the transportation system, the Santa Fe Metropolitan Planning Organization (MPO) supports the construction and maintenance of "complete streets," the development of a complementary network of off-road facilities for bicyclists, and policies and programs to educate motorists and bicyclists about bicycle safety, to enforce laws that are intended to protect the safe use of the transportation system by cyclists, and to encourage the use of bicycling and other transportation modes other than the private motor vehicle.[1]

The MPO's Transportation Policy Board (TPB), including representatives of the City of Santa Fe, Santa Fe County, Tesuque Pueblo, and the New Mexico Department of Transportation (NMDOT), initiated the development of this Bicycle Master Plan for the Santa Fe MPO area (see Map 1) in order to guide policies, programs, and investments so that the bicycle is properly and fully integrated into our transportation system. This Plan was produced by the Santa Fe MPO with the assistance of a Citizens Advisory Group, consisting of cyclists living and working in the city and the county, as well as an Internal Review Team composed of agency staff. The MPO thanks citizens and agency staff alike for their dedication to making Santa Fe a more bike-friendly community.



Map 1: Santa Fe MPO Planning Area

[1] Santa Fe MPO, Metropolitan Transportation Plan, 2010-2030 (Oct. 2010), pp. 120-24.

A. Benefits of Bicycles in Santa Fe

There are many reasons to support the use of bicycles in Santa Fe. From a pure transportation perspective, providing for bicycles broadens individuals' travel alternatives and increases our system's overall capacity and longevity. Strong supporting arguments run the gamut from individuals' cost savings to clean air and public health. Santa Fe's size, topography, climate, and economic base all conspire to make our community an ideal venue for the bicycle to play a more significant role in transportation.

Improving local transportation options

Bicycling is a cheap and efficient form of local transportation for residents and guests, especially in a small and mostly flat urban area like ours. A significant percentage of the population cannot or does not wish to rely on the automobile for personal transportation. In addition those who are too young, elderly, or physically or visually impaired to drive a motor vehicle, many more individuals cannot afford a motor vehicle, cannot get a driver's license or have had it taken away, or simply do not want to drive. And many motorists need or would like an alternative to driving for some of their trips.

Like walking, bicycling is an important adjunct to public transit as a transportation option. For many transit users the bicycle is a critical component of their access to the bus system or commuter rail. Facilities such as bike lanes, urban trails, bike parking, space for bikes on busses and trains, and even "bike share" systems (or inexpensive bicycle rentals) all contribute to solving transit's difficulty in helping prospective users take care of the first or last mile(s) of their trips – the part that is not covered by existing bus or train service.

Along with transit and walking, developing infrastructure for bicyclists can also result in saving time and space for motorists. In that they work as motor vehicle "congestion mitigation," these modes can serve to reduce road maintenance and construction costs, fuel consumption, and the amount of public and private space dedicated to roadways and parking.

Environment

Transportation accounts for a major part of air pollution and greenhouse gas emissions in our nation. The New Mexico Environmental Department estimates that motor vehicles account for about 17% of greenhouse gases produced in New Mexico. The City of Santa Fe's "Sustainable Santa Fe Plan" focuses on developing a bicycle-friendly environment

as a central strategy for reducing emissions in the area of transportation,[2] and one that is strongly supported in the City's General Plan (see Appendix 1). The County likewise emphasizes the environmental benefits of supporting bicycling as transportation in its Sustainable Growth Management Plan, putting efforts to support multimodal transportation in the context of "environmental responsibility" and highlighting development of bicycle transportation as a "key to sustainability.[3]"

City "Different"? Bicycling for transportation is a lifestyle choice for many Santa Feans concerned about the environment and quality of life in an area dominated by motor vehicles.

Bicycle use not only directly eliminates emissions as an alternative to motorized transportation but indirectly reduces overall emissions by reducing motor vehicle congestion. In short, more bikes means cleaner air for Santa Feans to breathe and clear skies for all to enjoy.

Health / Fitness

Investment in bicycling and walking directly benefits the health of our communities, and especially our children. Obesity affects roughly one quarter of adults and nearly one fifth of youths ages 10-17 in New Mexico, proportions that are growing.[4] Integrating walking and bicycling into New Mexicans' daily routine is a promising way to combat the upward trend in obesity. Given Santa Fe's educational budget restrictions, and declining offerings in physical education in particular, promoting walking and bicycling to school is a logical strategy for children's health that can benefit the entire community.

Bicycling and walking as active transportation, or just as recreation, benefits children and adults.

The strategy of promoting bicycling and walking through "complete streets" is specifically embraced by New Mexico's statewide coalition for obesity prevention and control[5] and by New Mexico professionals working to control chronic

[2] City of Santa Fe, Sustainable Santa Fe Plan (2008).
[3] Santa Fe County Sustainable Growth Management Plan, Santa Fe County General Plan, Adopted by the Board of County Commissioners, November 2010, pp. 19 and 152.
[4] U.S. Centers for Diseases Control and Prevention (CDC), Behavioral Risk Factor Surveillance System (BRFSS), Prevalence and Trends Data, New Mexico – 2009; Overweight and Obesity (BMI); Trust for America's Health, "F as in Fat," 2009.
[5] The New Mexico Healthier Weight Council has convened a "Complete Streets Leadership Team" in 2010-11 to pursue activities in this major policy area (see www.nmhealthierweight.org).

diseases such as diabetes and heart disease.[6] Both statewide groups also favor the institution of "health impact assessments" as a method to put increased value on health considerations when public policies and investments are made, particularly in the areas of transportation, urban and regional planning, and site selection for public services.

Economy

Transportation is a major expense for American families, and the burden of private automobile ownership is particularly heavy on lower-income families. Individuals and families that bicycle, walk, or use transit for part or all of their transportation needs can realize significant savings over relying on one, two, or more private motor vehicles. At the community and nationwide level, walking, bicycling, and transit also reduce our dependence on costly foreign or domestic oil as the fuel of choice for our transportation.

Bicycling for transportation is a good economic choice for many Santa Feans.

Given the impact of high housing costs on family budgets in the Santa Fe region, reducing transportation costs may be a key approach to reduce the overall cost of living in our city and increase the opportunities for lower- and middle-income New Mexicans to live and prosper here.

This bike and trailer combination can haul up to 250 lbs. of deliveries at a time for Creative Couriers.

Business – The Bike Business in Santa Fe

The Santa Fe area is already home to a variety of businesses directly relating to the bicycle, including small numbers of framebuilders, messengers, and pedicab drivers, and larger numbers of individuals employed at eight full-service bike retail shops and a large parts wholesaler that has received national recognition from the League of American Bicyclists as a "Bicycle-Friendly Business." All together it could be estimated that these businesses, which are almost all locally-owned, employ the equivalent of 80-90 full-time workers in Santa Fe.

Bicycle Technologies International (BTI) is a Santa Fe-based parts distributor that received gold-level recognition as a "Bicycle-Friendly Business" from the League of American Bicyclists in September 2010.

[6] New Mexico Chronic Disease Council, "New Mexico Shared Strategic Planning: Missions, Goals and Strategic Priorities," Draft, May 2011.

These businesses are based on the established popularity of bicycles for transportation and recreation in and around Santa Fe, and they rely on a bike-friendly Santa Fe to thrive. Success stories elsewhere in the country, such as Portland, Oregon, have shown that investment in improving local bicycling can lead to dramatic growth in local bike-related businesses.[7]

Business – Tourism

Other direct economic beneficiaries of a more bicycle-friendly Santa Fe include hotels, restaurants, shops, and other service providers - even gas stations - that cater to visitors to our city. Numerous studies around the country have found that investment in bicycling facilities can pay off handsomely in direct benefits to tourist-oriented businesses.[8]

Out-of-state visitors enjoy a pedicab ride at the Plaza.

Whether attracted by our world-class mountain biking or by our scenic and challenging road venues, dedicated cyclists already have plenty of reason to come to Santa Fe. More bike-friendly urban and suburban environments will increase the attraction and broaden the appeal to a wider variety of visitors, as well as individuals, families, and businesses who may choose to locate here permanently. A city that provides a bicycle-friendly environment is one that many visitors will remember, return to, and tell their friends and neighbors about.

Many tourists come and return to our area based on the quality of our diverse on-road and off-road bicycling opportunities. These cyclists took guided trips from downtown Santa Fe to Bandelier National Monument and along the High Road to Taos.

Local events that rely on high-quality bicycling in our area serve well to make the case. The Santa Fe Century, one of the oldest organized century rides in the country, attracts thousands of visitors to spend the weekend in our city each May. These individuals and their families can be counted on to return to Santa Fe not only for the annual ride but also to enjoy

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[7] Mia Birk, *Joyride: Pedaling Toward a Healthier Planet* (Portland ORL Cadence Press, 2010).

[8] See, for example, Institute for Transportation Research and Education at North Carolina State University, "Economic Impact of Investing in Bicycle Facilities: A Case Study." http://www.ncdot.gov/bikeped/download/bikeped_research_EIAfulltechreport.pdf

more of our diverse cycling environment on their own. Likewise, high-quality off-road cycling available within the city limits (Dale Ball Trails, La Tierra Trails) and throughout the metropolitan area (National Forest Trails, Rail Trail, Galisteo Trails, Caja del Rio) mean nearly unlimited opportunities for visitors from flatter, snowier, or otherwise less accommodating areas, along with the likelihood that, if pleased with their experience, they will return with their families for more.

Anyone who can confidently ride a bicycle for transportation has unique advantages getting around downtown Santa Fe.

A visitor on a bicycle has the unique ability to experience local environments, like a pedestrian, but also to easily span an entire city[9] as well as surrounding countryside. While most visitors to Santa Fe, including bicyclists, arrive in motor vehicles, bicycle tourism, including arrival to our city by bicycle, can be expected to increase somewhat in the near future. The development of inter-city transit, and particularly the New Mexico Rail Runner, and the continued improvement of our on-road and off-road bicycle facilities have already set the stage. A more direct impetus to bike touring will come within a few years with the anticipated promotion of a new national bike touring route through Santa Fe along old Route 66.[10]

Guided and unguided bike tourists have been shown to not only spend more at local restaurants, shops, and hotels, but they can also be counted on to take care of various other travel or leisure needs before leaving town.[11] They can also be expected to be interested in lodging, camping, dining, and other services available in rural communities around Santa Fe such as Tesuque, Lamy, Galisteo, Cerrillos, Madrid, and La Cienega.

Culture – the Arts

Bicycling and the arts are intertwined and mutually reinforcing. Like the iconic "old pick-up truck" or the "low-rider," bicycles are both a form of art and the subject of art in Santa Fe. They are also a vehicle for artistic or lifestyle statements by a wide variety of individuals who may or may not consider themselves artists or bicyclists. To show up at the Farmer's Market on a bicycle might be to say, "I value my community, my planet, my freedom of expression, etc." Or maybe it's just a fun and sensible transportation choice.

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[9] On the practicality of bicycling for the urban tourist, see David Byrne, *Bicycle Diaries* (New York NY: Viking Penguin, 2009).

[10] See p. X on Adventure Cycling Association's "Bike Route 66."

[11] See Cycling Mobility (Jan. 2011), "Have bicycle, will travel," pp. 48-51; also NCSU study, op cit.

Art for bikes and bikes for art: KALEIDOSPOKE is an art collaboration seeking spoke card designs and film submissions to be shown at the Center for Contemporary Arts from July - September 2011, to benefit local bicycle cooperative efforts.

In any case, there is evidence around the country to suggest that when art-loving communities like Santa Fe are able to provide an environment that is conducive to bicycling, they are creating the right environment to attract and retain the very people who are needed to contribute to the creative life of the city.

Creating Community and an attractive Urban Environment

Bicycling contributes to a broader sense of community in the Santa Fe area as well. Public spaces that are dominated by motor vehicles tend to confine meaningful human interactions to limited, controlled, indoor environments. Like pedestrians, bicyclists can make eye contact with other users of public space, can greet passers-by, and even stop to chat, contributing significantly to community cohesion and the creation of an attractive, positive, and less intimidating urban environment that responds to human needs at a human scale. In fact, in commercial districts the creation of attractive social venues favoring pedestrians and bicyclists has also been found to improve business rather than detract from it – even if it comes at the expense of motorist access in the form of parking spaces.[12]

A Wise Transportation Investment

With all of these advantages, and especially in difficult economic times, investment of appropriate resources and effort to improve the environment for bicycling would seem to be a good idea, particularly when compared with the vast sums of resources that are dedicated to ever-expanding infrastructure for motor vehicles. Increasing public investment in bikeways is reinforced by recent policy from Secretary of Transportation Ray LaHood directing the USDOT and FHWA and encouraging state and local government agencies to consider "walking and bicycling as equals with other transportation modes.[13]"

[12] See Copenhagen and New York City examples in Cycling Mobility (Jan. 2011), "Conquering the borderlands," pp. 10-15.
[13] USDOT/FHWA. "United States Department of Transportation Policy Statement on Bicycle and Pedestrian Accommodation: Regulations and Recommendations (Signed by Sec. Lahood, March 2011).

B. A Bicycle Master Plan for the Santa Fe Metropolitan Area

This Santa Fe MPO Bicycle Master Plan is intended to provide a blueprint for the metropolitan community to improve the environment for bicycling. It is intended to guide state, local, and tribal policy and investment so that the bicycle is integrated into transportation on a metropolitan-wide basis. This includes coordinating across political jurisdictions to create a cohesive and seamless bikeway network and across public program areas so that trails, roads, parks, and other facilities are located, designed, built and operated in a way that meets non-motorized transportation objectives.

Creating a Bicycle Master Plan is a way to get citizens, elected officials, and professional staff together to develop effective strategies to facilitate bicycling. This includes examining national guidelines and proven best practices based on local, national, and international models, and how they may be best applied in our setting. A successful Bicycle Master Plan will make the Santa Fe metropolitan area a place with more, better bicycle facilities, fewer barriers to bicycling, friendlier interactions between motorists and bicyclists, more diverse representation of our society on bicycles, and above all more bicyclists. With these gains, the Plan will also help lead the Santa Fe area to national recognition as a "Bicycle-Friendly Community."

C. Vision, Goals, and Objectives for a more bicycle-friendly Santa Fe

This plan's Citizens Advisory Group (CAG) expressed a vision for Santa Fe as a place where the bicycle could provide "safe, convenient, attractive, every-day transportation for citizens and visitors." One goal was expressed of being "the most bicycle-friendly city in the world."

Benchmarks that might measure progress toward this goal include recognition of the Santa Fe metropolitan area as a Bicycle-Friendly Community by the League of American Bicyclists (LAB) at the Silver level by 2015 and the Gold or Platinum level by 2020.

Supporting the vision and goal, the CAG outlined objectives to

- create more and better bikeways as part of a comprehensive city and county network
- improve safety, design and maintenance of bicycle facilities
- improve crossings, ways to overcome obstacles
- provide more, better bike parking
- remove the "fear factor" relating to bicycling
- improve the public image of bicycling as a safe mode of transportation through marketing and public relations
- provide equal rights and opportunities to bicyclists as

The Citizens Advisory Group discusses the development of the Bicycle Master Plan in Santa Fe County Commission Chambers, March, 2011.

users of the transportation system, including equality in the planning and construction of transportation facilities.
- Create an environment where all citizens and visitors could ride a bicycle for transportation if they wanted to; increase bicycle mode share to 10% of all traffic volume

Strategies to achieve these goals discussed by the CAG included
- Incorporate bike accommodations in roadway design and make improvements for bicyclists "enforceable"
- Focus on connectivity through targeted improvements
- Create a "Green Building Code" for sustainable transportation
- Provide signage and online tools for wayfinding
- Develop "Safe routes to school"
- Pursue best practices for encouragement, creating incentives to ride
- Provide education for bicyclists and motorists
- Develop new funding sources such as use of impact fees
- Get business buy-in
- Bring in partners such as the Santa Fe Alliance, Chamber of Commerce
- Give the Bicycle Master Plan "teeth" so it is legally enforceable.

The development of indicators and measures of progress toward objectives under this Bicycle Master Plan are discussed in detail in Section VI, Implementation Plan.

D. Approach: The E's

Approaches in planning for bicycles and pedestrians are often broken down into "Four E's," which over time have expanded into five or six "E's". The approach of this Bicycle Master Plan likewise follows these "E's":

i. Engineering: The first part of this plan focuses on bicycle infrastructure, particularly our network of roads, trails, intersections and other crossings, as well as bicycle parking and transit facilities for bicycles. The focus on engineering starts with a look at bicycle-specific planning in the City and County of Santa Fe as well as a variety of state, county, and city plans that address bicycling as a mode of transportation or recreation. Next is an assessment of our on-road and off-road bikeway system; connectivity, gaps, and barriers between facilities; and the extent to which the elements of our bikeway system meet national standards for bicycle facilities. Finally, the plan will present policy and program recommendations along with a detailed list of recommended road and trail improvements prioritized according to impact and feasibility.

ii. Education and Encouragement: An examination of our area's growing activities to educate bicyclists and motorists and to encourage the use of the bicycle will lead to recommendations to continue to foster promising approaches in this area. New directions to be discussed will include collaboration with employers to provide incentives to bike to work and implementation of "bike sharing" to make inexpensive but reliable bicycles more accessible to residents and visitors for short-range trips.

iii. Enforcement and Equity: This approach comprises an examination of the legal framework as it relates to bicycles, how this framework is enforced among bicyclists and motorists, recent efforts to make significant changes in state and local laws, and recommendations for further improvements.

iv. Evaluation: The Implementation Plan that forms the final chapter of this plan assigns agency responsibilities, timelines, and budgets for the implementation of the Bicycle Master Plan, including planning, design, construction and maintenance of bicycle facilities and other programs. Indicators are proposed to help monitor our metropolitan area's progress toward the goals and objectives we have established in order for Santa Fe to become a more bicycle-friendly community.

II. Bicycle planning and policy in the Santa Fe Metropolitan Area

Bicycling in Santa Fe is supported by policies, laws, and programs at the federal, state, metropolitan, and local levels, which are summarized below and treated in more detail in Appendix 1. This chapter also discusses availability of data to guide bicycle planning.

Eight Planning Factors mandated by federal law (SAFETEA-LU)

- Economic Vitality
- Safety
- Security
- Accessibility & mobility
- Environment / quality of life / energy conservation / consistency with planned growth
- Integration & Connectivity
- Efficiency
- Preservation

USDOT Sec. LaHood's "Livability Principles"

- *Expanding access to affordable housing, particularly located close to transit;*
- *Providing more transportation choices;*
- *Enhancing economic competitiveness—giving people access to jobs, education, and services as well as giving businesses access to markets;*
- *Targeting federal funds towards existing communities to spur revitalization and protect rural landscapes;*
- *Increasing collaboration among federal, state, and local governments to better target investments and improve accountability;*
- *Valuing the unique qualities of all communities—whether urban, suburban, or rural.*

A. Federal and Metropolitan / MPO

The Santa Fe MPO plans for bicycles as an integral part of the transportation system as required under the SAFETEA-LU federal legislation. The MPO also adheres to USDOT Sec. LaHood's "Livability Principals" which further emphasize the importance of the role of non-motorized transportation in our communities.

Every five years the MPO updates its Metropolitan Transportation Plan, applying these policies and principals to transportation needs in Santa Fe, and bicycle travel plays an increasingly important role. The MPO's Transportation Policy Board passed a resolution in 2007 (Resolution 2007-1) encouraging local governments to take a "complete streets" approach to the design, construction and maintenance of streets in the MPO area (See Appendix 3). The MPO has worked closely with local counterparts, and particularly the City's Bicycle and Trails Advisory Committee, to improve the environment for bicyclists in the MPO area. The MPO also convened a Bicycle-Pedestrian Study Group and funded the MPO Bikeways Mapping Project as part of its "Unified Planning Work Program." These activities served as precursors to the Citizens Advisory Group and this Bicycle Master Plan.

Transportation projects in the Santa Fe MPO area are planned and funded through the MPO's participation in the development of NMDOT's Statewide Transportation Improvement Program (STIP). Local priorities are established in the Metropolitan Transportation Plan (MTP), which is updated every five years. Submissions to a local Transportation Improvement Program (TIP) by the MPO's Transportation Policy Board are integrated into the STIP by NMDOT's District 5, which is based in Santa Fe but represents a broad region including much of northwest and north-central New Mexico.

Federal funding for bicycle facilities in the Santa Fe area has primarily consisted of general road construction costs associated with state highway shoulders. In some instances, such as sidewalks and bike lanes along Old Pecos Trail, more specific federal support for bicycle and pedestrian facilities has been obtained through the use of transportation enhancement (TE) funds. Federal TE funds have also been used to support statewide bicycle education activities by the Bicycle Coalition of New Mexico (BCNM).

B. State of New Mexico

State law and policy require accommodations for bicycles on state highways. General bicycle planning by the New Mexico Department of Transportation (NMDOT) is conducted by the Bicycle-Pedestrian-Equestrian (BPE) program with guidance from the BPE Advisory Committee. The primary focus of planning through NMDOT's BPE program in Santa Fe has been the designation, through signage, of State Bike Route 9 on a combination of state highways, city streets, and a trail.

The MPO works with NMDOT's District 5 to conduct more specific transportation planning for state highways in the Santa Fe area. District 5 programs federal funding as well as state matching funds for state highway projects in the MPO area. State funding is also the basis for all highway maintenance activities by District 5.

Capital outlays from the state have historically been a significant source of funding for bicycle facilities in Santa Fe, including a $3.5 million outlay from Gov. Richardson for trails in general and nearly $2 million from the legislature for trails within the Railyard Park. Also of significance was support to build the Santa Fe Rail Trail through the NM Rail Runner Project.

Another potentially important player at the state level is the New Mexico State Parks (NMSP) Division of the state's Energy Minerals and Natural Resources Dept. (ENMRD). NMSP is considered to be the "state trail agency" and administers the federally-funded Recreational Trail Program (RTP). While neither activity has had significant impact on bicycling in the Santa Fe MPO area, the major "state trail" concept that NMSP has pursued, a Rio Grande Trail spanning the state from north to south, might some day reach our area; efforts to date have focused on central and southern New Mexico.

C. City of Santa Fe

The city's earliest efforts to take a comprehensive approach at bicycle planning resulted in the 1993 Bikeways Master Plan, which remains the city's standing bicycle plan. Planning for bicycles in the city is also supported by a variety of policies under the City's General Plan, the Parks and Recreation Plan (2001), activities under the Bicycle and Trails Advisory Committee (BTAC), and the Sustainable Santa Fe Plan.

In support of these planning efforts, Chapter 14 of the City's General Code requires the accommodation of bicycle and pedestrian traffic along city streets as well as through off-road trails (see Appendix 2, Articles 14-4 "Zoning Districts,"14-8 "Development and

The City's development code under Chapter 14 is an effective method to get "complete streets," like this stretch of Gov. Miles Rd. where a private developer provided accommodations for bicycles, pedestrians, and transit.

Design Standards, and 14-9 "Subdivision Design, Improvement, and Dedication Standards"). Developers are expected to provide for "vehicle and pedestrian traffic circulation;" bicycles are implicit to this requirement for some uses, explicit for others. The Code states that all new public streets shall be required to provide adequate pedestrian and bicycle facilities, as well as necessary transit facilities. Where developments provide open space, the Code specifies that "To the greatest extent possible, connections shall be provided to public open space and/or the urban trail system and bicycle paths, or in such a way that a future connection shall be facilitated."

City funding for trails has represented the majority of public financial support for bicycling in the Santa Fe MPO area. Primary sources include Capital Improvement Program (CIP) funds, which were the original basis for the establishment of the Bicycle and Trails Advisory Committee (BTAC), and the recent $30 million Parks bond, of which $7 million (?9 million) was reserved for city trails.

D. Santa Fe County

Santa Fe County is currently undertaking a first attempt to integrate bicycle planning into road and trail planning. The County's recently completed Sustainable Growth Management Plan (SGMP) suggests policies to build complete streets, including bike lanes or shoulders on county roads where warranted, and to build trails for transportation purposes rather than purely for recreation. The County is currently developing its Sustainable Development Code to support the Plan.

Rancho Viejo Blvd., a narrow County Road with a speed limit of 45 mph, connects Santa Fe Community College and Rancho Viejo with NM599 Rail Runner Station. It was built in the 1990s without shoulders or bike lanes per the Community College District Plan.

Santa Fe County's current Land Development Code does not include specific references to accommodation of bicycles. The County does not have any requirements for bicycle facilities along roadways. The Community College District (CCD) Plan applies to the CCD but is also seen as a model

plan for developing areas outside of the district. The CCD plan suggests building shoulders or bike lanes along major roads but expresses a preference for "narrow" roads, primarily for aesthetic purposes, and allows private developers to substitute sidepaths or separate trail systems instead of road facilities. This approach is directly counter to prevailing engineering guidance[14] and has resulted in a somewhat dysfunctional bikeway system in the CCD.

Santa Fe County's trail planning is undertaken by the Open Space and Trails Program with guidance from the County Open Land, Trails, and Parks Advisory Commission (COLTPAC). The Program and Commission have focused on the development of recreational trail alignments but have become aware of the possible transportation function of some of these alignments, such as the Rail Trail and the Arroyo Hondo Trail. To date, multi-use trails and sidepaths developed within subdivisions, such as Rancho Viejo, La Pradera, and Las Campanas, have been generally planned and designed as internal networks or pedestrian facilities that do not facilitate or incorporate more functional, longer-range bicycle transportation alignments.

The County has funded its trail program from a variety of local sources. Current efforts to improve the Santa Fe Rail Trail between Rabbit Rd. and Lamy and the planned N.M. Central Rail Trail between Rabbit Rd. and Eldorado are supported by federal Transportation Enhancement (TE) funds.

E. Data to Support Bicycle Programs and Planning

Documentation of the use of bicycles and of the challenges and hazards that bicyclists face is important to justify and guide investments in bicycling in Santa Fe.

Use of Bicycles

Data on the use of bicycles in the Santa Fe area is limited. While bicycle traffic may be included in specific intersection studies, bicyclists have never been systematically counted in order to shed light on broader traffic patterns and trends. Various sources of survey data are available to quantify the use of bicycles in New Mexico at the individual or household level but there is little that can be meaningfully disaggregated at the MPO-area level.

Another source of area of data on bicycle use is records kept by transit agencies. NM Rail Runner has documented significant use of the commuter train by bicyclists travelling to and from stations in the Santa Fe area. Bicycle boardings reported by NM Rail Runner are discussed below in Chapter III, Section H.

[14] AASHTO (1999), p. 33: "Shared use paths should not be considered a substitute for street improvements…"

Crash Data

Bicycle crash data is available from the University of New Mexico's Division of Government Research (UNM/DGR) based on police reports. This data focuses on crashes involving motor vehicles and is known to underrepresent non-fatal bicycle crashes.[15] For the period 2004-2008, the most recent data available for this analysis, UNM/DGR's database includes 136 reports of crashes involving bicyclists or other "pedalcyclists" in the Santa Fe MPO area, including one fatality.

As one might expect, the most common locations listed for crashes in this period included the City's busiest roadway corridors. Some known hazards are underrepresented in this data because crashes at these locations did not involve motor vehicles (e.g. "one-vehicle" crashes at skewed rail crossings or cattle grates) or they involve facilities that did not exist or were substantially altered since the reporting period (e.g. post-2008 Rail Trail and Acequia Trail crossings). More information and analysis of bicycle crash data for the Santa Fe MPO area is provided in Appendix 4.

[15] 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

III. Engineering: Assessment of Existing Conditions

Santa Fe's bikeway system is a combination of on-road facilities, including designated bike lanes, striped shoulders, and lanes shared with motor vehicle traffic; and off-road facilities, including paved multi-use trails and formal or informal soft-surface paths. In some cases, facilities are designated and linked through "Bike Route" or other guidance signage. The 2011 Santa Fe Bikeways and Trails Map details existing on-road and off-road facilities throughout the Santa Fe MPO area. Road facilities and trail segments are also listed according to their general characteristics in Appendix 5 of this Plan.

A. ON-ROAD FACILITIES: Bike Lanes, Paved Shoulders, Shared Lanes

The road network is as critical to bicycle transportation as it is to motor vehicle transportation. Bicyclists are permitted to use all public roadways in the Santa Fe metropolitan area. While shared lanes are sufficient on many roads, separate on-road provisions, such as bike lanes or paved shoulders, are needed to accommodate cyclists on higher-speed and higher-volume volume roadways. Sidewalks and sidepaths may serve to accommodate pedestrians and some cyclists but should never be used as a rationale to forgo on-road facilities.

> "To varying extent, bicycles will be used on all [roadways] where they are permitted. Bicycle-safe design practices, as described in this guide, should be followed during initial roadway design to avoid costly subsequent improvements." (AASHTO Guide for the Development of Bicycle Facilities (1999), p. 16.)

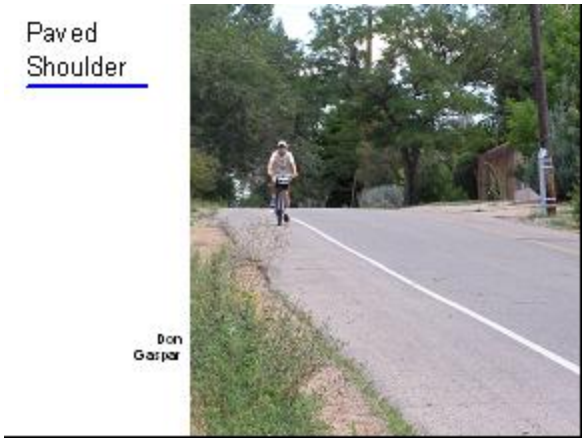
Bike lanes and paved shoulders. Roads in the Santa Fe area that have bike lanes or paved shoulders with at least four feet of usable width for cyclists are generally indicated in blue on the Santa Fe Bikeways and Trails Map.

Designated bicycle lanes can be found on some of Santa Fe's arterial streets and some other roadways where it was deemed appropriate to provide signage and/or pavement markings dedicating lanes for exclusive use by bicycles. Typically these lanes are routed through intersections to the left of dedicated right-turn lanes. Examples can be found on city streets, county roads, and state highways in the Santa Fe area (see Appendix 5). Some location-specific bike lanes have also been striped in order to route cyclists using paved shoulders through intersections.

Pavement marking options for designated bicycle lanes are covered by national guidance in the Manual of Uniform Traffic Control Devices (MUTCD) as well as in publications by the American Association of State Highway and Transportation Officials (AASHTO).

Most state highway and city streets with new bike lanes use one of the recommended designs. If used on a two-way roadway, in most cases bike lanes should be marked in each direction.

Paved Shoulders. In some cases, streets have paved shoulders that meet bike lane criteria for clear width but are not designated as bicycle lanes. Most of these shoulders are not routed through intersections or alongside parking or bus bays but rather bicyclists are expected to merge into or through lanes shared with motor vehicle traffic at these locations. Most of these facilities are shown in blue on the Santa Fe bikeways map, though a few, such as shoulders on I-25, St. Francis Dr., and parts of the Relief Route (NM599), are not emphasized as primary bicycle routes, are left as gray.



Many striped shoulders are available for use by bicyclists but do not meet bike lane criteria for width, clear width, or pavement surface quality. Examples of narrow shoulders that do not meet bike lane criteria but do help accommodate cyclists can be found on parts of Agua Fria St. and W. Alameda St. that are identified in orange on the bikeways map.

In some cases, shoulders include pavement edges resulting from partial overlays, a phenomenon that is limited to state highways. Both the City and County have passed resolutions[16] requesting that NMDOT cease paving practices that leave pavement edges in or near the shoulder area that is needed by bicyclists. The MPO has provided input to NMDOT on NM599 (Relief Route) citing these resolutions; current project planning for NM41 in Santa Fe County, just south of the MPO planning area, includes assurances that paving of "open graded friction course" (OGFC) will reach the outside edge of the shoulder.

Rumble strips in paved shoulders - a proven effective countermeasure against run-off-the-road motorist crashes - are found on three state highways in the MPO area: I-25, US84/285 north of Opera Hill, and US285 south of Eldorado. Of the three, only US285 is a significant bicycling route in the MPO area as I-25 and US84/285 have more desirable frontage or other alternate routes. Rumble strips can pose a hazard and inconvenience to cyclists and for this reason AASHTO and FHWA recommended that

[16] See City Resolution 2009-10 and County Resolution No. 2009-135.

they not be installed without leaving four feet of clear space on the shoulder for use by bicyclists. All rumble strips in the MPO area meet this criterion. US84/285's rumble strips also feature 12-ft. gaps every 60 feet per NMDOT's current standard design specification to accommodate bicyclist movements.

Bike Lanes and Paved Shoulders at Intersections. One of the primary differences between bike lanes and paved shoulders is the treatment of intersections. Designated bike lanes typically provide cyclists with a path through intersections whereas bicyclists using paved shoulders are expected to choose their own course through intersections, either by taking the travel lane or by staying to the right to let through vehicles pass.

In Santa Fe, many shoulders cannot be easily converted into bike lanes because intersection configurations, and particularly dedicated turn lanes, do not allow for space to route the bike lane through. In some cases, designated bike lanes end abruptly before an intersection due to this problem. Unfortunately these intersections lacking through-lanes for bicycles are typically where cyclists need the separate bicycle facility most.

Shared lanes. The majority of streets in the Santa Fe area do not provide a separate on-road facility for cyclists, but rather travel lanes are shared by bicyclists and motor vehicles. On many low-speed residential streets, there are few significant conflicts resulting from this arrangement; where these roadways are significant as bikeways they are shown in yellow on the Santa Fe Bikeways and Trails Map. Where motor vehicle speed or volume contribute to a less comfortable, narrow shared lane, but the roadway still holds significance for through travel by bicycle, orange is used on the map.

Wide Shared Lanes. On some streets, a wide shared lane allows 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, some roads with significant motor vehicle traffic that have wide curb lanes where there is no parking, or where parking is minimal, are shown in blue.


Shared Lane Arrows = "Sharrows" (San Francisco)

Pavement Markings: Sharrows. On some low-speed streets[17] where cyclists are encouraged to "take the lane" in order to avoid possible conflicts with moving or

[17] According to the MUTCD (2009), Section 9C.07: "The shared lane marking should not be placed on roadways that have a speed limit above 35 mph."

parked motor vehicles, the City's Bicycle and Trails Advisory Committee (BTAC)'s Subcommittee on Street Improvements[18] recommended the use of "**shared lane arrows**," or "sharrows," based on a model from San Francisco CA that has since been adopted into nationwide standards.[19] Sharrows were installed by the City on many downtown streets in 2005 and 2007. Sharrows have also been used on a few streets in the county in Oshara Village.

W. Alameda near Defouri St.: One of 380 locations where BTAC asked the City to place "sharrows."

Maintenance of the sharrow symbols has proved to be burdensome enough that well over half of the roughly 380 symbols that were installed at BTAC's request have disappeared or are now barely visible. Appendix 5 includes a list of locations where sharrows have been installed and a descriptive analysis of the experience with sharrows so far.

Pavement Markings: Signal Actuator Locations for Cyclists. Also at the request of the BTAC Subcommittee on Street Improvements in 2004, the City's Public Works Department adjusted loop detectors and optical detectors at selected signalized intersections so that they would be able to detect the presence of a bicycle. The "sweet spot" where cyclists could rely on being detected was then marked with an appropriate bicycle symbol as specified in the MUTCD.[20]

Bicycle signal actuator: A bike stencil marking on Manhattan St. marks the "sweet spot" where bicyclists can trip the signal to get a green light.

[18] "Report of the Subcommittee on Street Improvements of the Bicycle and Trails Advisory Committee," July 7, 2004.
[19] AASHTO, Guide for the Planning, Design, and Operation of Bicycle Facilities (2010 Draft), "Marked Shared Lanes" (pp. 59-63); MUTCD (2009), Section 9C.07, "Shared Lane Marking."
[20] MUTCD (2009), Section 9C.05, "Bicycle Detector Symbol."

B. OFF-ROAD FACILITIES

Multi-Use Trails

For a wide variety of bicyclists and other non-motorized users, a system of multi-use trails on alignments distinct from the road network can create enhanced opportunities both for transportation as well as recreational purposes. Multi-use trails that are generally intended to address transportation needs should follow accepted engineering guidelines with respect to width (generally 10 ft. minimum), surface (ADA compliant), acceptable horizontal and vertical curvature, sight distance needs, clear zone, and a variety of other safety and convenience factors discussed in the AASHTO Guide for the Development of Bicycle Facilities.

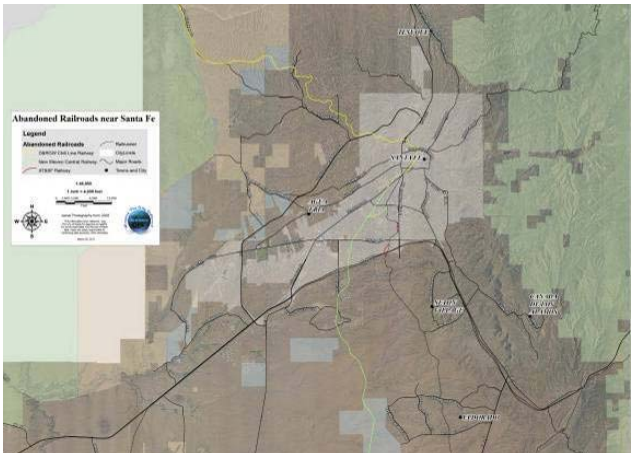
Multi-Use Trails: According to AASHTO…

"*Shared use paths should be thought of as a complementary system of off-road transportation routes for bicyclists and others that serves as a necessary extension to the roadway network. Shared use paths should not be used to preclude on-road bicycle facilities, but rather to supplement a system of on-road bike lanes, wide outside lanes, paved shoulders and bike routes*." (AASHTO 1999, p. 33)

"*Shared use paths are facilities on exclusive right-of-way and with minimal cross flow by motor vehicles. … Users are non-motorized and may include but are not limited to: bicyclists, in-line skaters, roller skaters, wheelchair users (both non-motorized and motorized) and pedestrians, including walkers, runners, people with baby strollers, people walking dogs, etc.*" (AASHTO 1999, p. 33)

Map 2 – will include

- *active & abandoned railroads*
- *watercourses (arroyos, acequia, river)*



Map 2: Independent Alignments for Multi-use Trails in the Santa Fe MPO Area

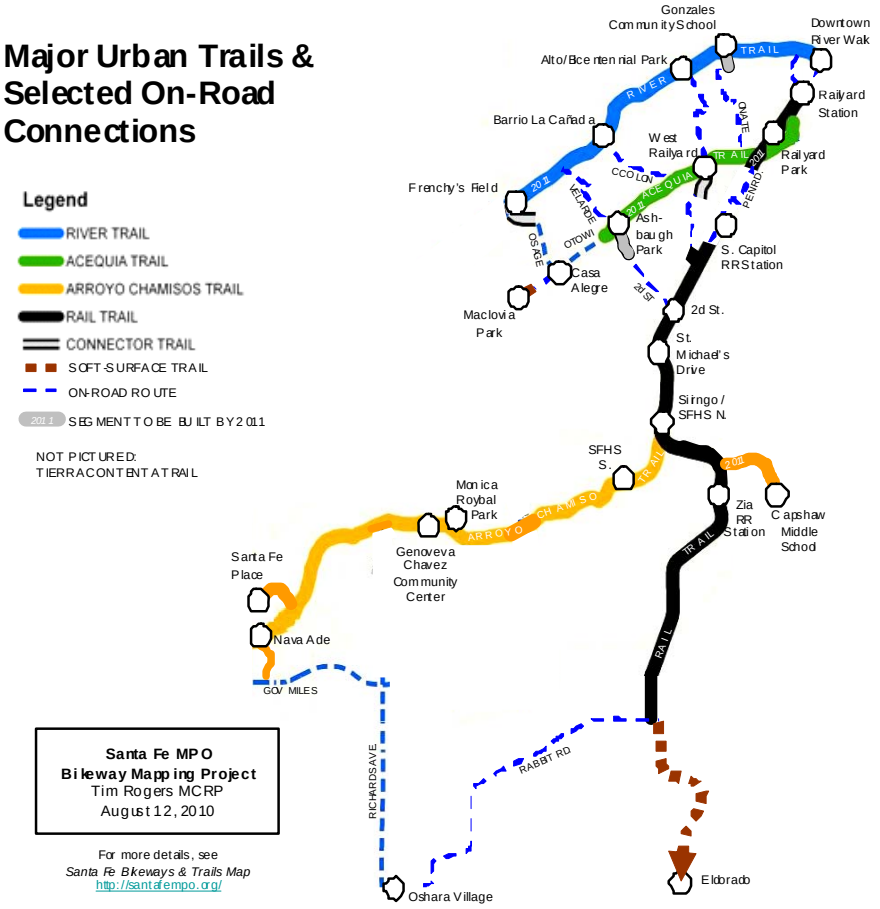
Santa Fe's four major multi-use trails are the River Trail, the Acequia Trail, the Rail Trail, and the Arroyo de los Chamisos Trail. Other lesser-known multi-use trails meeting AASHTO specifications include the Cañada Rincon Trail (a/k/a North Spine Trail), the Arroyo de los Chamisos Trail (north fork) in Tierra Contenta, the District Trail (N.M. Central RR) in Rancho Viejo, and some trails in city parks including Frenchy's Field.

These multi-use trails, which are shown as thick green lines on the Santa Fe Bikeways and Trails Map, can be thought of as core pieces of the region's "arterial bikeways." They typically follow alignments that are independent of roadways, such as waterways, arroyos, and active or abandoned rail lines (see Map 2). This serves to minimize conflicts with motor vehicles, increase recreational value, and maximize the extent to which the transportation alignment complements the existing road system.

Together with complementary road connections, Santa Fe's major multi-use trails 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 MPO area (see Map 3).

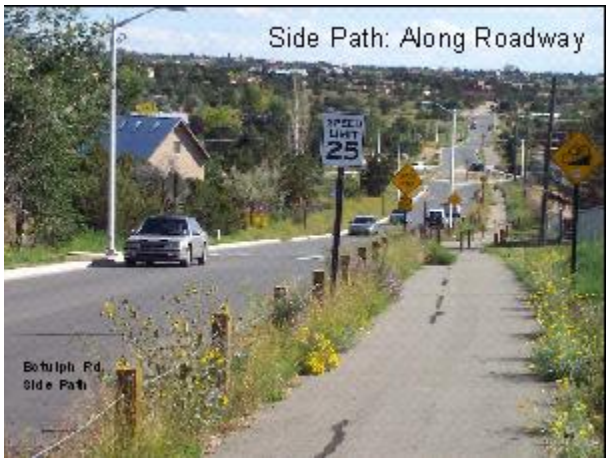
Subdivision Trails

Narrow multi-use trails, and paths that otherwise do not meet AASHTO standards for multi-use trails, are often found in parks or within subdivisions such as Pueblos



del Sol, Nava Ade, and Rancho Viejo. These paths are shown as narrow green lines on the Santa Fe Bikeways and Trails Map. In many cases these trails are difficult to integrate into longer bikeway alignments. While serving a recreational role for a variety of local users, for transportation purposes, at best they may serve as local "collectors" into the greater bikeway system.

Side paths



"Side paths" are trails built along roads. AASHTO highlights operational difficulties presented to bicyclists by sidepaths, including increased hazards at driveway crossings and intersections, and strongly discourages their use by public agencies as a primary strategy to accommodate bicycles or as a rationale to forgo on-road bicycle facilities.[21] There are only a handful of examples of paths built for bicycles along roads in the city but far more in county subdivisions. Where displayed on the Santa Fe Bikeways and Trails Map, paved side paths are shown as narrow green lines.

In most cases, a side path may serve as a good pedestrian facility but a marginal bicycle facility, often suitable for lower-speed use only. In many cases, for example near schools in residential areas, enhanced sidewalks may be considered to accommodate children, but it must be recognized that these alignments tend to present users on bicycles with complex motor vehicle conflicts that may be challenging and hazardous.

C. GUIDANCE FOR BICYCLISTS

City Bike Routes. The 1993 Bikeways Master Plan created a network of bike routes designated through standard "Bike Route" signage on city streets, a program was implemented within a few years of the plan (see Appendix 6: Bike Route Guidance). The signage scheme served to identify priority routes for bicycles but did not include additional guidance such as information on destinations or distance. Bike Route signage is also used in Santa Fe as a generic declaration for multi-use trails where they are accessed from roadways.

Destination information was added to this City Bike Route sign when State Bike Route 9 was designated, continuing on Galisteo St. to the plaza.

Bike route signage was also included on the

[21] See AASHTO 1999, pp. 33-35; revised and expanded guidance on side paths will be available in Section 5.2.2 of the *AASHTO Guide for the Planning, Design, and Operation of Bicycle Facilities*, scheduled for release during 2011.

Acequia Trail as part of a safety measure to guide cyclists from the Railyard Park Rail Trail and Alarid St. onto the new trail to the St. Francis crosswalks, and away from the on-sidewalk and on-road skewed rail crossings along Cerrillos Rd.

State Bike Route 9. State Bike Route 9 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 4, "State Bike Route 9," and Appendix 6). 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 connected only through reference on the plaques.

Signage recently installed on the Acequia Trail provides trail users with useful guidance though the orange placard does not conform to MUTCD standards.

Map 4: State Bike Route 9 (forthcoming)

State Bike Route 9 provides guidance to the Plaza from Galisteo St., from the south (pictured), and from Old Taos Highway from the north.

State Bike Route 9 added directional information (arrows and destination plaques) at many decision points and added or incorporated a few small spur or connector bike routes. Long-range plans for NMDOT's "State Bike Route 9" extend south to Galisteo and Moriarty via NM41 and north to Ojo Caliente via Española on US285.

Other Guidance: Pavement Markings

In addition to signage, pavement stencils provide trail users with valuable guidance on some multi-use trails in the Santa Fe area (see photo).

Wayfinding assistance at the Rail Trail crossing at Siringo Rd. includes signage for road users and a stencil for trail users.

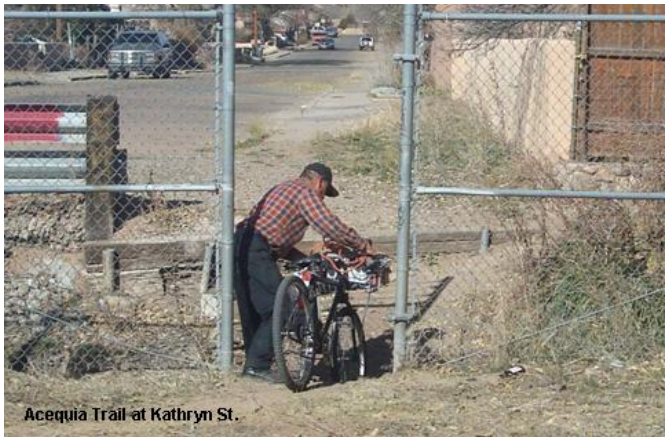
D. GAPS and BARRIERS

Typical physical barriers faced by bicyclists and other non-motorized travelers in cities throughout the world include major multi-lane roadways, railways, rivers and other waterways, and other topographical features that are difficult to cross. In the Santa Fe metropolitan area, the primary significant barriers in the bikeway system are the highest-trafficked, major roadways, particularly St. Francis Dr. (US84/285), Cerrillos Rd. (NM14), the Santa Fe Relief Route (NM599), St. Michael's Dr. (NM466), W. Zia Rd., Rodeo Rd., Airport Rd., and I-25 (see Map 5, Gaps & Barriers / Crossings & Connections).

Map 5 (forthcoming). Gaps & Barriers / Crossings & Connections

Section E. below assesses how the trail system handles crossings at many of these roadway barriers, including at-grade and grade-separated routes. Issues for on-road bicyclists using bike lanes and shared lanes at major roadway intersections are discussed above in Section A. On-road bicyclists also benefit from various grade-separated road crossings with these major roadways, particularly in cases where such crossings are not associated with interchange ramps, e.g. Richards Avenue under I-25, Via Abajo and Ave. Rincón (near Zocalo) under NM599, and Rodeo Rd. over St. Francis Dr.

Existing bridges over the Acequia Madre include this two-by-four construction providing access between Otowi Rd. and Camino Canyon de Chelly (above). A similar construction could serve needs to connect into the Acequia Trail at the end of Kathryn St. (below)



Acequia Trail at Kathryn St.

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., six 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). The furthest west pedestrian or trail bridge is currently at Frenchy's Field, but the County is planning to build another non-motorized crossing of the Santa Fe River in 2011 in the form of a River Trail bridge east of the Relief Route. 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.

Lack of continuity in on-road facilities and lack of easements for desired trail connections account for many other significant gaps in the area's bikeway and trail system. Gaps in road facilities are discussed in Section A and treated in more detail in recommended improvements in Chapter IV. Gaps in trail alignments, also a focus of Chapter IV, include those that would cross private land as well as land belonging to public agencies. Closing these gaps would require dedicated efforts by the City and County to work with private citizens, organizations, or public agencies to identify and secure desirable alignments well before resources are necessarily reserved for design and construction of related trail segments. Prominent examples include the remaining gap between the Acequia Bikeway and Rufina St., which is primarily limited to private properties on the west side of Maez Rd.; the desired non-motorized connection from the Arroyo de los Chamisos Trail north to Richards Ave., along an emergency vehicle easement granted to the City by the public landowner, the New Mexico Fish and Game Dept.; and desirable alignments of the proposed Arroyo Hondo Trail south of I-25.

E. CROSSINGS AND CONNECTIONS: TRAIL-ROAD INTERSECTIONS

This connection to the River Trail from Gonzales Community School features high-visibility striping (Continental), a refuge for pedestrians in the median, and a well-oriented ramp with sufficient through space for bicyclists.

The MPO Bikeways Mapping Project, which assessed existing and desirable trail and road alignments throughout the MPO area, included an examination of the interface between multi-use trails and roadways, which AASHTO describes as often the most critical area of focus for multi-use trail design.[22] The project found many examples of trail crossings that combine good pedestrian safety design for crosswalks with good bicycle design for multi-use trails (see W. Alameda example at right). There are many opportunities, however, to improve trail crossing and connections that do not meet AASHTO guidelines, such as desired clear width available to cyclists, or that could benefit from latest best practices for pedestrian design.

At-Grade Crossings: At-grade trail crossings and other connections to streets are found throughout the MPO area. The Bikeway Mapping Project assessed crossings and other trail connections to roads at signalized intersections, unsignalized intersections, and mid-block locations, noting presence of crosswalk markings and signage, width and orientation of access ramps, and presence of posts and other in-trail obstacles, among other attributes. **(Will put on Barriers/Crossings Map)**

[22] AASHTO (1999), p. 46.

Pavement Markings at Crossings. All trail crossings at signalized intersections in the Santa Fe area are marked with parallel-line or, less commonly, "Continental"-style crosswalk markings. These markings provide guidance to both pedestrians and motorists regarding the desirable and legal walking path across the road. Prominent examples of marked crosswalks at signalized locations include the Rail Trail at W. Zia (see photo at right), the Rail Trail and Acequia Trail at St. Francis and Cerrillos, the River Trail at St. Francis Dr., and the St. Francis Dr. Trail at Siringo (to be built in 2011).

High-Visibility Crosswalk Markings at mid-block crossings, such as this "ladder"-style crosswalk at Alarid St. near the Railyard Park, provide useful guidance to trail users and a clearly-visible notification to motorists. These markings also serve to legally establish a mid-block crosswalk where road users are required to yield to pedestrians.

Most of the Rail Trail's other mid-block crossings, including the crossing at 2nd St. (left), are not marked and thus do not provide a legal crosswalk – under state law, pedestrians using these crossings cannot assert a legal right to cross the road.

Many trail crossings at uncontrolled locations, including "mid-block locations," are also marked with highly-visible continental- or ladder-style crosswalks, including all three

original Arroyo de los Chamisos crossings, the River Trail crossing at Camino Alire along with various other River Trail connectors across W. Alameda, and three Arroyo de los Chamisos/Tierra Contenta Trail crossings. Most Rail Trail crossings at uncontrolled locations, on the other hand, have not been marked, with the exceptions of Paseo de Peralta (parallel lines marked in order to steer pedestrians around a median, see photo at right) and Camino Alarid (Ladder, marked in May 2011, see top photo above).

A crosswalk marked across Paseo de Peralta to guide Rail Trail users around a built median creates a legal crosswalk but does not always achieve its intended purpose.

None of the Rail Trail crossings south of the city are marked, but some trail crossings are marked at uncontrolled locations in county subdivisions such as Rancho Viejo (e.g. District trail at A Va Nu Po) and Las Campanas (Camino la Tierra side path crossing north of interchange with Ave de las Campanas). Crossing treatments in city subdivisions also vary but examples of marked crosswalks at uncontrolled locations can be found in Nava Ade and Las Acequias.

This marked crosswalk in Nava Ade incorporates a speed table to calm traffic where a trail meets a residential street.

Other At-Grade Crossing Strategies.
Other pedestrian safety strategies that can be used to improve trail crossings include building median islands as pedestrian refuges, curb extensions to reduce crossing distance, flashing lights or signals, eliminating "free right turns," and other forms of traffic calming to reduce motor vehicle speeds.

Median refuges are found on the Rail Trail at Siringo Rd. and at St. Michael's Dr., within several crossings of Alameda associated with the River Trail, and in one location with a speed table on the Arroyo de los Chamisos Trail. Flashing lights activated by pedestrians have been installed at high-traffic, uncontrolled downtown crosswalks, both in pavement (Grant St. / no longer functional) and mounted with pedestrian warning signage

This median refuge is of critical value for Rail Trail users trying to cross the six lanes of St. Michael's Dr.

(Guadalupe), but have not been installed at trail crossings in the MPO area.

Grade-separated crossings: Grade-separated trail crossings, including underpasses or overpasses, can provide bicyclists and pedestrians with a conflict-free route to cross a roadway or railway. These crossings are not always practical or feasible but under the right conditions can provide an ideal means for trail users to overcome major obstacles. They can be extremely expensive to build except where they are integrated into an existing structure (e.g. bridge or culvert). The Santa Fe area does not have any trail overpasses but has two significant trail underpasses, including the Rail Trail under I-25 (shared with railroad underpass) and Arroyo de los Chamisos Trail under Rodeo Rd. (converted concrete box culvert). A third – a stand-alone tunnel to route the eastern segment of the Arroyo de los Chamisos Trail (to be called the Gail Ryba Trail) under St. Francis Dr. – is scheduled for construction in 2011. The Arroyo de los Chamisos Trail also features two underpasses of low-traffic school driveways south of Santa Fe High School.

Arroyo de los Chamisos Trail crossing at Ave. de las Campanas, with median refuge. Slanting the gap in the median toward the right is desirable in order to have users passing through in either direction face the traffic lanes that they need to see; unfortunately this application does not provide sufficient maneuvering space for bicycles.

Grade-separated crossings of major roadways can be invaluable for trail users but are often prohibitively expensive unless integrated into an existing structure, such as the Santa Fe Southern Railroad's underpass of I-25.

Space for future underpasses has been left in all recent construction or reconstruction of bridges over the Santa Fe River, including crossings at Camino Alire (to be operational in 2011), Siler Rd., and S. Meadows Rd. Similarly, NMDOT included a stand-alone trail underpass in the reconstruction of Cerrillos Rd. (NM14) roughly two decades ago to accommodate the future Arroyo de los Chamisos Trail, an investment which may now be nearing fruition as development in the area reaches south.

Three "equestrian" underpasses, also intended for use by pedestrians and bicyclists, were included in the construction of the Relief Route (NM599) in the late 1990s. They do not

yet incorporate any significant multi-use trails, though the La Tierra Trails Master Plan prioritizes routing an access trail through the easternmost of the three, just west of Camino de Los Montoyas. Another operational "equestrian" underpass can be found under US285 south of Eldorado.

For Map 5: Trail underpass locations in the Santa Fe MPO area – Existing (major), Existing (minor), "Equestrian" (linked to soft-surface paths only); Planned

At-Grade Rail Crossings: Active rail lines do generally not pose a major barrier to bicyclists in Santa Fe but the rails themselves do present a specific hazard at skewed crossings, particularly at the intersection of St. Francis Dr. and Cerrillos Rd. Although data on crashes not involving motor vehicles is very limited, eyewitness and anecdotal evidence strongly suggest that the on-road and sidewalk rail crossings at this intersection would have the highest incidence of bicycle crashes of any location in the metropolitan area. AASHTO provides excellent guidance on possible treatments to improve bicycle safety at skewed rail crossings; conceptual fixes are illustrated in Appendix 10, with AASHTO and FHWA references, and included in Chapter VI., Implementation Plan.

Official crash data available for this plan do not include "single-vehicle" crashes nor do they reflect conditions created after 2008, but this skewed rail crossing at St. Francis Dr. and Cerrillos Rd. is known to be the single most common hazard to have afflicted area bicyclists in recent years.

F. OTHER MULTI-USE TRAIL DESIGN ISSUES

Many of our area's multi-use trails present a variety of constraints, distractions, and hazards to bicyclists that might have been prevented through adherence to AASHTO bikeway guidelines. Most subdivision trails and even some major arterial trail segments do not meet the suggested minimum width of 10 ft. for paved, multi-use trails. In many instances, fences, handrails, or other vertical obstacles are placed within the suggested 1-2 ft. "clear zone" at the edge of our trails. Bollards or posts have occasionally been placed at random locations on trails, often providing insufficient clear space for bicycles (e.g., see Arroyo de los Chamisos photo on previous page), sometimes failing to establish a "center post" location and sometimes failing to serve the intended purpose of restricting motor vehicles.

Concerns that influence multi-use trail designs include prevention of entry by unauthorized motor vehicle traffic, provision of access to authorized maintenance and emergency vehicles, and meeting accessibility requirements interpreted to exist under American with Disabilities Act (ADA). Designs focusing on these concerns have frequently produced multi-use trails, street crossings, and connections that do not accommodate the safe and convenient use by bicycle, which should be the intended design vehicle for multi-use trails.[23]

This critical bikeway connection between the River Trail and Ave. Cristobal Colon meets minimum requirements for ADA but provides a poor facility for bicyclists.

For most of the issues described above, the approach recommended by AASHTO is that a multi-use trail should be designed as a "road for bicycles." This approach need not conflict with the needs of other users of multi-use trails, such as in-line skaters, runners, dog-walkers, hikers, and other pedestrians. However, following strict guidelines and best practices for pedestrian accessibility, as perceived to be required under ADA − and the ADA Accessibility Guidelines (ADAAG) created to define appropriate access to and within buildings − can lead to designs that are both inconvenient and hazardous to users of the intended design vehicle, the bicycle. Examples documented by the MPO Bikeways Mapping Project include narrow ramps at trail crossings (following state standards for ADA ramps at crosswalks), inordinate use of handrails in the area that would be the "clear zone" on a "road for bicycles," and the use of difficult or inconvenient switchbacks and flat spots to meet slope requirements under ADAAG (see Appendix 9).

Unlike the steeper ramp that it replaced, this maze built to provide access to a footbridge across the Santa Fe River from Closson St. is unusable by bicyclists.

Another constraint in the design and construction of multi-use trails in the MPO area current is the City's operating assumption and requirement that bridges must be built to specifications worthy of use by heavy motor vehicles for emergency and maintenance purposes. Where such bridges are built, this may place a significant financial burden on public trail funds. In other cases, minor but significant desired connections may become infeasible, impractical, or otherwise too expensive if a heavy bridge is required.

[23] See, e.g. AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities (2004), p. 71: "Trails built to meet…guidelines [of the AASHTO Guide for the Development of Bicycle Facilities] will also serve the needs of pedestrians."

G. BICYCLE PARKING

Photos by Gail Ryba of BCNM illustrate various kinds of parking used by local bicyclists in the recent past. Parking at public facilities, such as Salvador Perez pool (lower left) has improved dramatically over the years.

Most commercial centers and public facilities in Santa Fe provide some form of formal parking facilities for bicycles, typically one of many varieties of bicycle racks.

AASHTO and the Association of Pedestrian and Bicycle Facilities (APBP) have produced guidelines for bicycle parking that favor the use of inverted U-shaped racks that:

- Support the bicycle at two points above its center of gravity
- Accommodate high security U−shaped bike locks
- Accommodate locks securing the frame and one or both wheels (preferably without removing the front wheel)
- Provide adequate distance [minimum 36 inches (0.9 m)] between spaces so that bicycles do not interfere with each other
- Do not contain protruding elements or sharp edges
- Do not bend wheels or damage other bicycle parts
- Do not require the user to lift the bicycle off the ground.[24]

Unfortunately many of the racks that are installed in the MPO area do not meet these characteristics.

Key downtown locations that received loop racks under a special City initiative several years ago included the Plaza, City Hall, DeVargas Park, and the corner of Alameda and Don Gaspar (above). This inverted "U" design conforms with new guidance from APBP and AASHTO.

Public agencies including the state, county, city, federal government, and school district have all made significant efforts to provide bicycle racks at all public facilities, including those offering services to the public as well as those that do not. In a unique effort to provide additional bicycle parking in high-demand public spaces, the City installed inverted "U" racks at ten selected locations downtown around 2007 (see photo).

Private developers and builders are required to provide bicycle parking by the City's Chapter 14, which specifies bicycle parking standards for all uses except single-family residential (see Appendix 2). For most uses, the number of bicycle spaces required is tied to the number of motor vehicle parking spaces required. For hotels it is tied to the

[24] AASHTO (2010 Draft), p. 201, citing Association of Pedestrian and Bicycle Professionals (APBP), "Bicycle Parking Guidelines." Washington, DC: 2002.

number of employees and for schools the number of students.

The city code provides an illustration of an acceptable bike rack and specifies that racks 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;" "anchored so they cannot be easily removed," "designed so that both wheels or the frame of a bicycle can be locked securely to it with a chain, cable or padlock," and "located so as to be visible, easily accessible near the building entrances, well lit and not conflicting with pedestrian or vehicular traffic." The code allows for the substitution of bike lockers or a "room" or communal locker instead of a bike rack.

Some agencies provide additional indoor storage space or outdoor bike lockers for more secure storage for use by staff. A public bike locker installed by the city for public use at its parking facility on Water St. receives minimal use, in large part due to lack of awareness among potential users.

The City Parking Division's two-chamber bike locker at the Water St. lot is available free of charge though users need to provide their own padlock.

The NM Rail Runner Express, in addition to providing ample bike racks at each station in the Santa Fe area, installed 14 bike lockers at NM599 station in April 2011 and is working to install 10 more at South Capital Station.

A promotional photo from www.nmrailrunner.com displays the type of bike lockers being installed at NM Rail Runner stations.

H. ON-BOARD TRANSIT PROVISIONS FOR CYCLISTS

All major public transit providers in the MPO area offer provisions for carrying bicycles. For transit services using buses with front racks to hold bicycles, bicycle ridership is typically limited to the number of spaces available on the rack.

Santa Fe Trails bus service extends the range of bicycling for many individuals in the MPO area, in this case providing a ride into town from the Santa Fe Community College.

All of the City's "Santa Fe Trails" regular-service buses now have racks with a capacity of at least two bicycles; the City is gradually replacing busses with two-bike racks with new vehicles with three-bike racks. North-Central Regional Transit District buses also have front racks with a capacity of two bicycles. The State's Park and Ride services provide space for bicycles in the luggage compartments located underneath on large busses and front racks on smaller busses. Taos Express shuttles, which connect to Rail Runner stations and the Santa Fe Airport, offer two rack slots per vehicle, with a reservation required to guarantee a slot.

The NM Rail Runner provides for bicycle storage in designated areas on trains, each of which can fit 2-4 bikes, but overflow space is also usually available in areas to be shared with users with wheelchairs or other assistive devices. Trains arriving or departing from NM Rail Runner stations in the Santa Fe area typically have at least one bike on board

A Rail Runner passenger boards the train at a designated entrance (left). Space is reserved for a minimum of two bicycles per car (right); in practice several more bicycles may fit.

per car, if not several more. NM Rail Runner, which states that each train will be able to accommodate up to 12 bicyclists, has never had to turn any commuting cyclists away.

Annual bicycle boardings counted by NM Rail Runner throughout the system increased dramatically after service to Santa Fe began in mid-December 2008, rising from under 29,000 for Calendar Year 2008 to roughly 42,000 each year in 2009 and 2010. In 2010, NM Rail Runner counted 10,026 bicycle boardings at stations in Santa Fe County, nearly half of which were at the Santa Fe Depot. Boardings by bicyclists comprised 2.6% of all passenger boardings in Santa Fe County in 2010, including 2.9% of those at S. Capitol Station, 2.4% at the Santa Fe Depot, and 2.4% at NM599 Station. This share was more pronounced on weekdays (2.9%) than on Saturdays (1.3%) or Sundays (1.9%). By comparison, the share of bicyclists among all weekday Rail Runner boardings in 2010 was 4.4% in Bernalillo County, 2.9% in Sandoval County, and 2.4% in Valencia County.

AMTRAK, with rail service in Lamy, charges an extra fee to carry a bicycle and will only carry bicycles in a box. Because there are no formal provisions for bicyclists to store or obtain a bike box in Lamy, AMTRAK's bike box policy almost entirely prohibits the combination of long-distance rail and bicycle travel to get to and from Santa Fe without motor vehicle assistance. Private shuttle services, such as those serving the Albuquerque Sunport, also charge an extra fee for carrying bicycles and require the use of a bike box.

I. MAINTENANCE OF BICYCLE FACILITIES

Maintenance is an often overlooked area in bicycle facility planning and operation. Maintenance needs on streets specific to bicycle use include sweeping and plowing of shoulders and bike lanes, upkeep of signage and pavement markings, and resurfacing and restriping bike facilities within roadway resurfacing projects. Road maintenance can also include other measures to limit foreseeable hazards posed to bicyclists, such as cutting back vegetation infringing upon bike lanes or ensuring that drainage grates or cattle guards do not trap bicycle wheels. Maintenance on trails relating to bicycle use similarly includes cutting back vegetation, upkeep of signage, removing debris including snow and ice, surface repair, and repaving.

Sweeping and Plowing

Area road agencies, including NMDOT, the City, and the County conduct street sweeping, including shoulders and bike lanes, as needed. For roadways without curb and gutter, most of this work is done with "broom" attachments which clear debris onto the unpaved shoulder area. In residential areas and roads with curb and gutter, the city uses street sweepers that sweep debris into a bin to be disposed of elsewhere. NMDOT also operates a street sweeper as needed.

A street sweeper clears debris off of Richards Ave.

Local road agencies also plow snow and remove ice on roadways as necessary. Bike lanes and shoulders are usually generally cleared of snow and ice in this process. The city has also begun to regularly plow major multi-use trails after significant snowfall through the use of all-terrain vehicles fitted with plow blades.

Local agencies frequently receive requests from bicyclists to sweep area bike lanes and shoulders in the spring, when many cyclists are returning to the roadways. Agencies seek to address cyclists' needs after there is some certainty that there will no longer be a need to apply additional cinders or other means to melt snow and ice. NMDOT regularly responds to requests to clear highway shoulders well before major bicycling events, such as the Santa Fe Century which is held late in May each year.

Pavement Markings

Bike lane markings, including stripes and bike symbols, are generally integrated into regular restriping within state and city roadway maintenance, or when road repair work is performed by others (e.g. utilities). Other pavement markings specifically relevant to bicycling, however, including sharrows and signal actuator location markings, have not been restriped since their installation four-to-six years ago, and most are significantly faded or have disappeared. BTAC's On-Road Subcommittee assessed and rated the

condition of nearly half of the 380 sharrows installed by the City, reporting to BTAC in June 2011 that just over half of the sharrows assessed are no longer visible.[25]

A "sharrow" shows signs of wear on Baca St.

Drainage Grates and Cattle Guards

Longitudinal gaps in drainage grates or cattle guards can pose an extreme hazard to on-road bicyclists. Offending units can be repaired, replaced, or removed entirely. Drainage grates are found in various styles throughout the MPO area. Cattle guards on MPO-area roadways that are regularly used by bicyclists include four locations on or adjacent to NMDOT-maintained facilities: Old Las Vegas Highway (NM300) east of Ojo de la Vaca Rd. (Cañoncito), Buckman Rd. east of Calle Nopal, and Camino La Tierra (CR77) and Caja del Rio Rd, north of the NM599 Relief Route frontage road. Several more cattleguards are found on or along Caja del Rio Rd., including one at the entrance to the Municipal Recreation Center.

A "goathead" vine creeps onto the path in Ragle Park. Flat tires due to goathead thorns are a bane to cyclists in the Santa Fe area.

Trail Maintenance

Trail maintenance within the city falls under the City Parks and Recreation Dept. A significant portion of maintenance work along trails is dedicated to landscaping care, cutting back vegetation, removal of debris and trash on or along the trail, and removal of trash from bins along or near the trail. Of particular concern for local bicyclists is the clean removal of "goathead" thorn plants, which are notorious for causing flat tires in urban areas throughout New Mexico.

Deteriorating asphalt on the multi-use trail at the Santa Fe Community College. This trail was rebuilt by SFCC after this photo was taken in 2011.

In the winter, the City's Parks and Recreation Dept. conducts ice removal in

[25] Memorandum to BTAC from BTAC On-Road Subcommittee, June 21, 2011, "Launching an Annual Bicycle Sharrow Maintenance Program."

spot areas as needed and now regularly plows major multi-use trails after snowstorms. Paved multi-use trails eventually require surface maintenance, including asphalt patching and resurfacing, and re-decking of bridges. City and contractor staff typically use motor vehicles on multi-use trails on order to conduct maintenance and other operational activities. This practice can damage trails, particularly at the outside edges, as well as create an inconvenience and hazard to trail users.

[Photos: ice on River Trail at El Rio Rd. Trail; bridge deck]

Unpaved trails require erosion control in addition to occasional removal of debris. The Santa Fe Conservation Trust and the Santa Fe Trails Alliance have taken a leadership role in organizing trained volunteers to maintain city and county foothill trails as well as La Tierra Trails. The Santa Fe National Forest's Española Ranger District also organizes volunteers to assist with trail maintenance on the Atalaya Trail and other national forest trails in our area.

The City and the County have provided technical support and training with assistance from SFCT and the Santa Fe Fat Tire Society, a local mountain biking advocacy group. The International Mountain Biking Association (IMBA) has visited twice in the past two years to provide trail maintenance and construction training. The second visit culminated in the construction of a new trail segment planned under the La Tierra Trails Master Plan by roughly 40 volunteers and two IMBA trainers in a half-day's work.

[Photo of trail volunteers, IMBA trainers]

IV. Recommendations to Improve Bicycle Infrastructure

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

A. General Recommendations to Improve Bicycle Infrastructure

Primary recommendations of this Bicycle Master Plan center on adoption and implementation of "Complete Streets" policies by each MPO member government, adoption of AASHTO guidelines for the development and maintenance of bicycle facilities, continued development of on- and off-road facilities based on targeted investment, and pursuit of best practices based on models around the country to make bicycling an accessible, comfortable, and safe mode of transportation.[26]

Recommendation 1.1. Implement "Complete Streets" Policies for all construction and maintenance in the MPO area.

Effective complete streets policies ensure that adequate bicycle facilities area included in all new construction and preserved or improved in all maintenance activities. The MPO Transportation Policy Board unanimously passed a resolution in 2007 urging both the City and the County of Santa Fe to require the design and construction of "complete streets" catering to the needs of pedestrians, bicyclists, and transit throughout the metropolitan area (see Appendix 3, MPO Complete Streets Resolution).

In order to accommodate bicyclists, designated bicycle lanes, paved shoulders or wide curb lanes meeting specifications in the AASHTO Guidelines for the Development of Bicycle Facilities should be included in the design, construction, and maintenance of roadways with higher motor vehicle traffic speeds and volumes, typically including those classified as arterials or collectors. This plan recommends that **each MPO member legally adopt bike lanes or paved shoulders as standard on-road provisions for bicyclists on major roadways** (arterials and major collectors), comparable to standards already specified in the City's Chapter 14, for construction and maintenance by public agencies as well as private developers.

Bike lanes or paved shoulders, like this one on Richards Ave., should be included on major roadways throughout the MPO area. In addition to accommodating bicyclists and pedestrians, paved shoulders improve motor vehicle safety, provide space for emergency and maintenance vehicles, and help to preserve the roadway.

[26] See Appendix 8: Bicycle Master Plan Goals and Recommendations, for a list of Recs. 1.1-1.12 .

Bike lane or shoulder provisions thus required should not be limited to typical cross-sections but also provided through intersections, as recommended by AASHTO and the MUTCD. Consideration of modifications to traffic lanes and intersections should not be limited to assessment of motor vehicle needs and warrants but should include an analysis of corresponding level of service for bicycles. Consideration of current or future need for bike lanes through an intersection, for example, should be taken before road width is re-allocated to right-turn or center turn lanes.

[photo of San Mateo & Pacheco OR Yucca @ Zia]

Building and maintaining complete streets includes providing a smooth surface for use by bicyclists and keeping that surface reasonably free of sand and other debris. MPO members should follow City and the County resolutions prohibiting the practice of leaving pavement seams within the shoulder or along the edge of the travel lane. MPO members should continue to develop sustainable strategies to sweep and plow shoulders, bike lanes and multi-use trails of sand, snow, and other debris in order to keep the bikeway system safely and conveniently operational throughout the year.

[Photo of Ave. Vista Grande, post resurfacing]

Recommendation 1.2: Create and implement programs to retrofit roadways in need of bicycle facilities.

MPO members are also encouraged to pursue complete streets through "retrofits" whereby roadway width can be allocated to cyclists where needed. Bicycle facility retrofitting should focus on opportunities to restripe roadways in conjunction with resurfacing. Agency staff responsible for planning bicycle facilities should partner with maintenance staff for this specific purpose. Analysis to retrofit bicycle facilities into street segments and intersections should utilize a multi-modal level of service analysis,[27] including analysis of relative levels of service on a given roadway and also considering relative level of service on alternative alignments available to motorists and bicyclists.

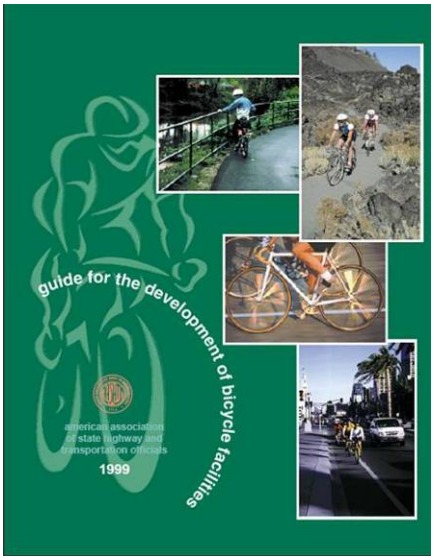
The City's "Road Diet" on Cordova Rd. in 2008 reduced a four-lane section to two travel lanes with a two-way left turn lane and bike lanes, improving conditions for motorists, bicyclists, and pedestrians.

[27] See, for example, National Cooperative Highway Research Program, Multimodal Level of Service Analysis for Urban Streets, NCHRP Report 616, Washington DC: Transportation Research Board (2008) (http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_616.pdf)

Specific opportunities and priorities to retrofit local roadways to meet AASHTO guidelines for bicycle facilities through restriping or widening should be evaluated on a case-by-case basis. Top priorities for retrofits of city streets, county roads, and state highways are identified in Section B of this chapter and in Chapter VI., Implementation Plan.

Recommendation 1.3: Adopt and Adhere to Established Engineering Guidelines for Planning, Designing, Building, and Maintaining Roads, Trail, and other Bicycle Facilities

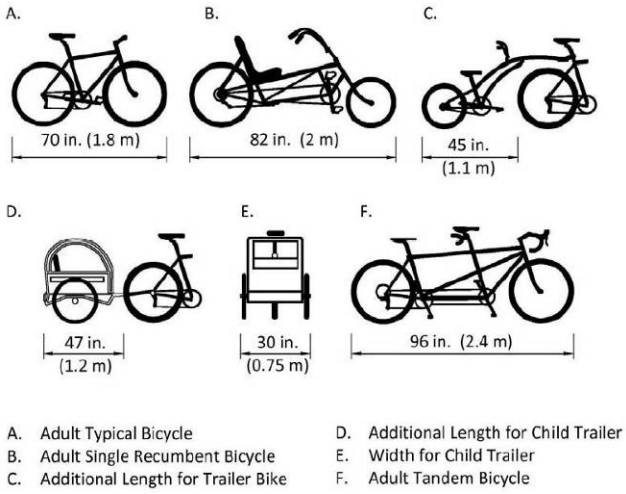
This plan recommends that each MPO member agency, and other entities in the MPO area, adopt the 2011 AASHTO Guide for the Planning, Design, and Operation of Bicycle Facilities as their own guidelines for the planning, design, construction and maintenance of on-road and off-road bicycle facilities as well as additional provisions for cyclists, such as bike racks. This recommendation applies to the City, County, Pueblo of Tesuque, and NMDOT as well as Santa Fe Public Schools, Santa Fe Community College, and other colleges and schools. Within agencies the recommendation should apply to streets departments as well as divisions responsible for trails, parks, and development review, and design consultants should be held contractually responsible for understanding and following these guidelines.



AASHTO's Guide for the Development of Bicycle Facilities has been the official source of professional engineering guidance since 1999. Its revision is expected for release in 2011.

In particular, roads should be designed and built as complete streets per recommendation 1.1 above, following specific AASHTO guidelines. In order to fulfill a transportation function, multi-use trails should be likewise be designed and built as "roads for bicycles." MPO members should make coordinated and focused efforts to design safe and convenient points of contact between multi-use trails and roadways (see text boxes). Adherence to AASHTO guidelines should be required of all public agencies, contractors, and private developers.

Just as the design vehicle for major roadways is a large truck, the design vehicle for our multi-use trails should be



AASHTO's representation of "typical bicycle dimensions" in the 2010 draft Guide for the Planning, Design, and Operation of Bicycle Facilities.

a bicycle with a two-wheel trailer. MPO members should be aware that ADA specifications such as minimum widths for pedestrian facilities are typically inadequate for facilities serving multi-use trails. Members are thus urged to take caution in strict application of ADA Accessibility Guidelines (ADAAG) and best practices for ADA to multi-use trails (See Appendix 9: A Proposed Policy with Regard to ADA and Multi-Use Trails in the Santa Fe MPO Area). This may mean limiting use of handrails, switchbacks, flat spots, and other constraints that may present significant inconveniences and hazards to bicyclists along multi-use trails. The MPO will work with member agencies to monitor development of more relevant guidance from US Access Board, particularly Shared Use Path Accessibility Guidelines currently under development.[28]

Multi-Use Paths and Roads: Some Criteria for a Good Connection

"**Ramp width** should be at least the same width as the shared use path."

"**Curb cuts and ramps** should provide a smooth transition between the shared use path and the roadway."

"**Transition zones:** Where shared use paths terminate at existing roads it is important to integrate the path into the existing road system… The designer should consider each path-road intersection along the length of the path as a potential entry/exit point."

- AASHTO Guide for the Development of Bicycle Facilities (1999), p. 50-51

Multi-Use Paths and Roads: More Guidance for Good Connections

"GEOMETRIC DESIGN ISSUES AT CROSSINGS

The design approach for the intersection of a shared use path with a roadway is **similar to** the design approach used for the intersection of **two roadways** in the following ways:

- The intersection should be **conspicuous** to both road users and path users.
- **Sight lines** should be maintained to meet the requirements of the traffic control provided.
- Intersections and approaches should be on relatively flat grades.
- Intersections should be as **close to a right angle** as possible, given the existing conditions."

- AASHTO Guide for the Development of Bicycle Facilities (Draft, 2010), p. 167

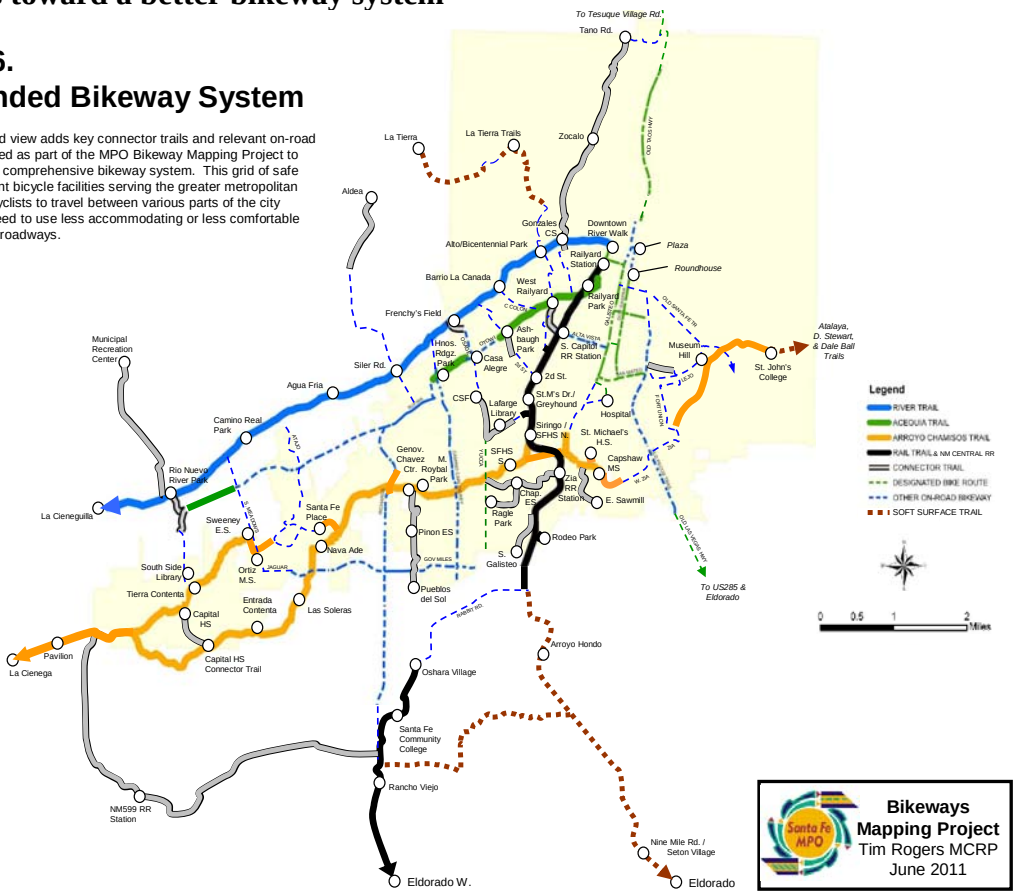
AASHTO and other sources also provide guidance on other provisions for bicyclists, such as parking facilities and transit accommodations. The single inverted "U" design (for example, at the South Capitol Station in photo at left) conforms with the latest guidance from the Association of Pedestrian and Bicycle Professionals, endorsed by AASHTO (see p. 32).

[28] See Architectural and Transportation Barriers Compliance Board (Access Board), "Shared Use Path Accessibility Guidelines, Advance notice of proposed rulemaking." Federal Register: March 28, 2011 (Volume 76, Number 59). Available on line at http://edocket.access.gpo.gov/2011/2011-7156.htm .

Recommendation 1.4: Target investments in new infrastructure that maximizes cost effectiveness toward a better bikeway system

Map 6.
Expanded Bikeway System

This expanded view adds key connector trails and relevant on-road routes identified as part of the MPO Bikeway Mapping Project to depict a more comprehensive bikeway system. This grid of safe and convenient bicycle facilities serving the greater metropolitan area allows cyclists to travel between various parts of the city without the need to use less accommodating or less comfortable higher-speed roadways.



This Bicycle Master Plan emphasizes that bikeway planning and development focus on continuing to develop "arterial" trail and on-road bikeway alignments and connections to those alignments as detailed in Appendix 7. Map 6 above, "Expanded Bikeway System," illustrates a vision of an expanded bikeway network developed following this recommendation. Specific, prioritized recommendations for facility improvements to achieve this vision are provided in Section B below and in Chapter VI., Implementation Plan.

This Plan prioritizes multi-use trail segments that can effectively function as direct, convenient, and reasonably safe transportation facilities. Specific recommendations in Section B focus on trail alignments that are independent of roadways and serve to complement the existing and planned on- and off-road bikeway system. This includes longer "arterial" trail segments as well as specific small connections and crossing improvements with potential significant impact on the bikeway system.

Roadway improvements should also be strongly considered in the prioritization of investments in new bicycle infrastructure (see Section B below). While Recommendations 1.1 and 1.2 above promote "complete streets" policies focusing on new construction and on opportunities to retrofit roadways through restriping,

particularly after maintenance projects, public investment in bicycle infrastructure should also address needs to pro-actively adjust intersections and trail crossings to benefit on- and off-road bicycle traffic and to widen selected roadways to create bike lanes or shoulders, as prioritized below in Section B.

The City and other agencies are encouraged to examine particular bicycle-pedestrian bridge crossings on a case-be-case basis, rather than follow a policy across the board, in order to determine whether increased costs are justified in order to accommodate heavy motor vehicle use.

Recommendation 1.5: Support pro-active maintenance of on-road and off-road facilities while minimizing impact to users

Area agencies are urged to reserve resources for regular maintenance of on-road and off-road bicycle facilities. On-road facilities should ideally be cleared and shoulder or bike lane surface, markings, and signage replaced or repaired on a routine basis along with the rest of the roadway. Roadway resurfacing by MPO area agencies should always include bike lanes or shoulders to the edge of pavement. Some maintenance of on-road facilities, such as the replacement of sharrows, may require the development of dedicated funding sources.

Specific funding mechanisms may be necessary for improved trail maintenance and particularly in order to program asphalt resurfacing as our multi-use trails age. Past successes in recruiting volunteers to maintain soft-surface trails may be replicated for the multi-use trail system, particularly with regards to identifying maintenance issues and providing coordinated volunteer labor where applicable. One possibility is to involve community members in the removal of goathead plants from identified problem areas on a seasonal basis, i.e. when the plants are easily identified through their flowers (late summer) and before staff or contractors may inadvertently disburse thorns onto and around trails through mechanized mowing or "weed whacking."

All agencies should keep motorized use of multi-use trails, even by authorized public agency staff, to a minimum for a variety of reasons, including surface preservation as well as the safety and convenience of non-motorized users. The City's Parks and Recreation Division in particular is encouraged to serve as a role model by limiting the use of heavy motorized vehicles on multi-use trails, per recently passed city law, and exploring the use of non-motorized vehicles for some functions. A first step is to identify maintenance activities that can be conducted though the use of bicycles or adult tricycles, along with trailers, within our parks and along our trails. The services could be contracted out or performed by city staff. Appropriate cycles designed for heavy-duty use would qualify for city purchase both for purposes of cost-savings and reduction of greenhouse gas emissions.

[photo of electric vehicle in Railyard Park]

Recommendation 1.6: Coordinate planning of bikeway facilities in the MPO area

Effective planning to support a metropolitan-wide transportation system for bicycles requires a comprehensive approach, and particularly a need to overcome divisions between planning for roads and for trails, between County, City, state, and tribal planning, and between other divisions within MPO members, for example, between "BTAC" projects and Parks and Recreation projects in the City. Trail segments, connections, and roadway improvement projects should be pursued as a coordinated program of prioritized projects and also as opportunities arise along desirable alignments.

This plan recommends that the MPO and its member governments work together toward the establishment of a Bicycle-Pedestrian program, staffed by at least one, qualified Bicycle-Pedestrian Coordinator, at the metropolitan and/or local levels with authority to coordinate agency planning, collaborate with agency staff in various program areas as needed. Functions of a bicycle pedestrian program would include:

- develop coordinated and overarching strategy
- guide implementation following agreed-upon standards
- develop advance planning and implementation activities such as strategic right-of-way acquisition and coordination with partners
- work closely with roadway maintenance programs to anticipate opportunities to include new bicycle facilities through restriping
- review trail, road, and other facility designs to ensure that non-motorized transportation needs are being met.

Recommendation 1.7. Provide bicyclists with useful guidance through Bike Route Signage and other wayfinding assistance on trails, roads and routes connecting the two.

Bike Route signage should be used to provide bicyclists with useful guidance on how to navigate around the Santa Fe area.[29] Opportunities to improve and expand guidance for cyclists include connections to and from trailheads and connections between alternating on-road and off-road segments of desirable routes. Per the MUTCD, Bike Route signage should include complementary information including arrows, destinations, and possibly distance. Bike route signage should not be used as a generic declaration that a road or trail is a bicycle facility.

Recommended bike route signage in the MUTCD (2009) emphasizes provision of destination and distance information for wayfinding purposes.

This Plan recommends that member agencies work together within the MPO's Unified Planning Work Program to develop a bicycle route signage plan for the MPO area. Section B of this Chapter provides specific recommendations on improving guidance through bike route signage. In addition to creating guidance along existing and planned

[29] See AASHTO 1999, pp. 20-21; AASHTO 2010 (Draft) Section 2.3.5, "Wayfinding for Bicycles;" MUTCD, Chapter 9, Section 9B.20 "Bicycle Guide Signs."

alignments discussed above in Chapter III, a new opportunity to provide longer-range guidance will come with the designation and promotion of "Bike Route 66" by Adventure Cycling Association (see text box on p. 41).

Pavement markings should also continue to be used to assist in wayfinding, particularly through stencils on multi-use trails where they meet roadways. Shared-lane arrows ("sharrows") can also serve as on-road markings to provide continuity on bikeways that alternate between bike lane and shared lane.

Resources to assist with bicycle wayfinding in the metropolitan area should also support the continued revision and distribution the Bikeway and Trails Map as well as posting copies of the map at strategic points within the bikeway system (see Section B).

A prospective application of the latest MUTCD signage at an important "decision point" for Acequia Trail users.

Recommendation 1.8. Research, consider, promote, and implement best design practices

The MPO will work with member agencies to stay abreast of latest research in the development of best practices for bicycle facilities and to identify opportunities to put such practices into use in the Santa Fe MPO area. This includes consideration of new striping options for bike lanes and shared lanes, use of shared-lane arrows, creation of bike boulevards, bike lane treatments at roundabouts, means of cyclist actuation of traffic signals, and general street design for pedestrian and bicycle safety, including traffic calming and intersection design (corners, medians, ramps, and signals).

Multi-Use Paths and Roads: Some Tools to Improve Crossings

Median Refuge

Curb radius reduction

Bulb-out / Bump-out

Raised Crosswalk

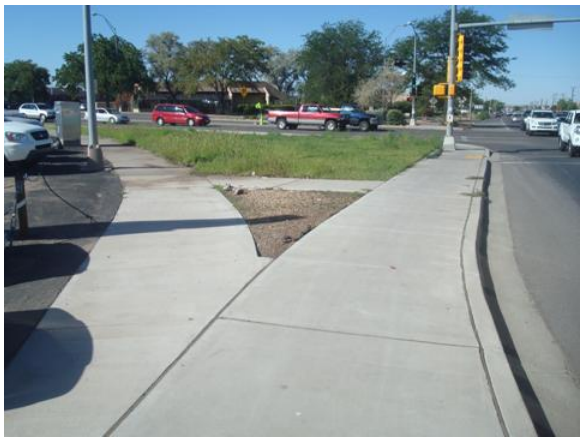
Signage and Striping

- AASHTO Guide for the Development of Bicycle Facilities (1999), AASHTO Guide for the Planning, Design and Operation of Pedestrian facilities (2004)

Multi-Use Paths and Roads: Strategies to Improve Crossings

- Mark crosswalk where appropriate (see FHWA, Safety Effects…), preferably with high-visibility striping
- Reduce crossing distance
- Warn / Slow down motor vehicle traffic
- Otherwise reduce exposure to Motor Vehicle Hazard

- AASHTO Guide for the Planning, Design and Operation of Pedestrian Facilities (2004), FHWA How to Design Streets for Pedestrian Safety (2008)



The City's decision to eliminate a free-right turn at the southeast corner of St. Michael's Dr. and Cerrillos Rd. served to benefit all roadway users, particularly pedestrians. This plan encourages similar actions at key trail crossings such as at St. Francis Dr. and Siringo Rd.

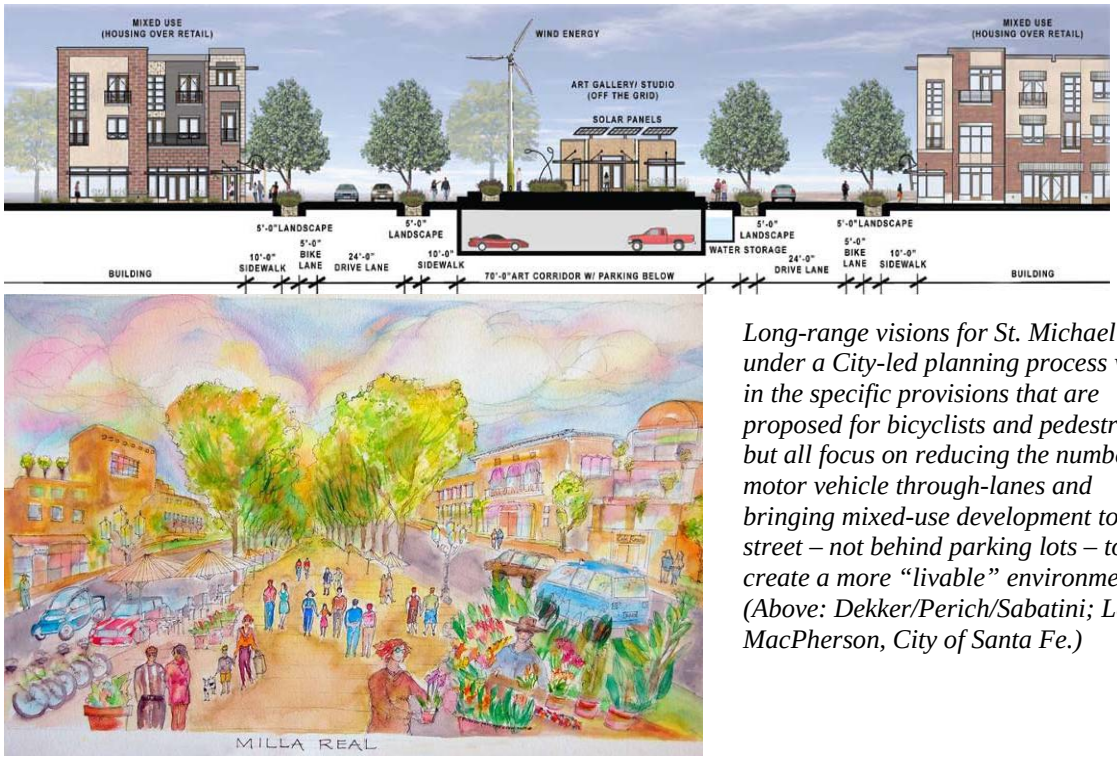
Retrofitting an existing culvert to create a trail underpass is a homegrown "best practice" that MPO members should seek to replicate elsewhere.

For a review of emerging bikeway design areas, see Appendix 10, "Best/Latest Practices." Particular attention should be paid to latest and best practices with respect to trail crossings. MPO members are urged to use state-of-the-art pedestrian safety techniques for at-grade crossings and connections, as promoted by FHWA and AASHTO, combined with AASHTO's more specific recommendations for multi-use trails.

Members are specifically encouraged to identify opportunities to establish and improve mid-block trail crossings and other crossings at uncontrolled locations. Members are also encouraged to creatively use existing conditions to their advantage in the pursuit of grade-separated trail crossings, especially where it may be possible to utilize excess capacity of concrete box culverts or bridge underpasses.

Recommendation 1.9. Support Higher-Density, Mixed-Use Development

MPO members are encouraged to support initiatives to promote higher-density, mixed-use development in and around Santa Fe, in order to significantly reduce number and distance of trips and facilitate walking and bicycling as healthy, environmentally-friendly, and community-building transportation. This includes supporting the Sustainable Santa Fe Commission's campaign for a "Green Development Code" to create incentives for higher-density and mixed-use developments within the City of Santa Fe, and guiding development of relevant material in the County's Sustainable Development Code, currently under way. MPO members should continue to support transit, transit-oriented development, and other initiatives, such as the City's St. Michael's Dr. long-range planning activity, which seek to re-orient commercial and residential areas to better serve Santa Feans and their guests at a pedestrian scale.



Long-range visions for St. Michael's Dr. under a City-led planning process vary in the specific provisions that are proposed for bicyclists and pedestrians, but all focus on reducing the number of motor vehicle through-lanes and bringing mixed-use development to the street – not behind parking lots – to create a more "livable" environment (Above: Dekker/Perich/Sabatini; Left: R. MacPherson, City of Santa Fe.)

Recommendation 1.10. Gather Data to Support and Guide Bicycle Planning

This Plan's recommendation is that local agencies, under coordination of the MPO, begin to undertake crash data analysis and collection of bicycle and pedestrian traffic volume data on key facilities in order to inform local planning, including the next update of the MPO's Metropolitan Transportation Plan (MTP), scheduled for 2015, and the anticipated revision of this Bicycle Master Plan within five years. MPO members should ensure that motor vehicle traffic counting efforts include observation of bicyclist and pedestrian movements to the greatest extent possible.

This Bicycle Master Plan has not benefitted from detailed analysis of bicycle crash data or bicycle traffic volume data. While the bicycling community is aware of certain hazards that have been the cause of multiple non-fatal crashes − particularly skewed-rail crossings − formal bicycle crash reporting is notoriously weak if not supplemented by detailed analysis and study of supplemental data sources. This has not been undertaken nor have any systematic attempts to quantify bicycle traffic on Santa Fe's bikeways, information which could inform planning as well as justify investments.

Analysis of bicycle crash data may draw from official crash reports as well as hospital records. Analysis of bicycle and pedestrian traffic patterns may draw from review of existing resources (e.g. crossing movements recorded at intersections) as well as establishment of dedicated bicycle and pedestrian traffic counts on roads and trails. Also of interest is survey data that may inform analysis of bicyclists' travel routes, needs, and desires for a better bikeway system. Tools and methodologies for bicycle and pedestrian traffic counts and surveys are available through the National Bicycle and Pedestrian Documentation Project (see http://bikepeddocumentation.org/). Data gathering can be made easy and cost-effective through judicious use of staff, consultant, and volunteer time.

[Consider photo of bicyclist in Cuba NM being counted following NBPDP methodology]

B. Specific Recommended Bicycle Facility Improvements, with prioritization

The MPO Bikeways Mapping Project identified prioritized alignments based on local planning as well as a metro-area wide analysis emphasizing transportation considerations. This analysis continued under the development of this Bicycle Master Plan and the results are presented here under headings for road retrofits, trail projects, improvements to trail crossings and connections, and guidance signage and other wayfinding tools. Further recommendations for phased implementation of these specific projects are presented in the implementation plan (Chapter VI) and on Map B in the rear sleeve of this document ***[Map B in development]***.

i. Completing Streets: Retrofitting Roads

The MPO Bikeways Mapping Project identified priorities to provide bike lanes or shoulder space to specific roads through restriping, resurfacing, or widening. Resulting recommendations in this Bicycle Master Plan are to pursue the following:
[consider table format for these lists; map and prepare "mock-up" illustrations]

a. "Road Diets" – Retrofitting bike lanes by reducing the number of motor vehicle lanes. Develop a program to study and implement road diets, focusing on the following locations for short-term implementation:

- Siler Rd. (four lanes to three), south of Agua Fria St.: This opportunity has been studied and is currently being pursued by the City.
- Tesuque Village Rd. (3->2): County Rd. 73 from US84/285 (south interchange) to Tesuque River bridge, eliminate climbing lane (and sign as State Bike Route 9)
- Old Las Vegas Highway (NM333)(3->2): east of US285 to Ojo de la Vaca Rd., eliminate climbing lane, improve shoulder surface west of climbing lane (and sign as Bike Route 66)

Consider the following "road diet" opportunities for additional study and medium- to long-term implementation:

- St. Michael's Dr. (6>4, with left-turn bays), between Cerrillos Rd. and St. Francis Dr., per current City planning studies
- Paseo de Peralta (4>3): Guadalupe to Washington, Palace to Old Santa Fe Trail, Old Santa Fe Trail to East Alameda;
- Long-term consideration of other multi-lane roadways including segments of Cerrillos Rd. (e. of St. Francis Dr.), St. Francis Dr., Guadalupe St., and Paseo de Peralta (St. Francis Dr. to Guadalupe).

b. Retrofits through restriping, reducing width or number of motor vehicle lanes (particularly at intersections), and/or reducing on-street parking

- Galisteo St. from Hospital to Harkle (restripe), eventually consider from San Mateo to dead-end at St. Francis Dr. Trail
- Siringo Rd: Ave. de las Campanas to St. Michael's High School, reduce center turn lane width, route through St. Francis Dr. intersection
- San Mateo: Galisteo St. to 2nd St.
- Pacheco St.: south of St. Michael's Dr. to north of San Mateo

- Wagon Rd.: Retrofit bike lanes through reducing lane widths, eliminating turn lanes, or consider widening
- Osage: consider striping bike lanes south of San Ildefonso.

c. Retrofits: Specific intersections where through-bike-lanes should be considered

- St. Francis and Cerrillos Rd.: westbound Cerrillos, e. of St. Francis Dr., could be location of a special application to provide perpendicular crossing of tracks, with bike lane connecting to striped shoulder along NMSD
- Pacheco St. and San Mateo: recently rebuilt with four right-turn lanes. Review whether these are warranted vs. space needed for bike lanes; consider relative multi-modal level of service here and at nearby interchange of St. Michael's Dr. and St. Francis Dr.
- Yucca St. at W. Zia: right-turn lane recently installed at the expense of striped shoulder, part of a "Bike Route" designated in 1993.
- Cerrillos Rd. and Airport/Rodeo Rd. Bike lanes or paved shoulders with Bike Route signs approach from all four directions but are dropped shortly before the intersection. Space exists today on eastbound Cerrillos, with drop-lane configuration per AASHTO 1999.
- W. Alameda at Camino Alire: Dedicated right-turn lane on eastbound W. Alameda has capacity for 1-2 motor vehicles per signal phase. Alternative is bike lanes through the intersection, which also improve quality of sidewalk and pedestrian crossings.
- Cerrillos Rd. and St. Michael's Dr./Osage: Bike lanes on Cerrillos exist to the northeast and are planned to the southwest but do not continue through this intersection. Bike lanes also should be considered along St. Michael's and Osage.
- St. Francis Dr. and St. Michael's Dr. (interchange): Seek opportunities to stripe bike lanes on St. Michael's Dr. between Galisteo Rd. and Pacheco St.

d. Retrofits: Contra-flow bike lanes

Santa Fe has a handful of opportunities where contra-flow bike lanes may be considered to provide bi-directional travel for cyclists on otherwise one-way streets, with minimal conflicts and minimal needs for additional signage. The following four are presented in order of priority based on feasibility and impact:

- W. San Francisco St.: Westbound from the plaza to Don Gaspar and beyond to Galisteo St., where W. San Francisco becomes a two-way street. Critical connection for E-W and N-S travel (with Don Gaspar / SBR9); already receives significant use; no significant conflicts; could be accomplished with minimal changes to existing signage and striping.

This very common and useful bicycle maneuver onto W. San Francisco St. from the Plaza need not be illegal. Creating a legal, one-block-long "contra-flow" condition for bikes at this location would require minimal effort (see Appendix 10).

- Don Gaspar: Northbound from Water St. to plaza. Provides continuity for northbound bicycle traffic; no conflicts.
- Old Santa Fe Trail: Southbound from plaza to Water St., provides continuity to Shelby St., continuing one-way southbound; no significant 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).

e. Retrofit through resurfacing

Roadways whose shoulders have been compromised by incomplete pavement overlays should be remedied through the next maintenance overlay, or any time when part or all of the roadway is reconstructed. Prominent examples of candidates for "recapturing" usable shoulder space through complete overlays include:

- NM599 frontage roads and stub-outs (e.g. parts of Camino La Tierra, Buckman Rd., Via Abajo, County Road 70)
- I-25 frontage roads west of NM14, where shoulders exist
- NM14, Lone Butte to Madrid
- NM14, I-25 to NM599, where shoulders exist
- Hyde Park Rd., where shoulders exist (e.g. city/county line)
- Old Las Vegas Highway (NM300 / State Bike Route 9)

f. Retrofit through widening

Widening roadways to accommodate bicycles requires significant resources. Under a "complete streets" policy these improvements should be integrated whenever narrow roadways are reconstructed, whether they are state highways, county roads, or city streets. As a general rule, those roads that are shown as orange on the Santa Fe Bikeways and Trails map are those that have been identified as lacking sufficient space for bicyclists: those that cannot be remedied through restriping or resurfacing proposals above should be considered for widening, particularly if they are under consideration for reconstruction.

Specific projects dedicated to widening roadways are another option to pursue. The MPO Bikeways Mapping Project identified a variety of higher-priority roadways in the MPO area that could conceivably be improved for bicyclists through widening. Continued analysis based on demand, connectivity, and feasibility provides the following list of top-ranked candidates for widening:

- Galisteo Rd., San Mateo Rd. to Hospital Dr.
- Old Santa Fe Trail, E. Zia Rd. to El Gancho Way
- Hyde Park Rd. (NM475) (esp. climb side)
- Camino de las Crucitas, Michelle Dr. to Buckman Rd. (esp. climb side)
- Gov. Miles Rd., Richards Ave. to Pueblos del Sol
- San Felipe Rd., Airport Rd. to Agua Fria St.
- W. Alameda St., Calle Nopal to Siler Rd.

- W. Alameda St., near Chicoma Vista to NM599 frontage road
- Ave. del Sur, east and west of Amy Biehl School
- Rancho Viejo Blvd.
- Bishop's Lodge Rd.: Washington Ave. to Bishop's Lodge (esp. climb side)
- Rodeo Rd., Old Pecos Trail to W. Sawmill Rd.
- Tesuque Village Rd. (CR72) north of Tesuque Village
- Old Santa Fe Trail, south of El Gancho Way
- Henry Lynch Rd.
- Zia, e. of St. Francis
- Zia and Rodeo, w. of Camino Carlos Rey.

g. Shared Lane Arrows (Sharrows)

This plan concurs with the findings of the BTAC On-Road Subcommittee's Memo to BTAC of June 21, 2011, proposing that the City consider certain new locations for sharrows, as well as "Share the Road" signs, and proposes consideration of a small number of additional locations.

- Paseo de Peralta between E. Alameda and Washington St.
- Osage north of San Ildefonso St., and any other identified transitions from bike lane or wide shared lane to narrow shared lane.
- Guadalupe St. between Manhattan and Agua Fria
- Lopez Ln.
- Jaguar, Paseo del Sol W., S. Meadows: Only where there is no bike lane or wide shared lane

The following locations may also be considered for sharrows pending further analysis of roadways, crash data, and any evidence of motorist harassment of bicyclists; also pending availability of specific funding for sharrows, and in the absence of other remedial actions such as bike lane retrofits proposed above:

- Mid-block locations with on-street parking with evidence of "dooring" crashes
- Intersection approaches with evidence of "right hook" crashes or other need for guidance for on-road cyclists (e.g. across skewed rail on Cerrillos Rd.)
- Other low- to medium-speed 4-lane roads with no bike lane or shoulder, e.g.:
    - Guadalupe St. from Agua Fria north to Paseo de Peralta
    - Paseo de Peralta where lacking shoulder between St. Francis Dr. and Washington St.
    - Paseo de Peralta where lacking sharrows between Rail Trail and E. Alameda St.\
    - Cordova Rd. between Cerrillos Rd. and Don Diego St.

Replacing existing sharrows in poor condition as identified and proposed by BTAC's On-Road Subcommittee, will likely require a dedicated funding source. However, proposed use of Capital Improvement Program (CIP) funding may not be allowable for this maintenance activity.

ii. Recommended / Prioritized Trail Segments

Under the Bikeways Mapping Project, planned and proposed trail improvements in the MPO area were assessed with respect to:

- prospective local demand, based on land use and presence of specific traffic generators such as schools, parks, and transit centers
- connectivity, both as a multi-use trail and as a bikeway (including consideration of road connections)
- feasibility, including land ownership and status, topography, need for and feasibility of structures and/or crossing treatments
- specific safety considerations.

A scoring system was developed whereby the desirability and level of priority of a given segment might be weighed against another. The methodology and findings of this process, continued under the development of this Bicycle Master Plan, are provided in detail in Appendix 11.

Among 89 proposed segments or groups of segments examined, top-ranking candidates for construction of paved multi-use trails are listed in Table 1 below. This ranking, based on impact and feasibility, is the foundation for specific phasing of trail development presented in the implementation plan in Chapter VI (Table 7) and on Map B in the rear sleeve of this document.

Table 1. Top-ranking proposed paved multi-use trail segments, ranked according to impact and feasibility ***[this table may have more columns]***

1	RIVER TRAIL: Don Gaspar to Camino del Campo, w/underpasses
2	RAIL TRAIL: St. Francis Dr. to Cordova (along Pen Rd.)
2	RIVER TRAIL: Connections/Crosswalks to Campo, Candelario
4	ACEQUIA TRAIL: Grade Separated St. Francis Crossing
4	ACEQUIA / CHILE LINE (Railyard Pk.): X-walk across Cerrillos to Gilmore St.
4	RIVER TRAIL: Connections to Closson St., La Madera St., Cam. de la Conq., Cam. De Chelly
7	ACEQUIA TRAIL: Bridges to Oñate & Kathryn
7	RAIL TRAIL: Cordova to Alta Vista (S. Capitol Station)
9	ACEQUIA TRAIL: Connection to Larragoite Park (w/ X-Walk) & Agua Fria St.
9	NM CENTRAL / KENNEDY LINE: SFCC to Ave. del Sur / Rancho Viejo "District Trail"
9	RIVER TRAIL: Camino del Campo to St Francis Dr.
9	RIVER TRAIL: San Ysidro Crossing to Caja del Oro (pave existing trail)
13	ARROYO CHAPPARAL TRAIL: from Ragle Park to Zia Station via Candelero Park
13	ARROYO HONDO: NM599 Station to Fire Place Rd.
13	CSF ROADBED along E. Boundary Ditch
13	NM CENTRAL / KENNEDY LINE: Pinon ES to Pueblos del Sol trails
13	RIVER TRAIL: Frenchy's Field to Siler Rd.
13	TIERRA CONTENTA (N. Arroyo Chamisos): Buffalo Grass Rd. to S. Meadows
19	ACEQUIA TRAIL: Otowi to Harrison
19	ARROYO DE LOS CHAMISOS TRAIL: Connection south to Richards Ave.
19	ARROYO DE LOS CHAMISOS TRAIL: from Gov. Miles to Cerrillos Rd.
19	ARROYO EN MEDIO TRAIL: completing route from Zia to Sawmill

19	ARROYO MASCARAS TRAIL: From San Francisco St. to St. Francis / Alameda
19	NM CENTRAL / KENNEDY LINE: AC Trail / GCCC to Rodeo Rd.
19	NORTH SPINE TRAIL: Calle Mejia to Zocalo
19	RAIL TRAIL CONNECTIONS: Calle Sombra, Monterrey, Rodeo Park E.
19	RIVER TRAIL: Siler Rd. to San Ysidro Crossing

Also among the proposed trail segments examined were a smaller group of critical connections to recreational, soft-surface trail networks (see Table 2). These segments can serve an important transportation function by providing alternatives to road segments that hikers and mountain bikers might otherwise use to arrive at recreational trails. These trails, which need not be paved to serve this function, are an opportunity to create significant bikeway and trail connectivity at a relatively minor cost. These segments also appear in Table 7 in Chapter VI., Implementation, and on Map B in the rear sleeve.

Table 2. Top-ranking proposed soft-surface alignments providing connections to soft-surface trail networks, ranked according to impact and feasibility.

1	LA TIERRA TRAILS: Connection from Camino de los Montoyas via NM599 underpass
2	DALE BALL / SFNF TRAILS: Connection from north side of Dale Ball Trails to Little Tesuque Creek and SFNF Trails near Nunn's Curve (La Piedra Connection)
3	SARAH WILLIAMS TRAIL: Gonzales Rd. to Dale Ball Trails along Cañada Ancha/Hyde Park Rd.
4	SARAH WILLIAMS TRAIL: Dale Ball Trails to Nunn's Curve (SFNF Trails) along Hyde Park Rd.
5	DALE BALL TRAILS / DOROTHY STEWART TRAIL: Formalize Arroyo Polai connection from Upper Canyon Rd.

Longer-range proposed trail alignments connecting to areas outside of the MPO area do not rank high for local demand and connectivity. MPO members are, however, encouraged to stay abreast of long-term opportunities to develop these alignments. In particular, New Mexico State Parks' statewide Rio Grande Trail initiative might integrate a long-range extension of the Santa Fe River Trail and/or development of the Chili Line abandoned rail alignment as a trail to Buckman Wells and beyond.

In addition to trail construction, MPO members will need to continue to maintain existing trail inventory, including major resurfacing of older segments. Based on current condition and age, significant asphalt trails that will need to be considered for resurfacing in the near- to medium-term are summarized in Table 3.

Table 3. Multi-use trail alignments as candidates for re-paving, based on age and observed condition

1	Arroyo de los Chamisos Trail between Yucca St. and Rodeo Rd.
2	Arroyo de los Chamisos Trail behind Nava Ade
3	Arroyo de los Chamisos Trail between Siringo Rd. and Yucca St.
4	Rail Trail between Siringo Rd. and W. Zia Rd.
5	Rail Trail between St. Michael's Dr. and Siringo
6	Acequia Trail near St. Francis Dr. (monitor damage due to prairie dog burrowing)

iii. Recommended Improvements to Trail Crossings and Connections to Roadways

a. Grade-Separated Street Crossings

This trail underpass near Camino de los Montoyas is one of three "equestrian" underpasses that were included in the construction of NM599 by NMDOT. Under the City's new La Tierra Trails Master Plan, this wile be the first to be integrated into a formal multi-use trail.

Grade separated crossings should include ramps to the roads that are crossed whenever possible, except in limited cases such as limited access highways – e.g., the NM599 main line and I-25.

(i). Utilize existing grade-separated crossings that are not yet served by formal trails:

- NM599 equestrian crossings (MRC Trail, Aldea area, La Tierra Trails)
- Arroyo de los Chamisos Trail at NM14 (to connect Las Soleras & Entrada Contenta)
- River Trail, built benches underneath Siler Rd. and S. Meadows Rd.

(ii). Plan for desired grade separations in future road, bridge, and culvert construction (e.g. as proposed in Las Soleras for the Arroyo de los Chamisos Trail).

(iii). Utilize space beneath bridges, as trail and/or bridge improvements occur

- River Trail at three downtown bridges (Guadalupe, Sandoval, Galisteo), as envisioned in River Parkway design
- River Trail at NM599 bridge
- Richards Ave. west-side side path at I-25, pending Las Soleras development

(iv). Continue to pursue creation of trail underpasses using excess water carrying capacity of existing concrete box culverts, based on model of Arroyo de los Chamisos Trail underpass at Rodeo Rd., pending priority of trail segments served and/or opportunities to integrate into future developments:

- Arroyo Chaparral Trail at W. Zia Rd. (to connect to Arroyo de los Chamisos Trail)
- Arroyo de los Chamisos at NM599 (via Pavilion project)
- Arroyo Hondo at NM14 (to NM599 station, pending development)
- Arroyo Hondo at NM599 (pending development)
- Arroyo de los Chamisos at Gov. Miles Rd. (if trail is to pass along arroyo through current auto park to north)

(v). Continue to research and consider major investment in other major grade-separated crossings

- Acequia Trail at St. Francis Dr. (short term / under consideration by City)
- River Trail at St. Francis Dr. (consider for medium- to long-term)
- Rail Trail at St. Michael's Dr. (consider underpass, medium-to-long term)
- NM Central Line at I-25 (consider for long-term, if trail alignment is developed)

b. At-Grade Street Crossings and Connections

Dedicate resources to improve significant trail crossings and connections following AASHTO engineering guidance and best practices. Higher-priority improvements to facilitate safe and convenient movements between trail and street are summarized in Table 4 and Table 5:

Table 4. Recommended Improvements to Existing Trail Crossings

Trail	*Crossing Locations(s)*	*Crossing Type*	*Recommendation(s) (Also see appendix 6)*
Arroyo de los Chamisos	Yucca, Cam. Carlos Rey, Ave. de las Campanas	Uncontrolled, mid-block	Remove gates, consider median refuge on Yucca, rebuild median and speed table on Ave. de las Campanas. Re-examine signage for motorists.
St. Francis Dr. Trail	Siringo (signalized)	Signalized	Mitigation of side path condition: eliminate free right turn off of westbound Siringo, reduce corner radii, expand median refuge; examine
Acequia Trail	St. Francis Dr., Cerrillos Rd., and S.F.Southern Railroad tracks	Signalized	Improve crosswalk orientation, reposition and widen ramp
Acequia and Rail Trails	St. Francis Dr., Cerrillos Rd., and S.F.Southern Railroad tracks	Signalized	Examine Signal timing; opportunity to show walk signal along Cerrillos during train crossign phase
Rail Trail	Lower-speed two-lane roads (Alta Vista St., San Mateo/Second St., Siringo Rd.)	Uncontrolled, mid-block	Mark with high-visibility crosswalk markings, consider providing median refuge on Alta Vista St.
Rail Trail	Rodeo Rd. (currently three lanes)	Uncontrolled	Mitigation of side path condition: Relocate to east side of tracks; improve median as refuge; mark with high visibility crosswalk markings.
Various (Railyard Park): (a) Chili Line and Acequia Trails, west of Gilmore St.; (b) between Early St. & Alarid St.	Cerrillos Rd.	Uncontrolled	Provide ramps and median refuges; reduce corner radius (Alarid); consider striping and other measures.

Table 5. Recommended Improvements to Existing Connections to Streets.

Trail	*Connection Location*	*Recommendation*
River Trail	Ave. Cristobal Colon	Widen or rebuild ramp
Arroyo de los Chamisos	Santa Fe Place	Widen connection, build ramp, consider other improvements or other location to connect to bus stop
River Trail	Caja del Rio Rd.	Build ramp to sidewalk
Arroyo Hondo Trail	Vista del Arroyo	Rebuild as AASHTO-compliant connection when trail is paved.

(Photos of model crossings – S Fe and elsewhere – ref. to App 10)

c. Crossing Topographical Barriers

Because the River Trail is an arterial bikeway connecting various land uses in various parts of the metropolitan area, there will continue to be a need to provide for non-motorized crossings of the river, typically via bicycle-pedestrian bridges, at various locations, including: west of DeFouri St. (for planned River Parkway Trail); west of Camino Alire (aligned with Torreon Park) and/or between Griego Park and Ave. Rincon de Torreon; and west of Lopez Lane/Caja del Oro Grant Rd. (aligned with Camino Atajo).

Current view across the Santa Fe River from the River Trail (under construction) to Torreon Park.

Other challenging features to cross when relevant bikeway alignments are being pursued include the Acequia Madre at Kathryn St. and Oñate Pl. dead-ends, the Arroyo Chaparral near West Sawmill and near Candelario Park, Arroyo Hondo at the NM Central RR alignment, and the Arroyo de los Chamisos at appropriate locations pending alignments to be developed between Gov. Miles Rd. and Tierra Contenta.

iv. Specific Recommendations on Wayfinding Assistance

a. General Bike Route Signage

Does the "bike route" really end at Alta Vista St.? With a simple arrow toward the bike lanes along S. Capitol Station, this generic "Bike Route" sign on the Rail Trail might be of some value to bicyclists in need of guidance.

Specific locations and routes that would currently benefit from guidance signage in Santa Fe include many bikeways that combine roads and trails:

- Arroyo de los Chamisos Trail <-> Gov. Miles Rd. (possibly with additional guidance from Cerrillos Rd. and Jaguar Rd.)
- Otowi Rd.<->Acequia Trail <-> Potencia St.<->Acequia Trail<->Railyard Park
- Rail Trail <-> S Capitol train station <-> Pen Rd.<-> Railyard Park (see photo)
- East-Side Bike Routes: Galisteo & Don Gaspar <->Alta Vista St.<->Rail Trail
- Galisteo St. <-> St. Francis Dr. Trail <-> Rail Trail & Gail Ryba Trail; consider removing generic Bike Route signs from Hospital Dr. and Botulph St.
- Richards Ave.<->Rabbit Rd.<->Rail Trail
- River Trail<->Ave C. Colon<->Acequia Bikeway

Although the route is still in need of improvements, MUTCD-compliant signage on Flagman Way could help cyclists identify the most appropriate way to get to Baca St. and the Rail Trail from the Acequia Trail in the West Railyard area.

Further adjustments to signed routes and the signing of future routes will depend on the bicycle-friendly trail and road alignments that become available. As facilities are developed, and to the extent that guidance may be helpful to link these facilities, additional signed routes to aim for in the future include:

- Otowi Rd.<-> Osage / C. de Chelly <-> Frenchy's Field/River Trail (2012)
- Acequia Trail @ Felipe St. & @ Fayette St.<->Connector Trails<->Flagman Way<->Baca St.<->Monterey<->Rail Trail (see photo)
- Acequia Trail @ Felipe St.<->Alicia<->La Madera<->River Trail @ Alto Park
- Acequia Trail @ Oñate <-> Oñate -> Urioste -> Alto -> El Rio Rd./River Trail
- Acequia Trail<-> Rufina St. <-> S. Meadows <-> (N) Arroyo de los Chamisos Trail (Tierra Contenta)
- Acequia Trail<->Ashbaugh Park<->2nd St.<->Rail Trail
- Pueblos del Sol <-> Desert Sage (connection planned) <-> Las Soleras and /or Richards Ave./SFCC

Signage should specify direction and possibly provide distance to ultimate destination ("Railyard Park 2.5") or interim destination ("Rail Trail 1.5").

Opportunities should be considered to provide additional guidance and to minimize downtown signage through consolidation with the City's recent pedestrian signage initiative (see photo).

This guidance for pedestrians on Cordova Rd. at St. Francis Dr. could also let pedestrians and bicyclists know that S. Capitol Station and the Rail Trail are just around the corner.

b. State Bike Route 9

State Bike Route 9 currently has termini at the south end of Tesuque Village Rd. (CR73) and at the junction of US285 and CR33 near Lamy.

- Extend SBR 9 north to Tesuque Village center, working with Santa Fe County and NMDOT, via road diet on Tesuque Village Rd. (CR73). Consider continuing northward along CR73 and US84/285 frontage road in collaboration with Tesuque Pueblo, with long-range potential to connect SBR 9 through Pojoaque and Española to Ojo Caliente per NMDOT BPE Program plans.
- Extend SBR 9 south to and beyond the border of the MPO area via US285 and NM41 (pending programmed improvements to NM41), to Galisteo, Moriarty, and Estancia per NMDOT BPE Program plans.
- Given recent extension of bike lanes on Old Pecos Trail north to Cordova Rd., the City may consider working with NMDOT to redirect northbound SBR 9 into Santa Fe to stay on Old Pecos Trail to the plaza, if it is deemed that guidance to San Mateo, Don Gaspar, and Galisteo is no longer of value to plaza-bound cyclists.

c. Bike Route 66, State Bike Route 66, and US Bike Route 66

Bicycle tourism is an important component of promoting bicycling in general in Santa Fe. This Plan proposes that the MPO collaborate with Adventure Cycling Association, NMDOT, and the City and County of Santa Fe to consider prospective alignments of Bike Route 66 through the Santa Fe area. In particular, as a possible precursor to US Bike Route 66, and in conjunction with a "road diet" on NM300 proposed above, pursue signing Old Las Vegas Highway (NM300) east of US285 as "State Bike Route 66" to the Cañoncito interchange at I-25.

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 and Los Angeles to the 40,000 mile network of routes that ACA has researched and mapped (see www.adventurecycling.org/news/20101122.cfm.

ACA will 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. Routes through the Santa Fe metropolitan area will undoubtedly be researched and mapped by ACA within the next year or so, and 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 Appendix 6, including map of Route 66 alignments between Santa Rosa and Albuquerque). Because it may take many years before states approve signing the U.S. route, it is conceivable that parts of the future route be signed as New Mexico State Bike Route 66 in the interim.

State Bike Route 66 (shield on left), has been signed in elsewhere in NM and could be a precursor to US Bike Route 66 (shield on right) in the Santa Fe area.

Photo from ACA blog, "Bicycling the Mother Road," Nov. 24, 2010

d. Santa Fe Bikeways and Trails Map

Continue to update, promote, and distribute the Santa Fe Bikeways and Trails Map. Post hard copies at strategic locations in the bikeway system, particularly transit stations, parks, and trailside locations. Recommended locations for consideration of map displays include:

- Railyard Station
- Railyard Park
- S. Capital Station
- Sheridan Transit Center / Plaza area
- Santa Fe Place: Transit Center and/or Playground
- Rail Trail at Rabbit Rd.
- Ashbaugh Park at Acequia Trail connector trailhead
- Acequia Trail at Felipe St.
- River Trail in Alto Park
- Arroyo de los Chamisos Trail near Genoveva Chavez Community Center / Monica Lucero Park
- Intersection of Arroyo de los Chamisos Trail and Rail Trail at Siringo
- Santa Fe Community College
- Intersection of Richards Ave. and Ave. del Sur / Spur Trail

[Photo of empty placard at Monica Lucero Park]

V. Education, Encouragement, and Enforcement

A. Assessment of Education and Encouragement Activities

Education of bicyclists, motorists, elected officials, public servants, and the general public about bicycle transportation is a critical component of this Bicycle Master Plan, as are efforts to encourage individuals, businesses, and public agencies to recognize the value of bicycle transportation and to use bicycles for transportation needs. LAB's responses to the City of Santa Fe's applications for recognition as a Bicycle-Friendly Community have repeatedly called for more attention to the area of education in particular.

1. Promotional Events

Bike-to-Work Week and Bike-to-Work Day celebrations have been a major venue for education and encouragement of bicycling each May since the 1990s. The City has taken an increasingly active role in coordinating and promoting these events, working with local bike shops, the Santa Fe Metropolitan Planning Organization (MPO), NMDOT, and community organizations including Bike Santa Fe, the Pedal Queens, Seniors on Bikes (SOBs), the Chainbreaker Collective, and the Bicycle Coalition of New Mexico (BCNM). Other opportunities to celebrate the bicycle in Santa Fe have included National Trails Day (June 1), Walk and Roll to School Day (held each October), and especially when new trail segments have been opened.

Another form of promoting bicycling is to organize group rides. The City's Recreation Dept. regularly organizes various recreational events involving bicycles such as the Santa Fe Triathlon. Various organizations hold recreational rides or races, including the Pedal Queens, SOBs, the New Mexico Touring Society, the Santa Fe Century organizing committee, and various bicycle racing groups. Transportation-oriented rides - specifically intended to increase knowledge of local bikeways, to introduce new riders to comfortable routes, and to inform and foster dialog on bikeway planning - include Bike-to-Work Day convoys organized by the City and other partners and "Community Cruises" supported by the MPO. Various other formal and informal group rides, currently embodied in a weekly "loops" event, combine fun and education for cyclists and would-be cyclists.

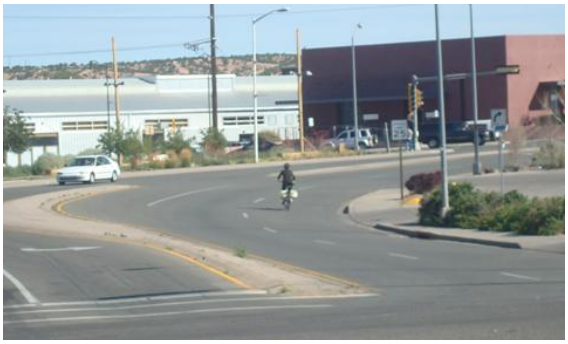
2. Educating and Equipping Bicyclists

The Santa Fe area now has over a half-dozen League Cycling Instructors (LCIs) trained and certified by the League of American Bicyclists to educate the public on "smart

cycling." Several more instructors have been trained in more basic "Bicycling 1-2-3" training. Many of these instructors received this training in the past year through BCNM's Bicycle Education Coordinator, who is certified by LAB as a "Master Cycling Instructor," as part of a statewide activity supported by federal transportation enhancement funds provided through NMDOT. Local LCIs are now organizing training sessions and linking with various organizations in order to bring bicycle education to adults as well as children.

Some of Santa Fe's League Cycling Instructors, certified by the League of American Bicyclists (Photo by Tammy Schurr / BCNM)

The City's Recreation Dept. has long been active in assisting private partners, such as Christus St. Vincent Hospital, and public partners, such as the Santa Fe Police Dept., at helmet giveaways, with professional fittings, and "bike rodeos" where children can learn bicycling skills from a trained instructor on a closed course.



Transportation-oriented cyclists need to be able to use roads safely and effectively. "Smart cycling" curricula developed by LAB and used by local LCIs teach the importance of being confident and assertive as a"vehicular cyclist," including positioning oneself on the roadway in a visible and predictable manner.

Non-profit groups, such as Bike Santa Fe and the Chainbreaker Collective, create traffic safety messages for bicyclists as well as motorists. They also work to educate community members on how to build and maintain bicycles as affordable transportation. These and other groups, including bike shops, organizers of the Santa Fe Century, and students of the Santa Fe Preparatory School, are specifically working to make bicycle transportation an affordable transportation option for lower-income New Mexicans by way of repairing and donating rehabilitated bicycles.

3. Educating Motorists

This "lawn sign" initiative relates closely to Bike Santa Fe's efforts to pass bike-friendly laws at the state and local levels in 2011. A five-foot passing law was adopted by City Council as part of Santa Fe's new bicycle code.

BCNM and Bike Santa Fe have worked to raise awareness of bicycles among motorists through campaigns such as "Give Bicyclists Five Feet" slogan boards placed throughout the city. Another form of raising all highway users' awareness of bicycles, and the need to safely share the road, has been the installation of "ghost bikes" where bicyclist fatalities have occurred in New Mexico. This activity, spearheaded by the Duke City Wheelmen Foundation, based in Albuquerque, is protected under state law relating to roadside *descansos* (memorial shrines).[30] Two bicyclists who were killed on Santa Fe area roadways in years past were memorialized through ghost bikes in 2010-11.

Ghost Bikes, such as this one placed on the median of NM599 for David Sciera, are memorials to bicyclists who have died on our roadways. Ghost bikes are intended to raise awareness of the need for motorists and bicyclists to safely share the road.

Local LCIs and BCNM's Bicycle Education Coordinator may also be available to discuss safe operation of motor vehicles around bicyclists with special audiences such as transit operators, police, public agency staff, teenagers, or driving students. The City has expressed interest in providing this kind of training for transit operators in Santa Fe.

Another strategy to educate motorists about safe driving around bicyclists is to include bicycle education in drivers' education curricula and to include questions about bicycles in the tests that new drivers must take in order to receive their license. Local advocates have successfully worked through BTAC during the past year to encourage the State Motor Vehicle Division (MVD) to include more questions about bicycles in the MVD's standard tests and to add more information in training materials. As a result, the June 2011 revision of MVD's "New Mexico Driver Manual," now includes a page and a half dedicated to information on sharing the road with bicyclists.

Members of the Duke City Wheelmen, Bicycle Coalition of NM, local law enforcement, and friends and family of Amy Marie Jobe gather in Cuyamungue in March 2011 to dedicate a ghost bike for the teenager who was struck trying to cross US84/285 just south of here in 1999.

[30] See Bicycle Times, Issue 9 (Feb. 2011), "Ghosts Bikes: Fallen Riders Remembered," pp. 66-72.

4. Safe Routes to School

Efforts in the area of educating and encouraging children to bike or walk to school are supported by federal and state-level "Safe Routes to School" (SRTS) programs, which also provide limited funding for related engineering improvements. While Santa Fe-area schools have yet to take advantage of SRTS resources, several have expressed interest and several more are already undertaking significant education and encouragement activities on their own, including participation in the annual Walk and Roll to School Day promoted each October by the New Mexico Safe Routes to School (NMSRTS) program.

"Walk and Roll to School Day" is an annual event that is celebrated by various Santa Fe area schools. Walking or bicycling to school on a regular basis is a healthy activity that also serves to reduce motor vehicle traffic congestion around schools.

Local SRTS advocates at Chaparral Elementary School have made efforts to create an "SRTS Action Plan," which includes data on the number of children walking and bicycling to school, information on educational and promotional efforts, analysis of walking and cycling conditions on campus and in the surrounding neighborhood, and proposed improvements. A completed SRTS Action Plan is required by the NMSRTS program in order to apply for "Phase 2" funding for infrastructure improvements.

B. Bicycle Law, Enforcement, and Legislative Activities

1. State Law. As throughout the United States, bicyclists have for the most part the same rights and responsibilities as motorists on streets and highways in the Santa Fe MPO area. Most traffic law relating to bicycling in our area comes from the Uniform Vehicle Code as adopted by the State of New Mexico with some specific state revisions that can be reviewed in the NMDOT's latest "BPE Advisory Plan.[31]" Bike Santa Fe and other groups have recently endeavored to revise or establish new state laws relating to

Signage on the US84/285 frontage road in Tesuque Pueblo cites specific state law affirming bicyclists' legal responsibilities on roadways.

[31] Specific state law relating to bicycling can be reviewed in the NMDOT's BPE Advisory Plan (April 2009), pp. 66-68. Additional state laws and administrative code relating to bicyclists, pedestrians, and equestrians can be found in the BPE Program's "Applicable State Laws (2008)." Both documents are accessible through NMDOT's web site at http://nmshtd.state.nm.us .

bicycling, including five-feet-to-pass, the "Idaho stop" law (permitting cyclists to roll through STOP signs), and increased penalties for distracted driving. Of these three initiatives, just the five-feet-to-pass bill passed the NM House and Senate but was vetoed by Gov. Martinez earlier this year.

Under state law, bicyclists are required to ride "as far to the right as practicable," but contrary to this sign erected on the US84/285 frontage road, cyclists are permitted to ride two abreast.

2. Local Law. More recently, advocates working through the City's Bicycle and Trails Advisory Committee (BTAC) examined city code with respect to traffic and other laws relating to bicyclists, reviewed models elsewhere in the country, and proposed revisions to the City's Uniform Traffic Ordinance which were passed into law by the City Council in June 2011. Among the new provisions were a "five-feet-to-pass" law (see text box), prohibition of driving a motor vehicle on a bike lane or path except under certain conditions, prohibition of harassment of bicyclists by motorists, inclusion of helmet-mounted lights to satisfy lighting requirements, a provision permitting the use of the right hand to signal a right turn, and prohibition of altering serial numbers on bike frames. Also included were clarifications of bicyclists' rights and responsibilities with regard to positioning within a bike lane or on a roadway with no bike lane. The new code eliminated an antiquated requirement to register bicycles with the city.

City of Santa Fe's New "Five-foot-to-pass" law (2011):
Section 12-1-6 of the City of Santa Fe Uniform Traffic Ordinance (being Ord. #2006-34) is amended to read: … "When approaching or passing a bicyclist, every person operating a motor vehicle shall proceed with caution and shall pass such bicyclist at a reasonable speed and keep a safe distance from him. In no event shall a distance of less than five feet be considered a safe distance within the meaning of this Section. To comply with the requirements of this paragraph, a person operating a motor vehicle may be required to drive at a slower rate of speed."

The amendment also provided for the prohibition of bicycle traffic on roadways where cyclists are required to ride on sidewalks or paths.[32] There are no such cases in Santa Fe, nor is there any support for this kind of "side path" law under New Mexico state law or model laws elsewhere in the country. Historic "side path laws" have been repealed in states throughout the country in recognition of the inappropriateness of requiring bicyclists to behave like pedestrians rather than operators of vehicles.

[32] 12-8-11 RIDING ON PROHIBITED STREETS OR CONTROLLED ACCESS "No person shall ride a bicycle either on any street or path where signs have been erected by the city which prohibit the use of the street or path to bicycles."
12-8-15 RIDING ON SIDEWALKS, Section B, "When signs are posted requiring bicycles to use sidewalks or paths adjacent to a street, no person shall ride a bicycle on the street adjacent to the sidewalks or paths."

C. Recommended Policies, Programs, and Activities for Education, Encouragement, and Enforcement

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

- Establish formal programs for pedestrian and bicycle education for children and adults.

- Take advantage of local certified League Cycling Instructors (LCIs), other local groups active in bicycle education, City Recreation Dept. resources, and statewide resources available through NMDOT and the Bicycle Coalition of New Mexico.

- Participate in BCNM's annual Bike Education Summit, the next of which is scheduled for November 15-16, 2011, in Albuquerque.

- Link bicycle education with recreational activities, events, and other opportunities.

- Partner with the Motor Vehicle Division (MVD) to offer bicycle education to motorists who have lost their drivers licenses.

Recommendation 2.2: Educate Motorists about Safe Operating Behavior around Bicyclists

- Continue to pursue opportunities to integrate bicycle awareness into driver education curricula, including those produced by the MVD, private driving schools, and defensive driving classes offered by public agencies and private entities.

- Pursue partnerships with LCIs, bicycle-mounted police, and others to create a speakers resource to speak with high school students and other young audiences.

- Consider use of mass media, public transit advertising space (on-board, on busses, and at bus stops) and other means to encourage bicycle-friendly driving in the Santa Fe area.

Recommendation 2.3: Enforce Traffic Laws Relating to Bicycling

- Support training of law enforcement in City's new Bicycle Code.

- Support training of Santa Fe County Sheriff's Office and NM State Police in bicycle laws in effect outside of the City of Santa Fe.

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

- Secure active involvement of Santa Fe Public School (SFPS) District.

- Pursue district-wide involvement in annual Walk-and-Roll-to-School Day and other promotional opportunities.

- Pursue SFPS policies that favor walking and bicycling to school.

- Pursue support of NMSRTS program, public health community (e.g., through NMDOH's Healthier Weight Coalition), and private foundations for development of local SRTS activities.

- Pursue, build, and promote promising trail alignments as components of broader SRTS programs that would also have significant impact on the bikeway system. Examples of bikeway improvements prioritized elsewhere in this Plan that connect K-8 schools with residential areas that they serve are presented in the following table:

A dozen bicycles crowd the rack at Gonzales Community School.

Santa Fe MPO - Bikeways Mapping Prioritization Project: Rankings as of June 2011
for Top Trail Segments with Significance as Safe Routes to School

Rank*	Category	SCORE (IMPACT + FEASIBILITY)	K-8 School(s) Served: (1) = immediate vicinity, (2) = more distant
4	RIVER TRAIL: Connection to La Madera St. via Alto Park	31	(1) Aspen, (2) Gonzales (also Desert Acad., Dragonfly)
13	TIERRA CONTENTA (N. Arroyo Chamisos): Buffalo Grass Rd. to S. Meadows	28	(1) Sweeney E.S., Ortiz M.S. (also Capital HS)
13	CSF ROADBED along E. Boundary Ditch	28	(1) De Vargas M.S. (also SFHS)
13	ARROYO CHAPPARAL TRAIL: from Ragle Park to Zia Station via Candelero Park	28	(1) Chaparral E.S., (2) Capshaw MS, St. Michael's
13	NM CENTRAL / KENNEDY LINE: Pinon ES to Pueblos del Sol trails	28	(1) Pinon E.S.
20	ARROYO EN MEDIO TRAIL: completing route from Zia to Sawmill	27	(2) Capshaw M.S., St. Michael's
14	RAIL TRAIL CONNECTION: Calle Sombra	27	(2) De Vargas M.S.
21	ARROYO CHAMISO TRAIL: Zia to Zia Connection ("Gail Ryba Trail")	26	(1) Capshaw M.S., (2) St. Michael's
21	PUEBLOS DEL SOL: N-S Connector across Gov. Miles (& related improvement)	26	(2) Pinon E.S.
21	ARROYO CHAPPARAL TRAIL: from Arroyo Chamiso Trail to Ragle Park or Chapparal E.S.	26	(2) Chaparral E.S.
30	TIERRA CONTENTA (N. Arroyo Chamiso): To Camino Entrada, via S. Meadows, School Crossing	25	(1) Sweeney E.S., Ortiz M.S.
39	ACEQUIA TRAIL: Atajo to Rufina		(1) Ramirez Thomas E.S.
39	ACEQUIA TRAIL: S Meadows Open Space to San Felipe	25	(2) Ramirez Thomas E.S.
30	ARROYO DE LOS PINOS TRAIL: Through Herb Martinez Park and west to Richards Ave. Extension Trail	25	(1) Kearney E.S.

* - All scores and rankings reflect overall trail considerations - NOT specific to SRTS

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

- Continue to support activities such as Bike-to-Work Week and community bicycle rides.

- Make connections with recreational bicycling and recreational events; health promotion.

- Distribute the Santa Fe Bikeways and Trails Map, including safety and smart cycling tips on the reverse side, as discussed under Chapter IV

- Develop useful Bike Route guidance signage, as discussed under Chapter IV; establish an ongoing program to provide guidance for bicyclists and pedestrians

- Promote Bike Tourism in and through Santa Fe: Work with the Visitor's Center and Convention Bureau, the private sector, and regional and national organizations such as Adventure Cycling Association to market Santa Fe as an "active vacation destination."

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

Explore opportunities to establish organized bike sharing in the Santa Fe area through a viable number of standard kiosks, closely linked to and offered as an extension of other transit services. Given a professional market analysis, bike sharing based on established models can be attempted in Santa Fe as a pilot project, focusing on a specific area (downtown) or a specific market group (e.g., city, county and state workers). Opportunities should be explored to broaden the market of potential users, including establishment of a regional bikeshare program to include the Albuquerque metropolitan area, through a regional transit agency such as Rio Metro, operator of the NM Rail Runner.

"Capital Bikeshare" is operated by the Washington Metropolitan Area Transit Authority in Washington D.C. and Northern Virginia.

A modern "bikeshare" system in Santa Fe might be considered including the following initial or phased-in points of availability, most of which would have apparent demand as well as potential public space available:

- Santa Fe Depot / Guadalupe St.
- Railyard Park
- S. Capital Station / S. Capital Complex
- Baca St. / West Railyard / NMDOT
- Sheridan Transit Center / City Hall / Plaza area
- Roundhouse
- Canyon Rd. / PERA Building
- Ft. Marcy Park Recreation Center
- Museum Hill
- St. John's College
- Christus/St. Vincent Hospital/Med. Ctr.
- Future Zia RR Station / Plaza Entrada
- Salvador Perez Pool / Cordova St.
- 2nd St. near the Rail Trail
- College of Santa Fe / St. Michael's Dr.
- Alto Park / Solana Shopping Center
- DeVargas Mall
- Genoveva Chavez Community Center

Phase in:

- Santa Fe Place Transit Center / Mall
- NM599 Rail Station
- Santa Fe Community College
- Rancho Viejo Plaza

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

- Promote increased official use of bicycles by law enforcement, emergency responders, parking enforcement, parks maintenance staff, building inspectors, and others.

- Promote use of bike share systems by public agency staff.

- Provide incentives, or remove disincentives, to private businesses that use bicycles, including but not limited to delivery and security services.

- Restrict use of public agency or contractor motor vehicles on multi-use trails.

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

- Work with public and private sector to create services and incentives for staff that commute by bicycle, including lockers and showers.

- Develop programs to help private entities establish formal bicycle parking.

VI. Implementation Plan

Implementing the recommendations of this plan will require coordination of a wide variety of players within the Santa Fe metropolitan area. The implementation plan focuses on developing methods to publicize and disseminate the recommendations above to key public and private partners responsible for various facets of implementation. Ultimately it is the Santa Fe MPO which will take responsibility for publicizing and disseminating the BMP recommendations in close coordination with partner agencies, as suggested in section A below. This Chapter details various agency responsibilities in Section B, phased implementation of proposed projects in Section C, and funding mechanisms to be pursued in Section D.

A. Adopting, Publicizing and Disseminating the Santa Fe MPO Bicycle Master Plan

The Citizens' Advisory Group emphasized that one of the most important steps will be disseminating this plan's recommendations to elected officials, agency staff, and the public in a sustained fashion. A successful Bicycle Master Plan will need to be adopted not only by the MPO's Transportation Policy Board but also by each member of the MPO, as soon as possible, by resolution or by ordinance. The next step will be to develop accountability by having MPO staff report on implementation progress on a regular basis. MPO staff should develop a work plan with appropriate agency staff including specific tasks and ways to measure progress toward accomplishing goals under the BMP. Every activity that represents progress toward the BMP goals should be closely documented for periodic reporting as well as measurement of overall progress.

> "Public involvement does not end with the adoption of the plan. Every project will involve some outreach. Don't take for granted that projects will move forward just because they are in an adopted plan. Public outreach should be taken very seriously; otherwise you'll risk a public backlash that slows or stops implementation of the plan. If possible, replicate or adapt other public outreach models that have worked in your community or region."
>
> "Successfully implementing a BMP means taking advantage of every opportunity that presents itself. Every public and private project and program can provide an opportunity to make improvements for bicyclists. The ingredients of success are time, money, and most importantly, political will. If the time is ripe, go for it."
>
> - Peter Lagerwey, *Creating a RoadMap for Producing & Implementing a Bicycle Master Plan*.

The MPO will work with local agencies, committees and advisory groups, LCIs, advocates, and other partners to develop strategies to pursue policy changes called for in this BMP. Central to this effort will be educating elected officials and agency staff, "marketing" the BMP and providing regular workforce training. Training for local, tribal, and state government staff may range from a brief, general overview of the BMP to more intensive "in-service" training for members of key agency divisions.

B. Agency Responsibilities

This plan emphasizes the need to coordinate bikeway planning, construction, and maintenance within the MPO area, including working with city and county public works, streets, parks, trails, and development review departments, as well as public and private utilities, commissions, transit services, NMDOT, other state entities and facilities, and Tesuque Pueblo. The MPO will pursue a relationship whereby agencies may collaboratively plan and implement projects, including the encouragement of shared review of plans and designs with significance to the development of the bikeway system. Table 6 below seeks to clarify roles and responsibilities related to improving bicycle transportation in the MPO area for specific public agencies, pertinent divisions within those agencies, and selected private entities.

Table 6. Bicycle-related responsibilities of public agencies and selected private entities in the Santa Fe metropolitan area.

Agency	**Bicycle-related responsibilities**
Santa Fe Metropolitan Planning Organization	Plan for Multi-modal Transportation in the MPO area
	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
City of Santa Fe	
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
Public Utilities	Accommodate shared use of easements where desirable and feasible
Fire Department	Accommodate shared use of easements where desirable 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 travelling to, within, and through parks
	Design, construction and operation of multi-use trails within parks
	Design, construction and operation of shared-lane roads within parks
	Maintenance of all city multi-use trails
Recreation	Promote recreational use of local bicycle facilities
	Educate bicyclists on safe and legal operations, provide helmets with helmet fitting at selected events
	Develop 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	Publicly-Provided Bicycle Parking (????)
	Bicycle Parking Facilities at City Parking Lots
	Partnership with Traffic Engineering on “Road Diet” Analysis
	Play supportive role in 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

Santa Fe County	
County Commission	Leadership role in promotion of bicycle transportation
	Adopt Bicycle Master Plan
Community Services / Open Space & Trails	Planning, design, and construction of multi-use trails
	Maintenance of multi-use trails
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	Build and maintain county roads as "Complete Streets," in a manner that meets engineering guidelines for bicycles
Public Utilities	Accommodate shared use of easements where desirable and feasible
County Sheriff	Enforce laws relating to bicycling
	Educate motorists and bicyclists on safe and legal operations

State of New Mexico	
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
	Collaborate with local and tribal governments to ensure that bicycle access is provided along and across state highways
	Ensure that federal and state resources in support of bicycle infrastructure are available to local agencies
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.)

Tesuque Pueblo	
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

Educational Institutions*(CSF, SFCC, 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 through NMSRTS program

Private / Business	
Chamber of Commerce, 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
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
	Educate motorists and bicyclists on safe and legal operations, including helmet distribution
Bike Shops	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

C. Recommended Short-, Medium-, and Long-Term Projects

Table 7 below presents road, trail, and crossing improvements proposed above, under Chapter IV., "Recommendations," within three phases of projects: Phase A, representing a five-year horizon, Phase B, representing 5-10 years out, and Phase C representing a 20-year horizon. These phases reflect not only project priority but the need to logically sequence improvements and in some cases to time them with other activities that are planned or anticipated. Thus some projects that ranked highest in the impact/feasibility analysis are phased back in order to allow time for parallel processes or to conserve scarce resources for a wider variety of projects.

The timing of River Trail projects, for example, is subject not only to acquisition of right-of-way but also the programming of river restoration work, park improvements, and road and bridge work. Another example is the proposed grade-separated crossing of St. Francis Dr. by the Acequia Trail, which this Plan places in Phase B as a suggestion to conserve short-term resources in order to pursue a wider variety of smaller trail connections with significant impact. After five years, the City may examine the extent to which various programmed improvements to the Acequia Bikeway listed in Phase A have contributed to increased demand for the grade-separated crossing, and the decision to commit many millions of dollars of trail funds to the latter may have become more compelling.

Table 7 also specifies lead agencies and provides a rough cost estimate for each recommended improvement. These improvements are also shown by type of improvement and phase in Map B; another version of this table is available in Appendix 12 with proposed projects sorted by the lead agency within each phase.

Table 7. Recommended Improvements by Phase and Rank, with Lead Agency and Cost

Project #	Type of Improvement	Improvement	Lead Agency	miles	Cost Estimate
Phase A: < 5 yrs., listed in order of project priority					
1	Multi-Use Path	RAIL TRAIL: St. Francis Dr. to Cordova (along Pen Rd.)	City Trails	0.2	$160,000
2	Multi-Use Path	RIVER TRAIL: Connections/Crosswalks to Campo, Candelario	City Parks / Watershed	0.01	$35,800
3	Crossing	ACEQUIA / CHILE LINE (Railyard Pk.): X-walk across Cerrillos to Gilmore St.	City Streets	0.00	$11,400
4	Multi-Use Path	RIVER TRAIL: Connection to La Madera St.	City Parks / Watershed	0.02	$54,000
5	Multi-Use Path	RIVER TRAIL: Connection to Cam. de la Conq.	City Parks / Watershed	0.01	$32,400
6	Multi-Use Path	RIVER TRAIL: Connection to Cam. De Chelly	City Parks / Streets	0.02	$56,400
7	Crossing	St. Francis-Cerrillos Intersection Improvements, Phase I	City Streets / NMDOT		
8	Crossing	Rail Trail Crossings: Mark Alta Vista, 2nd St., Siringo; Improve Paseo de Peralta markings; consider Manhattan, Alcaldesa	City Streets	0.00	$2,800
9	Crossing	Arroyo Chamiso Trail Crossings: fix gates, median refuges	City Parks - Trails		$5,000
10	Bike Lanes	Siler Road Diet (under way)	City Streets	0.4	$16,800
11	Multi-Use Path	ACEQUIA TRAIL: Bridges to Onate & Kathryn	City Trails		$132,400
12	Multi-Use Path	RAIL TRAIL: Cordova to Alta Vista (S. Capitol Station)	City Trails / NM Railrunner	0.2	$160,000
13	Multi-Use Path	ACEQUIA TRAIL: Connection to Larragoite Park (w/ X-Walk) & Agua Fria St.	City Parks / Streets	0.06	$168,700
14	Multi-Use Path	NM CENTRAL / KENNEDY LINE: SFCC to Ave. del Sur / Rancho Viejo "District Trail" (under way)	County / SFCC	0.2	DD
15	Multi-Use Path	ARROYO CHAPPARAL TRAIL: from Ragle Park to Zia Station via Candelero Park, with tie-in to ped bridge to Zia	City Trails / Parks	0.5	$600,000
16	Multi-Use Path	ARROYO HONDO: NM599 Station to Fire Place Rd.	NM Railrunner / County	0.25	$150,000
17	Multi-Use Path	LA TIERRA TRAILS: Connection from Camino de los Montoyas via NM599 Underpass	City Trails	0.4	$240,000
18	Multi-Use Path	NM CENTRAL / KENNEDY LINE: Pinon ES to Pueblos del Sol trails	City Trails / SFPS	0.2	$120,000
19	Multi-Use Path	TIERRA CONTENTA (N. Arroyo Chamisos): Buffalo Grass Rd. to S. Meadows	City Trails	0.25	$150,000
20	Bike Lanes	Galisteo: Stripe bike lanes from St. Michael's/Harkle to Hospital	City Streets	0.4	$13,125
21	Bike Lanes	Galisteo: Widen by 5 ft. from San Mateo to Hospital	City Streets	0.4	$12,500
22	Multi-Use Path	ACEQUIA TRAIL: Otowi to Maclovia Park	City Trails	0.1	$60,000
23	Multi-Use Path	ACEQUIA TRAIL: Maclovia Park to Hnos. Rodriguez Park	City Trails	0.2	$126,700
24	Multi-Use Path	ACEQUIA TRAIL: Hmnos Rodriguez Park to Harrison	City Land Use / Private Dev.	0.1	DD
25	Multi-Use Path	ARROYO CHAMISO TRAIL: Connection south to Richards Ave.	City Trails		$162,000
26	Multi-Use Path	ARROYO EN MEDIO TRAIL: completing route from Zia to Sawmill	City Trails	0.25	$125,000
27	Multi-Use Path	ARROYO MASCARAS TRAIL: From San Francisco St. to St. Francis / Alameda sidewalks, including speed table at San Francisco (Villa Alegre)	City Trails	0.1	$86,000
28	Multi-Use Path	CAÑADA RINCON TRAIL: Calle Mejia to Zocalo	City Trails / Land Use	0.2	$120,000
29	Multi-Use Path	RAIL TRAIL CONNECTION: Calle Sombra	City Land Use / Trails		$81,000
30	Multi-Use Path	RAIL TRAIL CONNECTION: Monterrey	City Trails		$54,000
31	Multi-Use Path	RAIL TRAIL CONNECTIONS: Rodeo Park E. (x2-3)	City Trails / Private Owners		$81,000
32	Bike Lanes	Road Diet: Tesuque Village Rd.	County Streets	1.2	$50,400
33	Bike Lanes	Siringo: Study and Implement Bike Lanes where feasible (Ave de las C to Botulph)	City Streets	2.5	$105,000
34	Bike Lanes	San Mateo: Study and Implement Bike Lanes where feasible (Galisteo to 2nd St.)	City Streets	1	$42,000
35	Bike Lanes	Pacheco St.: Study and Implement Bike Lanes where feasible (n. of San M to Siringo)	City Streets	1	$28,000
36	Bike Lanes	Widen Old Santa Fe Trail to El Gancho Rd.	County Streets	2	$2,000,000
37	Multi-Use Path	GAIL RYBA TRAIL: East to Botulph Side Path, w/ St. M's connection	City Trails	0.4	$240,000
38	Multi-Use Path	GAIL RYBA TRAIL: Zia to Zia Connection	City Trails	0.2	$120,000
39	Multi-Use Path	NM CENTRAL / KENNEDY LINE: Rancho Viejo "District Trail" to Eldorado	County OS & Trails	3	$1,800,000
40	Multi-Use Path	PUEBLOS DEL SOL: N-S Connector across Gov. Miles (w/related improvements)	City Parks / Recreation		$218,700
41	Sharrows	Osage: Sharrows bet. Agua Fria and San I	City Streets	0.1	$500
42	Sharrows	Paseo de Peralta: Sharrows bet. Washington and Palace	City Streets	0.3	$1,500
43	Multi-Use Path	ACEQUIA TRAIL: S Meadows Open Space to San Felipe	City Trails	0.75	$450,000
44	Soft-Surf. Trail	DALE BALL TRAILS: La Piedra Connection to Little Tesuque River (SFNF Trails) from Sierra del Norte Area	County OS & Trails	0.6	$27,000
45	Soft-surface trail easement	LA TIERRA TRAILS: Connection from Cañada Rincon Trail (s. of Tano Rd.)	City Trails / Users	0.4+	$0
46	Multi-Use Path	MRC TRAIL: From Agua Fria to River Trail (under way)	County OS & Trails	0.2	$120,000
47	Multi-Use Path	RIVER TRAIL: San Felipe to Constellation, with bridge(s) over River (under way)	County OS & Trails	0.75	$700,000
48	Soft-Surf. Trail	SARAH WILLIAMS TRAIL: Gonzales Rd. to Dale Ball Trails along Hyde Park Rd.	City Trails	0.9	$40,500
49	Crossing	St. Francis-Siringo Intersection Improvements	City Streets / NMDOT		
50	Crossing	Rail Trail Crossing: Consider Ped. Hybrid Signal at Cordova	City Streets / Trails		$200,000
51	Crossing	Rail Trail Crossing: Consider Ped. Hybrid Signal at St. M.'s	City Streets / Trails		$200,000
52	Multi-Use Path	I-25 NORTH FRONTAGE: Pueblos del Sol to Richards Ave.	City Land Use / Private Dev.	0.5	DD
53	Multi-Use Path	PUEBLOS DEL SOL TRAILS: Utility Line to Camino Carlos Rey	City Parks	0.2	$120,000
54	Multi-Use Path	MRC TRAIL: From Soccer Fields to Caja del Oro Rd.(w/NE connection to Caja del Rio Rd.)	City Parks	0.2	$120,000
55	Bike Lanes	Road Diet: OLVH east of US285	NMDOT District 5	0.5	$21,000
56	Soft-surface trail easement	ARROYO POLAI: Formalize connection from Upper Canyon Rd. to Dale Ball and D Stewart Trails	City Trails	0.2	$0
57	Soft-surface trail easement	ARROYO VERDE TRAIL: Connecting Gonzales Rd. to La Vereda/Palace Ave.	City Trails / Land Use	NA	$0
58	Bike Lanes	W. San Francisco: Contra-flow bike lane from plaza to Galisteo (sign only)	City streets	0.1	$560

Project #	Type of Improvement	Improvement	Lead Agency	miles	Cost Estimate
59	Bike Lanes	Intersection of Airport Rd./Rodeo Rd. and Cerrillos Rd. (NM14): Study and Implement Bike Lanes	NMDOT District 5 / City Streets		
60	Multi-Use Path	Park Retrofits (not covered above): ramps, etc.	City Parks / Watershed		
61	Multi-Use Path	Misc. County Trail connections: e.g. County River Trail to sidewalk along Caja del Rio & to Agua Fria Park trails	County OS & Trails		
62	Multi-Use Path	Misc. City Park Connections: ramps, etc. (e.g. River Trail @ C Colon; AC Trail @ SF Place; Railyard Park minor improvements @ Site S Fe, W21, SF Clay)	City Trails		
Phase A and ongoing					
1	Wayfinding	Wayfinding: Bike Routes along Trails and Roads (see pp 39-40)	City Program TBD		
2	Wayfinding	Wayfinding: Bike Routes along Trails and Roads (see pp 39-40)	County Program TBD (Planning?)		
3	Wayfinding	Wayfinding: State Bike Routes 9 and 66	NMDOT BPE Program		
4	Soft-surf. Trail	COUNTY RAIL TRAIL improvements, Rabbit Rd. to New Moon Overlook	County OS & Trails		programmed
5	Bike Lanes	Full-width paving (selected state highways on p 35)	NMDOT District 5		
6	Bike Lanes	Stripe bike lanes elsewhere as recommendable (e.g. W. Alameda bet. Guadalupe and Camino Alire; Wagon Rd.; Osage s. of San I)	City Streets		
7	Bike Lanes	Widen other roadways to create shoulders (see text)	City, County, NMDOT District 5		
8	Multi-Use Path	NM CENTRAL / KENNEDY LINE: Rabbit Rd. to SFCC	County OS & Trails	0.5	$550,000
9	Bike Share System	Bike Share System	Partnership TBD		
Phase B: 5-10 yrs., listed in order of project priority					
1	Multi-Use Path	RIVER TRAIL: Don Gaspar to Camino del Campo, w/underpasses	City Parks / Watershed	0.4	$620,000
2	Multi-Use Path	ACEQUIA TRAIL: Grade Separated St. Francis Crossing	City Trails		$3,000,000
3	Multi-Use Path	RIVER TRAIL: Connection to Closson St.	City Parks / Watershed		$0
4	Multi-Use Path	RIVER TRAIL: Camino del Campo to St Francis Dr. (widen existing trail)	City Parks / Watershed	0.4	$213,333
5	Multi-Use Path	RIVER TRAIL: San Ysidro Crossing to Caja del Oro (pave existing trail)	County OS & Trails	0.5	$200,000
6	Multi-Use Path	CSF ROADBED along E. Boundary Ditch, with tie-in to shopping center / DV MS	City Trails	0.5	$350,000
7	Multi-Use Path	RIVER TRAIL: Frenchy's Field to Siler Rd.	County OS & Trails	1	$600,000
8	Multi-Use Path	ARROYO CHAMISO TRAIL: from s. of Gov. Miles to Cerrillos Rd.	City Land Use / Private Dev.	DD	DD
9	Multi-Use Path	ARROYO CHAMISO TRAIL: from Gov. Miles to Las Soleras	City Trails	0.1	$60,000
10	Multi-Use Path	NM CENTRAL / KENNEDY LINE: AC Trail / GCCC to Rodeo Rd. (plus ramp to front entrance)	City Parks / Recreation	0.3	$180,000
11	Multi-Use Path	RIVER TRAIL: Siler Rd. to San Ysidro Crossing	County OS & Trails	1	$600,000
12	Bike Lanes	St. Francis-Cerrillos Intersection Improvements (Phase II)	City Streets / NMDOT		
13	Bike Lanes	Widen Camino de las Crucitas: 5 ft., Michelle to Buckman	City Streets	0.25	$125,000
14	Bike Lanes	Widen Gov. Miles Rd. from Richards to Pueblos del Sol	City Streets	0.5	$500,000
15	Multi-Use Path	ARROYO CHAPPARAL TRAIL: from Arroyo Chamiso Trail to Chapparal E.S. (to ped bridge to north)	City Trails	0.5	$400,000
16	Multi-Use Path	I-25 NORTH FRONTAGE: Richards Ave. to Las Soleras (assuming no Richards intrchng)	City Land Use / Private Dev.	DD	DD
17	Multi-Use Path	Richards Ave. West Side Sidepath through Petchesky Ranch (Old Dinosaur Trail to roundabout at Santo Nino church)	County OS & Trails	0.75	$450,000
18	Multi-Use Path	Richards Ave. Westside Sidepath, south of Beckner and under I-25	City Land Use / Private Dev.	0.4	DD
19	Multi-Use Path	CAÑADA RINCON TRAIL: Alameda to Camino de las Crucitas	City Trails	0.2	$120,000
20	Multi-Use Path	RIVER TRAIL: Caja del Oro to San Felipe	County OS & Trails	2	$1,200,000
21	Multi-Use Path	ST. FRANCIS TRAIL: If built to Zia, continue south to Albertson's	City Trails	0.1	$60,000
22	Multi-Use Path	ARROYO DE LOS PINOS TRAIL: Fifth St. @ Cam. Lado to Yucca/CSF, via LaF Lib; tie-in to CSF trail	City Trails	0.4	$290,000
23	Bike Lanes	Widen San Felipe Rd., Airport Rd. to Agua Fria St.	City Streets	0.3	$300,000
24	Multi-Use Path	RIVER TRAIL / Route, Patrick Smith Park to Hydroelectric Plant Park:	City Parks / Streets		$162,100
25	Multi-Use Path	ACEQUIA TRAIL: Atajo to Rufina (west half: pending development)	City Land Use / Parks	0.2	$120,000
26	Multi-Use Path	ACEQUIA TRAIL: Atajo to Rufina (east half: north of Las Acequias Park and west)	City Parks / Land Use	0.2	DD
27	Multi-Use Path	ARROYO DE LOS PINOS TRAIL: Through Herb Martinez Park and west to Richards Ave. Extension Trail	City Trails	1	$600,000
28	Multi-Use Path	ARROYO HONDO (south branch): Rancho Viejo Blvd. to Richards Ave. / SFCC	County / Private Dev.	2.25	DD
29	Multi-Use Path	ARROYO HONDO: NM14 to Rancho Viejo Blvd. (include fix ramp to Vista del Arroyo)	County OS & Trails	1	$600,000
30	Multi-Use Path	MRC TRAIL: From River Trail to Rugby Field and MRC entrance & soccer fields (via NM599 underpass)	City Trails	1.8	$1,130,000
31	Multi-Use Path	RIVER TRAIL: Constellation to Water Treatment Plant	County OS & Trails	1	$600,000
32	Multi-Use Path	TIERRA CONTENTA (N. Arroyo Chamiso): To Camino Entrada, via S. Meadows, School Crossing	City Trails	0.4	$240,000
33	Multi-Use Path	ARROYO CHAMISO TRAIL: Connection north to Richards Ave.	City Trails / Fire Dept.	0.25	$0
34	Multi-Use Path	RIVER TRAIL: Connection to Calle Atajo	County OS & Trails	0.2	$370,000
35	Soft-Surf. Trail	SARAH WILLIAMS TRAIL: Dale Ball Trails to Nunn's Corner (SFNF Trails) along Hyde Park Rd.	County OS & Trails	0.25	$11,250
36	Multi-Use Path	ARROYO CHAMISO TRAIL: West from Nava Ade to Gov. Miles	City Trails / Land Use	0.5	$300,000
37	Multi-Use Path	RAIL TRAIL: West Spur from Rodeo Rd. south along Galisteo Rd.	City Trails	0.5	$300,000
38	Multi-Use Path	ARROYO HONDO connection to Dinosaur Trail	County OS & Trails	1	$600,000
39	Soft-Surf. Trail	NM CENTRAL / KENNEDY LINE: Eldorado to Galisteo	County / Private Dev.	10	DD

Project #	Type of Improvement	Improvement	Lead Agency	miles	Cost Estimate
40	Multi-Use Path	NM CENTRAL / KENNEDY LINE: Rodeo Rd. to Pinon ES	City Trails	0.8	$480,000
41	Bike Lanes	Widen W. Alameda: e. of Chicoma Vista to NM599 frontage road	County Streets	0.375	$375,000
42	Bike Lanes	Widen Ave del Sur: e. and w. of Amy Biehl School (& eliminate parking)	County Streets	0.3	$150,000
43	Multi-Use Path	ARROYO HONDO: NM599 Station/Old I-25 On-Ramp to existing trail (w/NM14 underpass)	County OS & Trails	0.25	$250,000
44	Multi-Use Path	LA TIERRA TRAILS: Connection from NM599 Underpass west to NM599 frontage road	City Trails	0.25	$150,000
45	Soft-Surf. Trail	SARAH WILLIAMS TRAIL: Ft. Marcy Park to Gonzales Rd. along Hyde Park Rd.	City Trails	1	$45,000
46	Crossing	Rail Trail Crossing: Re-route trail to cross east of Rodeo with median refuge, striping	City Streets / Trails		
43	Bike Lanes	St. Michael's Road Diet, west of St. Francis Dr.	City Streets		
44	Bike Lanes	Widen W. Alameda: Calle Nopal to Siler Rd.	City Streets	1.25	$1,250,000
45	Bike Lanes	Paseo de Peralta Road Diet, where feasible	NMDOT District 5 (NM475); city streets		
46	Multi-Use Path	Las Acequias Phase 4: E-W trail route to the extent that it can be continued	City Parks	0.2	$120,000
Phase C: >10 yrs., listed in order of project priority					
1	Multi-Use Path	ACEQUIA TRAIL: Lopez Lane to Atajo	City Trails / Land Use	0.2	$120,000
2	Multi-Use Path	ARROYO CHAMISO TRAIL: Entrada Contenta to North A.C. (Tierra Contenta) Trail	City Land Use / Trails / Parks	2	DD
3	Multi-Use Path	ARROYO CHAMISO, west of Tierra Contenta to NM599	City Trails	0.5	$300,000
4	Multi-Use Path	ARROYO CHAMISO, under NM599 and west to La Cienega area	City Land Use	2	DD
5	Multi-Use Path	I-25 NORTH FRONTAGE: Rail Trail / West Spur to Camino Carlos Rey & Pueblos del Sol Trails	City Trails / Land Use	0.8	$480,000
6	Multi-Use Path	CAÑADA RINCON TRAIL: Camino de las Crucitas to Alamo	City Trails	0.4	$246,700
7	Multi-Use Path	CAÑADA RINCON TRAIL: Alamo to Calle del Viento (@ Calle Mejia)	City Trails / NMDOT	0.5	$300,000
8	Bike Lanes	Widen Hyde Park Rd. (NM475) where possible	NMDOT District 5	2	$2,000,000
9	Bike Lanes	Widen Old Santa Fe Trail from El Gancho Rd. to Two Trails Rd.	County Streets	1.75	$1,750,000
10	Multi-Use Path	ACEQUIA TRAIL: Siler Rd. to Henry Lynch Rd. & west	City Trails / Land Use	0.6	$360,000
11	Multi-Use Path	ARROYO HONDO to ARROYO CHAMISO	County / Private Dev.	1.25	DD
12	Multi-Use Path	ARROYO HONDO: NM599 Station to NM599 frontage road via I-25	County / Private Dev.	0.25	DD
13	Multi-Use Path	ARROYO HONDO: under NM599 and west	County / Private Dev.		DD
14	Multi-Use Path	CHILI LINE: Connection SW corner of La T. Trails to Pipeline Rd. Trail & Thistle Lane	County / Private Dev.	0.8	DD
15	Multi-Use Path	LA TIERRA TRAILS: Connection from NM599 frontage road to SW corner / Chili Line	City Trails	0.1	$60,000
16	Multi-Use Path	MRC TRAIL: From Airport Rd. to Acequia Trail to Agua Fria St.	County OS & Trails	0.4	$240,000
17	Multi-Use Path	NM CENTRAL / KENNEDY LINE: Rabbit Rd. north to I-25, east to Rabbit Rd.	County / Private Dev.	0.5	DD
18	Bike Lanes	Other Road Widening Opportunties: e.g. Rancho Viejo Blvd.	County Streets	1.75	$1,750,000
19	Multi-Use Path	ARROYO DE LAS GALLINAS: from NM599 frontage road in Aldea area to NM599 underpass	County / Private Dev.	0.1	DD
20	Multi-Use Path	ARROYO DE LAS GALLINAS: from NM599 underpass to a street with access to W. Alameda	City Land Use	1	DD
21	Bike Lanes	Other Road Widening Opportunties: Bishop's Lodge Rd., Rodeo e. of St. Fr.	City / County Streets		
Phase D: Long-term, Long-range alignments					
1	Multi-Use Path	WEST: To La Bajada & Cochiti via Santa Fe River / Old 66 (as alternative to I-25)	County OS & Trails	NA	
2	Multi-Use Path	NORTH: To Buckman / Otowi via Chili RR Line, Buckman Diversion, and/or Cam. La Tierra	County OS & Trails	NA	
3	Multi-Use Path	EAST: Canoncito to Glorieta via BNSF RR, Galisteo Creek, and/or Old 66 (as alternative to I-25)	County OS & Trails	NA	
4	Multi-Use Path	SOUTHWEST: To Waldo Canyon / Cerrillos via Railrunner line	County OS & Trails	NA	

Phase A: 2012-2016
$9,622,185

Phase B: 2017-2021
$17,001,683

Phase C: 2022-2031
$7,606,700

D. Funding Sources / Mechanisms

Implementation of this Bicycle Master Plan will depend on continued inclusion of provisions for bicyclists within greater public projects (e.g., "routine accommodation" within transportation projects), within private developments as required by City and County land use and development review departments, and through specific programs and projects by public agencies using dedicated public resources. Public funding and other public support is available at the federal, state, and local levels.

Federal

Types and amounts of federal transportation funding available for the implementation of this Bicycle Master Plan are subject to the outcome of the current process to re-authorize federal transportation funding under SAFETEA-LU. Bicycle and pedestrian improvements currently qualify for nearly all categories of federal transportation funding, including the Surface Transportation Program (STP) and even Interstate Maintenance (IM) funding. In practice, however, dedicated facilities such as sidewalks, multi-use trails, and bike lanes, are typically only federally funded through the use of dedicated federal resources such as those outlined below.

Transportation Enhancements (TE). Federal TE funds are distributed through NMDOT's six District offices. State or local matching funds amounting to at least 25% of total TE-eligible expenses are required. Three of the twelve qualifying activities relate specifically to bicycling:

- Provision of pedestrian and bicycle facilities
- Provision of pedestrian and bicycle safety and education activities
- Conversion of abandoned railway corridors to trails

For more information on the federal TE program, see:
http://www.fhwa.dot.gov/environment/te/index.htm

TE funding was used by NMDOT's District 5 to build sidewalks and landscaping along Old Pecos Trail (NM466) in the 1990s. Santa Fe County is currently using TE funding to improve the Santa Fe Rail Trail and to initiate work toward a New Mexico Central Rail Trail connecting Eldorado to Santa Fe. NMDOT's District 5 has forecasted very limited availability of additional TE to the Santa Fe MPO area in the foreseeable future.

Statewide bicycle education activities under Bicycle Coalition of New Mexico, including training of LCIs and other bicycle instructors in the Santa Fe area, have been supported through TE funds in the past but BCNM has recently been informed by NMDOT that this support will not continue.

Recreational Trail Program (RTP). Federal RTP funds are distributed through the New Mexico State Parks (NMSP) Division of New Mexico's Energy, Minerals, and Natural Resources Department (EMNRD). Much of the RTP funding available to New Mexico is used for trail projects within state parks. A significant percentage of available funding is designated for trails for motorized use.

RTP funding helped build a multi-use path on Pojoaque Pueblo, just north of the MPO area, in the 1990s. South of the MPO area, efforts to access RTP funding for a rail trail on the abandoned New Mexico Central Rail line between Moriarty and Estancia have not been successful.

NMSP reports that the current RTP grant cycle is suspended pending availability of funds. For more information, see www.emnrd.state.nm.us/PRD/rectrails.htm .

Safe Routes to School (SRTS). Federal SRTS funds are administered by the NMSRTS program within the NMDOT. New Mexico is eligible for roughly $1,000,000 per year statewide for engineering, education, encouragement, and enforcement activities intended to increase the number of children who walk or ride a bicycle to school. No state or local matching funds are required. The federal formula applied in New Mexico is that 75% of the available funding is to be used for engineering infrastructure and 10% for eligible education, encouragement, or enforcement activities; the remaining 15% is a "flex" category that can be used for either engineering or non-engineering activities.

The NMSRTS program provides successful applicants, including local governments, tribal governments, and/or school districts, with $20,000 in "Phase 1" funding for planning and educational activities. Once a community has created a satisfactory SRTS Action Plan, it is eligible for up to $250,000 for "Phase 2" engineering activities and up to $25,000 in additional non-engineering activities. Although most local SRTS programs focus on a single school or a small group of schools, the Las Cruces Metropolitan Planning Organization has succeeded in securing NMSRTS support for MPO-area-wide planning activities.

The NMSRTS program is not currently accepting new applications for funding. Further information is available at http://nmshtd.state.nm.us/main.asp?secid=15411 .

National Scenic Byways Program (America's Byways). The National Scenic Byways Program identifies roads with outstanding scenic, historic, and cultural, natural, recreational, and archaeological qualities as National Scenic Byways. In the Santa Fe metropolitan area, these include the Camino Real, the Santa Fe Trail, Route 66 (pre-1937 alignment), and Hyde Park Rd. (NM475).

In New Mexico, federal funding for the development of scenic byway programs and projects is administered by the New Mexico Department of Tourism. A 20 percent state or local match is required. Eligible activities include on-street and off-street bicycle facilities, intersection improvements, and guidance for bicyclists including maps. Available funding is currently minimal. For more information, see www.newmexico.org/department/tourism_development/index.php

Rivers, Trails and Conservation Assistance Program (**RTCA**). This program under the National Parks Service (NPS) provides technical assistance by NPS staff to establish and restore greenways, rivers, trails, watersheds and open space. The program does not

provide funding to grantees. See
http://www.nps.gov/ncrc/programs/rtca/contactus/cu_apply.html

Highway Safety Improvement Program (HSIP). Federal HSIP funds are administered by NMDOT under a competitive statewide process. The state program relies heavily on crash data in order to prioritize awardees. Bicycle and pedestrian activities qualify if applicants can show that an activity will bring about a significant, measurable safety improvement. For more information see
http://www.nmshtd.state.nm.us/main.asp?secid=11463

Transportation, Community and System Preservation (TCSP) funds may support transit-oriented development, traffic calming and other projects that improve the efficiency of the transportation system, reduce impact on the environment, and provide efficient access to jobs, services, and trade centers. The TCSP program provides communities with resources to explore the integration of their transportation system with community preservation and environmental activities. TCSP funds require a 20 percent match. For more information see http://www.fhwa.dot.gov/tcsp/

TIGER Grants.

Other federal funding sources. Availability of other federal funds for agencies within the Santa Fe MPO area is very limited. For example, because of our clean air, Santa Fe does not qualify for Congestion Mitigation and Air Quality (CMAQ) funding. Other sources of federal funding do not apply due to our small population base.

State

In addition to administering federal transportation programs as described above, the State of New Mexico provides various other support for pedestrian and bicycle improvements.

NMDOT District 5 , in addition to construction and reconstruction projects receiving federal support, undertakes maintenance activities through the use of state funding (general fund). Activities that may benefit cyclists in particular include pavement overlays, re-striping, sweeping, and plowing.

New Mexico Department of Health (NMDOH). Current strategic planning by NMDOH for a variety of programs, including healthier weight and chronic diseases, has emphasized advocacy for pedestrian and bicycle infrastructure, and particularly the promotion of "complete streets" approaches, as a major area of future activity. While NMDOH staff and partners are initiating public awareness activities, more significant resources have not yet been dedicated to this area.

New Mexico Mainstreet. This program within the ENRMD's Economic Development Division provides support for development of more attractive "main streets" within New Mexico communities. Pedestrian improvements are a typical activity supported by the program; bicycle facilities also qualify. For more information see

University of New Mexico, Prevention Research Center. UNM/PRC is supporting planning activities to improve the environment for physicial activity, and particularly within the transportation system, in a handful of rural communities around the state. For more information, see:

Local

Impact Fees are currently collected by the City of Santa Fe for new residential, commercial, office and industrial developments with specific fee rates for contributions toward arterial streets, signals, neighborhood parks, regional parks, fire service, police service, water, and wastewater. The City's current Impact Fee Capital Improvements Plan covers the years 2007-2012.

Capital Improvement Program (CIP) Bond. Much of recent trail construction by the City of Santa Fe has been the result of a $30 million CIP Bond for parks and trails that passed in 2008. The City is considering seeking additional bond obligations depending on economic developments.

Parks and Recreation Funds. Local parks and recreation funds derived from property and sales taxes are used for maintenance of parks and multi-use trails by the City and the County of Santa Fe.

E. Performance Indicators, with Baselines and Benchmarks

Indicators based on Facilities & Programs

X miles of AASHTO-compliant bicycle facilities on major roadways
100% of new streets in the MPO area are "complete" with respect to bicycle needs
X% of major roadways have AASHTO-compliant bicycle facilities.

X miles of AASHTO-compliant multi-use trails.
100% of new multi-use trails are built compliant with AASHTO

X% of urban population lives within one mile of a bikeway that is directly connected to the core bikeway system.

X% of urban population lives within one mile of a multi-use trail that is directly connected to the core trail system.

X% of the urban population can access shopping, school, park, playground, playing fields, recreational facilities, outdoor recreation areas, including recreational trails, by bicycle.

X% of public facilities easily accessible by bicycle from the core bikeways network

Bike Parking indicator

Growth of Bike share program

Indicators on education / awareness

2. Indicators based on behavior

Modal Split: Use of bicycles within all forms of transportation (based on household surveys)

Other survey Data: e.g. commuter behavior, BRFSS (with use of helmet)

Use of specific facilities: Bike-Ped Traffic Counts

Use of bikes on transit

Use of bike sharing program